AIP

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AMENDMENT 1

3 NOV 2022

CONSULT NOTAM FOR LATEST INFORMATION

DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

AIP Amendment 1

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GEN 0.5 List of Hand Amendments to the AIP − Not applicable

Taxiway a) *Aircraft stand taxilane* *b) Apron taxiway* *c) Rapid exit taxiway*	Ref (a), the US does not define as "portion of an apron designated as a taxiway intended to provide access to aircraft stands only." Ref (b), the US does not define as "portion of a taxiway system located on an apron, providing taxi route across an apron." Ref (c), the US defines as High Speed Taxiway.
Terminal control area	In the U.S., the term "terminal control area" has been replaced by "Class B airspace." Standard IFR services should be provided to IFR aircraft operating in Class B airspace.
Transition altitude, transition layer, and transition level	In U.S. domestic airspace, transition altitude, layer, and level are not used. U.S. flight levels begin at FL 180 where a barometric altimeter setting of 29.92 inches of mercury is used as the constant atmospheric pressure. Below FL 180, altitudes are based on barometric pressure readings.
Uncertainty Phase	The U.S. does not utilize emergency phase classifications.
Visibility	Definitions are different.
Visual Approach	In the U.S., aircrews may execute visual approaches when the pilot has either the airport or the preceding aircraft in sight and is instructed to follow it.
Will	U.S. uses "Will" means futurity, not a requirement for the application of a procedure.
CHAPTER 4	**GENERAL PROVISIONS FOR AIR TRAFFIC SERVICES**
4.2	In the U.S., flight information and alerting services are provided by ATC facilities, FSSs, and RCCs.
4.3.2.1.1	Transfer of control points vary depending on numerous factors.
4.3.2.1.3	Transfer of control varies.
4.3.2.1	Transfer of control points vary depending on numerous factors.
4.3.3.1	Transfer of control varies.
4.3.3.1a/ b	The U.S. does not "release" aircraft. Handoff is used.
4.4.1	In the U.S., flight information and alerting services are provided by ATC facilities, FSSs, and RCCs.
4.4.13	The U.S. uses a flight plan format different from the ICAO model discussed in Appendix 2. The U.S. ATS facilities will transmit ICAO repetitive flight plans (RPLs) even though a different format is used for stored flight plans.
4.4.2.1.1	The U.S. accepts flight plans up to 24 hours prior to Estimated Off –Block Time (EOBT).
4.5.6.2	U.S. ATS controllers do not normally include clearance for transonic acceleration in their ATC clearances.
4.5.7.3 and 4.10.4	In U.S. domestic airspace, transition altitude, layer, and level are not used. U.S. flight levels begin at FL180 where a barometric altimeter setting of 29.92 inches of mercury is used as the constant atmospheric pressure. Below FL 180, altitudes are based on barometric pressure readings. QNH and QFE altimeter settings are not provided in domestic U.S. airspace.
4.5.7.5	The flight crew shall read back to the air traffic controller safety-related parts of ATC clearances.
4.6.1.5	The U.S. allows speed adjustments to be assigned in 5 knot increments.
4.6.3.2	The U.S. uses different speed control phraseologies. Specifically, Doc 4444 uses "Maximum Speed" whereas the US uses "Maximum Forward Speed". Doc 4444 uses "Minimum Clean Speed" whereas the US uses "Slowest Practical Speed."
4.6.3.7	In the US, speed control is not to be assigned inside Final Approach Fix or 5 NM from runway end.
4.8.2	U.S. Controller phraseology differs slightly and does not include a time check.

4.8.3	ATS units are not required to advise a pilot who has canceled an IFR flight plan that IMC conditions are likely to be encountered along the route of flight; however, if a pilot informs a controller of a desire to change from **IFR** to VFR, the controller will request that the pilot contact the appropriate FSS.
4.9.1.1	FAA uses different wake turbulence categories and weight groups for wake turbulence separation minimums.
4.9.1.2	FAA uses different wake turbulence categories and weight groups for wake turbulence separation minimums. Not all FAA facilities are authorized to use the provisions of FAA JO 7110.126.
4.9.2	In the U.S., the word "heavy" is **used in all communications** with or about heavy jet aircraft in the terminal environment. In the en route environment, "heavy" is used in all communications with or about heavy jet aircraft with a terminal facility, when the en route center is providing approach control service, when the separation from a following aircraft may become less than five miles by approved procedure, and when issuing traffic advisories.
4.10.1.1, 4.10.1.2, 4.10.4.6	Flight levels (at or above 18,000msl, except oceanic) and in feet below 18,000 ft MSL, including around airports (vs. ICAO QFE – height above field/threshold when near airports).
4.11.2.2 4.11.3 d)	Reporting the assigned speed with each frequency change by pilots is not a requirement. Controllers are required to forward this information to the next controller.
4.11.4	The U.S. has not yet published ATS procedures for the use of Automatic Dependent Surveillance-Contract (ADS-C).
4.11.1.1	The U.S. has different criteria to make position reports. FAA Order JO 7110.65, 5−1−12. Position Reporting.
4.11.1.3	After an aircraft receives the statement "radar contact" from ATC, it discontinues reporting over compulsory reporting points.
4.12.2 and 4.12.3	The U.S. does not normally use the term "air-report." Pilot weather reports (PIREPs), position, and operational reports are used. PIREPs include reports of strong frontal activity, squall lines, thunderstorms, light to severe icing, wind shear and turbulence (including clear air turbulence) of moderate or greater intensity, volcanic eruptions and volcanic ash clouds, and other conditions pertinent to flight safety. They may include information on ceilings, visibility, thunderstorms, icing of light degree or greater, wind shear and its effect on airspeed, or volcanic ash clouds, but do not usually include air temperature.
4.13.4	The difference is the length of time for retention.
CHAPTER 5	**SEPARATION METHODS AND MINIMA**
5.2.1	In U.S. airspace, only conflict resolution (not separation) is provided between IFR and VFR operations. Separation is provided between IFR and Special VFR (SVFR) aircraft only within the lateral boundaries of Class B, C, D, or E control zones (the U.S. term is surface areas) below 10,000 feet MSL.
5.2.1.1	In U.S. Class A and B airspace, separation is provided for all aircraft. In U.S. Class C airspace, separation is provided between IFR and SVFR aircraft; conflict resolution is provided between IFR and VFR operations.
5.3.1 and 5.3.4	U.S. rules allow assignment of altitude to second aircraft after first aircraft has been issued climb/descent and is observed or reports leaving that altitude. 7110.65, paragraph 6-6-1, APPLICATION, 6-6-2, EXCEPTIONS.
5.4.1.2.1.2	U.S. Lateral separation criteria and minima values differ somewhat.
5.4.2.2.1.1 c/ d	The U.S. uses 22 kt instead of 20 kt and 44 kt instead of 40 kt.
5.4.2.4.1	FAA uses Mach number technique for application of longitudinal separation with turbojet aircraft only.
5.4.2.5.1	FAA uses Mach number technique for application of longitudinal separation with turbojet aircraft only.

5.4.2.7.3.2 d)2).	The FAA's Advanced Technologies and Oceanic Procedures (ATOP) automation platform is designed to ensure that separation will not decrease below required minima for same track aircraft should either the reference or maneuvering aircraft turn during the ITP. This allows the controller to issue a clearance to perform an ADS−B ITP climb/descent maneuver if required separation is maintained or increased and either the reference or maneuvering aircraft has a turn in its flight plan.
5.5.2	Whenever the other aircraft concerned are within 5 minutes flying time of the holding area.
5.6	U.S. Allows 2 minute separation standard when courses diverge within 5 minutes after departure.
5.7	U.S. Requires departing aircraft to be established on a course diverging by at least 45 degrees from the reciprocal of the final approach course.
5.8.2.1	FAA uses different wake turbulence categories and differing minima. FAA requires 3 minutes separation for a Large or Heavy aircraft landing behind a Super aircraft.
5.8.3.1	FAA uses different wake turbulence categories and differing minima. For Heavy, Large, or Small aircraft departing behind a Super aircraft, taking off from the same runway or a parallel runway separated by less than 2,500 feet, FAA requires that takeoff clearance may not be issued to following aircraft until 3 minutes after the preceding aircraft begins takeoff roll.
5.8.3.2	FAA Consolidated Wake Turbulence (CWT) is based on nine weight groups. FAA time-based wake turbulence separation minima differs from ICAO standards.
5.8.3.4	FAA Consolidated Wake Turbulence (CWT) is based on nine weight groups. FAA time-based wake turbulence separation minima differs from ICAO standards.
5.8.4.1	The U.S. includes B757 in heavy category for wake turbulence purposes. DOC 4444 does not stipulate. For Heavy, Large, or Small aircraft taking off behind a departing Super aircraft on an intersecting runway or nonintersecting runway if flight paths will cross; FAA requires 3 minutes wake turbulence separation.
5.8.4.2	FAA Consolidated Wake Turbulence (CWT) is based on nine weight groups. FAA time-based wake turbulence separation minima differs from ICAO standards.
5.8.4.3	FAA Consolidated Wake Turbulence (CWT) is based on nine weight groups. FAA time-based wake turbulence separation minima differs from ICAO standards.
5.8.5.2	FAA Consolidated Wake Turbulence (CWT) is based on nine weight groups. FAA time-based wake turbulence separation minima differs from ICAO standards.
CHAPTER 6	***SEPARATION IN THE VICINITY OF AERODROMES***
6.3.2.4	U.S. aircraft on a SID assigned higher altitudes than specified in SID, may climb to higher assigned altitude.

6.3.2.5	In the U.S., if the communications failure occurs in IFR conditions, or if VFR cannot be complied with, each pilot shall continue the flight according to the following requirements: Route a) By the route assigned in the last ATC clearance received; b) If being radar vectored, by the direct route from the point of failure to the fix, route, or airway specified in the vector clearance; c) In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance; or d) In the absence of an assigned route or a route that ATC has advised may be expected in a further clearance, by the route filed in the flight plan. Altitude - At the highest of the following altitudes or flight levels for the route segment being flown: a) The altitude or flight level assigned in the last ATC clearance received; b) The minimum altitude as prescribed in 14 CFR Part 91 (Section 91.121(c)) for IFR operations; or c) The altitude or flight level ATC has advised may be expected in a further clearance.
6.3.3.3	Arriving aircraft – delay of 10 minutes or more.
6.5.2.4	Aircraft on STAR descended to altitudes lower than specified in a STAR, may descend to assigned altitude.
6.5.3.1	The 7110.65 does not stipulate flight crew concurrence of Controller initiated Visual Approach.
6.5.3.5	U.S. requires ATC to inform following aircraft behind Heavy/B757 aircraft of manufacturer and model information.
6.5.5.2	Onward clearance time. 7110.65 PG EXPECT FURTHER CLEARANCE (TIME)- The time a pilot can expect to receive clearance beyond a clearance limit.
6.7.3.1.2	U.S. has no criteria for separate radar controllers in conducting Parallel approaches.
6.7.3.2.1 (c)	The U.S. has adopted procedures allowing RNAV equipped aircraft to conduct Independent Parallel Approaches.
6.7.3.2.10	U.S. has no parallel approach obstacle assessment surfaces (PAOAS) Criteria.
6.7.3.2.10	The U.S. has no criteria for a "45 degree track".
6.7.3.2.11 (a)	The U.S. has no criteria for both controllers to be advised when visual separation is applied.
6.7.3.4.1 (d)	The U.S. has adopted procedures allowing RNAV equipped aircraft to conduct Dependent Parallel approaches.
6.7.3.4.1 (f)	The U.S. requires that adjacent missed approach procedures do not conflict.
6.7.3.6.3 (b)	The U.S. has no surveillance radar approach (SRA).
6.7.3.6.3 (c)	In the U.S., aircrews may execute visual approaches when the pilot has either the airport or the preceding aircraft in sight and is instructed to follow it. A contact approach is one wherein an aircraft on an IFR flight plan, having an air traffic control authorization, operating clear of clouds with at least 1 mile flight visibility and a reasonable expectation of continuing to the destination airport by visual reference in those conditions, may deviate from the instrument approach procedure and proceed to the destination airport by visual reference to the surface. This approach will only be authorized when requested by the pilot and the reported ground visibility at the destination airport is at least 1 statute mile.
CHAPTER 7	**PROCEDURES FOR AERODROME CONTROL SERVICE**
7.4.1.1	U.S. has no start up procedures, taxi clearance.
7.4.1.2.1 (f)	U.S. does not require time check prior to taxi.
7.6.3.2.3.2	In the U.S., for movements of other than aircraft traffic (i.e., vehicles, equipment, and personnel), steady green means cleared to cross, proceed, go; flashing green is not applicable; flashing white means return to starting point on airport; and alternating red and green means a general warning signal to exercise extreme caution.

7.6.3.2.3.3	U.S. controllers do not flash runway or taxiway lights to instruct aircraft to “vacate the runway and observe the tower for light signal.”
7.10.2	In the U.S., landing clearance to a succeeding aircraft in a landing sequence need not be withheld if the controller observes the positions of the aircraft and determines that prescribed runway separation will exist when the aircraft crosses the landing threshold. Controllers issue traffic information to the succeeding aircraft if it has not previously been reported.
7.11.4 and 7.11.6	U.S. category 1, 2, & 3 (SRS) aircraft weights differ. Separation standards are greater, due to increased size and weight categories.
7.13.1.1.2	U.S. does not specify separation standards on taxiways.
7.15	Special VFR operations may be conducted in the U.S. under the following weather minimums and requirements below 10,000 feet MSL within the airspace contained by the upward extension of the lateral boundaries of the controlled airspace designated to the surface for an airport. These minimums and requirements are found in 14 CFR Section 91.157. Special VFR operations may only be conducted: (1) With an ATC clearance; (2) Clear of clouds; (3) Except for helicopters, when flight visibility is at least 1 statute mile; and (4) Except for helicopters, between sunrise and sunset (or in Alaska, when the sun is 6 degrees or more below the horizon) unless: (i) The person being granted the ATC clearance meets the applicable requirements for instrument flight; and (ii) The aircraft is equipped as required in 14 CFR Sec. 91.205(d).
7.15	No person may take off or land an aircraft (other than a helicopter) under special VFR: (1) Unless ground visibility is at least 1 statute mile; or (2) If ground visibility is not reported, unless flight visibility is at least 1 statute mile.
CHAPTER 8	**ATS SURVEILLANCE SERVICES**
8.5.5.1	U.S. validation of mode C readouts allow up to 300 feet variance from pilot reported altitudes.
8.6.5.2	The U.S. has not implemented cold temperature corrections to the radar minimum vectoring altitude.
8.7.3.2 (b)	The U.S. only allows visual observance of runway turn-off points.
8.7.3.4	Separate a Heavy aircraft operating directly behind a Super aircraft or following a Super aircraft conducting an instrument approach by 6 miles unless the Super aircraft is operating above FL 240 and above 250 knots. Consider parallel runways less than 2,500 feet apart as a single runway because of the possible effects of wake
8.7.3.5	FAA Consolidated Wake Turbulence (CWT) is based on nine weight groups. FAA distance-based wake turbulence separation minima differs from ICAO standards.
8.7.3.6	Separate a Heavy aircraft operating directly behind a Super aircraft or following a Super aircraft conducting an instrument approach by 6 miles unless the Super aircraft is operating above FL 240 and above 250 knots. Consider parallel runways less than 2,500 feet apart as a single runway because of the possible effects of wake.

8.8.3.2	In the U.S., if the communications failure occurs in IFR conditions, or if VFR cannot be complied with, each pilot shall continue the flight according to the following requirements: Route a) By the route assigned in the last ATC clearance received; b) If being radar vectored, by the direct route from the point of failure to the fix, route, or airway specified in the vector clearance; c) In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance; or d) In the absence of an assigned route or a route that ATC has advised may be expected in a further clearance, by the route filed in the flight plan. Altitude − At the highest of the following altitudes or flight levels for the route segment being flown: a) The altitude or flight level assigned in the last ATC clearance received; b) The minimum altitude as prescribed in 14 CFR Part 91 (Section 91.121(c)) for IFR operations; or c) The altitude or flight level ATC has advised may be expected in a further clearance.
8.8.4.2	The U.S. does not specify that applicable separation can be utilized during emergency situations.
8.9.3.6	U.S. specifies maximum intercept angle of 30 degrees for fixed wing aircraft vectored to final approach course.
CHAPTER 9	**FLIGHT INFORMATION SERVICE AND ALERTING SERVICE**
9.1.3.7	The U.S. does not have special procedures for the transmission of information to supersonic aircraft.
9.1.4.1.1	Class F airspace is not used in the U.S. Traffic advisories are provided in Class C airspace and, workload permitting, in Class D, Class E, and Class G airspace.
9.2.1.2	The U.S. does not use "operations normal" or "QRU" messages. U.S. controllers are not normally familiar with the term "uncertainty phase."
CHAPTER 10	**COORDINATION**
10.1.3.1	Except for a VFR aircraft practicing an instrument approach, an IFR approach clearance in the U.S. automatically authorizes the aircraft to execute the missed approach procedure depicted for the instrument approach being flown. No additional coordination is normally needed between the approach and en route controllers. Once an aircraft commences a missed approach, it may be radar vectored.
10.1.4.2.2	U.S. does not require ETA to be forwarded at least 15 minutes prior to ETA.
CHAPTER 11	**AIR TRAFFIC SERVICES MESSAGES**
11.1.2	U.S. uses different emergency messages. 7110.10, Chapter 8. Search and Rescue (SAR) Procedures for VFR Aircraft.
11.4.2.3.6	The existing U.S. ATS automation system does not process logical acknowledgment messages (LAMs).
CHAPTER 12	**PHRASEOLOGIES**
12.2.7	US ATC does not allow conditional clearances described for example: "SAS 941, BEHIND DC9 ON SHORT FINAL, LINE UP BEHIND." *Note − This implies the need for the aircraft receiving the conditional clearance to identify the aircraft or vehicle causing the conditional clearance.*

12.3.1.2 m) General to require action when convenient m) WHEN READY *(instruction)*;	U.S. does not use this phraseology. 7110.65 4-5-7. ALTITUDE INFORMATION PHRASEOLOGY CLIMB/ DESCEND AT PILOT'S DISCRETION 1. The pilot is expected to commence descent upon receipt of the clearance and to descend at the suggested rates specified in the AIM, 4-4-9, Adherence to Clearance, until reaching FL 280. At that point, the pilot is authorized to continue descent to FL 240 within the context of the term "at pilot's discretion" as described in the AIM. f. When the "pilot's discretion" portion of a climb/descent clearance is being canceled by assigning a new altitude, inform the pilot that the new altitude is an "amended altitude." EXAMPLE- "American Eighty Three, amend altitude, descend and maintain Flight Level two six zero."
12.3.1.2 (n) MAINTAIN OWN SEPARATION AND VMC [FROM *(level)*] [TO *(level)*]; and (o) MAINTAIN OWN SEPARATION AND VMC ABOVE (*or* BELOW, *or* TO) *(level)*;	U.S. does not use "maintain own separation and VMC 'from,' 'above,' or 'below' . . . ," U.S. controllers say "maintain visual separation 'from' that traffic." Meteorological conditions are expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima.
12.3.1.2 aa) Clearance to cancel level restriction(s) of the vertical profile of a SID during climb." **(z)** CLIMB TO *(level)* [LEVEL RESTRICTION(S) *(SID designator)* CANCELLED *(or)* LEVEL RESTRICTION(S) *(SID designator)* AT *(point)* CANCELLED];	The U.S. does not have specific phraseology examples that cover this issue. However, phraseology contained in the 7110.65 covers how to change altitudes and altitude restriction in a SID.

12.3.1.2 ff) Clearance to cancel level restriction(s) of the vertical profile of a STAR during descent. **gg)** DESCEND TO *(level)* [LEVEL RESTRICTION(S) *(STAR designator)* CANCELLED *(or)* LEVEL RESTRICTION(S) *(STAR designator)* AT *(point)* CANCELLED].	The U.S. does not have specific phraseology examples that cover this issue. However, phraseology contained in the 7110.65 covers how to amend or cancel altitude restrictions.
12.3.1.2 a) 2) TO AND MAINTAIN BLOCK *(level)* TO *(level);*	U.S. uses "MAINTAIN BLOCK (altitude) THROUGH (altitude)." 7110.65, Para 4-5-7. g. ALTITUDE INFORMATION
12.3.1.6 CHANGE OF CALL SIGN	U.S. has no phraseology or approved procedure to advise aircraft to change call signs. The U.S. has procedures for a duplicate aircraft identification watch and notification to airline operators but does not publish national procedures for on-the-spot temporary changes to aircraft call signs in accordance with ICAO guidelines.
12.3.1.7 TRAFFIC INFORMATION	The U.S. requires issuance of azimuth, distance, direction, type, and altitude.
12.3.1.8 b) METEOROLOGICAL CONDITIONS	In the U.S., the criterion for a variable wind is: wind speed greater than 6 kt and direction varies by 60 degrees or more. If the wind is >1 kt but <6 kt, the wind direction may be replaced by "VRB" followed by the speed or reported as observed. "VRB" would be spoken as "wind variable at <speed>."
12.3.1.8 d), e), and f) METEOROLOGICAL CONDITIONS	U.S. controllers do not give wind speed, visibility, or RVR values in metric terms. RVR values are given in 100- or 200-foot increments while RW values are given in Venule increments.
12.3.1.8 j)	U.S. controllers do not use the term "CAVOK." However, the ceiling/sky condition, visibility, and obstructions to vision may be omitted if the ceiling is above 5,000 feet and the visibility is more than 5 miles.
12.3.1.8 l) and m)	In the US, controllers and pilots exchange altimeter setting by reference to inches Hg. ICAO describes altimeter setting by reference to millibars, QNH or QFE. (where QNH – above mean sea level and QFE – height above aerodrome)
12.3.1.11 g)	U.S. use BRAKING ACTION terms "good," "fair," "poor," "nil," or combination of these terms. "Braking action fair to poor, reported by a heavy D-C Ten.". 7110.65, Para 3-3-4.

12.3.2.2 INDICATION OF ROUTE AND CLEARANCE LIMIT	U.S. will issue a clearance “direct” to a point on the previously issued route. PHRASEOLOGY CLEARED DIRECT (fix). NOTE Clearances authorizing “direct” to a point on a previously issued route do not require the phrase “rest of route unchanged.” However, it must be understood where the previously cleared route is resumed. When necessary, “rest of route unchanged” may be used to clarify routing. 7110.65, paragraph 4−4−1. ROUTE USE & 4−2−5. ROUTE OR ALTITUDE AMENDMENTS 3.
12.3.2.4 Specification of Cruise Levels, (c) Cruise climb between. *(levels)* or above *(level)*	The U.S. does not have equivalent cruise climb between levels/altitudes. However, in ICAO regions for supersonic flight 8- 8-3a(1), U.S. has adopted ICAO phraseology.
12.3.2.5	U.S. has no phraseology or instruction for emergency descent:
12.3.2.8, Separation Instructions (b) ADVISE IF ABLE TO CROSS (significant point) AT (time or level)	U.S. has no phraseology for “ADVISE IF ABLE.” U.S. does have phraseology “Advise if unable...”
12.3.4.7, Taxi procedures, after landing (n), (o), & (p)	U.S. has no phraseology using “BACKTRACT.” U.S. does use BACK-TAXI (7110.65) − A term used by air traffic controllers to taxi an aircraft on the runway opposite to the traffic flow. The aircraft may be instructed to back-taxi to the beginning of the runway or at some point before reaching the runway end for the purpose of departure or to exit the runway.
12.3.4.11 TAKE-OFF CLEARANCE when take-off clearance has not been complied with c) Vacate 12.3.4.20 RUNWAY VACATING AND COMMUNICATIONS AFTER LANDING b)	U.S. uses **CLEAR OF THE RUNWAY** **a.** Taxiing aircraft, which is approaching a runway, is clear of the runway when all parts of the U.S. uses aircraft are held short of the applicable runway holding position marking. **b.** A pilot or controller may consider an aircraft, which is exiting or crossing a runway, to be clear of the runway when all parts of the aircraft are beyond the runway edge and there are no restrictions to its continued movement beyond the applicable runway holding position marking. **c.** Pilots and controllers shall exercise good judgment to ensure that adequate separation exists between all aircraft on runways and taxiways at airports with inadequate runway edge lines or holding position markings.

12.3.4.11 (e) HOLD POSITION, CANCEL TAKE–OFF I SAY AGAIN CANCEL TAKE–OFF *(reasons)*;	U.S. uses different phraseology to cancel a take off. 3-9-10. CANCELLATION OF TAKEOFF CLEARANCE PHRASEOLOGY If circumstances require, cancel a previously issued take-off clearance and, when appropriate, inform the aircraft of the reason. ***PHRASEOLOGY*** *CANCEL TAKEOFF CLEARANCE (reason)*
12.3.5.7 a) EXPEDITE CLEARANCE *(aircraft call sign)* EXPECTED DEPARTURE FROM *(place)* AT *(time)*; b) EXPEDITE CLEARANCE *(aircraft call sign)* [ESTIMATED] OVER *(place)* AT *(time)* REQUESTS *(level or route, etc.)*.	U.S. has no phraseology to expedite clearance.
12.3.5.6 HANDOVER	U.S. does not use radar handover. 7110.65, Para 5-4-3. METHODS PHRASEOLOGY HANDOFF/ POINT OUT/TRAFFIC (aircraft position) (aircraft ID),or (discrete beacon code point out only) (altitude, restrictions, and other appropriate information, if applicable). c. When receiving a handoff, point out, or traffic restrictions, respond to the transferring controller as follows: PHRASEOLOGY- (Aircraft ID) (restrictions, if applicable) RADAR CONTACT, or (aircraft ID or discrete beacon code) (restrictions, if applicable) POINT OUT APPROVED, or TRAFFIC OBSERVED,
12.4.1.1 IDENTIFICATION OF AIRCRAFT f)	U.S. controllers do not say “will shortly lose identification” or “identification lost.” 7110.65, Para 5-3-7 5-3-7. IDENTIFICATION STATUS a. Inform an aircraft of radar contact when: 1. Initial radar identification in the ATC system is established. 2. Subsequent to loss of radar contact or terminating radar service, radar identification is re-established. *PHRASEOLOGY* *RADAR CONTACT (position if required).* b. Inform an aircraft when radar contact is lost. *PHRASEOLOGY* *RADAR CONTACT LOST (alternative instructions when required).*

12.4.2.1 VECTORING FOR APPROACH (b)	U.S. would use "airport or runway" rather than "field." 7-4-2. VECTORS FOR VISUAL APPROACH PHRASEOLOGY- (ACID) FLY HEADING OR TURN RIGHT/LEFT HEADING (degrees) VECTOR FOR VISUAL APPROACH TO (airport name). 7110.65, Para 5-11-2, VISUAL REFERENCE REPORT: Aircraft may be requested to report the runway, approach/runway lights, or airport in sight. Helicopters making a "point-in-space" approach may be requested to report when able to proceed to the landing area by visual reference to a prescribed surface route. *PHRASEOLOGY* *REPORT* *(runway, approach/runway lights or airport)* *IN SIGHT.* *REPORT WHEN ABLE TO PROCEED VISUALLY TO AIRPORT/HELIPORT.*
12.4.2.4.2 a) COMMENCE DESCENT NOW [TO MAINTAIN A (*number*) DEGREE GLIDE PATH]	The U.S uses only "begin descent" and does not speak to "Maintain a (number) Degree Glide Path."
12.4.2.5.1 PAR APPROACH	U.S. controllers say "this will be a P-A-R/surveillance approach to runway (number) or airport/ runway (number) or airport/heliport." U.S. controllers do not say "approach completed." U.S. controllers say "your missed approach procedure is (missed approach procedure)" and, if needed, "execute missed approach." For PAR approaches, U.S. controllers say "begin descent" and for surveillance approaches, U.S. controllers say "descend to your minimum descent altitude." 7110.65, Para 5-12-8. APPROACH GUIDANCE TERMINATION lights in sight and requested to or advised that he/she will proceed visually, and has been instructed to proceed visually, all PAR approach procedures shall be discontinued. d. Continue to monitor final approach and frequency. Pilots shall remain on final controller's frequency until touchdown or otherwise instructed. 5-12-9. COMMUNICATION TRANSFER PHRASEOLOGY CONTACT (terminal control function) (frequency, if required) AFTER LANDING
12.4.2.4.4 CHECKS; (a)	U.S. uses "CHECK WHEELS DOWN". 7110.65, Par 2-1-24. WHEELS DOWN CHECK PHRASEOLOGY
12.4.2.5.8 MISSED APPROACH a)	US ATC does not allow conditional clearances described.
12.4.3.12 and 12.4.3.13	U.S., for aircraft above FL 180, U.S. controllers would say, "confirm using two niner niner two as your altimeter setting, verify altitude" or "stop altitude squawk" "stop altitude squawk; altitude differs by (number) feet." U.S. controllers would not say "stop squawk Charlie." 7110.6, Para 5-2-22. BEACON TERMINATION Inform an aircraft when you want it to turn off its transponder.
12.3.4.13 - ENTERING AN AERODROME TRAFFIC CIRCUIT b)	U.S. uses PHRASEOLOGY: ENTER LEFT/RIGHT BASE. STRAIGHT-IN. MAKE STRAIGHT-IN. STRAIGHT-IN APPROVED. RIGHT TRAFFIC. MAKE RIGHT TRAFFIC. RIGHT TRAFFIC APPROVED. CONTINUE. b. Runway in use. c. Surface wind. d. Altimeter setting. REFERENCE FAA Order 7110.65, Current Settings, Para 2-7-1. e. Any supplementary information. f. Clearance to land. g. Requests for additional position reports. Use prominent geographical fixes which can be easily recognized from the air, preferably those depicted on sectional charts. This does not preclude the use of the legs of the traffic pattern as reporting points.
12.4.3.14	U.S. controllers would say "verify at (altitude)" and/or "verify assigned altitude." 7110.65 Para, 5-2-17. 1. Issue the correct altimeter setting and confirm the pilot has accurately reported the altitude. PHRASEOLOGY- (Location) ALTIMETER (appropriate altimeter), VERIFY ALTITUDE.
12.6.1 Alerting phraseologies	U.S. controllers would issue MEA/MVA/MOCA/MIA instead of QNH. 7110.65.

CHAPTER 15	**PROCEDURES RELATED TO EMERGENICES, COMMUNICATION FAILURE AND CONTINGENCIES**
15.1.3 Unlawful interference and aircraft bomb threat	U.S. has difference updated. 5−2−13, Code Monitor Note 1. & 2. "10−2−6 HIJACKED AIRCRAFT 10−2−6. HIJACKED AIRCRAFT Hijack attempts or actual events are a matter of national security and require special handling. Policy and procedures for hijack situations are detailed in FAA Order JO 7610.4, Special Operations. FAA Order JO 7610.4 describes reporting requirements, air crew procedures, air traffic procedures and escort or interceptor procedures for hijack situations. REFERENCE: FAA Order JO 7610.4, Hijacked/Suspicious Aircraft Reporting and Procedures, Chapter 7. FAA Order 7110.65, Code Monitor, paragraph 5−2−13.
15.3.3 b) 1, 2	7110.65 defers to the AIM for what to expect an aircraft to do when loss of two-way communication has been encountered. The expectations in the AIM differ from what a pilot is expected to do in accordance with PANS-ATM 15.3.3 b) 1 and 2. The U.S. does not specify a time that an aircraft would maintain its last assigned heading, speed, or altitude. PANS-ATM uses 20 min. in a non-radar environment and 7 min. in a radar environment.
15.3.10	When neither communications nor radar contact can be established for 30 minutes (or prior, if appropriate), U.S. controllers will consider an aircraft overdue and will initiate overdue aircraft procedures including reporting to the ARTCC or FSS.
15.4.1	U.S. does not use the terms "strayed" or "unidentified" aircraft. 7110.65, paragraph 10-3-1. OVERDUE AIRCRAFT
15.5.3.2	Separate known aircraft from the aircraft dumping fuel as follows: a. IFR aircraft by one of the following: 1. *1,000 feet* above it; or in accordance with paragraph 4−5−1, Vertical Separation Minima, whichever is greater. 2. 2,000 feet below it. 3. 5 miles radar. 4. 5 miles laterally. b. VFR radar-identified aircraft by *5 miles* and in accordance with paragraph 5−6−1, Application.
15.7.1.1	The PANS-ATM states: "If, during an emergency situation, it is not possible to ensure that the applicable horizontal separation can be maintained, emergency separation of half the applicable vertical separation minimum may be used" Pilots must be advised that emergency separation is being applied and traffic information must be given. There is no equivalent emergency separation procedure in the U.S.
APPENDIX 1	**INSTRUCTIONS FOR AIR-REPORTING BY VOICE COMMUNICATIONS**
AIREP Form of Air-report	U.S. uses Pilot Reports (UAs), or Urgent Pilot Reports (UUAs).
APPENDIX 2	**FLIGHT PLAN**
A2-5 Wake	ICAO aircraft wake turbulence categories (heavy, medium, light) and FAA weight classes (heavy, large, small) differ. Also, for landing aircraft, wake turbulence separation is defined differently. The U.S. makes special provisions for any aircraft landing behind a B-757 (4 miles for a large aircraft behind or 5 miles for a small aircraft behind).
A2-8 (Item 15)	U.S. ATS units do not accept cruising speeds nor filed altitudes/flight levels in metric terms. The U.S. accepts filed Mach Number expressed as M followed by 3 figures.
2.2 (Item 18)	The U.S. accepts the non-standard indicator IRMK/in filed flight plans.

APPENDIX 3	**AIR TRAFFIC SERVICES MESSAGES**
1.1.1	See Part XI, ATS Messages, 1.3. 1.3 Composition of the standard types of message. The composition of each standard type of message, expressed as a standardized sequence of fields of data, shall be as prescribed in the reference table on page A3−33. Each message shall contain all the fields prescribed.
1.6.2	See Part XII, Phraseologies, 2.8.
1.8.1 (Field Type 3), (Field Type 15), and (Field Type 18).	See Appendix 2, Flight Plan, 2.2 (Item 15) and 2.2 (Item 18).
2.1, 2.4.5, 2.5	See Part XI, ATS Messages 1.3.
APPENDIX 4	**AIR TRAFFIC INCIDENT REPORT**
Appendix 4	U.S. has their accident/incident report in FAA Order JO 8020.16C.
APPENDIX 6	**ATS INTERFACILITY DATA COMMUNICATIONS (AIDC) MESSAGES**
1. INTRODUCTION 1.1 General	7110.65; 8-2-3. AIR TRAFFIC SERVICES INTERFACILITY DATA COMMUNICATIONS (AIDC) Where interfacility data communications capability has been implemented, its use for ATC coordination should be accomplished in accordance with regional Interface Control Documents, and supported by letters of agreement between the facilities concerned.

ANNEX 3 − METEOROLOGICAL SERVICE FOR INTERNATIONAL AIR NAVIGATION	
PART I (Core SARPs)	
Chapter 2	**General Provisions**
2.2	The U.S. has implemented a quality management system (QMS) for the majority of the meteorological information supplied to users. WAFC Washington and MWO Kansas City (a.k.a. Aviation Weather Center) are ISO 9000. MWOs Anchorage and Honolulu and all 122 Weather Forecast Offices have a QMS that is governed under the following National Weather Service (NWS) directives: NWS Instruction 10−1601 (Verification), NWS Instruction 10−1602 (Service Evaluation), NWS Instruction 10−1606 (Service Assessment), NWS Instruction 10−1607 (Office Evaluation), and NWS Instruction 10−815 (Aviation Meteorologist Training and Competencies). No QMS is in place for the augmentation of the surface observing program.
Chapter 3	**World Area Forecast System and Meteorological Offices**
3.4.2 g)	U.S. MWOs do not supply information received concerning the accidental release of radioactive material into the atmosphere to associated ACC/FIC.
3.8.1 a) 2)	Space weather advisories are not issued for communication via satellite (SATCOM).
Chapter 4	**Meteorological Observations and Reports**
4.3.2 a)	The U.S. does not issue local routine reports or local special reports. This difference is applicable to subsequent paragraphs that relate to the provision of local routine and special reports in Annex 3. The U.S. provides METAR to departing and arriving aircraft and provides wind and altimeter information in accordance with Federal Aviation Administration (FAA) Order JO 7110.65Y Section 9 (3−9−1) and Section 10 (3−10−1).
4.5.1 d)	This field is also used to denote a correction to the METAR/SPECI by “COR.”
4.6.2.1	The U.S. reports visibility in statute miles.
4.6.3.3	RVR values in the METAR/SPECI code forms are reported in feet.
4.6.4.1	The U.S. automated surface observing systems (ASOS, AWOS) do not generate an automated report for the occurrence of drizzle or freezing drizzle. The ASOS does allow the manual augmentation of these elements to the observations.
4.6.7	The U.S. provides atmospheric pressure in inches of mercury. METAR and SPECI contains an Altimeter Setting (A) instead of QNH, for example, A3010 for 30.10 inches of mercury. The U.S. does not provide QFE.
Chapter 5	**Aircraft observations and reports**
5.5	Urgent Pilot Reports (UUA) are used in lieu of Special Aircraft Observations, to include Hail, Low Level Wind Shear (within 2,000 ft of surface), severe icing, severe and extreme turbulence, tornado, funnel cloud or waterspout, and volcanic eruption and/or volcanic ash. In addition, Pilot Reports (UA) and UAA identify the location of the weather phenomenon by NAVAIDS. Pilot Reports are used in lieu of Special Aircraft Observations, to include moderate turbulence and moderate icing. Braking action may be included in the remarks section of the UUA/UA, but is reported to air traffic control when worse than reported.
Chapter 6	**Forecasts**
6.3.1	Landing forecasts are provided by the TAF.
6.3.3	The U.S. does not provide trend forecasts.
6.5	The U.S. provides an Area Forecast (FA) and Graphical Forecast for Aviation (GFA) in place of a GAMET. The FA is provided by MWOs Anchorage and Honolulu while the GFA is provided by WFO Kansas City. The format and content of the FA and GFA differs from the GAMET. The FA and GFA are valid from the surface up to FL450. The GFA is a web−based interactive information service.
Chapter 7	**SIGMET and AIRMET Information, Aerodrome Warnings and Wind Shear Warnings**
7.2.3	AIRMETs over the conterminous U.S. (CONUS) and Hawaii are valid for 6 hours and are issued every 6 hours on a scheduled basis. AIRMETs over Alaska are valid for 8 hours and are issued every 8 hours on a scheduled basis. The vertical domain of AIRMETs is from the surface up to FL450. The U.S. also provides a graphical version of the AIRMET (G−AIRMET) that contains 3−hourly time steps valid from 0−hour to 12−hours.

7.4.1	The U.S. does not provide wind shear warnings. The U.S. believes wind shear alerts are timelier to flight crews in landing and takeoff than wind shear warnings and thus provide a greater level of safety. In addition, the information is duplicative in nature in that wind shear warnings could be delayed while wind shear alerts are provided via automated systems that allow for immediate data link to flight crews through ATS systems.
Chapter 9	**Service for operators and flight crew members**
9.2.3 & 9.2.4	U.S. meteorological offices have no means to communicate directly to flight crews if there is a divergence in the forecast from what is provided in the flight document folder.
9.3.3	U.S. meteorological offices have no means to provide updates to flight document folders or to contact the operator.
PART II	**APPENDICES and ATTACHMENTS**
APPENDIX 2	**Technical specifications related to global systems, supporting centers and meteorological offices**
Table A2−2	U.S. TCACs do not provide observed CB clouds in the tropical cyclone advisory message.
5.1.4	U.S. TCACs do not provide observed CB clouds in the tropical cyclone advisory (TCA) message. The U.S. does not provide a graphical version of the TCA.
6.1.3	Space weather advisories are not issued for communication via satellite (SATCOM).
APPENDIX 3	**Technical specifications related to meteorological observations and reports**
2.1.2	U.S. METARs and SPECIs are not issued in accordance with Table A3−2 due to national practices, which are described in FAA Order JO 7900.5 and Federal Meteorological Handbook No. 1 (FMH−1). Ranges and resolution for numerical elements included in METAR and SPECI differ from Table A3−5.
2.2	The U.S. does not use the term CAVOK in meteorological reports.
2.3	U.S. practices require SPECI for wind shift when wind direction changes by 45 degrees or more in less than 15 minutes and the wind speed is 10 knots or more throughout the wind shift. Practices do not require SPECI for increases of mean surface wind speed. Practices require SPECI for squall, where squall is defined as a strong wind characterized by a sudden onset in which the wind speed increases at least 16 knots and is sustained at least 22 knots or more for at least one minute. Practices do not require SPECI for wind direction changes based on local criteria. Practices do not require SPECI for the onset, cessation or change in intensity of: freezing fog; low drifting dust, sand or snow; blowing dust, sand or snow (including snowstorm); dust storm; or sandstorm. Practice provides a SPECI when a layer of clouds or obscurations aloft is present below 1000 ft and no layer aloft was reported below 1000 ft in the preceding report. A SPECI is also reported when the ceiling (ceiling is defined in the U.S. as the lowest broken or overcast layer) decreases or increases at these markers: 3000, 1500, 1000, 500 ft or lowest published instrument approach procedures. SPECI is made when referenced weather phenomena cause changes in the visibility, ceiling, sky condition, freezing precipitation (including intensity), hail, or ice pellets.
2.3.3 c)	The U.S. does not issue SPECI for the equivalents in feet of 50, 175, 300, 550 or 600 meters. RVR is measured in increments of 100 feet up to 1,000 feet, increments of 200 feet from 1,000 feet to 3,000 feet, and increments of 500 feet above 3,000 feet to 6,000 feet. SPECI is made when the highest value from the designated RVR runway decreases to less than or if below, increases to equal or exceeds 2,400 feet during the preceding 10 minutes.
3.1.4	Practice to disseminate SPECI for improving conditions as soon as possible after the observation.
4.1.1.2	The U.S. does not provide wind representatives for specific runways but does provide a wind representative for the aerodrome.
4.1.3.1 b)	The United States provides a 2−minute average wind observation for the METAR/SPECI.
4.1.5	The wind direction may be considered variable if, during the 2−minute evaluation period, the wind speed is 6 knots or less. Also, the wind direction must be considered variable if, during the 2−minute evaluation period, it varies by 60 degrees or more when the wind speed is greater than 6 knots. Practices define wind gusts as rapid fluctuations in wind speed with a variation of 10 knots or more between peaks and lulls. Wind speed data for the most recent 10 minutes is examined and a gust, the maximum instantaneous wind speed during that 10−minute period, is reported if the definition above is met during that period.

4.2.4.4	Surface visibility is derived from an automated sensor system and is reported as prevailing visibility in the METAR and SPECI. Tower visibility is the prevailing visibility determined from the airport control tower at locations that also report surface visibility. When visibility is reported from both surface and tower, the lower value (if below 4 miles) is reported in the body of the METAR/SPECI and the other value is reported in the remarks section of the METAR/SPECI.
4.3.4b)	The U.S. does not report in METAR or SPECI marked discontinuity values when RVR passes through values of 800, 550, 300 and 175 meters.
4.3.6	The U.S. reports RVR in increments of 100 feet up to 1,000 feet, increments of 200 feet from 1,000 feet to 3,000 feet, and increments of 500 feet above 3,000 feet to 6,000 feet. The U.S. reports RVR for a single designated runway in the METAR/SPECI. RVR tendency is not reported.
4.4	The following weather elements are augmented manually at designated automated stations observation sites: FC, TS, GR, GS, and VA. At selected airports, additional present weather elements may be provided. With the exception of volcanic ash, present weather is reported when prevailing visibility is less than 7 statute miles or considered operationally significant. Volcanic ash is always reported when observed.
4.4.2.3	GR refers to all hail. All reports of hail include hailstone size diameter in the Remarks (RMK) section of the METAR/SPECI in increments of 1/4 inch. If no hail size is reported it will be assumed to be small hail. Small hail will result in the issuance of a SPECI. GS is used only when snow pellets are observed. The U.S. automated surface observing systems (ASOS, AWOS, AWSS) do not generate an automated report for the occurrence of drizzle or freezing drizzle. The ASOS and AWSS do allow the manual augmentation of these elements to the observations.
4.4.2.8	The practice with respect to the proximity indicator VC is between 5 to 10 statute miles from point of observation.
4.4.2.10	The U.S. does not use "//" to denote the present weather is missing at an automated observing site. The U.S. uses "PWINO" in the remarks section of the METAR and SPECI to denote the present weather is unavailable.
4.5.3	Practice does not provide adjustments for runway thresholds more than 50 feet lower than aerodrome elevation. Applies to KDEN runways 7, 8, 16L, 16R, 17L, 17R, 25, 26, 34L, 34R and 35R, KCLT runway 36C, KCVG runway 36C, KDFW runways 13L and 31R, KLAS runways 25L and 25R, KMEM runways 9 and 18C, KPIT runways 10R, 28L and 32, KSTL runways 6, 12R, 24 and 29, KIND runway 5L, and KRDU runway 5L.
4.5.4	The United States reports only up to 3 layers at automated sites and up to 6 layers at manual sites. Cloud layer amounts are a summation of layers at or below a given level, utilizing cumulative cloud amount. In addition, at automated sites, which are unstaffed, cloud layers above 12,000 ft are not reported. At staffed automated sites, clouds above 12,000 ft may be augmented. CAVOK and NSC are not used. In addition, the US does not use "///" when cloud type cannot be observed; "NCD" when no clouds are detected; or "//////" for CB or TCU when not detected by automated observing systems. In the US, the symbol "///", when used in the cloud section of METAR, refers to a mountain station where the layer is below the station level. The US refers to a cloud Ceiling, with the abbreviation CIG, as the lowest layer reported as broken or overcast, or the vertical visibility into an indefinite ceiling. The US refers to a Variable Ceiling in the METAR and SPECI Remarks (RMK) when the ceiling layer is variable and below 3,000 feet. The range of variability (V) between the two values is included in the Remark, for example "CIG 005V010". This difference is also applicable to Table A3−2, METAR and SPECI.
4.5.4.6 d)	The United States does not provide supplemental section for the METAR rather the U.S provides a Remarks Section (RMK) that contains similar information. U.S. METAR and SPECI contain Remarks that are intended for all operational decision−making. FMH−1 contains the complete description of Remarks. Wind shear is not included in the METAR/SPECI code form in the U.S remarks. Practice is to not use RE and to use beginning and ending times in the remarks section for only recent precipitation and thunderstorms. Sea−surface temperature, the state of the sea and state of the runway are not provided in the METAR/SPECI code form in the U.S. remarks.

4.8	The United States does not provide supplemental section for the METAR rather the U.S provides a Remarks Section (RMK) that contains similar information. U.S. METAR and SPECI contain Remarks that are intended for all operational decision−making. FMH−1 contains the complete description of Remarks. Wind shear is not included in the METAR/SPECI code form in the U.S remarks. Practice is to not use RE and to use beginning and ending times in the remarks section for only recent precipitation and thunderstorms. Sea−surface temperature, the state of the sea and state of the runway are not provided in the METAR/SPECI code form in the U.S. remarks.
APPENDIX 4	**Technical specifications related to aircraft observations and reports**
3.1.3	The U.S. MWOs do not disseminate special air observations and reports.
APPENDIX 5	**Technical specifications related to forecasts**
1.1	NWS TAFS are not issued in accordance with Table A5−1 due to national practices, which are described in *National Weather Service Instruction 10−813*.
1.2	Forecast visibility increments used consist of 1/4 mile from 0 (zero) to 1 mile, 1/2 mile from 1 to 2 miles, and 1 mile above 2 miles. Note: miles are statute miles. Practice defines light winds as less than or equal to 6 knots for using VRB in TAF. Practices require forecast of non−convective low−level wind shear within 2,000 feet of the ground in the Optional Group. The NWS does not use CAVOK and NSC in the TAF. NWS practices do not include TCU in the TAF.
1.3	Change groups and amendment criteria below 1/2 statute mile (800 meters) are not used. The 100−foot (30 meter) change group and amendment criterion is not used. Practice requires TAF to be amended for a 30−degree change with an accompanying wind of 12 knots or greater; for a 10 knot wind increase only when the original was 12 knots or greater; and for a 10 knot wind gust, regardless of mean wind speed. The NWS does not use the change indicator "BECMG." The period of time covered by a TEMPO group is normally kept to a minimum but could be up to four (4) hours. Practice does not amend TAFs for moderate or heavy precipitation.
1.4	The NWS does not use "PROB 40" in the TAF. "PROB 30" will not be used in the first nine (9) hours of every TAF's valid period, including amendments.
APPENDIX 6	**Technical specifications related to SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts**
Table A6−1A, Template for SIGMET and AIRMET messages	The US does not provide SIGMET and AIRMET information in accordance with Table A6−1A, template for SIGMET and AIRMET messages.
1.1	The content and format of U.S. SIGMETs are not in accordance with Table A6−1A due to national practices, which are described in National Weather Service Instruction 10−811. SIGMETs in the conterminous U.S. (CONUS), i.e. except Alaska and Hawaii, are often valid for more than one FIR. The SIGMET sequence number is not restricted to FIRs. U.S. practices are to issue SIGMET for mountain wave only when accompanied by severe turbulence. Within the CONUS and coastal waters, convective SIGMETs are issued in lieu of SIGMETS for thunderstorms. SIGMETs are issued by alphanumeric series, e.g., Kilo 1,2,3 etc. SIGMET messages in the CONUS use VORs in place of lat/long and do not reference FIRs. The U.S. does not use flight level (FL) when describing the altitudes in SIGMETs except for those above FL180. The U.S. does not include a specific forecast position for the end of the SIGMET and AIRMET validity time, other than TC and VA. The U.S. does not issue a SIGMET for radioactive clouds. Within the FIRs over the CONUS and coastal waters, convective SIGMETs are issued in lieu of SIGMETS for Tropical Cyclones (TC).

2.1	The content, order and format of U.S. AIRMETs are not in accordance with Table A6−1A due to national practices, which are described in National Weather Service Instruction 10−811. AIRMETs in the conterminous U.S. are often valid for more than one FIR. The AIRMET sequence number is not restricted to FIRs. AIRMETs in the U.S. are issued on a routine schedule for icing, turbulence, sustained surface winds, ceiling/visibility and mountain obscuration. The US does not issue AIRMETs for thunderstorms. AIRMET information is not restricted to FL100 and below and can be provided up to FL450 depending on the phenomena. The U.S. does not use flight level (FL) when describing the altitudes in AIRMETs except for those above FL180. The U.S. uses VORs instead of latitude and longitude to describe the area within an AIRMET.
4.2	The U.S. issues convective SIGMETs in lieu of SIGMETs for thunderstorms over the CONUS. The US does not issue AIRMETs for thunderstorms. Convective SIGMETs are issued hourly for the East, Central, and Western U.S. and thus they do not indicate the FIR. Connective SIGMETs have an outlook section.
4.2.1	U.S. practices allow for the use of term widespread (WDSPR) for more than 50 percent of the area. Convective SIGMET criteria over the CONUS are: a. A line of thunderstorms at least 60 miles long with thunderstorms affecting at least 40 percent of its length. b. An area of active thunderstorms judged to have a significant impact on the safety of aircraft operations, covering at least 40 percent of the area concerned, and exhibiting a very strong radar reflectivity intensity or a significant satellite or lightning signature. c. Embedded or severe thunderstorm(s) expected to occur for more than 30 minutes during the valid period regardless of the size of the area.
4.2.9	The U.S. criteria for heavy sandstorm and dust storm is visibility less than or equal to 1/4 SM (400 m). The U.S. criteria for moderate sandstorm and dust storm is visibility greater than 1/4 SM and less than or equal to 1/2 SM (800 m).
5.1	The U.S. issues airport warning messages similar to the ICAO format (Table A6−2, Template for aerodrome warnings) only at selected airports based on criteria per a bilateral agreement between the airport authority and the NWS Forecast Office.
6.2.1	The U.S. does not provide wind shear warnings.

ANNEX 4 − AERONAUTICAL CHARTS	
Chapter 1	**Definitions**
Air taxiway	The U.S. does not depict defined surfaces for air−taxiing of helicopters.
Final approach and take−off area (FATO)	The U.S. does not depict final approach and take−off areas (FATOs).
Prohibited area Restricted area	The U.S. will employ the terms “prohibited area” and “restricted area” substantially in accordance with the definitions established and, additionally, will use the following terms: “Alert area.” Airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. “Controlled firing area.” Airspace wherein activities are conducted under conditions so controlled as to eliminate the hazards to nonparticipating aircraft and to ensure the safety of persons and property on the ground. “Warning area.” Airspace which may contain hazards to nonparticipating aircraft in international airspace. “Maneuvering area.” This term is not used by the U.S. “Military operations area (MOA).” An MOA is an airspace assignment of defined vertical and lateral dimensions established outside Class A airspace to separate/segregate certain military activities from IFR traffic and to identify for VFR traffic where these activities are conducted. “Movement area.” Movement area is defined by the U.S. as the runways, taxiways, and other areas of an airport which are utilized for taxiing, take−off, and landing of aircraft, exclusive of loading ramp and parking areas.
Touchdown and lift−off area (TLOF)	The U.S. does not use this term.
Chapter 1.1	**Definitions**
Aerodrome reference point	Airport Reference Point is the approximate geometric center of all usable runway surfaces.
Area Minimum Altitude	Off Route Obstruction Clearance Altitude (OROCA) used.
Air Transit Route	Term “Helicopter Route” used.
Arrival Routes	Arrival routes are also identified on Standard Terminal Arrival (STAR).
Danger Area	The term “danger area” will not be used in reference to areas within the U.S. or in any of its possessions or territories.
Flight Level	Flight level is related to a reference datum of 29.92 inches of mercury.
Glide Path	Glideslope is used instead of glide path.
Helicopter Stand	Helipad is used vice helicopter stand.
Minimum obstacle clearance altitude (MOCA)	MOCA also assures acceptable navigational signal coverage within 22 NM of a VOR.
Minimum sector altitude	Minimum Sector Altitude is centered on the navigation facility upon which the procedure is predicated.
Missed approach point	Missed approach point based on acquiring the required visual reference.
Movement Area	Movement area also includes areas used by helicopters in taxiing. It does not include loading ramps or parking areas.
Obstacle	Obstacles may include terrain and objects of natural growth.

Obstacle clearance altitude (OCA) or Obstacle clearance height (OCH)	Decision Altitude and Decision Height used vice Obstacle Clearance Altitude and Obstacle Clearance Height.
Terminal arrival altitude (TAA)	Terminal Arrival Areas defined by the extension of the IAF legs and the intermediate segment course.
Touchdown zone	Touchdown zone is the first 3000 feet of the runway beginning at the threshold.
Visual approach procedure	Visual approach procedure is conducted on an IFR flight plan which authorizes the pilot to proceed visually and clear of clouds to the airport.
Chapter 1.2	**Applicability**
1.2.2	Charts vary in their conformance to ICAO Standards.
1.2.2.1	Charts vary in their conformance to ICAO Recommended Practices.
Chapter 2	**General Specifications**
2.1.7	Charts are True North oriented except as indicated.
2.1.8	Sheet size of charts varies dependent on chart type.
2.2.1	The marginal note layouts, in some cases, differ from those set forth in Appendices 1, 5, and 6.
2.3.1	Marginal note layouts vary by chart type
2.4	Symbols do not universally conform to Appendix 2.
2.4.1	Symbols do not universally conform to Appendix 2.
2.5.4	Linear dimensions are expressed in feet.
2.5.7	Conversion scales are not universally used.
2.6.2	Some charts have no linear scale.
2.9.2	Abbreviations used are from FAA Order JO JO 7340.2, not ICAO Doc 8400.
2.11	Color schemes differ by chart series.
2.12.2	Hypsometric tints differ by chart series.
2.14.1	Airspace depiction differs by chart.
2.15.1	Depiction of magnetic variation differs by chart series and is not always shown.
2.15.4	Each aerodrome has its own magnetic variation assigned. IACC specifications require individually assigned magnetic variation values for each airport.
2.16	Chart typography may vary in conformance to ICAO Standards.
2.18.3.1	Julian Calendar is also used. Local times are used on select charts.
Chapter 3	**Aerodrome Obstacle Chart – ICAO Type A (Operating Limitations)**
3.1	This data is available digitally and is depicted on other individual flight products to which it is pertinent.
3.2.1	Availability of chart is not dependent on provision of other charts.
3.2.2	Notification is not made when chart is not required.
Chapter 4	**Aerodrome Obstacle Chart – ICAO Type B**
4.1	This data is available digitally and is depicted on other individual flight products to which it is pertinent.
4.2.1	Availability of chart is not dependent on provision of other charts.
Chapter 5	**Aerodrome Obstacle Chart – ICAO Type C**
5.1	This data is available digitally and is depicted on other individual flight products to which it is pertinent.
Chapter 6	**Precision Approach Terrain Chart – ICAO**

6.1	This data is available digitally and is depicted on other individual flight products to which it is pertinent.
Chapter 7	**En Route Chart − ICAO**
7.1	Simplified versions are not created.
7.6.1	Charts depict only oceanic shorelines and the major lake/river systems forming the U.S./Canadian border.
7.6.2	Off Route Obstruction Clearance Altitude (OROCA) is shown.
7.7	Isogonic date not charted. Isogonic data always reflects the most recent 5 year epoch date
7.9.2	Danger Areas do not exist in the U.S. Prohibited and Restricted airspace, Military Operations Areas, Warning Areas, Alert Areas, and National Security Areas exist and are charted.
7.9.3.1.1	Coordinates are shown in degrees, minutes and hundredths of minutes. DME antenna elevation is not shown. Vertical limits of airspace are shown in tabulated data form. RNP values are not shown on routes. Coordinates of significant points are not shown. Bearings are shown to the nearest degree and distances to the nearest mile.
Chapter 8	**Area Chart − ICAO**
8.1	Area charts produced only where the amount of detail required results in congestion of information on an IFR Enroute Low Altitude chart.
8.3.1	Departure and Arrival routes are not shown.
8.6.1	Charts depict only oceanic shorelines and the major lake/river systems forming the U.S./Canadian border.
8.6.2	Obstacles are not shown.
8.7	Magnetic Variation is not shown unless an isogonic line runs through the area.
8.8.1	Bearings and tracks are not provided as True values. IACC specifications do not accommodate nor require True values.
8.8.2	Bearings and tracks are not provided as true values.
8.9.1	Only airports shown are those with hard surface runways of 3000 feet or longer and/or with an Instrument Approach Procedure.
8.9.2	Danger Areas do not exist in the U.S. Prohibited and Restricted airspace, Military Operations Areas, Warning Areas, Alert Areas, and National Security Areas exist and are charted.
8.9.3	Off Route Obstruction Clearance Altitude (OROCA) is shown.
8.9.4.1.1	Coordinates are shown in degrees, minutes and hundredths of minutes. DME antenna elevation is not shown. Vertical limits of airspace are shown in tabulated data form. Terminal routings are not shown. Coordinates of significant points are not shown. Bearings are shown to the nearest degree and distances to the nearest mile. Minimum vectoring altitudes are not shown.
Chapter 9	**Standard Departure Chart − Instrument (SID) − ICAO**
9.2	Charts are provided only when a procedure has been established.
9.3.2	Charts are not generally drawn to scale.
9.3.3	Scale bar is not shown.
9.4.2	Parallels and meridians are not shown.
9.4.3	Graduation marks are not shown.
9.5	Procedure route is identified in accordance with FAA Order 8260.46
9.6.1	Culture and topography are not shown.
9.6.2	Contour relief is not shown. Obstacles are listed textually.
9.7	Magnetic variation is not shown.
9.8.1	Bearings and tracks are not provided as True values. IACC specifications do not accommodate nor require True values.
9.8.2	Bearings and tracks are not provided as True values.
9.8.3	Bearings, tracks, and radials are not provided as True/Grid values.
9.9.1.2	Any requested secondary airport shown by symbol vs runway pattern.

9.9.2	Danger Areas do not exist in the U.S. Prohibited and Restricted airspace, Military Operations Areas, Warning Areas, Alert Areas, and National Security Areas exist and are charted when requested by procedure developer.
9.9.3.1	Minimum Sector Altitude is not shown.
9.9.3.2	Area minimum altitudes are not shown.
9.9.4.1.1	Coordinates for NAVAIDs and Significant Points are shown in degrees, minutes and hundredths of minutes. Bearings are shown to the nearest degree and distances to the nearest mile. DME antenna elevation is not shown. Obstacles are depicted textually with position and height, and without regard for penetration of OIS. Minimum vectoring altitudes are not shown.
Chapter 10	**Standard Arrival Chart − Instrument (STAR) − ICAO**
10.2	Charts are provided only when a procedure has been established.
10.3.2	Charts are not generally drawn to scale.
10.3.3	Scale bar is not shown.
10.4.2	Parallels and meridians are not shown.
10.4.3	Graduation marks are not shown.
10.5	Procedure route is identified in accordance with FAA Order JO 7100.9
10.6.1	Culture and topography are not shown.
10.6.2	Contour relief is not shown. Obstacles are listed textually.
10.7	Magnetic variation is not shown.
10.8.1 10.8.2	Bearings and tracks are not provided as True values.
10.8.3	Bearings, tracks, and radials are not provided as True/Grid values.
10.9.1.1	Airports are shown by symbol vice pattern.
10.9.1.2	Airports are shown by symbol vs runway pattern.
10.9.2	Danger Areas do not exist in the U.S. Prohibited and Restricted airspace, Military Operations Areas, Warning Areas, Alert Areas, and National Security Areas exist and are charted when requested by procedure developer.
10.9.3.1	Minimum Sector Altitude is not shown.
10.9.3.2	Area minimum altitudes are not shown.
10.9.4.1.1	Bearings are shown to the nearest degree and distances to the nearest mile. Coordinates for NAVAIDs and Significant Points are shown in degrees, minutes and hundredths of minutes. DME antenna elevation is not shown. Minimum vectoring altitudes are not shown.
Chapter 11	**Instrument Approach Chart − ICAO**
11.3.3	Scale is not shown.
11.3.3.1	Distance circle is not shown.
11.3.3.2	Distance between components and between last component and runway shown.
11.4	Sheet size is 8.25 inches by 5.375 inches
11.5.2	Graduation marks are not shown.
11.7.1	Culture information is not shown. Shaded hydrographic features are shown, but not labeled.
11.7.2	Terrain charting criteria does not include approach gradient steeper than optimal due to terrain.
11.7.3	Terrain is not charted if Std 11.7.2 is not met.
11.8.1	Magnetic variation is shown only in areas of compass instability and on charts North of 67 degrees of latitude.
11.9.1	Bearings, tracks, and radials are not shown as true values for RNAV segments.
11.9.2	Only magnetic north values are shown.
11.9.3	Bearings, tracks, and radials are not provided in true/grid values.
11.10.1.1	Only airports specifically requested for charting are shown.
11.10.1.2	Only airports specifically requested for charting are shown.
11.10.2.2	Obstacles that are the determining factor for an OCA/OCH are not necessarily shown.
11.10.2.4	Obstacle heights are only shown in MSL.

11.10.2.7	Absence of obstacle free zones are not shown.
11.10.3	Danger Areas do not exist in the U.S. Prohibited and Restricted airspace, Military Operations Areas, Warning Areas, Alert Areas, and National Security Areas exist and are charted when requested by procedure developer.
11.10.4.3	Geographic final approach fix coordinates are not shown.
11.10.5	Minimum Safe Altitudes vice Minimum Sector Altitudes. Terminal Arrival Areas vice Terminal Arrival Altitude.
11.10.6.1	Arrowed dotted line is used for MA track. Arrowed dashed line used for Visual track. Times required for the procedure are not shown.
11.10.6.2	Distance to airport from final approach NAVAID is not shown.
11.10.6.3	Missed approach segment is shown by arrowed, dotted line. Arrowed, dashed line is used for visual segments. Times required for the procedure are not shown. Distance between components is shown vice a distance scale.
11.10.6.4	Parentheses are not shown.
11.10.6.5	Ground profile and shaded altitude blocks are not shown.
11.10.7.1	Procedure landing minima are shown vice aerodrome operating minima.
11.10.7.2	Decision Altitude/Height (DA/H) shown vice OCA/H.
11.10.8.2	Altitude/height table is not shown.
11.10.8.3	Altitude/height table is not shown.
11.10.8.4	Rate of descent table is not shown on individual plates, but a combined climb/descent table is available digitally or with printed procedure publication.
11.10.8.5	Descent gradient not shown, threshold crossing height shown in feet, vertical descent angle shown to hundredths of a degree.
11.10.8.6	Threshold crossing height shown in feet. Descent angle shown to the nearest hundredth of a degree.
11.10.8.8	Cautionary note is dependent on multiple criteria.
11.10.8.9	Simultaneous operations notes do not always contain references to runways or procedures.
Chapter 12	**Visual Approach Chart − ICAO**
12.2	Chart provided only when visual approach procedure has been established.
12.3.2	The scale can vary and also be not−to−scale.
12.3.3	Charts are shown at scale of 1:250,000, IAPs at 1:500,000 or smaller.
12.4	Sheet size is 8.25 inches by 5.375 inches.
12.5.2	Graduation marks are not shown
12.8	Magnetic variation is shown only in areas of compass instability and on charts North of 67 degrees of latitude.
12.9.2	Bearings, tracks, and radials are not shown as true/grid values.
12.9.3	Grid meridian is not shown.
12.10.1.1	Only airports specifically requested for charting are shown.
12.10.1.2	Airport elevation is not shown.
12.10.2.3	Height of obstacle above Mean Sea Level is shown.
12.10.2.3.1	Datum height not shown. Parentheses are not shown.
12.10.3	Vertical limits of areas are not shown. Danger Areas do not exist in the U.S. Prohibited and Restricted airspace, Military Operations Areas, Warning Areas, Alert Areas, and National Security Areas exist and are charted when requested by procedure developer.
12.10.4	Control zones and Traffic zones are not shown.
12.10.5.3	VASI, MEHT, and angle of displacement are not shown.
Chapter 13	**Aerodrome/Heliport Chart − ICAO**
13.1	Helicopter movement is supported only with the location of helipads.
13.3.2	Latitude and longitude graticules are shown vice linear scale.

13.6.1	Latitude and longitude graticules are shown vice geographical coordinates. Airport elevations and runway end elevations are shown. Runway length and width are shown in feet. Clearways are not shown. Taxiways and identification only are shown. Standard taxi routes are not shown. Boundaries of air traffic service are not shown. RVR observation sites are not shown. Approach and runway lighting are not shown. VASI systems are not shown. VOR checkpoint and frequency are not shown.
13.6.2	Locations accommodating folding wings tips are not shown.
13.6.3	Helicopter pads only are shown. Touchdown and liftoff areas are not shown. Final approach and takeoff areas are not shown. Safety areas are not shown. Clearways are not shown. Only highest obstacle within parameters of chart is shown. Visual aids are not shown. Declared distances are not shown.
Chapter 14	**Aerodrome Ground Movement Chart − ICAO**
14.1	Chart is not produced.
Chapter 15	
15.1	Chart is not produced.
Chapter 16	**World Aeronautical Chart – ICAO 1:1 000 000**
16.2.1	1:1,000,000 Chart Series only produced and made available in areas NOT covered by 1:500,000 Chart Series. (Available in Caribbean area only.)
16.3.1	Linear scales are shown in the following order: nautical miles, statute miles, kilometers.
16.4.3	Charts are folded in eleven vertical panels and one horizontal fold.
16.5.1	Standard parallels are for each 8 degrees and are shown 1 degree and 20 minutes in from the Northern and Southern edges of the chart. Charts are not produced above 80 degrees latitude.
16.5.2	Distance between parallels is 1 degree. Above 56 degrees North, latitude graduation marks are shown only on every even degree of longitude. Distance between longitude meridians is 1 degree. Above 64 degrees North, meridian graduation marks are shown every 5 minutes.
16.5.3.1	Lengths of interval marks are as follow: 1 minute − .045 inches; 5 minutes − .065 inches; 10 minutes − .10 inches on both sides.
16.6	Chart numbering is indicated on Title Panel chart index.
16.7.2.2	Tunnels, if possible, are shown wherever they exist.
16.7.3.2	Roads are not shown within outlined populated areas.
16.7.9.2	Coordinates shown to the nearest minute.
16.7.10.1	Notes will read ‘Relief data incomplete’ or ‘Limits of reliable relief information.’
16.7.12.1	Wooded areas are not shown.
16.7.13	Date of topographic information is not shown.
16.8.2	Date of isogonic information is shown in the chart legend.
16.9.2.2	Other than hard surface runways are shown by symbol.
16.9.3.1	Obstacles greater than 500 feet are shown.
16.9.4	Danger Areas do not exist in the U.S. Prohibited and Restricted airspace, Military Operations Areas, Warning Areas, Alert Areas, and National Security Areas exist and are charted.
16.9.7.1	Only aeronautical ground lights that operate continuously are shown.
16.9.7.2	Only marine lights that operate year round, with a range of at least 10 NM, and are omnidirectional are shown.
Chapter 17	**Aeronautical Chart – ICAO 1:500 000**
17.3.1	Linear scales are shown in the following order: nautical miles, statute miles, kilometers.
17.4.3	Charts are folded in eleven vertical panels and one horizontal fold.
17.4.4	Relationship of chart to WAC series is not shown.
17.5.4.1	The 10 minute interval mark is .10 inches on both sides of the graticule line.
17.6.1.1	Relationship of chart to WAC series is not shown.
17.7.2.2	Tunnels, if possible, are shown wherever they exist. Prominent tunnels are shown pictorially.
17.7.3.1	Roads are shown for radar and visual value and for distinct configurations that provide visual checkpoint value.

17.7.9.2	Coordinates are shown to the nearest minute.
17.7.10.1	Notes will read 'Relief data incomplete' or 'Limits of reliable relief information.'
17.7.12.1	Wooded areas are not shown.
17.7.13	Date of topographic information is not shown.
17.8.2	Date of isogonic information is shown in the chart legend.
17.9.2.2	Other than hard surface runways are shown by symbol.
17.9.3.1	Obstacles greater than 200 feet are shown, except in built up areas where only those greater than 300 feet are shown.
17.9.4	Danger Areas do not exist in the U.S. Prohibited and Restricted airspace, Military Operations Areas, Warning Areas, Alert Areas, and National Security Areas exist and are charted.
17.9.7.1	Only aeronautical ground lights that operate continuously are shown.
17.9.7.2	Only marine lights that operate year round, with a range of at least 10 NM, and are omnidirectional are shown.
Chapter 18	**Aeronautical Navigation Chart — ICAO Small Scale**
18.1	Chart is not produced.
Chapter 19	**Plotting Chart − ICAO**
19.1	Chart is not produced.
Chapter 20	**Electronic Aeronautical Chart Display — ICAO**
20.1	Charts provided digitally to operators. Digital charts mimic paper products described above and may not be modified.
Chapter 21	**ATC Surveillance Minimum Altitude Chart — ICAO**
21.1	Minimum Vectoring Altitude charts are available in electronic format only.
21.9.2	Danger Areas do not exist in the U.S. Prohibited and Restricted airspace, Military Operations Areas, Warning Areas, Alert Areas, and National Security Areas exist and are charted.
Appendix 6	**Aeronautical Data Quality Requirements**
Table 5. Bearing used for the formation of an en route and of a terminal fix	Whole degree resolution in charting of bearing used for formation of an en route and terminal fix.
Table 5. Bearing used for the formation of an instrument approach fix	Whole degree resolution in charting of bearing used for formation of an instrument approach procedure fix.
Table 6. (Length/ distance/ dimension Distance used for the formation of an en route fix	Whole NM resolution in charting of distance used for formation of an en route fix.

Table 6. (Length/ distance/ dimension Distance used for formation of an terminal and instrument approach procedure fix	Whole NM resolution in charting of distance used for formation of an Arrival or Departure fix.

DOC 10066, PANS−AIM	**Procedures for Air Navigation Services Aeronautical Information Management**
Chapter 1	**Definitions**
ASHTAM	The U.S. does not have a series of NOTAM called ASHTAM.
Danger Area	The FAA does not have Danger Area airspace within the U.S.
SNOWTAM	The U.S. does not use the SNOWTAM format.
Chapter 5	**Aeronautical Information Products and Services**
5.2.1.3.7	The FAA does not produce an AIP Supplement.
5.2.1.4	The FAA does not produce an AIP Supplement.
5.2.5	The U.S. Does not use SNOWTAM format.
5.2.5	The U.S. does not have a series of NOTAM called ASHTAM.
5.2.5	Currently, the U.S. does not utilize the ICAO format for Domestic NOTAMs. The U.S. NOTAMs that are distributed as International NOTAMs may be in ICAO format.
5.4.2	The FAA distribution system does not always match the ICAO standard for formatting, SNOWTAM, and ASHTAM.
Chapter 6	**Aeronautical Information Updates**
6.1.4	The FAA does not issue Trigger NOTAMs.
Appendix 2	**Content of the Aeronautical Information Publication (AIP)**
ENR 5.1	U.S. does not use the term Danger Areas. The U.S. describes navigation warnings for Prohibited and Restricted airspace, Warning Areas, Military Operations Areas, Alert Areas, Controlled Firing Areas, and National Security Areas.
Appendix 3	**NOTAM Format**
Entire Appendix	Currently, the U.S. does not utilize the ICAO format for Domestic NOTAMs. The U.S. NOTAMs that are distributed as International NOTAMs may be in ICAO format.
Appendix 4	**SNOWTAM Format**
Entire Appendix	The U.S. does not use the SNOWTAM format.
Appendix 5	**ASHTAM Format**
Entire Appendix	The U.S. does not have a series of NOTAM called ASHTAM.
Appendix 7	**Predetermined Distribution System for NOTAM**
Entire Appendix	The FAA distribution system does not always match the ICAO standard for formatting, SNOWTAM, and ASHTAM.

ANNEX 5 − UNITS OF MEASUREMENT TO BE USED IN AIR−GROUND COMMUNICATIONS	
Chapter 3	**Standard application of units of measurement**
3.2.2 Table 3−3 Table 3−4	Table 3−4 Ref 1.12, runway length and Ref 1.13 runway visual range, unit of measure is in feet. Table 3−4 Ref 1.16, visibility unit of measure is statute miles (SM). Table 3−4 Ref 3.2, altimeter setting, unit of measure is reported as inches of mercury. Table 3−4, Ref 3.3, atmospheric pressure, unit of measure is in inches of mercury.
Attachment B	**Guidance on the application of System of Units (SI)**
5.4.2	Specifications differ from Attachment B, Style and usage, Para 5.4 Numbers. Comma is not acceptable as a decimal marker. Comma is used to separate digits in groups of three.

ANNEX 6 − OPERATION OF AIRCRAFT	
Part I	
Chapter 3	**General**
Chapter 3 Reference 3.3.6	The U.S. Flight Quality Assurance Program is a voluntary program.
Chapter 4	**Flight Operations**
Chapter 4 Reference 4.2.2.3	U.S. regulations exempt a single pilot in a 9-or-less seating configuration operation from having a maintenance manual. Rather, U.S. regulations (CFR 135.411) require a single pilot to comply with the maintenance requirements in CFR 91 and 43 in lieu of a maintenance manual or program.
Chapter 4 Reference 4.3.2	For multiengine, aeroplanes, commuter and on-demand operators are required to maintain fuel and oil records as part of the load manifest for 30 days rather than 3 months. For single engine aeroplanes, commuter and on-demand operators are not required to maintain fuel and oil records.
Chapter 4 Reference 4.3.4.1.2	The FAA treats takeoff alternates differently. Take off alternate: for airplanes with 3 or more engines SP/59/4.1 states that the take-off alternate aerodrome must be located within the following flight time distance from the aerodrome of departure: two hours of flight time at an all-engine operating cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass. FAR 121.617 states 2 hours at normal cruising speed with one engine inoperative.
Chapter 4 Reference 4.3.8.2	The U.S. requires descent within four minutes to 14,000 ft not 13,000 ft, in the event of loss of pressurization. For commuter and on-demand operations, the descent altitude is 15,000 ft.
Chapter 4 Reference 4.9.2	The U.S. allows turbo-jets that are certificated for single pilot operations.
Chapter 5	**Aeroplane performance operating limitations**
Chapter 5 Reference 5.2.8.1	The United States does not have specific regulations that require the loss of Runway length be considered due to alignment of the airplane prior to takeoff. However, the United States does within its aircraft certification regulations require aircraft performance be determined by using the point on the runway where takeoff is started when computing takeoff distance. This same criteria is used when computing runway available for accelerate/stop distance. Accounting for runway loss due to alignment is done within each air carrier's approved operations manual.
Chapter 5 Reference 5.4.1	The U.S. does not require turbine engine reliability to have a power loss rate of less than 1 per 100,000 engine hours, a radio altimeter, two attitude indicators, airborne weather radar, a certified navigation system to identify aerodromes as forced landing areas, or an engine fire warning system.
Chapter 5 Reference 5.4.2	The U.S. does not require an automatic trend monitoring system on aeroplanes certificated after 1 January 2005.
Chapter 6	**Aeroplane instruments, equipment and flight documents**
6.3.2.3.2	Effective 1 January 2021, the United States will not have implemented the referenced standard because 14 CFR part 25 does not include the subject requirement for a 25−hour cockpit voice recorder.
Chapter 6 Reference 6.17.2	The U.S. does not require an ELT unless operated over water or remote areas.
Chapter 6 Reference 6.17.3	The U.S. does not require an ELT unless operated over water or remote areas.
Chapter 6 Reference 6.17.4	The U.S. does not require an ELT unless operated over water or remote areas.

Chapter 6 Reference 6.17.5	The U.S. does not require an ELT unless operated over water or remote areas.
Chapter 6 Reference 6.19.2	The U.S. does not require pressure altitude information with a resolution of 25 feet or better.
Chapter 6 Reference 6.19.3	The U.S. does not require pressure altitude information with a resolution of 25 feet or better.
Chapter 6 Reference 6.4.1	The U.S. does not require a time piece.
Chapter 6 Reference 6.4.2	The United States does not require aeroplanes on VFR flights, when operated as controlled flights, to be equipped in accordance with the requirements for aeroplanes operated under instrument flight rules.
Chapter 6 Reference 6.5.1	Seaplanes are not required to have equipment for making the sound signals prescribed in the International Regulations for Preventing Collision at Sea. Seaplanes are not required to be equipped with sea anchor.
Chapter 6 Reference 6.5.3.1	The United States defines extended over water operations for aircraft other than helicopters as an operation over water at a horizontal distance of more than 50 nautical miles from the nearest shoreline.
Chapter 6 Reference 6.12	The United States does not require equipment to measure cosmic radiation.
Chapter 6 Reference 6.15.6	The U.S. does not require ground prox systems for piston powered airplanes.
Chapter 6 Reference 6.20.2	The U.S. does not require pressure altitude information with a resolution of 25 feet or better.
Chapter 6 Reference 6.20.3	The U.S. does not require pressure altitude information with a resolution of 25 feet or better.
Chapter 6 Reference 6.21	The United States does not require crewmembers on flight deck duty to communicate through boom or throat microphones below the transition level/altitude.
Chapter 6 Reference 6.23	The U.S. requires an autopilot for IFR passenger operations, not for VFR or cargo operations. A) The U.S. does not require a boom microphone. B) The U.S. requires charts be available and used.
Chapter 8	**Aeroplane Maintenance**
Chapter 8 Reference 8.1.3	The person signing the maintenance release must have a CFR 65 certificate.
Chapter 8 Reference 8.4.2	The United States requires that records of work be retained until the work is repeated, superseded by other work or for one year after the work is performed, but does not require the records be retained after the unit has been permanently withdrawn from service.
Chapter 8 Reference 8.7.1.1	Left Intentionally Blank
Chapter 9	**Aeroplane flight crew**
Chapter 9 Reference 9.4.2.1	The U.S. does not have currency requirements for cruise relief pilots.
Chapter 9 Reference 9.4.2.2	The U.S. does not have currency requirements for cruise relief pilots.
Chapter 9 Reference 9.4.3.2	The United States requires air carrier pilots “before beginning a flight become familiar with all available information concerning the flight.” It does not require the pilot to demonstrate this knowledge.

Chapter 9 Reference 9.4.3.5	The U.S. does not restrict operators from using a pilot as a pilot-in-command on a route where the pilot has not, within the preceding 12 months, made at least one trip between the terminal points of that route as a pilot member of the flight crew, or as an observer on the flight deck except for special areas and airports. A list of U.S. Special airports may be found at the following link: http://fsims.faa.gov/PICDetail.aspx?docId=AD20682A64001B6686257B71005E5B74
Chapter 9 Reference 9.4.3.6	The U.S. does not have an area/route 12 month currency requirement for pilots in command, except for special areas and airports.
Chapter 9 Reference 9.4.4.1	For PICs, the U.S. requires 1 proficiency checks per 12 months and either proficiency check or an approved simulator training course, for SICs, the U.S. requires 1 proficiency check each 24 months and another proficiency check or an approved simulator training course every 12 months.
PART II	
Section I	**General**
Chapter 1.1	**Definitions**
Continuous descent final approach (CDFA)	The FAA does not believe “circling or visual flight maneuver” needs to be added to the definition of a CDFA. The primary reason for a CDFA is to maintain a continuous rate of descent from the FAF, through the MDA until 50 feet above the threshold in the FAS of an NPA. A circle or visual flight maneuver is contrary to the CDFA, the aircraft must stop at the MDA and transition to level flight in order to accomplish the circling or visual flight maneuver to landing. The FAA does recognize that a constant descent rate, not to exceed 1000 ft/min, is normally used to accomplish the descent from the FAF to the circling MDA where level flight is maintained to accomplish the maneuver. This rate of descent may vary due to the design of the circle and/or category of the aircraft. The procedure for accomplishing a circling maneuver has not changed over time, versus, changing the technique for flying a FAS from a “dive and drive” maneuver to a CDFA.
Low−visibility operations (LVO)	FAA defines LVO only as a condition regarding ground operations; not as it pertains to approach and takeoff operations. Further, the FAA sets the threshold for LVO at an RVR of 1200 feet or 350 meters.
Section II	**General Aviation Operations**
Chapter 2.2	**Flight Operations**
2.2.2.2.1.1	The FAA allows general aviation operations to 100’ HAT using enhanced flight visions systems when actual visibility is below the newly established ICAO LVO threshold, without a specific approval.
2.2.2.2.5	The FAA allows general aviation instrument approach operations down to MDA or CAT I DA, irrespective of ceiling and visibility, without a specific approval. Further, these operations may be conducted without RVR information.
2.2.2.2.6	The FAA allows general aviation and fractional ownership operators to conduct takeoffs with visibility below the newly established ICAO LVO threshold without a specific approval
2.2.3.4.3	In addition to the Standard prescribed in Annex 6, Part II, 4.6.4, the U.S. prohibits a pilot from taking of a US registered large or turbine-powered multi-engine general aviation aeroplane if there is frost, snow, or ice adhering to critical systems, components, and surfaces of the aircraft.
Chapter 2.4	Aeroplane instruments, equipment and flight documents.
2.4.2.6.1	The United States does not require break-in point markings.
2.4.2.6.2	The United States does not require break-in point markings.

2.4.4.1	The United States does not require all seaplanes on all flights to be equipped with one life jacket or equivalent individual floatation device for each person on board; equipment for making the sound signals prescribed in the International Regulations for Preventing Collisions at Sea; and anchor or a sea anchor (drogue).
2.4.5	Airplanes operated over land areas designated as areas in which search and rescue would be especially difficult are not required to be equipped with signaling devices or life-saving equipment. The United States does not designate areas in which search and rescue would be especially difficult, and therefore does not require such additional equipment.
2.4.8	Airplanes operated under visual flight rules at night are not required to be equipped with c) to f) a) a turn and slip indicator; b) an altitude indicator (artificial horizon); c) a heading indicator (directional gyroscope); d) a means of indicating whether the supply of power to the gyroscopic instruments is adequate; 3) a sensitive pressure altimeter; f) a means of indicating the outside air temperature; g) a timepiece with a sweep second hand; h) an airspeed indicating system with a means of preventing malfunctioning due to condensation or icing; i) a rate-of-climb and descent indicator; j) a landing light; k) illumination for flight instruments and equipment; l) lights in passenger compartments; and m) a flashlight (electric torch) for each crew member station.
2.4.11.4	Ground proximity warning systems are not required on general aviation aircraft, including turbine-engine airplanes with a take-off mass greater than 5700 kg or capable of carrying more than nine passengers.
Chapter 2.5	**Aeroplane Communication, Navigation and Surveillance Equipment**
2.5.1.1	Except when operating under controlled flight, airplanes operated at night are not required to have radio communications equipment capable of conducting two-way communications. United States requirements for radio communications equipment are based upon the type of airspace in which the operation occurs, and not on the time of the day.
2.5.1.2	When more than one radio communications equipment unit is required, the United States has no provision that each unit be independent of any other.
2.5.1.4	Except when operating under controlled flight, airplanes on extended flights over water or on flights over underdeveloped land are not required to have radio communications equipment capable of conducting two-way communications.
2.5.2.1	The United States has no provisions concerning requirement aircraft navigation instruments enabling a flight to proceed in accordance with a flight plan, prescribed RNP types, or the air traffic services provided. The United States does not specify a minimum distance between landmark references used by flight operating under visual flight rules.
2.5.2.7 (b)	The FAA monitors RVSM performance on a continual basis via ADS−B
2.5.2.9	Though the FAA does not have RVSM operational reporting requirements, it does have a quality assurance requirement in 14 CFR appendix G Sections 2,3, and 4. In addition, RVSM operational deviation may be noted by FAA ATC and reported the FAA Office of Aviation Safety for disposition as deem appropriate.
2.5.2.12	Airplanes are not required to have navigation equipment to ensure that in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment will enable the aeroplane to proceed in accordance with Annex 6, Part II, 2.2.1. to 7.2.3.
Chapter 2.6	**Aeroplane maintenance**
2.6.2.2.	The FAA established Title 14 Code of Federal Regulations section 43.10, which speaks to the disposition of parts, removed from type-certificated products. After April 15, 2002, each person who removes a life-limited part from a type certificated product must ensure that the part is controlled using: a record keeping system; tag or record attached to part; non-permanent marking; permanent marking; or segregation.

Chapter 2.7	**Aeroplane flight crew**
2.7.2.2	Only pilot operating aircraft with TCAS under 14 CFR parts 91 (subpart K), 121, and 135 are required to having on the use of TCAS.
Appendix 2.4	**General aviation specific approvals**
2. SPECIFIC APROVAL TEMPLATE	The FAA monitors RVSM performance on a continual basis via ADS−B.
Section III	**Large and Turbojet Aeroplanes**
Chapter 3.6	**Aeroplane instruments, equipment and flight documents**
3.6.1.1.2	The United States does not base requirements for flight data recorders on aircraft mass, but on passenger and engine configuration.
PART III	
Section I	**General**
Chapter 1	**Definitions**
Continuous descent final approach (CDFA).	The FAA does not believe “circling or visual flight maneuver” needs to be added to the definition of a CDFA. The primary reason for a CDFA is to maintain a continuous rate of descent from the FAF, through the MDA until 50 feet above the threshold in the FAS of an NPA. A circle or visual flight maneuver is contrary to the CDFA, the aircraft must stop at the MDA and transition to level flight in order to accomplish the circling or visual flight maneuver to landing. The FAA does recognize that a constant descent rate, not to exceed 1000 ft/min, is normally used to accomplish the descent from the FAF to the circling MDA where level flight is maintained to accomplish the maneuver. This rate of descent may vary due to the design of the circle and/or category of the aircraft. The procedure for accomplishing a circling maneuver has not changed over time, versus, changing the technique for flying a FAS from a “dive and drive” maneuver to a CDFA.
Low−visibility operations (LVO).	FAA defines LVO only as a condition regarding ground operations; not as it pertains to approach and takeoff operations. Further, the FAA sets the threshold for LVO at an RVR of 1200 feet or 350 meters
Section II	**International Commercial Air Transport**
Chapter 2 Reference 2.2.3.1	Intentionally left blank.
Chapter 2 Reference 2.2.4.2	Intentionally left blank
Chapter 2 Reference 2.2.9.1	Helicopter operators are not required to maintain fuel and oil records showing that the requirements of 2.3.6 have been met.
Chapter 2 Reference 2.2.9.2	Helicopter operators are not required to keep fuel and oil records for three months, though there is a requirement that load manifests be retained for 30 days.
Chapter 2 Reference 2.2.12	Intentionally left blank
Chapter 2 Reference 2.3.2	The pilot−in−command is not required to ensure that all persons on board are aware of the location and general manner of use of the principal emergency equipment carried for collective use.
Chapter 2 Reference 2.3.2	The United States requires that flight preparation forms must be retained for 30 days, not three months.
Chapter 2 Reference 2.3.3.2	The United States does not require that the operations manual describe the contents and use of the operational flight plan, but does require establishing procedures for locating each flight.
Chapter 2 Reference 2.3.6.2.	Intentionally left blank
Chapter 2 Reference 2.3.6.3	The fuel requirements for commuter and on demand operations are expressed in terms of flight time and do not include a specific altitude requirement.
Chapter 2 Reference 2.3.6.3.1	The United States does not require IFR helicopter operations to maintain a specific altitude above a destination.

Chapter 2 Reference 2.3.6.3.2	Fuel reserves for IFR helicopter operations is 30 minutes at normal cruise speed beyond the alternate heliport.
Chapter 2 Reference 2.3.6.3.3	The U.S. has no provisions addressing when a suitable alternate is unavailable. If the destination weather so requires, an alternate must be specified and 30 minute fuel reserved must be carried.
Chapter 2 Reference 2.3.6.4	The operations manual does not include procedures for loss of pressurization and other contingencies.
Chapter 2 Reference 2.3.8.1	The United States does not require oxygen at all times for passengers experiencing cabin pressure altitudes above 13,000 ft (620hPa). Oxygen for all passengers is not required until 15,000 ft (4,572m).
Chapter 2 Reference 2.3.8.2	The United States does not require oxygen at all times for passengers experiencing cabin pressure altitudes above 13,000 ft (620hPa). Oxygen for all passengers is not required until 15,000 ft (4,572m).
Chapter 2 Reference 2.4	The pilot-in-command is not specifically required, prior to commencing a flight, to be satisfied that any load carried is safely secured.
Chapter 2 Reference 2.4.1.3	The United States does not utilize a 1,000 ft minimum for non-precision approaches
Chapter 2 Reference 2.6.2.2	The United States allows for meteorological conditions at the estimated time of arrival and for one hour after the estimated time of arrival, not two hours.
Chapter 2 Reference 2.6.3.2	The United States allows the continuation of an approach regardless of the reported weather.
Chapter 2 Reference 2.8.3.1	The United States does not require that a specific altitude above the alternate be maintained.
Chapter 2 Reference 2.8.3.2	The United States does not require that a specific altitude above the alternate be maintained.
Chapter 2 Reference 2.8.4	The U.S. does not require that the procedures for loss of pressurization, where applicable, or failure of one power-unit while en route, be part of the required fuel and oil computations.
Chapter 2 Reference 2.10	The U.S. requirement for use of breathing oxygen by flight crew members applies only to altitudes above 14000 ft (4,267m).
Chapter 2 Reference 2.11	During an emergency, the pilot-in-command is not required to ensure that all persons on board the aircraft are instructed in emergency procedures.
Chapter 2 Reference 2.14	The pilot-in-command is not specifically required to discontinue a flight beyond the nearest suitable aerodrome when flight crew member’s capacity to perform functions is significantly reduced by impairment of faculties from causes such as fatigue, sickness, and lack of oxygen.
Chapter 3 Reference 3.1.1	US does not specify or restrict helicopter operations based on performance, class or category. (See definition of performance class in Annex 6, Part III, Section 1).
Chapter 3 Reference 3.2.1	The United States does not specify or restrict helicopter operations based on performance class or category (see definition of Performance Class in Annex 6, Part III, Section 1)
Chapter 3 Reference 3.2.7	US does not require the helicopter weight limitations found I n3.2.7 a), c), and d).
Chapter 4 Reference 4.1.2	US does not require carriage of a copy of the air operator’s certificate.
Chapter 4 Reference 4.1.4.1	The United States does not require break-in points.
Chapter 4 Reference 4.1.4.2	The United States does not require break-in points.
Chapter 4 Reference 4.2.2	a) first aid equipment is not required on helicopters b) Us has no provisions that fire extinguishers, when discharge, will not cause dangerous contamination of the air within the helicopter c) (3) US has no provisions for a safety harness device to prevent interference with flight controls should a pilot become incapacitated.
Chapter 4 Reference 4.2.4.1	The US does not require marking of break-in points.
Chapter 4 Reference 4.2.4.2	The U.S. does not require marking of break-in points.
Chapter 4 Reference 4.3.2.3	Life-saving rafts are not required on helicopters operating on flights over water.

Chapter 4 Reference 4.4	Helicopters operated over land areas designated as areas in which search and rescue would be especially difficult are not required to be equipped with signaling devices or life-saving equipment. The U.S. does not designate areas in which search and rescue would be especially difficult and therefore does not require such additional equipment.
Chapter 4 Reference 4.4.2	Helicopters flown over water in passenger operations are not required to be certified for ditching but only to be equipped with flotation devices.
Chapter 4 Reference 4.5.2.1	B) and C) Life saving rafts and pyrotechnic devices are only required for extended over-water operations. That is in respect to helicopters in operations over water with a horizontal distance of more than 50 NM from the nearest shore line and more than 50 NM form an off-shore heliport structure.
Chapter 4 Reference 4.6	The U.S. does not require helicopters to carry a specific document attesting noise certification. However, the helicopter's type certificate is the de facto document that the helicopter complied with the noise certification requirements at the time it received FAA type certification.
Chapter 4 Reference 4.6	Helicopters operated over land areas designated as areas in which search and rescue would be especially difficult are not required to be equipped with signaling devices or life-saving equipment. The U.S. does not designate areas in which search and rescue would be especially difficult and therefore does not require additional equipment.
Chapter 4 Reference 4.9.1	The U.S. requires transponders only in certain airspace.
Chapter 4 Reference 4.11	The U.S. does not require helicopters to carry a specific document attesting noise certification. However, the helicopter's type certificate is the de facto document that the helicopter complied with the noise certification requirements at the time it received FAA type certification.
Chapter 4 Reference 4.13	The U.S. requires transponders only in certain airspace.
Chapter 4 Reference 4.14	The U.S. does not require crew members flight deck duty to communicate through boom or throat microphone.
Chapter 5 Reference 5.1.1	Except when operating under controlled flight, helicopters are not required to have radio communications for night operators.
Chapter 5 Reference 5.1.2	The U.S. does not require that the radio communications equipment specified in 5.1.1 be independent of the other or others to the extent that failure in my any one will not result in failure of any other.
Chapter 5 Reference 5.1.4	Except when operating under controlled flight, helicopters on extended flights over water or on flights over underdeveloped land are not required to have radio communications equipment.
Chapter 5 Reference 5.2.1	The U.S. has no provision that visual landmarks used in VFR be located at least every 60 NM (110km).
Chapter 5 Reference 5.2.1	The United does not require a helicopter to be provided with navigation equipment in accordance with RNP types for navigation with the United States. However, the United States does provide information and operations specifications for IFR operating requirements when U.S. operators and aircraft conduct operations in the European Airspace Designated for Basic Area Navigation (RNP-5 and 10).
Chapter 6 Reference 6.1.1	All United States helicopters used in commercial air transport are certified as commuter or on demand operations. Maintenance on United States commuter and on demand helicopters may be performed by either an approved maintenance organization, a certified mechanic, or by persons under the supervisions of a certified mechanic.
Chapter 6 Reference 6.2.2	The U.S. requires that records of work must be retained until the work is repeated, superseded by other work, or for one year after the work is performed.
Chapter 6 Reference 6.3.1	The U.S. does not require an operator's maintenance training program to include training in knowledge and skills related to human performance.
Chapter 6 Reference 6.4.2	The U.S. requires that records of work be retained until the work is repeated, superseded by other work for one year after the work is performed, but does not require the records be retained after the until has been permanently withdrawn from service.
Chapter 6 Reference 6.8.2	The U.S. requires that records of work must be retained until the work is repeated, superseded by other work, or for one year after the work is performed.
Chapter 7 Reference 7.4.2.2	Helicopter pilots are not required to demonstrate to the operator an adequate knowledge of the specific areas described in 7.4.3.2

Chapter 7 Reference 7.5	The U.S. practice is to require a spare set of correcting lenses only when a flight crew member's defective visual acuity necessitates a limitation on the pilot's medical certificate.
Chapter 9 Reference 9.5	The U.S. does not require that an operator keep a list of the emergency and survival equipment carried on board any of their helicopters engaged in international air navigation.
Chapter 11 Reference 11.1	A checklist containing procedures to be followed in searching for a suspected bomb is not required to be aboard the aircraft. The U.S. requires that crew members be trained in dealing with explosives that may be on board an aircraft, but this does not necessarily include training on how to search for an explosive.
Chapter 11 Reference 11.2.1	The U.S. does not require an operator to establish and maintain a training program that enables crew members to act in the most appropriate manner to minimize the consequences of acts of unlawful interference.
Chapter 11 Reference 11.2.2	The U.S. does not require an operator to establish and maintain a training program that enables crew members to act in the most appropriate manner to minimize the consequences of acts of unlawful interference.
Chapter 11 Reference 11.3	The pilot-in-command is not required to submit, without delay, a report of an act of unlawful interference to the designated local authority.
Section III	**International General Aviation**
	Intentionally left blank

ANNEX 7 – AIRCRAFT NATIONALITY AND REGISTRATION MARKS	
3.3.1 and 4.2.1	The marks on wing surfaces are not required.
3.2.5 and Section 8	Identification plates are not required on unmanned, free balloons.
4.2.2	The minimum height of marks on small (12,500 lb or less), fixed−wing aircraft is 3 inches when none of the following exceeds 180 knots true airspeed: (1) design cruising speed; (2) maximum operating limit speed; (3) maximum structural cruising speed; and (4) if none of the foregoing speeds have been determined for the aircraft, the speed shown to be the maximum cruising speed of the aircraft.
Section 6	A centralized registry of unmanned free balloons is not maintained. Operators are required to furnish the nearest ATC facility with a prelaunch notice containing information on the date, time, and location of release, and the type of balloon. This information is not maintained for any specified period of time.
Section 8	United States Identification plate does not have nationality or registration mark. ICAO ID plate information required by Annex 7.8 does not include nationality or registration mark. Also for non Part 121 and commuter aircraft, location must be either adjacent to and aft of the rear-most entrance door or on the fuselage near the tail surfaces.

ANNEX 8 − AIRWORTHINESS OF AIRCRAFT	
PART II Procedures for Certification and Continued Airworthiness	
Chapter 1	**Type Certification**
1.2.5	ICAO requires that the design of an aircraft under ICAO Annex 8, Parts IIIB, IVB, and V use alternative fire extinguishing agents to halon in the lavatories, engines, and auxiliary power units. The United States does not have a similar requirement.
PART III Aeroplanes	
Part IIIA	
Chapter 4	**Design and Construction**
4.1.6 (b), 4.1.6 (g), 4.1.6 (h), 4.1.6 (i)	The United States does not have similar requirements. The FAA has begun work in an effort to amend the U.S. regulations with the purpose of eventually meeting the intent of these provisions.
Chapter 8	**Instruments and Equipment**
8.4.1	ICAO requires that airplanes operating on the movement area of an airport shall have airplane lights of such intensity, color, fields of coverage and other characteristics to furnish personnel on the ground with as much time as possible for interpretation and for subsequent maneuver necessary to avoid a collision. The FAA has no such requirement.
8.4.2 (b)	This provision addresses the lights' affect on outside observers in reference to "harmful dazzle." The U.S. regulations do not address the affect of aircraft lights on outside observers. However, visibility to other pilots and the lights' affect on the flight crew is addressed.
Chapter 9	**Operating Limitations and Information**
9.3.5	The United States does not have similar requirements. The FAA has begun work in an effort to amend the U.S. regulations with the purpose of eventually meeting the intent of these provisions.
Chapter 11	**Security**
11.2, 11.3, 11.4	With the exception of the door required by 11.3, the United States does not have similar requirements. The FAA has begun work in an effort to amend the U.S. regulations with the purpose of eventually meeting the intent of these provisions.
Part IIIB	**Large Aeroplane Certification**
Chapter 3	**Structure**
3.8.2	The corresponding FAA requirement does not specify the use of failsafe principles; however, the FAA does advise the use of failsafe principles.
Chapter 4	**Design and Construction**
4.1.6	On November 28, 2008, the FAA adopted new regulations that meet the intent of these provisions. However, Part IIIB applies to airplanes with a date of application of March 2, 2004 or later, but the U.S. requirements apply to airplanes with a date of application of November 28, 2008 or later.
D.2 (g)	Paragraph D.2.g.1 of the ICAO standard requires a fire suppression system for each cargo compartment accessible to a crewmember in a passenger−carrying airplane. U.S. requirements permit manual fire fighting in an accessible cargo compartment by a crewmember or members for an all−passenger−carrying airplane or a passenger−cargo combination carrying airplane. Additionally, the FAA does not have specific requirements to consider the effects of explosions or incendiary devices.
D.2 (h)	The United States does have provisions to protect against possible instances of cabin depressurization. However, the FAA does not have specific requirements to consider the effects of explosions or incendiary devices.

F.4.1	ICAO requires that airplanes operating on the movement area of an airport shall have airplane lights of such intensity, color, fields of coverage and other characteristics to furnish personnel on the ground with as much time as possible for interpretation and for subsequent maneuver necessary to avoid a collision. The U.S. has no such requirement.
Chapter 7	**Operating Limitations and Information**
7.3.5	The United States does not have similar requirements. The FAA has begun work in an effort to amend the U.S. regulations with the purpose of eventually meeting the intent of these provisions.
Chapter 10	**Security**
10.3.1, 10.3.2	The FAA has a door requirement, but no requirements addressing bulkheads, floors, etc. On January 5, 2007, the FAA published Notice of Proposed Rulemaking that, when adopted, will meet the intent of these provisions.
PART IV Helicopters	
Part IIIB	**Large Aeroplane Certification**
Chapter 2	**Design and Production**
4.2	The United States does not have a specific requirement for physical separation of systems. However, physical separation is considered in the means of compliance to various regulations such as 25.1309, 25.901(c) and 25.903(d).
Part IVA	
Chapter 2	**Flight**
2.2.3.1, 2.2.3.1.1 − 2.2.3.1.4	These provisions address take−off performance data for all classes of helicopters and require that this performance data include the take−off distance required. However, the United States has adopted the requirements only for Category A helicopters.
Chapter 6	**Rotor and Power Transmissions Systems and Powerplant Installation**
6.7	This provision requires that there be a means for restarting a helicopter's engine at altitudes up to a declared maximum altitude. In some cases the FAA does not require demonstration of engine restart capability. Since there is a different level of certitude for transport and normal category helicopters in the United States, the engine restart capability is only required for Category A and B helicopters (14 CFR Part 29) and Category A normal helicopters (14 CFR Part 27).
Chapter 7	**Instruments and Equipment**
7.4.2	This provision addresses the need to switch off or reduce the intensity of the flashing lights. The United States has minimum acceptable intensities that are prescribed for navigation lights and anti−collision lights. No reduction below these levels is possible.
7.4.2 (b)	This provision addresses the lights' affect on outside observers in reference to "harmful dazzle." The U.S. regulations do not address the affect of aircraft lights on outside observers. However, visibility to other pilots and the lights' affect on the flight crew is addressed.
8.4.2 (b)	This provision addresses the lights' affect on outside observers in reference to "harmful dazzle." The U.S. regulations do not address the affect of aircraft lights on outside observers. However, visibility to other pilots and the lights' affect on the flight crew is addressed.
Part IVB	
Chapter 6	**Systems and Equipment**
6.5	U.S. regulations do not address electromagnetic interference from external sources. High Intensity Radiated Fields (HIRF) are addressed by Special Conditions but only for flight critical systems, not flight essential systems.

PART V Small Aeroplanes	
Chapter 8	**Crashworthiness and Cabin Safety**
8.5 (e)	The FAA provides requirements for emergency lighting systems in 14CFR 23.812. These requirements do not address the impact of the fuel spillage on emergency lighting systems. Only commuter category airplanes are required to install emergency lighting systems.

ANNEX 9 – FACILITATION	
*The list of differences include Guam, Puerto Rico, and the U.S. Virgin Islands. The status of implementation of Annex 9 in Guam with respect to public health quarantine is not covered in the list of differences.	
Chapter 2	**Entry and Departure of Aircraft**
2.3	Written crew baggage declaration is required in certain circumstances, and a special Embarkation/Disembarkation Card is required for most alien crew members.
2.4	A General Declaration for all inbound and for outbound flights with commercial cargo are required. However, the General Declaration outbound flights with commercial cargo shall not be required if the declaratory statement is made on the air cargo manifest. No declaration is required for outbound flights without commercial cargo if Customs clearance is obtained by telephone.
Remarks	19 CFR 122
2.4.1	Each crew member must be listed showing surname, given name, and middle initial.
2.4.4	The signing or stamping of the General Declaration protects the carrier by serving as proof of clearance.
2.5	The crew list is required by statute.
2.7	There is a statutory requirement for the Cargo Manifest.
2.8	In order to combat illicit drug smuggling, the U.S. requires the additional following information: the shipper's and the consignee's name and address, the type of air waybills, weight, and number of house air waybills. The manifest submitted in electronic form may become legally acceptable in the future. However, until the compliance rate for the automated manifest is acceptable, the U.S. must be able to require the written form of the manifest.
Remarks	19 CFR 122.48
2.9	Nature of goods information is required.
2.10	Stores list required in all cases but may be recorded on General Declaration in lieu of a separate list.
2.17	A cargo manifest is required except for merchandise, baggage and stores arriving from and departing for a foreign country on the same through flight. "All articles on board which must be licensed by the Secretary of State shall be listed on the cargo manifest." "Company mail shall be listed on the cargo manifest."
2.18	Traveling general declaration and manifest, crew purchases and stores list as well as a permit to proceed are required under various conditions when aircraft arrive in the U.S. from a foreign area with cargo shown on the manifest to be traveling to other airports in the U.S. or to foreign areas.
2.21	There is a statutory requirement that such changes can only be made prior to or at the time of formal entry of the aircraft.
2.25	The U.S. does not support the use of insecticides in aircraft with passengers present. Pesticides registered for such use should not be inhaled. In effect, the passenger safety issue has precluded the use of such insecticides in the presence of passengers since 1979.
2.35	Advance notice is required of the number of citizens and aliens on board (non−scheduled flights only).
2.40	A copy of the contract for remuneration or hire is required to be a part of the application in the case of non−common carrier operations.
2.41	Single inspection is accorded certain aircraft not by size of aircraft but rather by type of operation. Loads (cargo) of an agricultural nature require inspection by a plant or animal quarantine inspector.
2.41c	Fees are charged for services provided in connection with the arrival of private aircraft (nonscheduled aircraft).
Chapter 3	**Entry and Departure of Persons and Their Baggage**
3.3	Medical reports are required in some cases.

Remarks	8 CFR 212.7 and INA 234
3.4	Documents such as visas with certain security devices serve as identity documents.
3.4.1	The U.S. has not standardized the personal identification data included in all national passports to conform with the recommendation in Doc 9303.
3.5.6	U.S. passport fees exceed the cost of the operation.
3.5.7	U.S. allows separate passports for minor dependents under the age of 16 entering the U.S. with a parent or legal guardian.
3.7	The U.S. has a pilot program that allows nationals of certain countries which meet certain criteria to seek admission to the U.S. without a visa for up to 90 days as a visitor for pleasure or business.
Remarks	22 CFR 41.112(d) INA 212(d)(4), INA 238, 8 CFR 214.2(c) INA 217
	The law permits visa waivers for aliens from contiguous countries and adjacent islands or in emergency cases. Visas are also waived for admissible aliens arriving on a carrier which is signatory to an agreement assuring immediate transit of its passengers provided they have a travel document or documents establishing identity, nationality, and ability to enter some country other than the U.S.
3.8	The U.S. charges a fee for visas.
3.8.3	Duration of stay is determined at port of entry.
Remarks	INA 217
3.8.4	A visitor to the U.S. cannot enter without documentation.
Remarks	INA 212(a) (26)
3.8.5	Under U.S. law, the duration of stay is determined by the Immigration Authorities at the port of entry and thus cannot be shown on the visa at the time of issuance.
3.10	Embarkation/Disembarkation Card does not conform to Appendix 4 in some particulars.
3.10.1	The operator is responsible for passengers' presentation of completed embarkation/disembarkation cards.
Remarks	8 CFR 299.3
3.10.2	Embarkation/Disembarkation cards may be purchased from the U.S. Government, Superintendent of Documents.
Remarks	8 CFR 299.3
3.14.2	The U.S. fully supports the electronic Advance Passenger Information (API) systems. However, the WCO/IATA Guideline is too restrictive and does not conform to the advancements in the PAXLIST EDIFACT international standard.
3.15	U.S. Federal Inspection Services' officials see individuals more than once.
3.16	Written baggage declarations by crew members are required in some instances.
3.17.1	The U.S. uses a multiple channel system rather than the dual channel clearance system.
3.23, 3.23.1	Statute requires a valid visa and passport of all foreign crew members.
3.24, 3.24.1, 3.25, 3.25.1, 3.25.2, 3.25.3	Crew members, except those eligible under Visa Waiver Pilot Program guidelines, are required to have valid passports and valid visas to enter the U.S.
Remarks	INA 212(a) (26), INA 252 and 253, 8 CFR 214.1(a), 8 CFR 252.1(c)
3.26, 3.27, 3.28, 3.29	Passports and visas are required for crew and non−U.S. nationals to enter the U.S.
3.33	Does not apply to landing card.
3.35	Law requires that the alien shall be returned to the place whence he/she came. Interpretation of this provision requires that he/she be returned to the place where he/she began his/her journey and not only to the point where he/she boarded the last−used carrier.
3.35.1	Law requires that certain aliens be deported from the U.S. at the expense of the transportation line which brought them to the U.S.
3.36	Statute provides for a fine if a passenger is not in possession of proper documents.

3.39.3	NOTE: The U.S. considers security for individuals in airline custody to be the carrier's responsibility.
3.40.2	Annex 9 recommends that fines and penalties be mitigated if an alien with a document deficiency is eventually admitted to the country of destination.
3.43	Operator can be held responsible for some detention costs.
Chapter 4	**Entry and Departure of Cargo and Other Articles**
4.20	The Goods Declaration as defined by the Kyoto Convention serves as the fundamental Customs document rather than the commercial invoice.
4.40	Aircraft equipment and parts, certified for use in civil aircraft, may be entered duty−free by any nation entitled to most−favored nation tariff treatment. Security equipment and parts, unless certified for use in the aircraft, are not included.
4.41	Customs currently penalizes the exporting carrier for late filing of Shipper's Export Declarations (SEDs) and inaccuracies on bills of lading with respect to the SEDs.
4.42	Regulations require entry of such items, most of which are dutiable by law.
4.44	Certain items in this category are dutiable by law.
4.48	Carriers are required to submit new documentation to explain the circumstances under which cargo manifest is not unladen. No penalty is imposed if the carrier properly reports this condition.
4.50	The procedures for adding, deleting, or correcting manifest items require filing a separate document.
4.55	The U.S. requires a transportation in−bond entry or a special manifest bonded movement for this type of movement.
Chapter 5	**Traffic Passing Through the Territory of a Contracting State**
5.1	Such traffic must be inspected at airports where passengers are required to disembark from the aircraft and no suitable sterile area is available.
5.2	Passports and visas are waived for admissible aliens arriving on a carrier which is signatory to an agreement assuring immediate transit of its passengers provided they have a travel document or documents establishing identity, nationality, and ability to enter some country other than the U.S.
5.3	Such traffic must be inspected at airports where no suitable sterile area is available.
5.4	Passports and visas are waived for admissible aliens arriving on a carrier which is signatory to an agreement assuring immediate transit of its passengers provided they have a travel document or documents establishing identity, nationality, and ability to enter some country other than the U.S.
5.4.1	Passengers will not be required to obtain and present visas if they will be departing from the U.S. within 8 hours of arrival or on the first flight thereafter departing for their destination.
5.8	Examination of transit traffic is required by law. Transit passengers without visas are allowed one stopover between the port of arrival and their foreign destination.
5.9	Passports and visas are required generally for transit passengers who are remaining in the U.S. beyond 8 hours or beyond the first available flight to their foreign destinations.
Chapter 6	**International Airports − Facilities and Services for Traffic**
6.3.1	Procedures involving scheduling committees raise a number of anti−trust problems under U.S. law.
6.33	Sterile physical facilities shall be provided, and in−transit passengers within those areas shall be subject to immigration inspection at any time.
Remarks	OI 214.2(c)
6.34	The U.S. inspects crew and passengers in transit.
6.36	The U.S. inspects crew and passengers in transit.

6.56	Operators of aircraft are statutorily required to pay overtime charges for federal inspections conducted outside normal scheduled hours of operation. This requirement places aircraft operators in a less favorable position than operators of highway vehicles and ferries who are statutorily exempt from such charges.
Chapter 8	**Other Facilitation Provisions**
8.1	Separate bonds are required.
8.3.2	Visas are issued by the Department of State and are not issued at ports of entry.

ANNEX 10 − AERONAUTICAL TELECOMMUNICATIONS	
ANNEX 10 − VOLUME 1 − RADIO NAVIGATION AIDS	
PART I	
Chapter 3	**Specifications for Radio Navigation Aids**
3.1.4.1, 3.1.4.2	The United States does not require such aircraft ILS equipment immunity. Interference from FM broadcast signals will not adversely affect aircraft navigation and communications systems in the United States airspace.
3.3.4.2	The US minimum VOR signal strength is -120 dBW/m2. The ICAO requirement is - 107 dBW/m2.
3.3.8.1, 3.3.8.2	The United States does not require such equipage for aircraft. Interference from FM broadcast signals will not adversely affect aircraft navigation and communications systems in the United States airspace.
3.7.3.5.3.1	Currently, the service volume of GBAS in FAA Order 6050.32B is 23 NM up to 10,000 feet vs. 15 and 20 NM ICAO standard.
3.7.3.5.4.1	In the U.S., the LAAS operates on center frequencies from 112.050 to 117.950 MHz vs. ICAO's 108.0 to117.975 MHz with the lowest assignable frequency of 112.05 MHz and the last upper assignable frequency of 117.150 MHz vs. ICAO's 108.025 MHz and 117.900 MHz respectively.
3.7.3.5.3	Currently, the service volume of GBAS in FAA Order 6050.32B is 23 NM up to 10,000 feet.
Appendix B	**TECHNICAL SPECIFICATIONS FOR THE GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS)**
3.6.7.2.3.5	A solution has been implemented in the US which does not require protection level bounding for rare anomalous ionospheric storms under extreme conditions. The solution requires denial of the approach service when anomalous ionosphere conditions could cause potentially large residual errors and allows operations when estimated residual errors would be below a threshold. The resulting errors under the threshold were found to be acceptable using specific safety assessments and criteria for this equipment.
3.6.8.2.2.5.3	In the U.S., the LAAS operates above the ILS LOC frequency band on center frequencies from 112.05 to 117.950 MHz; therefore, this standard does not apply.
3.6.8.2.2.6	Currently, the D/U standard for co−channel rejection is the same as the ICAO standard of 26 dB. However, D/U standard for the second adjacent channel rejection is 46 dB, which is 3 dB less than the ICAO standard. In addition, no third adjacent channel rejection standard exists in Order 6050.32B.
3.6.8.2.2.6.1c	In the U.S., the LAAS operates above the ILS LOC frequency band on center frequencies from 112.05 to 117.950 MHz; therefore, this standard does not apply.
3.6.8.2.2.6.2a	In the U.S., the LAAS receiver protection from an undesired LAAS signal offset by +/− 50 kHz is 46 dB vs. ICAOs 43 dB.
3.6.8.2.2.6.2c	In the U.S., the LAAS operates above the ILS LOC frequency band on center frequencies from 112.05 to 117.950 MHz.
3.6.8.2.2.6.3	In the U.S., the LAAS receiver protection from an undesired LAAS, VOR, or ILS signal offset by +/− 75 to +/− 975 kHz is not considered during the frequency assignment process.
3.6.8.2.2.6.3c	In the U.S., the LAAS operates above the ILS LOC frequency band on center frequencies from 112.05 to 117.950 MHz.
3.6.8.2.2.6.4	In the U.S., the LAAS receiver protection from an undesired LAAS, VOR, or ILS signal offset by +/− 1 MHz or more is not considered during the frequency assignment process.
Attachment C	**INFORMATION AND MATERIAL FOR GUIDANCE IN THE APPLICATION OF THE STANDARDS AND RECOMMENDED PRACTICES FOR ILS, VOR, PAR, 75 MHz MARKER BEACONS (EN−ROUTE), NDB AND DME**
2.6.2.1.1 and 2.6.2.1.2	The US frequency protections for ILS localizers are 3 dB more stringent than the ICAO protections (i.e. 23 dB vs. 20 dB for co−channel, −4 dB vs. −7 dB for interim 1st adjacent channels, −31 dB vs.−34 dB for final 1st adjacent channels, −43 dB vs. −46 dB for 2nd adjacent channels, and −47 dB vs. −50 dB for 3rd adjacent channels).

2.6.2.2.1	The US frequency protections for ILS localizers are 3 dB more stringent than the ICAO protections (i.e. 23 dB vs. 20 dB for co−channel, −4 dB vs. −7 dB for interim 1st adjacent channels, −31 dB vs. −34 dB for final 1st adjacent channels, −43 dB vs. −46 dB for 2nd adjacent channels, and −47 dB vs. −50 dB for 3rd adjacent channels).
3.4.6.1 a),b),c) 3.4.6.2 a),b),c)	The US frequency protections for co−channel, 1st and 2nd adjacent channels for VOR are 3 dB more stringent than the ICAO protections (i.e. 23 dB vs. 20 dB for co−channel, −4 dB vs. −7 dB for interim 1st adjacent channels, −31 dB vs. −34 dB for final 1st adjacent channels, −43 dB vs. −46 dB for 2nd adjacent channels).
3.4.6.1 d) 3.4.6.2 d)	The US does not provide any VOR frequency protection for 3rd adjacent channels. The ICAO protection provides −50 dB for 3rd adjacent channels.
7.1.8.1 7.1.8.2 Table C−6	The US frequency protections for co−channel and 1st adjacent channels for DME are 3 dB more stringent than the ICAO protections (i.e. 11 dB vs. 8 dB for co−channel, −39 dB vs. −42 dB for 1st adjacent channels). The US frequency protection for 2nd adjacent channels for DME is 28 dB more stringent than the ICAO protection (i.e. − 47 dB vs. − 75 dB).
Attachment D	**INFORMATION AND MATERIAL FOR GUIDANCE IN THE APPLICATION OF THE GNSS STANDARDS AND RECOMMENDED PRACTICES**
7.2.1.5 and Table D−4	In the U.S., the LAAS/LAAS co−channel geographical separation is 159 nm at 10,000 and 20,000 ft. ICAO separation is 195 nm at 10,000 ft. The first adjacent channel in the U.S. is equivalent to the ICAO second adjacent channel or +/− 50 kHz. The ICAO separation requirement for GBAS/GBAS second adjacent channel separation is 24 NM. In the U.S., geographical separations are not required between LAAS facilities, which differ in frequency by more than 25 kHz.
7.2.1.6 and Table D−5	Distances shown in ICAO Table D−5 are different from the distances in FAA Order 6050.32B figures 203 and 204 since in the U.S. the separation distances are calculated using the same method as for VOR described in FAA Order 6050.32B.
ANNEX 10 – VOLUME II – COMMUNICATION PROCEDURES INCLUDING THOSE WITH PANS STATUS	
Chapter 3	**General Procedures for the International Aeronautical Telecommunication Service**
3.2.2, 3.2.3	US regulations do not have any specific procedures for closing down international aeronautical stations. All international aeronautical stations in the U.S. operate continuously (24 hours a day and seven days a week)
Chapter 5	**Aeronautical Mobile Service – Voice Communications**
5.1.5	US regulations do not require pilots to wait 10 seconds before making a second call. US regulations only require “a few seconds” instead of “10 seconds.”
5.2.1.4.1.1	The United States directs that, for air carriers and other civil aircraft having FAA authorized call signs, the call sign should be followed by the flight number in group form; and for air carriers of foreign registry, the flight number should be stated in group form, or using separate digits if that is the format used by the pilot.
5.2.1.4.1.1	The United States issues surface wind using the word “wind” followed by the separate digits of the indicated wind direction to the nearest 10−degree multiple, the word “at” and the separate digits of the indicated velocity in knots, to include any gusts.
5.2.1.4.1.3	The United States issues the separate digits of a frequency, inserting the word “point” where the decimal point occurs.
5.2.2.7.1.2	US regulations do not specifically require pilots to send a message twice preceded with the phrase “TRANSMITTING BLIND”. US regulations provides general procedures which allow pilots to make blind transmissions in case of emergency.

5.2.2.7.1.3.1	US regulations do not specifically require pilots to make a blind transmission preceded by “TRANSMITTING BLIND DUE TO RECEIVER FAILURE” with respect to the continuation of the flight of the aircraft. US regulations provide general procedures which allow pilots to make appropriate blind transmissions.
5.2.2.7.2.1, 5.2.2.7.2.2, 5.2.2.7.2.3	US regulations do not specifically require aeronautical stations to get assistance from other aircraft in case of communications failure. US regulations require aeronautical stations to use “all appropriate means” available to re−establish communications with aircraft.
5.2.2.7.2.4	US regulations do not provide this specific standard. US regulations require aeronautical stations to use “all appropriate means” available to re−establish communications with aircraft.
5.2.2.7.3.1	US regulations do not specifically require pilots to make a blind transmission preceded by “TRANSMITTING BLIND DUE TO RECEIVER FAILURE”. US regulations provide general procedures which allow pilots to make appropriate blind transmissions.
ANNEX 10 − VOLUME III − COMMUNICATION SYSTEMS	
PART I − DIGITAL DATA COMMUNICATION SYSTEMS	
Chapter 7	**Aeronautical Mobile Airport Communications System (AeroMACS)**
7.4.5.1 (d)	In the U.S., the power spectral density of any frequency removed from the assigned frequency above 150% of the authorized frequency is 50 dB or 55 + log (P) dB, whichever is the lesser attenuation. ICAO requires 50 dB.
PART II − VOICE COMMUNICATION SYSTEMS	
Chapter 2	**Aeronautical Mobile Service**
2.2.1.2	ICAO recommends a signal−in−space field strength of 75 uv/m (−109dBW/m^2), which translates to –82.5 dBm at the input of the receiver assuming 0 dB system losses. In the U.S., per RTCA DO−186a MOPS, the input power to the aircraft receiver should be −87 dBm.
2.3.3.1 2.3.3.2 2.3.3.3 2.3.3.4	The US does not require aircraft flying within the US airspace to meet the interference immunity performance of paragraphs 2.3.3.1, 2.3.3.2, and 2.3.3.3 and the recommendation of paragraph 2.3.3.4 of Annex 10, Vol 3, Part 2, Chapter 2. The FAA, based on the recommendations of the. Aviation Rulemaking Advisory Committee, made a decision, in 1996, not to adopt the FM interference immunity performance standards in the U.S. The U.S. continues to use its own FM immunity standards to avoid FM interference in aircraft.
2.3.3.4	The U.S. does not require airborne VHF communications receiving systems to meet the FM broadcast immunity performance standards recommended by ICAO.
ANNEX 10 − VOLUME IV − SURVEILLANCE AND COLLISION AVOIDANCE SYSTEMS	
Chapter 3	**Surveillance Systems**
3.1.1.7.13	SPI required to be transmitted for 18 +/− 1 second. US regulations are more stringent than ICAO.
Chapter 4	**Airborne Collision Avoidance System**
4.2.3.3.4	The TSO−C118 (RTCA DO−197) implements this requirement. However, the requirement of limiting Mode S power to the level of Mode A/C (paragraph 4.2.3.4) is not implemented.
4.3.1.1.1	Specifies a nominal cycle of 1 second
4.3.2.1.2	The US specifies a false track probability of less than 1.2% for Mode A/C and less than 0.1% for Mode S.
4.3.5.3.1	Software versions 6.04A, version 7.0 and version 7.1 are all approved for operations in U.S. airspace.

4.3.5.3.2	No changes planned to the current U.S. guidance. Per Advisory Circular (AC) 120−55C, Change 1, Section 11 (MAINTENANCE), para c., TCAS Software Updates: "when necessary, operators should ensure that appropriate TCAS software updates are incorporated. The latest version of software for TCAS II is version 7.1. To ensure compatibility with international standards, the FAA encourages the installation of this software as practical. Software version 6.04A, version 7.0 and version 7.1 are all approved for operations in U.S. airspace."
4.3.5.3.3	No changes planned to the current U.S. guidance. Per Advisory Circular (AC) 120−55C, Change 1, Section 11 (MAINTENANCE), para c., TCAS Software Updates: "when necessary, operators should ensure that appropriate TCAS software updates are incorporated. The latest version of software for TCAS II is version 7.1. To ensure compatibility with international standards, the FAA encourages the installation of this software as practical. Software version 6.04A, version 7.0 and version 7.1 are all approved for operations in U.S. airspace."
ACAS	The US uses the term Traffic Alert and Collision Avoidance System (TCAS). The difference of terminology does not impact interoperability of the systems.
ANNEX 10 − VOLUME V − AERONAUTICAL RADIO FREQUENCY SPECTRUM UTILIZATION	
Chapter 2	**Distress frequencies**
2.1.1	All emergency locator transmitters installed on or after 1 January 2002 and carried in compliance with Standards of Annex 6, Parts I, II and III shall operate on both 406 MHz and 121.500 MHz or on 121.5 MHz.
Chapter 4	**Utilization of frequencies above 30 MHz**
4.1.2.4	FAA has not issued a mandatory carriage of VDL Mode 3 and VDL Mode 4. Participation in CPDLC (VDL Mode 2) "is at the discretion of the flight crew and/or operator" (NAS Data Communications Guide, version 8, September 10, 2019).
4.1.2.4.1	FAA has not issued a mandatory carriage of VDL Mode 3 and VDL Mode 4.
4.1.4.1	The US does not provide the 20 dB desired−to−undesired signal protection for VHF frequency assignments. The US provides 14 dB.
4.1.4.2	The US does not require aircraft flying within the US airspace to meet one of the characteristics dealing with the FM interference immunity performance. The U.S. Aviation Rulemaking Committee made a decision not to adopt the FM interference immunity performance standards in the U.S. The U.S. continues to use its own FM immunity standards to avoid FM interference in aircraft.
4.1.6.1.2	Assignable frequencies in 25 KHz steps in the US are 121.550 − 123.075 MHz instead of 121.550 – 123.050 MHz, and 123.125 – 136.975 MHz instead of 123.150 – 136.475 MHz.
4.2.3	The US does not follow the VOR assignment priority as defined in Section 4.2.3. Due to severe frequency congestion in the U.S., the ICAO frequency assignment priority order would result in inefficient use of the radio spectrum.

ANNEX 11 − AIR TRAFFIC SERVICES	
Chapter 1	**Definitions**
Accepting Unit	The term “receiving facility” is used.
Advisory Airspace	Advisory service is provided in terminal radar service areas and the outer area associated with class C airspace areas as well as Class E airspace.
Advisory Route	Advisory service is provided in terminal radar service areas and the outer area associated with class C airspace areas as well as Class E airspace.
ACAS– Airborne Collision Avoidance System	Traffic Alert and Collision Avoidance System (TCAS) – An airborne collision avoidance system based on radar beacon signals which operates independent of ground−based equipment. 14 CFR 1.1 further defines and breaks down TCAS into TCAS 1 – provides traffic advisories 2 – provides traffic advisories and resolution advisories in the vertical plane and 3 – provides traffic advisories and resolution advisories in the vertical and horizontal planes.
AIRMET	FAA Pilot Controller Glossary defines (in part) AIRMET as “In−flight weather advisories issued only to amend the area forecast concerning weather phenomena which are of operational interest to all aircraft and potentially hazardous to aircraft having limited capability because of lack of equipment instrumentation or pilot qualifications....” The ICAO definition of AIRMET narrows the purpose of the advisory to “low−level aircraft operations”, where the FAA has a more broad definition to encompass “all aircraft and ... aircraft having limited capability...” Also, ICAO uses the term “forecast ... for the flight information region” where the FAA uses “area forecast”. Difference in character (terminology) for area forecast. FAA uses AIRMETS for broader purpose.
Air traffic control unit	The U.S. uses the term “air traffic control facility”. (i.e. En Route, Terminal, or Flight Service)
Air traffic services reporting office	FAA Pilot Control Glossary defines (in part) Flight Service Stations (FSS) as “air traffic facilities which provide pilot briefing, en route communications and VFR search and rescue services, assist lost aircraft in emergency situations, relay ATC clearances, originate Notices to Air Missions, broadcast aviation weather and NAS information, receive and process IFR flight plans....” FSS’s are available to receive any reports concerning air traffic services as well as accept and file flight plans.
Air traffic services unit	The U.S. uses “Air Route Traffic Control Center”.
Airway	A Class E airspace area established in the form of a corridor, the centerline of which is defined by radio navigational aids.
Alert Phase	Alert – a notification to a position that there is an aircraft−to−aircraft or aircraft−to−airspace conflict as detected by automated problem detection.
Altitude	Height above ground level (AGL), mean sea level (MSL) or indicate altitude.
Apron Management Service	Ground control or ramp control provide the same service. There is no formal definition in the Pilot Controller Glossary.
Area Control Centre	The U.S. uses the terms “Traffic Control Center”, “Radar Approach Control Facility”, and “Tower” to define a facility that provides air traffic control service to aircraft operating on IFR flight plans within controlled airspace and principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.
Area Control Service	Air Traffic Control − A service operated by appropriate authority to promote the safe, orderly and expeditious flow of air traffic.
Controlled flight	The US uses the term “IFR Clearance”.

Control Zone	The US uses the term “Surface Area”. Surface area is airspace contained by the lateral boundary of the Class B, C, D, or E airspace designated for an airport that begins at the surface and extends upward.
Cruising Level	Cruising Altitude – an altitude or flight level maintained during en route level flight. This is a constant altitude and should not be confused with a cruise clearance.
Downstream Clearance	Same as air traffic control clearance. Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.
Flight Information Centre	In the US, flight information service and alerting service are often provided by flight service stations.
Level	The term “altitude” is used.
Maneuvering Area	Any locality either on land, water, or structures, including airports/heliports and intermediate landing fields, which is used, or intended to be used, for the landing and takeoff of aircraft whether or not facilities are provided for the shelter, servicing, or for receiving or discharging passengers or cargo.
Meteorological office	No PCG definition. However FSSs perform this duty.
Movement Area	The runways, taxiways, and other areas of an airport/heliport which are utilized for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports/heliports with a tower, specific approval for entry onto the movement area must be obtained from ATC.
Pilot−in−com mand	The person who has final authority for the operation and safety of the flight has been designated as pilot in command before or during the flight and hold the appropriate category, class and type rating for the flight.
Traffic avoidance advice	US uses the term “Safety Alert”
Traffic information	US uses the term “Traffic Advisory”
Waypoint	A predetermined geographical position used for route/instrument approach definition, progress reports, published VFR routes, visual reporting points or points for transitioning and/or circumnavigating controlled and/or special use airspace, that is defined relative to a VORTAC station or in terms of latitude/longitude coordinates.
Chapter 2	**General**
2.3.2	Annex 11, paragraph 2.3.2 directs the flight information service to accomplish objective d) of para 2.2, “to provide advice and information for the safe and efficient conduct of flight.” Details on procedures to accomplish this objective are contained in FAA Order JO 7210.3, Part 4, Flight Service Stations. Specific procedures for accomplishing this objective are contained in FAA Order JO 7110.10, Flight Services. Also, the FAA Pilot Controller Glossary defines a Flight Service Station (FSS) as an air traffic facility which provides pilot briefings, flight plan processing, en route flight advisories, search and rescue services, and assistance to lost aircraft and aircraft in emergency situations. FSSs also relay ATC clearances, process Notices to Air Missions, and broadcast aviation weather and aeronautical information. In Alaska, FSSs provide Airport Advisory Services.
2.5.2.2.1	FAA uses the generic term “controlled airspace” and “surface areas”
2.5.2.2.1.1	FAA also provides this service in Class E.

2.5.2.2.2	Annex 11, paragraph 2.3.2 directs the flight information service to accomplish objective d) of para 2.2, "to provide advice and information for the safe and efficient conduct of flight." Details on procedures to accomplish this objective are contained in FAA Order 7210.3, Part 4, Flight Service Stations. Specific procedures for accomplishing this objective are contained in FAA Order 7110.10, Flight Services. Also, the FAA Pilot Controller Glossary defines Flight Service Stations as "air traffic facilities which provide pilot briefing, en route communications and VFR search and rescue services, assist lost aircraft and aircraft in emergency situations, relay ATC clearances, originate Notices to Air Missions, broadcast aviation weather and NAS information, receive and process IFR flight plans, and monitor NAVAIDs. In addition, at selected locations, FSSs provide En Route Flight Advisory Service (Flight Watch), take weather observations, issue airport advisories, and advise Customs and Immigration of trans−border flights."
2.6.1	The U.S. has chosen not to use Class F airspace.
2.11.3.2.2	Class E−5 700/1200−foot airspace areas are used for transitioning aircraft to/from the terminal or en route environment.
2.11.3.3	En Route Domestic Airspace Areas consist of Class E airspace that extends upward from a specified altitude to provide controlled airspace in those areas where there is a requirement to provide IFR en route ATC services but the Federal airway structure is inadequate. En Route Domestic Airspace Areas may be designated to serve en route operations when there is a requirement to provide ATC service but the desired routing does not qualify for airway designation. Offshore/ Control Airspace Areas are locations designated in international airspace (between the U.S. 12−mile territorial limit and the CTA/FIR boundary, and within areas of domestic radio navigational signal or ATC radar coverage) wherein domestic ATC procedures may be used for separation purposes.
2.11.5.1	A Class D airspace area shall be of sufficient size to: 1. Allow for safe and efficient handling of operations. 2. Contain IFR arrival operations while between the surface and 1,000 feet above the surface, and IFR departure operations while between the surface and the base of adjacent controlled airspace. Size and shape may vary to provide for 1 and 2. The emphasis is that a Class D area shall be sized to contain the intended operations.
2.11.5.3	Refer to Surface Areas. The U.S. uses the term "Surface Area". Surface area is airspace contained by the lateral boundary of the Class B, C, D, or E airspace designated for an airport that begins at the surface and extends upward.
2.26.5	No time is issued prior to taxi for take−off. Time checks are given to the nearest quarter minute.
2.29	Process is described in the FAA Safety Management System Manual and the FAA Order 1100.161.
Chapter 3	**Air Traffic Control Service**
3.2	Air Route Traffic Control Facilities (ARTCC) are used instead of Area Control Service, and Terminal Control Facilities instead of Approach Control Service.
3.6.2.4	The U.S does not specify notification of 2−way communication. The accepting unit shall not alter the clearance of an aircraft that has not yet reached the transfer of control point without the prior approval of the transferring unit.
3.7.3.1	Air crews are not required to read back clearances, only to acknowledge receipt of clearances.
3.7.3.1.1	Air crews are not required to read back clearances, only to acknowledge receipt of clearances.
3.7.3.3	The U.S. only requires a read back for operations regarding hold short instructions. Controllers may request a read back whenever they feel a read back is necessary.
3.7.4.3	4−3−8. COORDINATION WITH RECEIVING FACILITY Coordinate with the receiving facility before the departure of an aircraft if the departure point is less than 15 minutes flying time from the transferring facility's boundary unless an automatic transfer of of data between automated systems will occur, in which case the flying time requirement may be reduced to 5 minutes or replaced with a mileage from the boundary parameter when mutually agreeable to both facilities.

3.7.4.4	4−4−5. CLASS G AIRSPACE Include routes through Class G airspace only when requested by the pilot. NOTE−1. Flight plans filed for random RNAV routes through Class G airspace are considered a request by the pilot. 2. Flight plans containing MTR segments in/through Class G airspace are considered a request by the pilot. Air Traffic Control Clearance means an authorization by air traffic control within controlled airspace.
Chapter 4	**Flight Information Service**
4.2.2	No Class F airspace. Collision Hazard information is provided between known traffic to aircraft in Class G airspace.
Chapter 6	**Air Traffic Services Requirements for Communications**
6.1.1.4 6.2.2.3.8	The US uses a 45 day retention period.
6.2.3.6	The US has a 45 day or longer retention period, with some exceptions. US en route facilities using system analysis recording tapes as their radar retention media shall retain radar data for 15 days. Facilities using a teletype emulator or console printout must be retained for 30 days unless they are related to an accident or incident. A facility using a console typewriter printout take−up device may retain the printout on the spool for 15 days after the last date on the spool. If a request is received to retain data information following an accident or incident, the printout of the relative data will suffice and the tape/disc may then be returned to service through the normal established rotational program.
6.3.1.3	The US has a 45 day or longer retention period except that those facilities utilizing an analog voice recorder system shall retain voice recordings for 15 days.
6.4.1.2	The US retains surveillance data recordings for 45 days or longer when they are pertinent to an accident or incident investigation, except that en route facilities using system analysis recording tapes as their radar retention media (regardless of the type of voice recorder system being used) shall retain voice recordings for 15 days and those facilities using an analog voice recorder system shall retain voice recordings for 15 days. FAA's Air Traffic Control System Command Center shall retain voice recordings for 15 days.
Chapter 7	**Air Traffic Services Requirements for Information**
7.1.5	The term "communication station" is not used but the flight information is passed.
7.6	Temporary Flight Restrictions (TFRs) are the mechanism that would be implemented in such cases.
Appendix 2	**Principles Governing the Establishment and Identification of Significant Points**
3.1	In US, per FAA Order 8260.19D, there are some points not to be named. Fixes used for navigation not to be named include Visual Descent Points (VDPs), radar fixes used on ASR and/or PAR procedures, RNAV missed approach point at threshold, and an ATD fix located between the MAP and the landing area marking the visual segment descent point on COPTER RNAV PinS approach annotated "PROCEED VISUALLY." Additionally, there are some non-pronounceable points allowed. Order 8260.19 states "Except as noted below, each name must consist of a 5-letter pronounceable word. These non-pronounceable exceptions include; Stepdown fixes between FAF and MAP, Missed Approach Points (MAP), Computer Navigation Fixes (CNFs), and VFR Waypoints.

Appendix 4	ATS Airspace Classifications
	Speed restrictions of 250 knots do not apply to aircraft operating beyond 12 NM from the coast line within the U.S. Flight Information Region, in offshore Class E airspace below 10,000 feet MSL. Paragraph (a) of § 91.117 of Title 14 of the Code of Federal Regulations (CFR) provides that "Unless otherwise authorized by the Administrator, no person may operate an aircraft below 10,000 feet MSL at an indicated airspeed of more than 250 knots." Within domestic airspace, a pilot operating at or above 10,000 MSL on an assigned speed adjustment greater than 250 knots is expected to comply with § 91.117(a) when cleared below 10,000 feet MSL without notifying Air Traffic Control (ATC). The Federal Aviation Administration has proceeded from an operational perspective that the speed restrictions of § 91.117(a) do not apply to U.S.-registered aircraft, via § 91.703(a)(3), when operating outside the United States (and not within another country's territorial airspace).
Appendix 6	**Fatigue Risk Management System (FRMS) Requirements**
1.2 f)	Breaks ("relief periods") required to be "of reasonable duration" (Section 2−5−4c) and "administered in an equitable manner" (2−6−6a)y. Minimum duration not defined except for a meal break (30 minutes).
1.2 Note	Variation from prescriptive schedule rules must be entered into the Daily Record of Facility Operation at the time of the deviation.
3 b)	FAA does not have *specific* processes for deviations or variations from prescriptive fatigue management regulations.

ANNEX 12 − SEARCH AND RESCUE
There are no reportable differences between U.S. regulations and the Standards and Recommended Practices contained in this Annex.

ANNEX 13 − AIRCRAFT ACCIDENT INVESTIGATION	
Chapter 5	**Investigation**
5.12	The full exchange of information is vital to effective accident investigation and prevention. The U.S. supports, in principle, measures that are intended to facilitate the development and sharing of information. The laws of the U.S. require the determination and public reporting of the facts, circumstances, and probable cause of every civil aviation accident. This requirement does not confine the public disclosure of such information to an accident investigation. However, the laws of the U.S. do provide some protection against public dissemination of certain information of a medical or private nature. Also, U.S. law prohibits the disclosure of cockpit voice recordings to the public and limits the disclosure of cockpit voice recording transcript to that specific information which is deemed pertinent and relevant by the investigative authority. However, U.S. Courts can order the disclosure of the foregoing information for other than accident investigation purposes. The standard for determining access to this information does not consider the adverse domestic or international effects on investigations that might result from such access.
5.25 h)	Investigative procedures observed by the U.S. allow full participation in all progress and investigation planning meetings; however, deliberations related to analysis, findings, probable causes, and safety recommendations are restricted to the investigative authority and its staff. However, participation in these areas is extended through timely written submissions, as specified in paragraph 5.25 i).
5.26 b)	The U.S. supports, in principle, the privacy of the State conducting the investigation regarding the progress and the findings of that investigation. However, the laws of the U.S. facilitate the public disclosure of information held by U.S. government agencies and U.S. commercial business. The standard for determining public access to information requested from a U.S. government agency or a commercial business does not consider or require the expressed consent of the State conducting the investigation.
Chapter 6	**Reporting**
6.13	The U.S. supports the principle of not circulating, publishing, or providing access to a draft report or any part thereof unless such a report or document has already been published or released by the State which conducted the investigation. However, the laws of the U.S. facilitate the public disclosure of information held by government agencies and commercial business. The U.S. government may not be able to restrict public access to a draft report or any part thereof on behalf of the State conducting the investigation. The standard for determining public access to information requested from a U.S. government agency or a commercial business does not consider or require the expressed consent of the State conducting an investigation.

ANNEX 14 − AERODROMES	
VOLUME 1 − AERODROME DESIGN AND OPERATIONS	
Chapter 1	**General**
1.2.1	Airports in the U.S. are for the most part owned and operated by local governments and quasi−government organizations formed to operate transportation facilities. The Federal Government provides air traffic control, operates and maintains NAVAIDs, provides financial assistance for airport development, certificates major airports, and issues standards and guidance for airport planning, design, and operational safety. There is general conformance with the Standards and Recommended Practices of Annex 14, Volume I. At airports with scheduled passenger service using aircraft having more than nine seats, compliance with standards is enforced through regulation and certification. At other airports, compliance is achieved through the agreements with individual airports under which Federal development funds were granted; or, through voluntary actions.
1.3.1 1.3.2 1.3.3 1.3.4	In the U.S., the Airport Reference Code is a two−component indicator relating the standards used in the airport's design to a combination of dimensional and operating characteristics of the largest aircraft expected to use the airport. The first element, Aircraft Approach Category, corresponds to the ICAO PANS−OPS approach speed groupings. The second, Airplane Design Group, corresponds to the wingspan groupings of code element 2 of the Annex 14, Aerodrome Reference Code. See below:

TBL GEN 1.7−1

Airport Reference Code (ARC)

Aircraft Approach Category	Approximate Annex 14 Code Number
A	1
B	2
C	3
D	4
E	−
Airplane Design Group	**Corresponding Annex 14 Code Letter**
I	A
II	B
III	C
IV	D
V	E
VI	F (proposed)

EXAMPLE: AIRPORT DESIGNED FOR B747−400 ARC D−V.

Chapter 2	Aerodrome Data
2.2.1	The airport reference point is recomputed when the ultimate planned development of the airport is changed.
2.9.6 2.9.7	Minimum friction values have not been established to indicate that runways are "slippery when wet." However, U.S. guidance recommends that pavements be maintained to the same levels indicated in the ICAO Airport Services Manual.
2.11.3	If inoperative fire fighting apparatus cannot be replaced immediately, a NOTAM must be issued. If the apparatus is not restored to service within 48 hours, operations shall be limited to those compatible with the lower index corresponding to operative apparatus.
2.12 e)	Where the original VASI is still installed, the threshold crossing height is reported as the center of the on−course signal, not the top of the red signal from the downwind bar.

Chapter 3	Physical Characteristics
3.1.2*	The crosswind component is based on the ARC: 10.5 kt for AI and BI; 13 kt for AII and BII; 16 kt for AIII, BIII and CI through DIII; 20 kts for AIV through DVI.
3.1.9*	Runway widths (in meters) used in design are shown in the table below:

Width of Runway in Meters

Aircraft Approach Category	Airplane Design Group					
	I	II	III	IV	V	VI
A	18[1]	23[1]	—	—	45	60
B	18[1]	23[1]	—	—	45	60
C	30	30	30[2]	45	45	60
D	30	30	30[2]	45	45	60

[1]The width of a precision (lower than $^3/_4$ statute mile approach visibility minimums) runway is 23 meters for a runway which is to accommodate only small (less than 5,700 kg) airplanes and 30 meters for runways accommodating larger airplanes.

[2]For airplanes with a maximum certificated take−off mass greater than 68,000 kg, the standard runway width is 45 meters.

3.1.12*	Longitudinal runway slopes of up to 1.5 percent are permitted for aircraft approach categories C and D except for the first and last quarter of the runway where the maximum slope is 0.8 percent.
3.1.18*	Minimum and maximum transverse runway slopes are based on aircraft approach categories as follows: For categories A and B: 1.0 − 2.0 percent C and D: 1.0 − 1.5 percent
3.2.2	The U.S. does not require that the minimum combined runway and shoulder widths equal 60 meters. The widths of shoulders are determined independently.
3.2.3*	The transverse slope on the innermost portion of the shoulder can be as high as 5 percent.
3.3.3 3.3.4* 3.3.5*	A strip width of 120 meters is used for code 3 and 4 runways for precision, nonprecision, and non−instrumented operations. For code 1 and 2 precision runways, the width is 120 meters. For non−precision/visual runways, widths vary from 37.5 meters up to 120 meters.
3.3.9*	Airports used exclusively by small aircraft (U.S. Airplane Design Group I) may be graded to distances as little as 18 meters from the runway centerline.
3.3.14*	The maximum transverse slope of the graded portion of the strip can be 3 percent for aircraft approach categories C and D and 5 percent for aircraft approach categories A and B.
3.3.15*	The U.S. does not have standards for the maximum transverse grade on portions of the runway strip falling beyond the area that is normally graded.
3.3.17*	Runways designed for use by smaller aircraft under non−instrument conditions may be graded to distances as little as 18 meters from the runway centerline (U.S. Airplane Design Groups I and II).
3.4.2*	For certain code 1 runways, the runway end safety areas may be only 72 meters.
3.7.1* 3.7.2*	The U.S. does not provide Standards or Recommended Practices for radio altimeter operating areas.
3.8.3*	The U.S. specifies a 6 meter clearance for Design Group VI airplanes.
3.8.4*	The taxiway width for Design Group VI airplanes is 30 meters.
3.8.5*	The U.S. also permits designing taxiway turns and intersections using the judgmental oversteering method.

3.8.7*	Minimum separations between runway and taxiway centerlines, and minimum separations between taxiways and taxilanes and between taxiway/taxilanes and fixed/moveable objects are shown in the tables that follow. Generally, U.S. separations are larger for non−instrumented runways, and smaller for instrumented runways, than the Annex. Values are also provided for aircraft with wingspans up to 80 meters.

Minimum Separations Between Runway Centerline and Parallel Taxiway/Taxilane Centerline

Operation	Aircraft Approach Category	Airplane Design Group						
		I[1]	I	II	III	IV	V	VI
Visual runways and runways with not lower than 3/4-statute mile (1,200 meters) approach visibility minimums	A and B	150 feet 45 meters	225 feet 67.5 meters	240 feet 72 meters	300 feet 90 meters	400 feet 120 meters	––	––
Runways with lower than 3/4-statute mile (1,200 meters) approach visibility minimums	A and B	200 feet 60 meters	250 feet 75 meters	300 feet 90 meters	350 feet 105 meters	400 feet 120 meters	––	––
Visual runways and runways with not lower than 3/4-statute mile (1,200 meters) approach visibility minimums	C and D	––	300 feet 90 meters	300 feet 90 meters	400 feet 120 meters	400 feet 120 meters	400[2] feet 120[2] meters	600 feet 180 meters
Runways with lower than 3/4-statute mile (1,200 meters) approach visibility minimums	C and D	––	400 feet 120 meters	400 feet 120 meters	400 feet 120 meters	400 feet 120 meters	400[2] feet 120[2] meters	600 feet 180 meters

[1]These dimensional standards pertain to facilities for small airplanes exclusively.

[2]Corrections are made for altitude: 120 meters separation for airports at or below 410 meters; 135 meters for altitudes between 410 meters and 2,000 meters; and, 150 meters for altitudes above 2,000 meters.

Minimum Taxiway and Taxilane Separations:

	Airplane Design Group					
	I	II	III	IV	V	VI
Taxiway centerline to parallel taxiway/ taxilane centerline	69 feet 21 meters	105 feet 32 meters	152 feet 46.5 meters	215 feet 65.5 meters	267 feet 81 meters	324 feet 99 meters
Fixed or movable object	44.5 feet 13.5 meters	65.5 feet 20 meters	93 feet 28.5 meters	129.5 feet 39.5 meters	160 feet 48 meters	193 feet 59 meters
Taxilane centerline to parallel taxilane centerline	64 feet 19.5 meters	97 feet 29.5 meters	140 feet 42.5 meters	198 feet 60 meters	245 feet 74.5 meters	298 feet 91 meters
Fixed or movable object	39.5 feet 12 meters	57.5 feet 17.5 meters	81 feet 24.5 meters	112.5 feet 34 meters	138 feet 42 meters	167 feet 51 meters

3.8.10*	Line−of−sight standards for taxiways are not provided in U.S. practice, but there is a requirement that the sight distance along a runway from an intersecting taxiway must be sufficient to allow a taxiing aircraft to safely enter or cross the runway.
3.8.11*	Transverse slopes of taxiways are based on aircraft approach categories. For categories C and D, slopes are 1.0−1.5 percent; for A and B, 1.0−2.0 percent.
3.11.5	The runway centerline to taxi−holding position separation for code 1 is 38 meters for non−precision operations and 53 meters for precision. Code 3 and 4 precision operations require a separation of 75 meters, except for “wide bodies,” which require 85 meters.

Dimensions and Slopes for Protective Areas and Surfaces

	Precision Approach	Non−precision Instrument Approach			Visual Runway	
	All runways	All runways[a]	Runways other than utility[b]	Utility runways[d]	Runways other than utility	Utility runways
Width of inner edge	305 meters	305 meters	152 meters	152 meters	152 meters	76 meters[c]
Divergency (each side)	15 percent	15 percent	15 percent	15 percent	10 percent	10 percent
Final width	4,877 meters	1,219 meters	1,067 meters[c]	610 meters	475 meters[c]	381 meters[c]
Length	15,240 meters	3,048 meters[c]	3,048 meters[c]	1,524 meters[c]	1,524 meters[c]	1,524 meters[c]
Slope: inner 3,049 meters	2 percent	2.94 percent[c]	2.94 percent[c]	5 percent[c]	5 percent[c]	5 percent[c]
Slope: beyond 3,048 meters	2.5 percent[c]					

[a]With visibility minimum as low as 1.2 km; [b]with visibility minimum greater than 1.2 km; [c]criteria less demanding than Annex 14 Table 4−1 dimensions and slopes. [d]Utility runways are intended to serve propeller−driven aircraft having a maximum take−off mass of 5,570 kg.

Chapter 4	**Obstacle Restriction and Removal**
4.1	Obstacle limitation surfaces similar to those described in 4.1−4.20 are found in 14 CFR Part 77.
4.1.21	A balked landing surface is not used.
4.1.25	The U.S. does not establish take−off climb obstacle limitation areas and surface, *per se*, but does specify protective surfaces for each end of the runway based on the type of approach procedures available or planned. The dimensions and slopes for these surfaces and areas are listed in the table above.
4.2	The dimensions and slopes of U.S. approach areas and surfaces are set forth in the above table. Aviation regulations do not prohibit construction of fixed objects above the surfaces described in these sections.
4.2.1	Primary surface is also used as a civil airport imaginary surface. Primary surface is a surface longitudinally centered on a runway. U.S. uses the width of the primary surface of a runway as prescribed in 14 CFR Part 77.25 for the most precise approach existing or planned for either end of that runway.
4.2.8	The slope and dimensions of the approach surface applied to each end of a runway are determined by the most precise approach existing or planned for that runway end.
4.2.9	Approach surfaces are applied to each end of each runway based upon the type of approach available or planned for that runway end.
4.2.10, 4.2.11	Any proposed construction of or alteration to an existing structure is normally considered to be physically shielded by one or more existing permanent structure(s), natural terrain, or topographic feature(s) of equal or greater height if the structure under consideration is located within the lateral dimensions of any runway approach surface but would not exceed an overall height above the established airport elevation greater than that of the outer extremity of the approach surface, and located within, but would not penetrate, the shadow plane(s) of the shielding structure(s).
4.2.12	The basic principle in applying shielding guidelines is whether the location and height of the structures are such that aircraft, when operating with due regard for the shielding structure, would not collide with that structure.
4.2.16	The size of each imaginary surface is based on the category of each runway according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of a runway are determined by the most precise approach existing or planned for that runway end.
4.2.17	Approach surfaces are applied to each end of each runway based upon the type of approach available or planned for that runway end.

Chapter 5	Visual Aids for Navigation
5.2.1.7*	The U.S. does not require unpaved taxiways to be marked.
5.2.2.2*	The U.S. does not require a runway designator marking for unpaved runways.
5.2.2.4	Zeros are not used to precede single−digit runway markings. An optional configuration of the numeral 1 is available to designate a runway 1 and to prevent confusion with the runway centerline.
5.2.4.2* 5.2.4.3*	Threshold markings are not required, but sometimes provided, for non−instrument runways that do not serve international operations.
5.2.4.5	The current U.S. standard for threshold designation is eight stripes, except that more than eight stripes may be used on runways wider than 45 meters. After 1 January 2008, the U.S. standard will comply with Annex 14.
5.2.4.6	The width and spacing of threshold stripes will comply with Annex 14 after 1 January 2008.
5.2.4.10	When a threshold is temporarily displaced, there is no requirement that runway or taxiway edge markings, prior to the displaced threshold, be obscured. These markings are removed only if the area is unsuitable for the movement of aircraft.
5.2.5.2 5.2.5.3*	Aiming point markings are required on precision instrument runways and code 3 and 4 runways used by jet aircraft.
5.2.5.4	The aiming point marking commences 306 meters from the threshold at all runways.
5.2.6.3	The U.S. pattern for touchdown zone markings, when installed on both runway ends, is only applicable to runways longer than 4,990 feet. On shorter runways, the three pair of markings closest to the runway midpoint are eliminated.
5.2.6.4	The U.S. standard places the aiming point marking 306 meters from the threshold where it replaces one of the pair of three stripe threshold markings. The 306 meters location is used regardless of runway length.
5.2.6.5*	Touchdown zone markings are not required at a non−precision approach runway, though they may be provided.
5.2.7.4*	Runway side stripe markings on a non−instrument runway may have an over−all width of 0.3 meter.
5.2.8.3	Taxiway centerline markings are never installed longitudinally on a runway even if the runway is part of a standard taxi route.
5.2.9.5*	The term "ILS" is used instead of CAT I, CAT II, CAT III.
5.2.11.4 5.2.11.5* 5.2.11.6*	Check−point markings are provided, but the circle is 3 meters in diameter, and the directional line may be of varying width and length. The color is the yellow used for taxiway markings.
5.2.12	Standards for aircraft stand markings are not provided.
5.2.13.1*	Apron safety lines are not required although many airports have installed them.
5.2.14.1	The U.S. does not have standards for holding position markings on roadways that cross runways. Local traffic control practices are used.
5.3.1.1 5.3.1.2*	The U.S. does not have regulations to prevent the establishment of non−aviation ground lights that might interfere with airport operations.
5.3.1.3 5.3.1.4	New approach lighting installations will meet the frangibility requirements. Some existing non−frangible systems may not be replaced before 1 January 2005.
5.3.2.1* 5.3.2.2* 5.3.2.3*	There is no requirement for an airport to have emergency runway lighting available if it does not have a secondary power source. Some airports do have these systems, and there is an FAA specification for these lights.
5.3.3.1 5.3.3.3	Only airports served by aircraft having more than 30 seats are required to have a beacon, though they are available at many others.
5.3.3.6	Although the present U.S. standard for beacons calls for 24−30 flashes per minute, some older beacons may have flash rates as low as 12 flashes per minute.
5.3.3.8	Coded identification beacons are not required and are not commonly installed. Typically, airport beacons conforming to 5.3.3.6 are installed at locations served by aircraft having more than 30 seats.

5.3.4.1	While the U.S. has installed an approach light system conforming to the specifications in 5.3.4.10 through 5.3.4.19, it also provides for a lower cost system consisting of medium intensity approach lighting and sequenced flashing lights (MALSF) at some locations.
5.3.4.2	In addition to the system described in 5.3.4.1, a system consisting of omnidirectional strobe lights (ODALS) located at 90 meters intervals extending out to 450 meters from the runway threshold is used at some locations.
5.3.4.10 through 5.3.4.19	The U.S. standard for a precision approach category I lighting system is a medium intensity approach lighting system with runway alignment indicator lights (MALSR). This system consists of 3 meters barrettes at 60 meters intervals out to 420 meters from the threshold and sequenced flashing lights at 60 meters intervals from 480 meters to 900 meters. A crossbar 20 meters in length is provided 300 meters from the threshold. The total length of this system is dependent upon the ILS glide path angle. For angles 2.75° and higher, the length is 720 meters.
5.3.4.16 5.3.4.31	The capacitor discharge lights can be switched on or off when the steady−burning lights of the approach lighting system are operating. However, they cannot be operated when the other lights are not in operation.
5.3.4.20	The U.S. standard for a precision approach category II and III lighting system has a total length dependent upon the ILS glide path angle. For angles 2.75° and higher, the length is 720 meters.
5.3.5.1 5.3.5.3 5.3.5.4	Visual approach slope indicator systems are not required for all runways used by turbojets except runways involved with land and hold short operations that do not have an electronic glideslope system.
5.3.5.2	In addition to PAPI and APAPI systems, VASI and AVASI type systems remain in service at U.S. airports with commercial service. Smaller general aviation airports may have various other approach slope indicators including tri−color and pulsating visual approach slope indicators.
5.3.5.27	The U.S. standard for PAPI allows for the distance between the edge of the runway and the first light unit to be reduced to 9 meters for code 1 runways used by nonjet aircraft.
5.3.5.42	The PAPI obstacle protection surface used is as follows: The surface begins 90 meters in front of the PAPI system (toward the threshold) and proceeds outward into the approach zone at an angle 1 degree less than the aiming angle of the third light unit from the runway. The surface flares 10 degrees on either side of the extended runway centerline and extends 4 statute miles from its point of origin.
5.3.8.4	The U.S. permits the use of omnidirectional runway threshold identification lights.
5.3.13.2	The U.S. does not require the lateral spacing of touchdown zone lights to be equal to that of touchdown zone marking when runways are less that 45 meters wide. The lateral distance between the markings is 22 meters when installed on runways with a width of 45 meters or greater. The distance is proportionately smaller for narrower runways. The lateral distance between touchdown zone lights is nominally 22 meters but may be reduced to 20 meters to avoid construction problems.
5.3.14	The U.S. has no provision for stopway lights.
5.3.15.1 5.3.15.2*	Taxiway centerline lights are required only below 183 meters RVR on designated taxi routes. However, they are generally recommended whenever a taxiing problem exists.
5.3.15.3 8.2.3	Taxiway centerline lights are not provided on runways forming part of a standard taxi route even for low visibility operations. Under these conditions, the taxi path is coincident with the runway centerline, and the runway lights are illuminated.
5.3.15.5	Taxiway centerline lights on exit taxiways presently are green. However, the new U.S. standard which is scheduled to be published by 1 January 98 will comply with the alternating green/yellow standard of Annex 14.
5.3.15.7*	The U.S. permits an offset of up to 60 cm.
5.3.16.2 8.2.3	Taxiway edge lights are not provided on runways forming part of a standard taxi route.

5.3.17.1 5.3.17.2* 5.3.17.3 5.3.17.4* 5.3.17.5*	Stop bars are required only for runway visual range conditions less than a value of 183 meters at taxiway/runway intersections where the taxiway is lighted during low visibility operations. Once installed, controlled stop bars are operated at RVR conditions less than a value of 350 meters.
5.3.17.6	Elevated stop bar lights are normally installed longitudinally in line with taxiway edge lights. Where edge lights are not installed, the stop bar lights are installed not more than 3 meters from the taxiway edge.
5.3.17.9	The beamspread of elevated stop bar lights differs from the inpavement lights. The inner isocandela curve for the elevated lights is ± 7 horizontal and ± 4 vertical.
5.3.17.12	The U.S. standard for stop bars, which are switchable in groups, does not require the taxiway centerline lights beyond the stop bars to be extinguished when the stop bars are illuminated. The taxiway centerline lights which extend beyond selectively switchable stop bars are grouped into two segments of approximately 45 meters each. A sensor at the end of the first segment re−illuminates the stop bar and extinguishes the first segment of centerline lights. A sensor at the end of the second segment extinguishes that segment of centerline lights.
5.3.18.1*	Taxiway intersection lights are also used at other hold locations on taxiways such as low visibility holding points.
5.3.18.2	Taxiway intersection lights are collocated with the taxiway intersection marking. The marking is located at the following distances from the centerline of the intersecting taxiway: Airplane Design Group — Distance I — 13.5 meters II — 20 meters III — 28.5 meters IV — 39 meters V — 48.5 meters VI — 59 meters
5.3.19.1 5.3.19.2*	Runway guard lights are required only for runway visual range conditions less than a value of 350 meters.
5.3.19.4 5.3.19.5	Runway guard lights are placed at the same distance from the runway centerline as the aircraft holding distance, or within a few feet of this location.
5.3.19.12	The new U.S. standard for in−pavement runway guard lights complies with Annex 14. However, there may be some existing systems that do not flash alternately.
5.3.20.4*	The U.S. does not set aviation standards for flood lighting aprons.
5.3.21	The U.S. does not provide standards for visual docking guidance systems. U.S. manufacturers of these devices generally adhere to ICAO SARPS.
5.3.23.1	The U.S. does not have a requirement for providing roadholding position lights during RVR conditions less than a value of 350 meters.
5.4.1.2	Signs are often installed a few centimeters taller than specified in Annex 14, Volume 1, Table 5−4.
5.4.1.5	Sign inscriptions are slightly larger, and margins around the sign slightly smaller, than indicated in Annex 14, Volume 1, Appendix 4.
5.4.1.6	The sign luminance requirements are not as high as specified in Appendix 4. The U.S. does not specify a nighttime color requirement in terms of chromaticity.
5.4.2.2 5.4.2.4 5.4.2.9 5.4.2.14 5.4.2.16	All signs used to denote precision approach holding positions have the legend "ILS."
5.4.2.6	U.S. practice uses the NO ENTRY sign to prohibit entry by aircraft only.
5.4.2.8 5.4.2.10	The second mandatory instruction sign is usually not installed unless added guidance is necessary.

5.4.2.15	Signs for holding aircraft and vehicles from entering areas where they would infringe on obstacle limitation surfaces or interfere with NAVAIDs are inscribed with the ***designator of the approach***, followed by the letters "*APCH*"; *for example, "15−APCH."*
5.4.3.13 5.4.3.15	U.S. practice is to install signs about 3 to 5 meters closer to the taxiway/runway (See Annex 14, Table 5−4).
5.4.3.16	The U.S. does not have standards for the location of runway exit signs.
5.4.3.24	A yellow border is used on all location signs, regardless of whether they are stand−alone or collocated with other signs.
5.4.3.26	U.S. practice is to use Pattern A on runway vacated signs, except that Pattern B is used to indicate that an ILS critical area has been cleared.
5.4.3.30*	The U.S. does not have standards for signs used to indicate a series of taxi−holding positions on the same taxiway.
5.4.4.4*	The inscription, "VOR Check Course," is placed on the sign in addition to the VOR and DME data.
5.4.5.1*	The U.S. does not have requirements for airport identification signs, though they are usually installed.
5.4.6.1*	Standards are not provided for signs used to identify aircraft stands.
5.4.7.2	The distance from the edge of road to the road−holding position sign conforms to local highway practice.
5.5.2.2* 5.5.7.1*	Boundary markers may be used to denote the edges of an unpaved runway.
5.5.3	There is no provision for stopway edge markers.
Chapter 6	**Visual Aids for Denoting Obstacles**
6.1	Recommended practices for marking and lighting obstacles are found in FAA Advisory Circular 70/7460−1J, Obstruction Marking and Lighting.
6.1.3	Any temporary or permanent structure, including all appurtenances, that exceeds an overall height of 200 feet (61m) above ground level or exceeds any obstruction standard contained in 14 CFR Part 77, should normally be marked and/or lighted.
6.2.1	This chapter provides recommended guidelines to make certain structures conspicuous to pilots during daylight hours. One way of achieving this conspicuity is by painting and/or marking these structures. Recommendations on marking structures can vary depending on terrain features, weather patterns, geographic location, and in the case of wind turbines, number of structures and overall layout of design.
6.2.3*	The maximum dimension of the rectangles in a checkered pattern is 6 meters on a side.
6.2.7	Markers should be displayed in conspicuous positions on or adjacent to the structure so as to retain the general definition of the structure. They should be recognizable in clear air from a distance of at least 4,000 feet (1219m) and in all directions from which aircraft are likely to approach. Markers should be distinctively shaped, i.e., spherical or cylindrical, so they are not mistaken for items that are used to convey other information. They should be replaced when faded or otherwise deteriorated.
6.2.11	Flag markers should be displayed around, on top, or along the highest edge of the obstruction. When flags are used to mark extensive or closely grouped obstructions, they should be displayed approximately 50 feet (15m) apart. The flag stakes should be of such strength and height that they will support the flags above all surrounding ground, structures, and/or objects of natural growth.
6.2.12	Each side of the flag marker should be at least 2 feet (0.6m) in length. Standard does not specifically address mobile objects.
6.2.14	Color patterns. Flags should be colored as follows: solid, orange and white, and checkerboard. Standard does not specifically address mobile objects.

6.3.1	Obstruction lighting may be displayed on structures as follows: aviation red obstruction lights; medium intensity flashing white obstruction lights, high intensity flashing white obstruction lights, dual lighting, obstruction lights during construction, obstruction lights in urban areas, and temporary construction equipment lighting.
6.3.11	The height of the structure AGL determines the number of light levels. Recommendations on marking structures can vary depending on terrain features, weather patterns, geographic location, and in the case of wind turbines, number of structures and overall layout of design.
6.3.13	When a structure lighted by a high intensity flashing light system is topped with an antenna or similar appurtenance exceeding 40 feet (12m) in height, a medium intensity flashing white light (L−865) should be placed within 40 feet (12m) from the tip of the appurtenance. This light should operate 24 hours a day and flash simultaneously with the rest of the lighting system.
6.3.14	The number of light units recommended depends on the diameter of the structure at the top.
6.3.16	Lights should be installed on the highest point at each end. At intermediate levels, lights should be displayed for each 150 feet (46m) or fraction thereof. The vertical position of these lights should be equidistant between the top lights and the ground level as the shape and type of obstruction will permit. One such light should be displayed at each outside corner on each level with the remaining lights evenly spaced between the corner lights.
6.3.17	Lights should be installed on the highest point at each end. At intermediate levels, lights should be displayed for each 150 feet (46m) or fraction thereof. The vertical position of these lights should be equidistant between the top lights and the ground level as the shape and type of obstruction will permit. One such light should be displayed at each outside corner on each level with the remaining lights evenly spaced between the corner lights.
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6.3.19, 6.3.20	One or more light units is needed to obtain the desired horizontal coverage. The number of light units recommended per level (except for the supporting structures of catenary wires and buildings) depends upon the average outside diameter of the specific structure, and the horizontal beam width of the light fixture. The light units should be installed in a manner to ensure an unobstructed view of the system by a pilot approaching from any direction. The number of lights recommended is the minimum. The U.S. does not utilize Type A or Type B obstacle lights. Recommendations on marking structures can vary depending on terrain features, weather patterns, geographic location, and in the case of wind turbines, number of structures and overall layout of design.
6.3.21* 6.3.22*	The effective intensity, for daylight−luminance background, of Type A high−intensity obstacle lights is 270,000 cd ± 25 percent. The effective intensity, for daylight−luminance background, of Type B high−intensity obstacle lights is 140,000 cd ± 25 percent.
6.3.22	The height of the structure AGL determines the number of light levels. The light levels may be adjusted slightly, but not to exceed 10 feet (3m) when necessary to accommodate guy wires and personnel who replace or repair light fixtures. If an adjacent object shields any light, horizontal placement of the lights should be adjusted or additional lights should be mounted on that object to retain or contribute to the definition of the obstruction. Recommendations on marking structures can vary depending on terrain features, weather patterns, geographic location, and in the case of wind turbines, number of structures and overall layout of design.

6.3.23, 6.3.24, 6.3.27, 6.3.29	Red obstruction lights are used to increase conspicuity during nighttime. The red obstruction lighting system is composed of flashing omnidirectional beacons (L−864) and/or steady burning (L−810) lights. When one or more levels is comprised of flashing beacon lighting, the lights should flash simultaneously. The U.S. does not utilize Type A, B, C, or D obstacle lights. Recommendations on marking structures can vary depending on terrain features, weather patterns, geographic location, and in
6.3.28	When objects within a group of obstructions are approximately the same overall height above the surface and are located a maximum of 150 feet (46m) apart, the group of obstructions may be considered an extensive obstruction. Install light units on the same horizontal plane at the highest portion or edge of prominent obstructions. Light units should be placed to ensure that the light is visible to a pilot approaching from any direction.
6.3.30, 6.3.31, 6.3.32	The medium intensity flashing white light system is normally composed of flashing omni−directional lights. Medium intensity flashing white obstruction lights may be used during daytime and twilight with automatically selected reduced intensity for nighttime operation. The U.S. does not utilize Type A, B, or C obstacle lights. Medium intensity flashing white (L−865) obstruction lights may provide conspicuity both day and night. Recommendations on marking structures can vary depending on terrain features, weather patterns, geographic location, and in the case of structures and overall layout of design.
6.3.35	Use high intensity flashing white obstruction lights during daytime with automatically selected reduced intensities for twilight and nighttime operations. When high intensity white lights are operated 24 hours a day, other methods of marking and lighting may be omitted. The U.S. does not utilize Type A obstacle lights. Lighting with high intensity (L−856) flashing white obstruction lights provides the highest degree of conspicuity both day and night. Recommendations on marking structures can vary depending on terrain features, weather patterns, geographic location, and in the case of wind turbines, number of structures and overall layout of design.
Chapter 7	**Visual Aids for Denoting Restricted Use Areas**
7.1.2*	A "closed" marking is not used with partially closed runways. See 5.2.4.10, above.
7.1.4	Crosses with shapes similar to figure 7.1, illustration b) are used to indicate closed runways and taxiways. The cross for denoting a closed runway is yellow.
7.1.5	In the U.S. when a runway is permanently closed, only the threshold marking, runway designation marking, and touchdown zone marking need be obliterated. Permanently closed taxiways need not have the markings obliterated.
7.1.7	The U.S. does not require unserviceability lights across the entrance to a closed runway or taxiway when it is intersected by a night−use runway or taxiway.
7.4.4	Flashing yellow lights are used as unserviceability lights. The intensity is such as to be adequate to delineate a hazardous area.
Chapter 8	**Equipment and Installations**
8.1.5* 8.1.6* 8.1.7 8.1.8	A secondary power supply for non−precision instrument and non−instrument approach runways is not required, nor is it required for all precision approach runways. The U.S. does not provide secondary power specifically for take−off operations below 550 meters RVR.
8.2.1	There is no requirement in the U.S. to interleave lights as described in the Aerodrome Design Manual, Part 5.
8.2.3	See 5.3.15.3 and 5.3.16.2
8.7.2* 8.7.3 8.7.4*	Glide slope facilities and certain other installations located within the runway strip, or which penetrate obstacle limitation surfaces, may not be frangibly mounted.

8.9.7*	A surface movement surveillance system is recommended for operations from 350 meters RVR down to 183 meters. Below 183 meters RVR, a surface movement radar or alternative technology is generally required.
Chapter 9	**Emergency and Other Services**
9.1.1	Emergency plans such as those specified in this section are required only at airports serving scheduled air carriers using aircraft having more than 30 seats. These airports are certificated under 14 CFR Part 139. In practice, other airports also prepare emergency plans.
9.1.12	Full−scale airport emergency exercises are conducted at intervals, not to exceed three years, at airports with scheduled passenger service using aircraft with more than 30 seats.
9.2.1	Rescue and fire fighting equipment and services such as those specified in this section are required only at airports serving scheduled air carriers in aircraft having more than 30 seats. Such airports generally equate to ICAO categories 4 through 9. Other airports have varying degrees of services and equipment.
9.2.3*	There is no plan to eliminate, after 1 January 2005, the current practice of permitting a reduction of one category in the index when the largest aircraft has fewer than an average of five scheduled departures a day.
9.2.4 9.2.5	The level of protection at U.S. airports is derived from the length of the largest aircraft serving the airport similar to the Annex's procedure, except that maximum fuselage width is not used. U.S. indices A−E are close equivalents of the Annex's categories 5−9. The U.S. does not have an equivalent to category 10.

Fire Extinguishing Agents and Equipment

Index	Aircraft length		Total minimum quantities of extinguishing agents			
	More than	Not more than	Dry chemical	Water for protein foam	Minimum trucks	Discharge rate[1]
A		27 meters	225 kg	0	1	See below
B	27 meters	38 meters	225 kg	5,700 L	1	See below
C	38 meters	48 meters	225 kg	5,700 L	2	See below
D	48 meters	60 meters	225 kg	5,700 L	3	See below
E	60 meters		225 kg	11,400 L	3	See below

[1]Truck size	Discharge rate
1,900 L but less than 7,600	at least 1,900 L per minute but not more than 3,800 L per minute
7,600 L or greater	at least 2,280 L per minute but not more than 4,560 L per minute

9.2.10	The required firefighting equipment and agents by index are shown in the table above. The substitution equivalencies between complementary agents and foam meeting performance level A are also used for protein and fluoroprotein foam. Equivalencies for foam meeting performance level B are used only for aqueous film forming foams.
9.2.18*	There is no specific requirement to provide rescue equipment as distinguished from firefighting equipment.
9.2.19*	At least one apparatus must arrive and apply foam within 3 minutes with all other required vehicles arriving within 4 minutes. Response time is measured from the alarm at the equipment's customary assigned post to the commencement of the application of foam at the mid−point of the farthest runway.
9.2.29*	For ICAO category 6 (U.S. index B), the U.S. allows one vehicle.

9.4.4	At the present time, there is no requirement to perform tests using a continuous friction measuring device with self−wetting features. Some U.S. airports own these devices, while others use less formal methods to monitor build−up of rubber deposits and the deterioration of friction characteristics.
9.4.15	The standard grade for temporary ramps is 15 feet longitudinal per 1 inch of height (0.56 percent slope) maximum, regardless of overlay depth.
9.4.19	There is no U.S. standard for declaring a light unserviceable if it is out of alignment or if its intensity is less than 50 percent of its specified value.

*Indicates ICAO Recommended Practice

ANNEX 14 − AERODROMES	
VOLUME II − HELIPORTS	
Chapter 1	**Definitions**
Declared distances	The U.S. does not use declared distances (take−off distance available, rejected take−off distance available, or landing distance available) in designing heliports.
Final approach and take−off area (FATO)	The U.S. ‘‘take−off and landing area’’ is comparable to the ICAO FATO, and the U.S. ‘‘FATO’’ is more comparable to the ICAO TLOF. The U.S. definition for the FATO stops with ‘‘the take−off manoeuvre is commenced.’’ This difference in definition reflects a variation in concept. The rejected take−off distance is an operational computation and is not required as part of the design.
Helicopter stand	The U.S. does not use the term “helicopter stand.” Instead, the U.S. considers paved or unpaved aprons, helipads, and helidecks, all as helicopter parking areas; i.e., helicopter stands.
Safety area	The U.S. considers the safety area to be part of the take−off and landing area which surrounds the FATO and does not call for or define a separate safety area.
Touchdown and lift−off area (TLOF)	The U.S. differs in the definition by considering helipads and helidecks to be FATO. The U.S. does not define the load bearing area on which the helicopter may touch down or lift−off as a TLOF.
Chapter 2	**Heliport Data**
2.1 d)	The U.S. does not measure or report a safety area as a separate feature of a heliport.
2.2	The U.S. does not ‘‘declare’’ distances for heliports.
Chapter 3	**Physical Characteristics**
3.1.2	The U.S. does not distinguish between single−engine and multi−engine helicopters for the purposes of heliport design standards. Neither does the U.S. design or classify heliports on the basis of helicopter performance. The U.S. FATO dimensions are at least equal to the rotor diameter of the design single rotor helicopter and the area must be capable of providing ground effect. The U.S. does not have alternative design standards for water FATOs, elevated heliports, or helidecks.
3.1.3	The U.S. has a single gradient standard; i.e., 5 percent, except in fueling areas where the limit is 2 percent, which is applicable for all portions of heliports.
3.1.6 3.1.7* 3.1.8*	The U.S. does not require or provide criteria for clearways in its design standards. It does encourage ownership and clearing of the land underlying the innermost portion of the approach out to where the approach surface is 10.5 meters above the level of the take−off surface.
3.1.14 to 3.1.21	Safety areas are considered part of the take−off and landing area (or primary surface) in U.S. heliport design. The take−off and landing area of the U.S. design criteria, based on 2 rotor diameters, provides for the ICAO safety area; however, the surface does not have to be continuous with the FATO or be load bearing.
3.1.22	Taxiway widths are twice the undercarriage width of the design helicopter.
3.1.23	The U.S. requires 1.25 rotor diameters plus 2 meters of separation between helicopter ground taxiways.
3.1.24	The U.S. gradient standard for taxiways is a maximum of 5 percent.
3.1.32*	The U.S. sets no gradient standards for air taxiways.
3.1.33	The U.S. requires 1.5 rotor diameters of separation between hover or air taxiways.
3.1.34	The U.S. standards for air taxiways and air transit routes are combined as the standards for hover taxiways noted in paragraphs 3.1.23, 3.1.24 and 3.1.33.
3.1.35	The U.S. sets no maximum turning angle or minimum radius of turn on hover taxiways.
3.1.36	The U.S. gradient standard for aprons is a maximum of 5 percent except in fueling areas where it is 2 percent.
3.1.37	The U.S. criterion for object clearances is 1/3 rotor diameter or 3 meters, whichever is greater.
3.1.38	The U.S. standard for helipads (comparable to helicopter stands) is 1.5 times the undercarriage length or width, whichever is greater.

3.1.39	The U.S. standard for separation between FATO center and the centerline of the runway is 120 meters.
3.2.2	The U.S. does not apply either a performance related or an alternative design standard for elevated heliport facilities.
3.2.5 to 3.2.10	The U.S. does not use safety areas in its heliport design.
3.3 3.4	In the U.S., shipboard and relocatable off−shore helicopter "helideck" facilities are under the purview of the U.S. Coast Guard and utilize the International Maritime Organization (IMO) code. Fixed off−shore helideck facilities are under the purview of the Department of Interior based on their document 351DM2. Coastal water helideck facilities are under the purview of the individual affected States.
Chapter 4	**Obstacle Restriction and Removal**
4.1.1	The U.S. approach surface starts at the edge of the take−off and landing area.
4.1.2 a)	The U.S. approach surface width adjacent to the heliport take−off and landing area is a minimum of 2 rotor diameters.
4.1.2 b) 2)	The U.S. precision instrument approach surface flares from a width of 2 rotor diameters to a width of 1,800 meters at the 7,500 meters outer end. The U.S. does not use a note similar to the one that follows 4.1.4, as it does not differentiate between helicopter requirements on the basis of operational performance.
4.1.5	The outer limit of the U.S. transitional surfaces adjacent to the take−off and landing area is 76 meters from the centerline of the VFR approach/departure surfaces. The transitional surface width decreases to zero at a point 1,220 meters from the take−off and landing area. It does not terminate at an inner horizontal surface or at a predetermined height.
4.1.6	The U.S. transitional surfaces have a fixed width, 76 meters less the width of the take−off and landing area, from the approach centerline for visual operations and an outwardly flaring width to 450 meters for precision instrument operations. The U.S. does not use an inner horizontal surface nor terminate the transitional surfaces at a fixed/predetermined height.
4.1.7 b)	Since the U.S. includes the safety area in the take−off and landing area, the comparable elevation is at the elevation of the FATO.
4.1.9 through 4.1.20	The U.S. does not use the inner horizontal surface, the conical surface, or take−off climb surface described in these paragraphs or the note following paragraph 4.1.20 for heliport design.
4.1.21 through 4.1.25	The U.S. does not have alternative criteria for floating or fixed−in−place helidecks.
4.2	The U.S. has no requirement for a note similar to the one following the heading "Obstacle limitation requirements."
4.2.1	The U.S. criteria does not require a take−off climb surface or a conical obstacle limitation surface to establish a precision instrument approach procedure.
4.2.2	The U.S. criteria does not require a take−off climb surface or a conical obstacle limitation surface to establish a non−precision instrument approach procedure.
4.2.3	The U.S. criteria does not require a take−off climb obstacle limitation surface to establish a non−instrument approach procedure.
4.2.4*	The U.S. has no requirement for protective surfaces such as an inner horizontal surface or a conical surface.
4.2.5	The U.S. does not have tables for heliport design comparable to the ICAO Tables 4−1 to 4−4.
4.2.6	The U.S. subscribes to the intent of this paragraph to limit object heights in the heliport protective surfaces but uses fewer surfaces with different dimensions for those surfaces.
4.2.7*	The U.S. subscribes to the intent of this paragraph but uses different dimensional surfaces.
4.2.8	The U.S. criterion requires that a heliport have at least one approach and departure route and encourages multiple approaches separated by arcs of 90 to 180 degrees.
4.2.9*	The U.S. has no requirement that a heliport's approach surfaces provide 95 percent usability.

4.2.10	Since the U.S. does not differentiate between surface level and elevated heliports, the comments to paragraphs 4.2.1 through 4.2.5 above apply.
4.2.11	The U.S. has no requirement for a take−off climb surface. It does require at least one approach/departure surface and encourages that there be as many approaches as is practical separated by arcs of 90 to 180 degrees.
4.2.12 through 4.2.22	Since the U.S. does not have alternative design criteria for helidecks or shipboard heliports, there are no comparable U.S. protective surface requirements.
Tables 4−1, 4−2, 4−3, 4−4	The U.S. does not have tables comparable to the ICAO Tables 4−1 to 4−4.
Chapter 5	**Visual Aids**
5.2.1	The U.S. does not have criteria for markings to be used in defining winching areas.
5.2.3.3	The U.S. maximum mass markings are specified in 1,000 pound units rather than tonnes or kilograms.
5.2.4.3	The U.S. criterion requires FATO markers but is not specific on the number or spacing between markers.
5.2.4.4	The U.S. criteria for FATO markers is not dimensionally specific.
5.2.6	The U.S. does not require, or have criteria for, marking an aiming point.
5.2.7.1	The U.S. does not require specific criteria for marking floating or off−shore fixed−in−place helicopter or helideck facilities.
5.2.8	The U.S. does not require marking the touchdown area.
5.2.9	The U.S. does not have criteria for heliport name markings.
5.2.10	The U.S. does not have a requirement to mark helideck obstacle−free sectors.
5.2.12.2	The U.S. criterion places the air taxiway markers along the edges of the routes rather than on the centerline.
5.2.12.3	The U.S. criterion for air taxiway markers does not specify the viewing area or height to width ratio.
5.3.2.3	The U.S. heliport beacon flashes white−green−yellow colors rather than a series of timed flashes.
5.3.2.5*	The U.S. criteria is not specific on the light intensity of the flash.
5.3.3.3	The U.S. criterion specifies a 300 meters approach light system configuration. The light bars are spaced at 30 meters intervals. The first two bars of the configuration are single lights, the next two bars are two lights, then two bars with three lights, then two bars with four lights, and finally two bars with five lights.
5.3.3.4	The U.S. approach light system uses aimed PAR−56 lights.
5.3.3.6	The U.S. heliport approach light system does not contain flashing lights.
5.3.5.2 a)	The U.S. requires an odd number of lights, but not less than three lights per side.
5.3.5.2 b)	The U.S. requires a minimum of eight lights for a circular FATO and does not specify the distance between lights.
5.3.5.4*	The U.S. criteria does not specify light distribution.
5.3.6	The U.S. does not have specific criteria for aiming point lights.
5.3.8	The U.S. does not have standards for winching area lighting.
Chapter 6	**Heliport Services**
6.1*	The U.S. requirements for rescue and fire fighting services at certificated heliports are found in 14 CFR Part 139. Criteria for other heliports are established by the National Fire Protection Association (NFPA) pamphlets 403 or 418, or in regulations of local fire departments.

*Indicates ICAO Recommended Practice

ANNEX 15 − AERONAUTICAL INFORMATION SERVICES	
Chapter 1	**General**
ASHTAM	The U.S. doesn't have a series of NOTAM called ASHTAM.
Danger area	Danger Areas do not exist in the U.S. Equivalent/similar areas are defined, designated & charted as Prohibited, Warning, Alert, and Restricted Areas."
Pre−flight Information Bulletin (PIB)	The US does not use the term PIB.
Prohibited Area	Additional terminology used by the US.
Restricted Area	Additional terminology used by the US.
SNOWTAM	The US presents the information via a NOTAM.
1.1.20	The US does not use the term ASHTAM.
1.2.2.2	The U.S. utilizes Geoid−03 which is a component of the North American Vertical Datum of 1988 (NAVD 88).
Chapter 5	**Aeronautical Information Products and Services**
5.2.1	Currently, the U.S. does not utilize the ICAO format for domestic NOTAMs. The US NOTAMs that are distributed as International NOTAMs are in ICAO format (excluding the L/L).
5.2.5.1. f)	The US does not produce an Aircraft Parking / Docking Chart.
5.2.6	The U.S. does not use the term SNOWTAM.
Chapter 6	**Aeronautical Information Updates**
6.3.2.1	The U.S. does not routinely issue "trigger NOTAMs" referencing published material when an AIP amendment is issued.
6.3.2.3	The U.S. does not provide a NOTAM for accidental release of radioactive material, toxic chemicals, or volcanic ash deposition.

ANNEX 16 − ENVIRONMENTAL PROTECTION	
VOLUME I − AIRCRAFT NOISE	
Reference: Part 36 of Title 14 of the United States Code of Federal Regulations	
Chapter 1	
1.7	Each person who applies for a type certificate for an airplane covered by 14 CFR Part 36, irrespective of the date of application for the type certificate, must show compliance with Part 36.
Chapter 2	
2.1.1	For type design change applications made after 14 August 1989, if an airplane is a Stage 3 airplane prior to a change in type design, it must remain a Stage 3 airplane after the change in type design regardless of whether Stage 3 compliance was required before the change in type design.
2.3.1 a)	Sideline noise is measured along a line 450 meters from and parallel to the extended runway centerline for two− and three−engine aircraft; for four−engine aircraft, the sideline distance is 0.35 NM.
2.4.2	Noise level limits for Stage 2 derivative aircraft depend upon whether the engine by−pass ratio is less than two. If it is, the Stage 2 limits apply. Otherwise, the limits are the Stage 3 limits plus 3 dB or the Stage 2 value, whichever is lower.
2.4.2.2 b)	Take−off noise limits for three−engine, Stage 2 derivative airplanes with a by−pass ratio equal to or greater than 2 are 107 EPNdB for maximum weights of 385,000 kg (850,000 lb) or more, reduced by 4 dB per halving of the weight down to 92 EPNdB for maximum weights of 28,700 kg (63,177 lb) or less. Aircraft with a by−pass ratio less than 2 only need meet the Stage 2 limits.
2.5.1	Trade−off sum of excesses not greater than 3 EPNdB and no excess greater than 2 EPNdB.
2.6.1.1	For airplanes that do not have turbo−jet engines with a by−pass ratio of 2 or more, the following apply: a) four−engine airplanes − 214 meters (700 feet); b) all other airplanes − 305 meters (1,000 feet). For all airplanes that have turbo−jet engines with a by−pass ratio of 2 or more, the following apply: a) four−engine airplanes − 210 meters (689 feet); b) three−engine airplanes − 260 meters (853 feet); c) airplanes with fewer than three engines − 305 meters (1,000 feet). The power may not be reduced below that which will provide level flight for an engine inoperative or that will maintain a climb gradient of at least 4 percent, whichever is greater.
Chapter 3	
3.1.1	For type design change applications made after 14 August 1989, if an airplane is a Stage 3 airplane prior to a change in type design, it must remain a Stage 3 airplane after the change in type design regardless of whether Stage 3 compliance was required before the change in type design.
3.3.1 a) 2)	The U.S. has no equivalent provision in 14 CFR Part 36.
3.3.2.2	A minimum of two microphones symmetrically positioned about the test flight track must be used to define the maximum sideline noise. This maximum noise may be assumed to occur where the aircraft reaches 305 meters (1,000 feet). 14 CFR Part 36 does not require symmetrical measurements to be made at each and every point for propeller−driven airplane sideline noise determination.
3.6.2.1 c)	Under 14 CFR Part 36, during each test take−off, simultaneous measurements should be made at the sideline noise measuring stations on each side of the runway and also at the take−off noise measuring station. If test site conditions make it impractical to simultaneously measure take−off and sideline noise, and if each of the other sideline measurement requirements is met, independent measurements may be made of the sideline noise under simulated flight path techniques. If the reference flight path includes a power cutback before the maximum possible sideline noise level is developed, the reduced sideline noise level, which is the maximum value developed by the simulated flight path technique, must be the certificated sideline noise value.

3.6.2.1 d)	14 CFR Part 36 specifies the day speeds and the acoustic reference speed to be the minimum approved value of V_2 +10 kt, or the all−engines operating speed at 35 feet (for turbine−engine powered airplanes) or 50 feet (for reciprocating−engine powered airplanes), whichever speed is greater as determined under the regulations constituting the type certification basis of the airplane. The test must be conducted at the test day speeds ±3 kt.
3.7.4	If a take−off test series is conducted at weights other than the maximum take−off weight for which noise certification is requested: a) at least one take−off test must be at or above that maximum weight; b) each take−off test weight must be within +5 or −10 percent of the maximum weight. If an approach test series is conducted at weights other than the maximum landing weight for which certification is requested: a) at least one approach test must be conducted at or above that maximum weight; b) each test weight must exceed 90 percent of the maximum landing weight. Total EPNL adjustment for variations in approach flight path from the reference flight path and for any difference between test engine thrust or power and reference engine thrust or power must not exceed 2 EPNdB.
Chapter 5	
5.1.1	Applies to all large transport category aircraft (as they do to all subsonic turbo−jet aircraft regardless of category). Commuter category aircraft, propeller−driven airplanes below 8,640 kg (19,000 lb) are subject to 14 CFR Part 36, Appendix F or to Appendix G, depending upon the date of completion of the noise certification tests.
Chapter 6	
6.1.1	Applies to new, all propeller−driven airplane types below 19,000 lb (8,640 kg.) in the normal, commuter, utility, acrobatic, transport, or restricted categories for which the noise certification tests are completed before 22 December 1988.
Chapter 8	
General	14 CFR Part 36 (Section 36.1 (h)) defines Stage 1 and Stage 2 noise levels and Stage 1 and Stage 2 helicopters. These definitions parallel those used in 14 CFR Part 36 for turbo−jets and are used primarily to simplify the acoustical change provisions in Section 36.11. 14 CFR Part 36 (Section 36.805(c)) provides for certain derived versions of helicopters for which there are no civil prototypes to be certificated above the noise level limits.
8.1.1 a)	Applicable to new helicopter types for which application for an original type certificate was made on or after 6 March 1988.
8.1.1 b)	Applicable only to “acoustical changes” for which application for an amended or supplemental type certificate was made on or after 6 March 1988.
8.4	14 CFR Part 36 Appendix H specifies a slightly different rate of allowable maximum noise levels as a function of helicopter mass. The difference can lead to a difference in the calculated maximum noise limits of 0.1 EPNdB under certain roundoff condition.
8.6.3.1 b)	Does not include the V_{NE} speeds.
8.7	14 CFR Part 36 Appendix H does not permit certain negative corrections. Annex 16 has no equivalent provision.
8.7.4	EPNL correction must be less than 2.0 EPNdB for any combination of lateral deviation, height, approach angle and, in the case of flyover, thrust or power. Corrections to the measured data are required if the tests were conducted below the reference weight. Corrections to the measured data are required if the tests were conducted at other than reference engine power.
8.7.5	The rotor speed must be maintained within one percent of the normal operating RPM during the take−off procedure.
8.7.8	The helicopter shall fly within ±10° from the zenith for approach and take−off, but within ±5° from the zenith for horizontal flyover.

Chapter 10	
General	Exception from acoustical change rule given for aircraft with flight time prior to 1 January 1955 and land configured aircraft reconfigured with floats or skis.
10.1.1	Applies to new, amended, or supplemental type certificates for propeller−driven airplanes not exceeding 8,640 kg (19,000 lb) for which noise certification tests have not been completed before 22 December 1988.
10.4	The maximum noise level is a constant 73 dBA up to 600 kg (1,320 lb). Above that weight, the limit increases at the rate of 1 dBA/75kg (1 dBA/165 lb) up to 85 dBA at 1,500 kg (3,300 lb) after which it is constant up to and including 8,640 kg (19,000 lb).
10.5.2, second phase, d)	For variable−pitch propellers, the definition of engine power is different in the second segment of the reference path. Maximum continuous installed power instead of maximum power is used.
Chapter 11	
11.1	14 CFR Part 36 Appendix J was effective 11 September 1992 and applies to those helicopters for which application for a type certificate was made on or after 6 March 1986.
11.4	14 CFR Part 36 Appendix J specifies a slightly different rate of allowable maximum noise levels as a function of helicopter mass. The difference can lead to a difference in the calculated maximum noise limits of 0.1 EPNdB under certain roundoff condition.
11.6	14 CFR Part 36 Appendix J prescribes a ±15 meter limitation on the allowed vertical deviation about the reference flight path. Annex 16 has no equivalent provision.
PART V	
General	No comparable provision exists in U.S. Federal Regulations. Any local airport proprietor may propose noise abatement operating procedures to the FAA which reviews them for safety and appropriateness.
Appendix 1	
General	Sections 3, 8, and 9 of Appendix 1 which contain the technical specifications for equipment, measurement and analysis and data correction for Chapter 2 aircraft and their derivatives differ in many important aspects from the corresponding requirements in Appendix 2 which has been updated several times. 14 CFR Part 36 updates have generally paralleled those of Appendix 2 of Annex 16. These updated requirements are applicable in the U.S. to both Stage 2 and Stage 3 aircraft and their derivatives.
2.2.1	A minimum of two microphones symmetrically positioned about the test flight track must be used to define the maximum sideline noise. This maximum noise may be assumed to occur where the aircraft reaches 305 meters (1,000 feet), except for four−engine, Stage 2 aircraft for which 439 meters (1,440 feet) may be used.
2.2.2	No obstructions in the cone defined by the axis normal to the ground and the half−angle 80° from the axis.
2.2.3 c)	Relative humidity and ambient temperature over the sound path between the aircraft and 10 meters above the ground at the noise measuring site is such that the sound attenuation in the 8 kHz one−third octave band is not greater than 12 dB/100 meters and the relative humidity is between 20 and 95 percent. However, if the dew point and dry bulb temperature used for obtaining relative humidity are measured with a device which is accurate to within one−half a degree Celsius, the sound attenuation rate shall not exceed 14 dB/100 meters in the 8 kHz one−third octave band.
2.2.3 d)	Test site average wind not above 12 kt and average cross−wind component not above 7 kt.
2.3.4	The aircraft position along the flight path is related to the recorded noise 10 dB downpoints.
2.3.5	At least one take−off test must be a maximum take−off weight and the test weight must be within +5 or −10 percent of maximum certificated take−off weight.
Appendix 2	
2.2.1	A minimum of two symmetrically placed microphones must be used to define the maximum sideline noise at the point where the aircraft reaches 305 meters.

2.2.2	When a multiple layering calculation is required, the atmosphere between the airplane and the ground shall be divided into layers. These layers are not required to be of equal depth, and the maximum layer depth must be 100 meters.
2.2.2 b)	14 CFR Part 36 specifies that the lower limit of the temperature test window is 36 degrees Fahrenheit (2.2 degrees Celsius). Annex 16 provides 10 degrees Celsius as the lower limit for the temperature test window. 14 CFR Part 36 does not specify that the airport facility used to obtain meteorological condition measurements be within 2,000 meters of the measurement site.
2.2.2 c)	14 CFR Part 36 imposes a limit of 14 dB/100 meters in the 8 kHz one−third octave band when the temperature and dew point are measured with a device which is accurate to within one−half a degree Celsius.
2.2.3	14 CFR Part 36 requires that the limitations on the temperature and relative humidity test window must apply over the whole noise propagation path between a point 10 meters above the ground and the helicopter. Annex 16 specifies that the limitations on the temperature and relative humidity test window apply only at a point 10 meters above the ground. 14 CFR Part 36 requires that corrections for sound attenuation must be based on the average of temperature and relative humidity readings at 10 meters and the helicopter. Annex 16 implies that the corrections for sound absorption are based on the temperature and relative humidity measured at 10 meters only.
3.2.6	No equivalent requirement.
3.4.5	For each detector/integrator the response to a sudden onset or interruption of a constant sinusoidal signal at the respective one−third octave band center frequency must be measured at sampling times 0.5, 1.0, 1.5, and 2.0 seconds after the onset or interruption. The rising responses must be the following amounts before the steady−state level: 0.5 seconds: 4.0 ± 1.0 dB 1.0 seconds: 1.75 ± 0.75 dB 1.5 seconds: 1.0 ± 0.5 dB 2.0 seconds: 0.6 ± 0.5 dB
3.4.5 (Note 1)	No equivalent provision in 14 CFR Part 36.
3.5.2	No equivalent requirement.
5.4	14 CFR Part 36 requires that the difference between airspeed and groundspeed shall not exceed 10 kt between the 10 dB down time period.
8.4.2	14 CFR Part 36 specifies a value of −10 in the adjustment for duration correction. Annex 16 specifies a value of −7.5.
9.1.2, 9.1.3	14 CFR Part 36 always requires use of the integrated procedure if the corrected take−off or approach noise level is within 1.0 dB of the applicable noise limit.
Appendix 6	
4.4.1	The microphone performance, not its dimensions, is specified. The microphone must be mounted 1.2 meters (4 feet) above ground level. A windscreen must be employed when the wind speed is in excess of 9 km/h (5 kt).
5.2.2 a)	Reference conditions are different. Noise data outside the applicable range must be corrected to 77 degrees F and 70 percent humidity.
5.2.2 c)	There is no equivalent provision in 14 CFR Part 36. Fixed−pitch propeller−driven airplanes have a special provision. If the propeller is fixed−pitch and the test power is not within 5 percent of reference power, a helical tip Mach number correction is required.

ANNEX 16 − ENVIRONMENTAL PROTECTION	
VOLUME II − AIRCRAFT ENGINE EMISSIONS	
Chapter 1	
	The U.S. currently has regulations prohibiting intentional fuel venting from turbojet, turbofan and turboprop aircraft, but we do not now have a regulation preventing the intentional fuel venting from helicopter engines.

ANNEX 17 − SECURITY − SAFEGUARDING INTERNATIONAL CIVIL AVIATION AGAINST ACTS OF UNLAWFUL INTERFERENCE
There are no reportable differences between U.S. regulations and the Standards and Recommended Practices contained in this Annex.

ANNEX 18 − THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR
Adopted by the ICAO Council 6/26/81
Effective Date: 1/1/83
Applicability Date: 1/1/84
(Note: Differences are to be filed with ICAO by 6/1/83).

Chapter 1	**General**
1.2.2.2	The U.S. utilizes Geoid−03 which is a component of the North American Vertical Datum of 1988 (NAVD 88).
1.1 ASHTAM	The U.S. doesn't have a series of NOTAM called ASHTAM, although notification procedures are written on handling of Volcanic Ash activity.
1.1 Danger area	"Danger area" is not used in reference to areas within the U.S. or in any of its possessions or territories.
1.1 Maneuvering area	Any locality either on land, water, or structures, including airports/heliports and intermediate landing fields, which is used, or intended to be used, for the landing and takeoff of aircraft whether or not facilities are provided for the shelter, servicing, or for receiving or discharging passengers or cargo.
1.1 Movement area	The runways, taxiways, and other areas of an airport/heliport which are utilized for taxiing/hover−taxiing, air−taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports/heliports with a tower, specific approval for entry onto the movement area must be obtained from ATC.
1.1 Pre−flight Information Bulletin (PIB)	The US does not use the term PIB. However, current NOTAM information is gathered and available through different sources.
1.1 SNOWTAM	The US presents the information in a different manner via a NOTAM.
Chapter 3	**Aeronautical Information Management**
3.6.1	Current quality management system applies only to the Aeronautical Informational Services.
Chapter 5	**Aeronautical Information Products and Services**
5.2.2	The FAA does not use PIBs, but does provide pertinent NOTAM information in plain language form every 28 days in a document called the Notices to Air Missions Publication (NTAP).
5.2.5.1. f)	The US does not produce an Aircraft Parking / Docking Chart.
5.3.3.4.1	The United States does not publish the horizontal extent of obstacles.
Chapter 6	**Aeronautical Information Updates**
6.3.2.1	The U.S. does not routinely issue "trigger NOTAMs" referencing published material when an AIP amendment is issued.
6.3.2.3	The U.S. does not provide a NOTAM for accidental release of radioactive material, toxic chemicals, or volcanic ash deposition.

ANNEX 19 − SAFETY MANAGEMENT	
Chapter 3	**State Safety Management Responsibilities**
3.3.2.1	U.S. does not currently require the implementation of SMS by approved training organizations that are exposed to safety risks related to aircraft operations during the provision of their services; some operators of aeroplanes or helicopters authorized to conduct international commercial air transport; approved maintenance organizations providing services to operators of aeroplanes or helicopters engaged in international commercial air transport; organizations responsible for the type design or manufacture of aircraft, engines or propellers; and operators of certified aerodromes.
3.3.2.3	The U.S. has not established criteria for international general aviation operators of large or turbojet aeroplanes to implement an SMS.

PANS − OPS − 8168/611	
VOLUME 1	
PART III	
Table III−1−1 and Table III−1−2	Max speeds for visual maneuvering (Circling)" must not be applied to circling procedures in the U.S. Comply with the airspeeds and circling restrictions in ENR 1.5, paragraphs 11.1 and 11.6, in order to remain within obstacle protection areas.

PART IV	
1.2.1	The airspeeds contained in ENR 1.5 shall be used in U.S. **CONTROLLED AIRSPACE**.

PAN − ABC − DOC 8400
Differences between abbreviations used in U.S. AIP, International NOTAMs Class I and Class II, and Notices to Air Missions Publication and ICAO PANS − ABC are listed in GEN 2.2**.** For other U.S. listings of abbreviations (contractions) for general use, air traffic control, and National Weather Service (NWS), which differ in some respects, see U.S. publication Contractions Handbook (FAA Order JO 7340.2). In addition, various U.S. publications contain abbreviations of terms used therein, particularly those unique to that publication.

However, when a forecast of improved arrival rate appears reliable, in the opinion of the arrival ARTCC, additional above−quota flights may be approved based on the expectation that by the time these additional above−quota flights become an operational factor in the affected area, the system will be able to absorb them without undue difficulty.

8.5 Long distance flights, which originate beyond the adjacent ARTCC area, will normally be permitted to proceed to a point just short of the arrival ARTCC boundary where a delay, at least equal to the delays (ground/airborne) being encountered, will be assigned.

8.6 ARTCCs imposing ground delays make efforts to advise the users when lengthy delays are a prospect to preclude unnecessary boarding and subsequent unloading prior to actual takeoff due to lengthy unanticipated ground delays. Users should advise the ARTCC through FSS or operation offices when there is any significant change in the proposed departure time so as to permit more efficient flow control planning. Airborne aircraft holding in the adjacent ARTCC airspace generally receive more benefit than ground delayed aircraft when increases unexpectedly develop in the quota number because the reaction time is less. For this reason, whenever operationally feasible, adjacent ARTCCs may offer airborne delay within their areas instead of ground delay.

8.7 Flights originating beyond the adjacent ARTCC areas may not have sufficient fuel to absorb the total anticipated delay while airborne. Accordingly, the concerned adjacent ARTCC may permit these flights to land in its area while retaining previously accumulated delay for the purpose of quota priority. When the amount of air traffic backlogging in an adjacent ARTCC area is approaching the saturation point, additional en route traffic will be subject to prior approval.

8.8 Generally, movement of arrival aircraft into the impacted airport terminal area will be made on the basis that those flights with the most accumulated delay, either ground, airborne, or a combination of both, normally receive priority over other traffic. This applies only to delays encountered because of the situation at the airport of intended landing.

8.9 Pilots/operators are advised to check for flow control advisories which are transmitted to FSSs, to selected airline dispatch offices, and to ARTCCs.

9. Advisory and Air Traffic Information Services

9.1 Approach Control Service for VFR Arriving Aircraft

9.1.1 Numerous approach control facilities have established programs for arriving VFR aircraft to contact approach control for landing information. This information includes: wind, runway, and altimeter setting at the airport of intended landing. This information may be omitted if contained in the ATIS broadcast and the pilot states the appropriate ATIS code.

NOTE−
Pilot use of "have numbers" does not indicate receipt of the ATIS broadcast. In addition, the controller will provide traffic advisories on a workload permitting basis.

9.1.2 Such information will be furnished upon initial contact with the concerned approach control facility. The pilot will be requested to change to the tower frequency at a predetermined time or point, to receive further landing information.

9.1.3 Where available, use of this procedure will not hinder the operation of VFR flights by requiring excessive spacing between aircraft or devious routing. Radio contact points will be based on time or distance rather than on landmarks.

9.1.4 Compliance with this procedure is not mandatory, but pilot participation is encouraged. (See ENR 1.1, Paragraph 39, Terminal Radar Services for VFR Aircraft.)

NOTE−
Approach control services for VFR aircraft are normally dependent on air traffic control radar. These services are not available during periods of a radar outage.

9.2 Traffic Advisory Practices at Airports Without Operating Control Towers

9.2.1 Airport Operations Without an Operating Control Tower

9.2.1.1 There is no substitute for alertness while in the vicinity of an airport. It is essential that pilots be alert and look for other traffic and exchange traffic information when approaching or departing an airport without an operating control tower. This is of particular importance since other aircraft may not have communication capability or, in some cases, pilots may not communicate their presence or intentions when operating into or out of such airports. To achieve the greatest degree of safety, it is essential that:

a) All radio−equipped aircraft transmit/receive on a common frequency identified for the purpose of airport advisories; and

b) Pilots use the correct airport name, as identified in appropriate aeronautical publications, to reduce the risk of confusion when communicating their position, intentions, and/or exchanging traffic information.

9.2.1.2 An airport may have a full or part−time tower or FSS located on the airport, a full or part−time UNICOM station or no aeronautical station at all. There are three ways for pilots to communicate their intention and obtain airport/traffic information when operating at an airport that does not have an operating tower: by communicating with an FSS, a UNICOM operator, or by making a self−announce broadcast.

NOTE−
FSS airport advisories are available only in Alaska.

9.2.1.3 Many airports are now providing completely automated weather, radio check capability and airport advisory information on an automated UNICOM system. These systems offer a variety of features, typically selectable by microphone clicks, on the UNICOM frequency. Availability of the automated UNICOM will be published in the Chart Supplement U.S. and approach charts.

9.2.2 Communicating on a Common Frequency

9.2.2.1 The key to communicating at an airport without an operating control tower is selection of the correct common frequency. The acronym, CTAF, which stands for common traffic advisory frequency, is synonymous with this program. A CTAF is a frequency designated for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a UNICOM, MULTICOM, FSS, or tower frequency and is identified in appropriate aeronautical publications.

NOTE−
FSS frequencies are available only in Alaska.

9.2.2.2 CTAF (Alaska Only). In Alaska, a CTAF may also be designated for the purpose of carrying out advisory practices while operating in designated areas with a high volume of VFR traffic.

9.2.2.3 The CTAF frequency for a particular airport or area is contained in the Chart Supplement U.S., Chart Supplement Alaska, Alaska Terminal Publication, Instrument Approach Procedure Charts, and Instrument Departure Procedure (DP) Charts. Also, the CTAF frequency can be obtained by contacting any FSS. Use of the appropriate CTAF, combined with a visual alertness and application of the following recommended good operating practices, will enhance safety of flight into and out of all uncontrolled airports.

9.2.3 Recommended Traffic Advisory Practices

9.2.3.1 Pilots of inbound aircraft should monitor and communicate on the designated CTAF from 10 miles to landing. Pilots of departing aircraft should monitor/communicate on the appropriate frequency from start−up, during taxi, and until 10 miles from the airport unless the Code of Federal Regulations (CFR) or local procedures require otherwise.

9.2.3.2 Pilots of aircraft conducting other than arriving or departing operations at altitudes normally used by arriving and departing aircraft should monitor/communicate on the appropriate frequency while within 10 miles of the airport unless required to do otherwise by the CFR or local procedures. Such operations include parachute jumping/dropping (see ENR 5.1, Paragraph 2.3, Parachute Jump Aircraft Operations), en route, practicing maneuvers, etc.

9.2.6.4 Straight-in Landings. The FAA discourages VFR straight-in approaches to landings due to the increased risk of a mid-air collision. However, if a pilot chooses to execute a straight-in approach for landing without entering the airport traffic pattern, the pilot should self−announce their position on the designated CTAF approximately 8 to 10 miles from the airport and coordinate their straight−in approach and landing with other airport traffic. Pilots executing a straight−in approach (IFR or VFR) do not have priority over other aircraft in the traffic pattern, and must comply with the provisions of 14 CFR 91.113 (g), Right-of-way rules.

9.2.6.5 Traffic Pattern Operations. All traffic within a 10-mile radius of a non-towered airport or a part-time-towered airport when the control tower is not operating, should monitor and communicate on the designated CTAF when entering the traffic pattern. Pilots operating in the traffic pattern or on a straight-in approach must be alert at all times to other aircraft in the pattern, or conducting straight-in approaches, and communicate their position to avoid a possible traffic conflict. In the airport traffic pattern and while on straight-in approaches to a runway, effective communication and a pilot's responsibility to see-and-avoid are essential mitigations to avoid a possible midair collision. In addition, following established traffic pattern procedures eliminates excessive maneuvering at low altitudes, reducing the risk of loss of aircraft control.

REFERENCE−
FAA Advisory Circular (AC) 90−66, Non−Towered Airport Flight Operations.

9.2.6.6 Practice Approaches. Pilots conducting practice instrument approaches should be particularly alert for other aircraft that may be departing in the opposite direction. When conducting any practice approach, regardless of its direction relative to other airport operations, pilots should make announcements on the CTAF as follows:

a) Departing the final approach fix, inbound (nonprecision approach) or departing the outer marker or fix used in lieu of the outer marker, inbound (precision approach).

b) Established on the final approach segment or immediately upon being released by ATC.

c) Upon completion or termination of the approach; and

d) Upon executing the missed approach procedure.

9.2.6.7 Departing aircraft should always be alert for arrival aircraft coming from the opposite direction.

9.2.6.8 Recommended Self−Announce broadcasts. It should be noted that aircraft operating to or from another nearby airport may be making self-announce broadcasts on the same UNICOM or MULTICOM frequency. To help identify one airport from another, the airport name should be spoken at the beginning and end of each self-announce transmission. When referring to a specific runway, pilots should use the runway number and not use the phrase "Active Runway."

a) Inbound

EXAMPLE−
Strawn traffic, Apache Two Two Five Zulu, (position), (altitude), (descending) or entering downwind/base/ final (as appropriate) runway one seven full stop/touch− and−go, Strawn.
Strawn traffic Apache Two Two Five Zulu clear of runway one seven Strawn.

b) Outbound

EXAMPLE−
Strawn traffic, Queen Air Seven One Five Five Bravo (location on airport) taxiing to runway two six Strawn.

Strawn traffic, Queen Air Seven One Five Five Bravo departing runway two six. "Departing the pattern to the (direction), climbing to (altitude) Strawn."

c) Practice Instrument Approach

EXAMPLE−
Strawn traffic, Cessna Two One Four Three Quebec (position from airport) inbound descending through (altitude) practice (name of approach) approach runway three five Strawn.

Strawn traffic, Cessna Two One Four Three Quebec practice (type) approach completed or terminated runway three five Strawn.

9.2.7 UNICOM Communication Procedures

9.2.7.1 In communicating with a UNICOM station, the following practices will help reduce frequency congestion, facilitate a better understanding of pilot intentions, help identify the location of aircraft in the traffic pattern, and enhance safety of flight:

a) Select the correct UNICOM frequency.

b) State the identification of the UNICOM station you are calling in each transmission.

c) Speak slowly and distinctly.

d) Report approximately 10 miles from the airport, reporting altitude, and state your aircraft type, aircraft identification, location relative to the airport, state whether landing or overflight, and request wind information and runway in use.

e) Report on downwind, base and final approach.

f) Report leaving the runway.

9.2.7.2 Recommended UNICOM Phraseologies:

a) Inbound.

PHRASEOLOGY−
FREDERICK UNICOM CESSNA EIGHT ZERO ONE TANGO FOXTROT 10 MILES SOUTHEAST DESCENDING THROUGH (altitude) LANDING FREDERICK, REQUEST WIND AND RUNWAY INFORMATION FREDERICK.

FREDERICK TRAFFIC CESSNA EIGHT ZERO ONE TANGO FOXTROT ENTERING DOWNWIND/BASE/ FINAL (as appropriate) FOR RUNWAY ONE NINER FULL STOP/TOUCH−AND−GO FREDERICK.

FREDERICK TRAFFIC CESSNA EIGHT ZERO ONE TANGO FOXTROT CLEAR OF RUNWAY ONE NINER FREDERICK.

b) Outbound

PHRASEOLOGY−
FREDERICK UNICOM CESSNA EIGHT ZERO ONE TANGO FOXTROT (location on airport) TAXIING TO RUNWAY ONE NINE, REQUEST WIND AND TRAFFIC INFORMATION FREDERICK.

FREDERICK TRAFFIC CESSNA EIGHT ZERO ONE TANGO FOXTROT DEPARTING RUNWAY ONE NINE. "REMAINING IN THE PATTERN" OR "DEPARTING THE PATTERN TO THE (direction) (as appropriate)" FREDERICK.

9.3 IFR Approaches/Ground Vehicle Operations

9.3.1 IFR Approaches. When operating in accordance with an IFR clearance and ATC approves a change to the advisory frequency, make an expeditious change to the CTAF and employ the recommended traffic advisory procedures.

9.3.2 Ground Vehicle Operation. Airport ground vehicles equipped with radios should monitor the CTAF frequency when operating on the airport movement area and remain clear of runways/taxiways being used by aircraft. Radio transmissions from ground vehicles should be confined to safety−related matters.

9.3.3 Radio Control of Airport Lighting Systems. Whenever possible, the CTAF will be used to control airport lighting systems at airports without operating control towers. This eliminates the need for pilots to change frequencies to turn the lights on and allows a continuous listening watch on a single frequency. The CTAF is published on the instrument approach chart and in other appropriate aeronautical information publications.

observations; for example, contract towers and airport operators may be approved by the Federal Government to provide weather observations.

3.6.11.2 Enhanced Weather Information System (EWINS). An EWINS is an FAA authorized, proprietary system for tracking, evaluating, reporting, and forecasting the presence or lack of adverse weather phenomena. The FAA authorizes a certificate holder to use an EWINS to produce flight movement forecasts, adverse weather phenomena forecasts, and other meteorological advisories. For more detailed information regarding EWINS, see the Aviation Weather Services Advisory Circular 00−45 and the Flight Standards Information Management System 8900.1.

3.6.11.3 Commercial Weather Information Providers. In general, commercial providers produce proprietary weather products based on NWS/FAA products with formatting and layout modifications but no material changes to the weather information itself. This is also referred to as "repackaging." In addition, commercial providers may produce analyses, forecasts, and other proprietary weather products that substantially alter the information contained in government−produced products. However, those proprietary weather products that substantially alter government−produced weather products or information, may only be approved for use by 14 CFR Part 121 and Part 135 certificate holders if the commercial provider is EWINS qualified.

NOTE−
Commercial weather information providers contracted by FAA to provide weather observations, analyses, and forecasts (e.g., contract towers) are included in the Federal Government category of approved sources by virtue of maintaining required technical and quality assurance standards under Federal Government oversight.

3.7 Graphical Forecasts for Aviation (GFA)

3.7.1 The GFA website is intended to provide the necessary aviation weather information to give users a complete picture of the weather that may affect flight in the continental United States (CONUS). The website includes observational data, forecasts, and warnings that can be viewed from 14 hours in the past to 15 hours in the future, including thunderstorms, clouds, flight category, precipitation, icing, turbulence, and wind. Hourly model data and forecasts, including information on clouds, flight category, precipitation, icing, turbulence, wind, and graphical output from the National Weather Service's (NWS) National Digital Forecast Data (NDFD) are available. Wind, icing, and turbulence forecasts are available in 3,000 ft increments from the surface up to 30,000 ft MSL, and in 6,000 ft increments from 30,000 ft MSL to 48,000 ft MSL. Turbulence forecasts are also broken into low (below 18,000 ft MSL) and high (at or above 18,000 ft MSL) graphics. A maximum icing graphic and maximum wind velocity graphic (regardless of altitude) are also available. Built with modern geospatial information tools, users can pan and zoom to focus on areas of greatest interest. Target users are commercial and general aviation pilots, operators, briefers, and dispatchers.

3.7.2 Weather Products.

3.7.2.1 The Aviation Forecasts include gridded displays of various weather parameters as well as NWS textual weather observations, forecasts, and warnings. Icing, turbulence, and wind gridded products are three−dimensional. Other gridded products are two−dimensional and may represent a "composite" of a three−dimensional weather phenomenon or a surface weather variable, such as horizontal visibility. The following are examples of aviation forecasts depicted on the GFA:

a) Terminal Aerodrome Forecast (TAF)

b) Ceiling & Visibility (CIG/VIS)

c) Clouds

d) Precipitation / Weather (PCPN/WX)

e) Thunderstorm (TS)

f) Winds

g) Turbulence

h) Ice

3.7.2.2 Observations & Warnings (Obs/Warn). The Obs/Warn option provides an option to display weather data for the current time and the previous 14 hours (rounded to the nearest hour). Users may advance through time using the arrow buttons or by clicking on the desired hour. Provided below are the Obs/Warn product tabs available on the GFA website:

a) METAR

b) Precipitation/Weather (PCPN/WX)

c) Ceiling & Visibility (CIG/VIS)

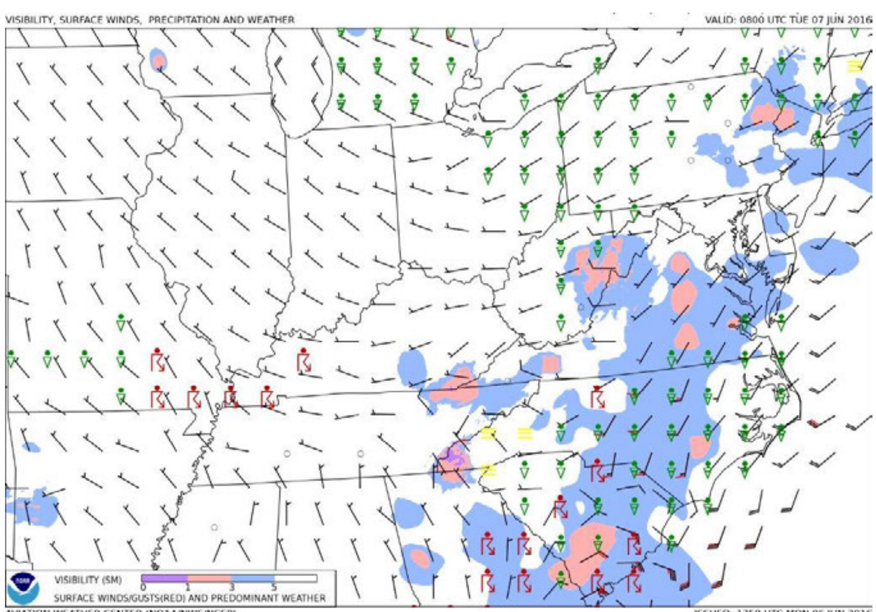
d) Pilot Weather Report (PIREP)

e) Radar & Satellite (RAD/SAT)

3.7.2.3 The GFA will be continuously updated and available online at http://aviationweather.gov/gfa. Upon clicking the link above, select INFO on the top right corner of the map display. The next screen presents the option of selecting Overview, Products, and Tutorial. Simply select the tab of interest to explore the enhanced digital and graphical weather products designed to replace the legacy FA. Users should also refer to AC 00−45, *Aviation Weather Services,* for more detailed information on the GFA.

3.7.2.4 GFA Static Images. Some users with limited internet connectivity may access static images via the Aviation Weather Center (AWC) at: http://www.aviationweather.gov/gfa/plot. There are two static graphical images available, titled *Aviation Cloud Forecast* and *Aviation Surface Forecast*. The Aviation Cloud Forecast provides cloud coverage, bases, layers, and tops with Airmet Sierra for mountain obscuration and Airmet Zulu for icing overlaid. The Aviation Surface Forecast provides visibility, weather phenomena, and winds (including wind gusts) with Airmet Sierra for instrument flight rules conditions and Airmet Tango for sustained surface winds of 30 knots or more overlaid. These images are presented on ten separate maps providing forecast views for the entire CONUS on one and nine regional views which provide more detail for the user. They are updated every 3 hours and provide forecast snapshots for 3, 6, 9, 12, 15, and 18 hours into the future. (See FIG GEN 3.5−2 and FIG GEN 3.5−3.)

FIG GEN 3.5−2
Aviation Surface Forecast



7.3.4 Weather. In the future, some AWOSs are to be configured to determine the occurrence of precipitation. However, the type and intensity may not always be determined. In these systems, the word "PRECIPITATION" will be announced if precipitation is occurring, but the type and intensity are not determined.

7.3.5 Remarks. If remarks are included in the observation, the word "REMARKS" is announced following the altimeter setting. Remarks are announced in the following order of priority:

7.3.5.1 Automated "remarks."

a) Variable visibility.

b) Density altitude.

7.3.5.2 Manual input remarks. Manual input remarks are prefaced with the phrase "OBSERVER WEATHER." As a general rule the manual remarks are limited to:

a) Type and intensity of precipitation.

b) Thunderstorms, intensity (if applicable), and direction.

c) Obstructions to vision when the visibility is less than 7 miles.

EXAMPLE−
"Remarks…density altitude, two thousand five hundred…visibility variable between one and two…wind direction variable between two four zero and three one zero…observed weather…thunderstorm moderate rain showers and mist…thunderstorm overhead."

7.3.5.3 If an automated parameter is "missing" and no manual input for that parameter is available, the parameter is announced as "MISSING." For example, a report with the dew point "missing," and no manual input available, would be announced as follows:

EXAMPLE−
"Ceiling one thousand overcast, visibility three, precipitation, temperature three zero, dew point missing, wind calm, altimeter three zero zero one."

7.3.5.4 "REMARKS" are announced in the following order of priority:

a) Automated "REMARKS":

1) Variable visibility.

2) Density altitude.

b) Manual Input "REMARKS." As a general rule, the remarks are announced in the same order as the parameters appear in the basic text of the observation.

EXAMPLE−
"Remarks, density altitude, two thousand five hundred, visibility variable between one and two, wind direction variable between two four zero and three one zero, observer ceiling estimated two thousand broken, observer temperature two, dew point minus five."

7.4 Automated Surface Observing System (ASOS)/Automated Weather Observing System (AWOS)

7.4.1 The ASOS/AWOS is the primary surface weather observing system of the U.S. The program to install and operate these systems throughout the U.S. is a joint effort of the NWS, the FAA and the Department of Defense. ASOS/AWOS is designed to support aviation operations and weather forecast activities. The ASOS/AWOS will provide continuous minute-by- minute observations and perform the basic observing functions necessary to generate an aviation routine weather report (METAR) and other aviation weather information. The information may be transmitted over a discrete VHF radio frequency or the voice portion of a local NAVAID. ASOS/AWOS transmissions on a discrete VHF radio frequency are engineered to be receivable to a maximum of 25 NM from the ASOS/AWOS site and a maximum altitude of 10,000 feet AGL. At many locations, ASOS/AWOS signals may be received on the surface of the airport, but local conditions may limit the maximum reception distance and/or altitude. While the automated system and the human may differ in their methods of data collection and interpretation, both produce an observation quite similar in form and content. For the "objective" elements such as pressure, ambient temperature, dew point temperature, wind, and precipitation accumulation, both the automated system and the observer use a fixed location and time-averaging technique. The quantitative differences between the observer and the automated observation of these elements are negligible. For the "subjective" elements, however, observers use a fixed time, spatial averaging technique to describe the visual elements (sky condition, visibility and present weather), while the automated systems use a fixed location, time averaging technique. Although this is a fundamental change, the manual and automated techniques yield remarkably similar results within the limits of their respective capabilities. (See FIG GEN 3.5−25 and FIG GEN 3.5−26, Key to Decode an ASOS/AWOS (METAR) Observation.

7.4.2 System Description

7.4.2.1 The ASOS/AWOS at each airport location consists of four main components:

a) Individual weather sensors.

b) Data collection and processing units.

c) Peripherals and displays.

7.4.2.2 The ASOS/AWOS sensors perform the basic function of data acquisition. They continuously sample and measure the ambient environment, derive raw sensor data and make them available to the collection and processing units.

7.4.3 Every ASOS/AWOS will contain the following basic set of sensors.

7.4.3.1 Cloud height indicator (one or possibly three).

7.4.3.2 Visibility sensor (one or possibly three).

7.4.3.3 Precipitation identification sensor.

7.4.3.4 Freezing rain sensor.

7.4.3.5 Pressure sensors (two sensors at small airports; three sensors at large airports).

7.4.3.6 Ambient temperature/dew point temperature sensor.

7.4.3.7 Anemometer (wind direction and speed sensor).

7.4.3.8 Rainfall accumulation sensor.

7.4.3.9 Automated Lightning Detection and Reporting System (ALDARS) (excluding Alaska and Pacific Island sites).

7.4.4 The ASOS/AWOS data outlets include:

7.4.4.1 Those necessary for on−site airport users.

7.4.4.2 National communications networks.

7.4.4.3 Computer−generated voice (available through FAA radio broadcast to pilots and dial-in telephone line).

NOTE−
Wind direction is reported relative to magnetic north in ATIS as well as ASOS and AWOS radio (voice) broadcasts.

7.5 A comparison of weather observing programs and the elements observed by each are in TBL GEN 3.5−5, Weather Observing Programs.

7.6 Service Standards. During 1995, a government/industry team worked to comprehensively reassess the requirements for surface observations at the nation's airports. That work resulted in agreement on a set of service standards and the FAA and NWS ASOS sites to which the standards would apply. The term "Service Standards" refers to the level of detail in the weather observation. The service standards consist of four different levels of service (A, B, C, and D) as described below. Specific observational elements included in each service level are listed in TBL GEN 3.5−6, Weather Observation Service Standards.

PART 2 − EN ROUTE (ENR)

ENR 0.

ENR 0.1 Preface − Not applicable
ENR 0.2 Record of AIP Amendments − See GEN 0.2−1
ENR 0.3 Record of AIP Supplements − Not applicable

ENR 0.4 Checklist of Pages

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ENR 3

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3.1−1	19 MAY 22
3.2−1	19 MAY 22
3.3−1	19 MAY 22
3.4−1	19 MAY 22
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3.5−2	19 MAY 22
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ENR 0.5 List of Hand Amendments to the AIP − Not applicable

EXAMPLE−
3. *"United Four Seventeen, cross Lakeview V−O−R at or above Flight Level two zero zero, descend and maintain six thousand."*

NOTE−
3. *The pilot is authorized to conduct descent at pilot's discretion until reaching Lakeview VOR and must comply with the clearance provision to cross the Lakeview VOR at or above FL 200. After passing Lakeview VOR, the pilot is expected to descend at the suggested rates until reaching the assigned altitude of 6,000 feet.*

EXAMPLE−
4. *"United Four Seventeen, cross Lakeview V−O−R at six thousand, maintain six thousand."*

NOTE−
4. *The pilot is authorized to conduct descent at pilot's discretion, however, must comply with the clearance provision to cross the Lakeview VOR at 6,000 feet.*

EXAMPLE−
5. *"United Four Seventeen, descend now to Flight Level two seven zero, cross Lakeview V−O−R at or below one zero thousand, descend and maintain six thousand."*

NOTE−
5. *The pilot is expected to promptly execute and complete descent to FL 270 upon receipt of the clearance. After reaching FL 270 the pilot is authorized to descend "at pilot's discretion" until reaching Lakeview VOR. The pilot must comply with the clearance provision to cross Lakeview VOR at or below 10,000 feet. After Lakeview VOR the pilot is expected to descend at the suggested rates until reaching 6,000 feet.*

EXAMPLE−
6. *"United Three Ten, descend now and maintain Flight Level two four zero, pilot's discretion after reaching Flight Level two eight zero."*

NOTE−
6. *The pilot is expected to commence descent upon receipt of the clearance and to descend at the suggested rates until reaching FL 280. At that point, the pilot is authorized to continue descent to FL 240 within the context of the term "at pilot's discretion" as described above.*

31.6 In case emergency authority is used to deviate from the provisions of an ATC clearance, the pilot in command must notify ATC as soon as possible and obtain an amended clearance. In an emergency situation which results in no deviation from the rules prescribed in 14 CFR Part 91 but which requires ATC to give priority to an aircraft, the pilot of such aircraft must, when requested by ATC, make a report within 48 hours of such emergency situation to the manager of that ATC facility.

31.7 The guiding principle is that the last ATC clearance has precedence over the previous ATC clearance. When the route or altitude in a previously issued clearance is amended, the controller will restate applicable altitude restrictions. If altitude to maintain is changed or restated, whether prior to departure or while airborne, and previously issued altitude restrictions are omitted, those altitude restrictions are canceled, including Departure Procedures and Standard Terminal Arrival Route (STAR) altitude restrictions.

EXAMPLE−
1. *A departure flight receives a clearance to destination airport to maintain FL 290. The clearance incorporates a DP which has certain altitude crossing restrictions. Shortly after takeoff, the flight receives a new clearance changing the maintaining FL from 290 to 250. If the altitude restrictions are still applicable, the controller restates them.*

2. *A departing aircraft is cleared to cross Fluky Intersection at or above 3,000 feet, Gordonville VOR at or above 12,000 feet, maintain FL 200. Shortly after departure, the altitude to be maintained is changed to FL 240. If the altitude restrictions are still applicable, the controller issues an amended clearance as follows: "cross Fluky Intersection at or above three thousand, cross Gordonville V−O−R at or above one two thousand, maintain Flight Level two four zero."*

3. *An arriving aircraft is cleared to the destination airport via V45 Delta VOR direct; the aircraft is cleared to cross Delta VOR at 10,000 feet, and then to maintain 6,000 feet. Prior to Delta VOR, the controller issues an amended clearance as follows: "turn right heading one eight zero for vector to runway three six I−L−S approach, maintain six thousand."*

NOTE−
Because the altitude restriction "cross Delta V−O−R at 10,000 feet" was omitted from the amended clearance, it is no longer in effect.

31.8 Pilots of turbojet aircraft equipped with afterburner engines should advise ATC prior to takeoff if they intend to use afterburning during their climb to the en route altitude. Often, the controller may be able to plan traffic to accommodate a high performance climb and allow the aircraft to climb to the planned altitude without restriction.

31.9 If an "expedite" climb or descent clearance is issued by ATC, and the altitude to maintain is subsequently changed or restated without an expedite instruction, the expedite instruction is canceled. Expedite climb/descent normally indicates to the pilot that the approximate best rate of climb/descent should be used without requiring an exceptional change in aircraft handling characteristics. Normally controllers will inform pilots of the reason for an instruction to expedite.

32. IFR Separation Standards

32.1 ATC effects separation of aircraft vertically by assigning different altitudes; longitudinally by providing an interval expressed in time or distance between aircraft on the same, converging, or crossing courses; and laterally by assigning different flight paths.

32.2 Separation will be provided between all aircraft operating on IFR flight plans except during that part of the flight (outside Class B airspace or a TRSA) being conducted on a VFR−on−top/VFR conditions clearance. Under these conditions, ATC may issue traffic advisories, but it is the sole responsibility of the pilot to be vigilant so as to see and avoid other aircraft.

32.3 When radar is employed in the separation of aircraft at the same altitude, a minimum of 3 miles separation is provided between aircraft operating within 40 miles of the radar antenna site, and 5 miles between aircraft operating beyond 40 miles from the antenna site. These minimums may be increased or decreased in certain specific situations.

33. Speed Adjustments

33.1 ATC will issue speed adjustments to pilots of radar−controlled aircraft to achieve or maintain appropriate spacing. If necessary, ATC will assign a speed when approving deviations or radar vectoring off procedures that include published speed restrictions. If no speed is assigned, speed becomes pilot's discretion. However, when the aircraft reaches the end of the STAR, the last published speed on the STAR must be maintained until ATC deletes it, assigns a new speed, issues a vector, assigns a direct route, or issues an approach clearance.

33.2 ATC will express all speed adjustments in terms of knots based on indicated airspeed (IAS) in 5 or 10 knot increments except that at or above FL 240 speeds may be expressed in terms of Mach numbers in 0.01 increments. The use of Mach numbers is restricted to turbojet aircraft with Mach meters.

33.3 Pilots of aircraft in U.S. domestic Class A, B, C, D, and E airspace complying with speed adjustments (published or assigned) should maintain a speed within plus or minus 10 knots or 0.02 Mach number, whichever is less, of the assigned speed.

33.4 Pilots of aircraft in offshore controlled airspace or oceanic controlled airspace must adhere to the ATC assigned airspeed and must request ATC approval before making any change thereto. If it is essential to make an immediate temporary change in the Mach number (e.g., due to turbulence), ATC must be notified as soon as possible. If it is not feasible to maintain the last assigned Mach number during an en route climb or descent due to aircraft performance, advise ATC at the time of the request.

33.5 When ATC assigns speed adjustments, it will be in accordance with the following recommended minimums:

33.5.1 To aircraft operating between FL 280 and 10,000 feet, a speed not less than 250 knots or the equivalent Mach number.

NOTE−
1. *On a standard day the Mach numbers equivalent to 250 knots CAS (subject to minor variations) are:*

FL 240−0.6
FL 250−0.61
FL 260−0.62
FL 270−0.64
FL 280−0.65
FL 290−0.66.

2. *When an operational advantage will be realized, speeds lower than the recommended minima may be applied.*

33.5.2 To arriving turbojet aircraft operating below 10,000 feet, a speed not less than 210 knots, except within 20 flying miles of the airport of intended landing, a speed not less than 170 knots.

33.5.3 To arriving reciprocating engine or turboprop aircraft within 20 flying miles of the runway threshold of the airport of intended landing, a speed not less than 150 knots.

33.5.4 Departures, for turbojet aircraft, a speed not less than 230 knots; for reciprocating engine aircraft, a speed not less than 150 knots.

33.6 When ATC combines a speed adjustment with a descent clearance, the sequence of delivery with the word "then" between, indicates the expected order of execution; i.e., "DESCEND AND MAINTAIN (altitude); THEN, REDUCE SPEED TO (speed)," or "REDUCE SPEED TO (speed); THEN, DESCEND AND MAINTAIN (altitude)."

NOTE−
The maximum speeds below 10,000 feet as established in 14 CFR Section 91.117 still apply. If there is any doubt concerning the manner in which such a clearance is to be executed, request clarification from ATC.

33.7 If ATC determines (before an approach clearance is issued) that it is no longer necessary to apply speed adjustment procedures, they will:

33.7.1 Advise the pilot to "resume normal speed." Normal speed is used to terminate ATC assigned speed adjustments on segments where no published speed restrictions apply. It does not cancel published restrictions on upcoming procedures. This does not relieve the pilot of those speed restrictions which are applicable to 14 CFR Section 91.117.

EXAMPLE−
(An aircraft is flying a SID with no published speed restrictions. ATC issues a speed adjustment and instructs the aircraft where the adjustment ends): "Maintain two two zero knots until BALTR then resume normal speed."

NOTE−
The ATC assigned speed assignment of two two zero knots would apply until BALTR. The aircraft would then resume a normal operating speed while remaining in compliance with 14 CFR Section 91.117.

33.7.2 Instruct pilots to "comply with speed restrictions" when the aircraft is joining or resuming a charted procedure or route with published speed restrictions.

EXAMPLE−
(ATC vectors an aircraft off of a SID to rejoin the procedure at a subsequent waypoint. When instructing the aircraft to resume the procedure, ATC also wants the aircraft to comply with the published procedure speed restrictions): "Resume the SALTY ONE departure. Comply with speed restrictions."

CAUTION−
The phraseology "Descend via/Climb via SID" requires compliance with all altitude and/or speed restrictions depicted on the procedure.

33.7.3 Instruct the pilot to "resume published speed." Resume published speed is issued to terminate a speed adjustment where speed restrictions are published on a charted procedure.

NOTE−
When instructed to "comply with speed restrictions" or to "resume published speed," ATC anticipates pilots will begin adjusting speed the minimum distance necessary prior to a published speed restriction so as to cross the waypoint/fix at the published speed. Once at the published speed, ATC expects pilots will maintain the published speed until additional adjustment is required to comply with further published or ATC assigned speed restrictions or as required to ensure compliance with 14 CFR Section 91.117.

EXAMPLE−
(An aircraft is flying a SID/STAR with published speed restrictions. ATC issues a speed adjustment and instructs the aircraft where the adjustment ends): "Maintain two two zero knots until BALTR then resume published speed."

NOTE−
The ATC assigned speed assignment of two two zero knots would apply until BALTR. The aircraft would then comply with the published speed restrictions.

33.7.4 Advise the pilot to "delete speed restrictions" when either ATC assigned or published speed restrictions on a charted procedure are no longer required.

EXAMPLE−
(An aircraft is flying a SID with published speed restrictions designed to prevent aircraft overtake on departure. ATC determines there is no conflicting traffic and deletes the speed restriction): "Delete speed restrictions."

NOTE−
When deleting published restrictions, ATC must ensure obstacle clearance until aircraft are established on a route where no published restrictions apply. This does not relieve the pilot of those speed restrictions which are applicable to 14 CFR Section 91.117.

33.7.5 Instruct the pilot to "climb via" or "descend via." A climb via or descend via clearance cancels any previously issued speed restrictions and, once established on the depicted departure or arrival, to climb or descend, and to meet all published or assigned altitude and/or speed restrictions.

EXAMPLE−
1. *(An aircraft is flying a SID with published speed restrictions. ATC has issued a speed restriction of 250 knots for spacing. ATC determines that spacing between aircraft is adequate and desires the aircraft to comply with published restrictions): "United 436, Climb via SID."*

2. *(An aircraft is established on a STAR. ATC must slow an aircraft for the purposes of spacing and assigns it a speed of 280 knots. When spacing is adequate, ATC deletes the speed restriction and desires that the aircraft comply with all published restrictions on the STAR): "Gulfstream two three papa echo, descend via the TYLER One arrival."*

NOTE−
1. *In example 1, when ATC issues a "Climb via SID" clearance, it deletes any previously issued speed and/or altitude restrictions. The pilot should then vertically navigate to comply with all speed and/or altitude restrictions published on the SID.*

2. *In example 2, when ATC issues a "Descend via <STAR name> arrival," ATC has canceled any previously issued speed and/or altitude restrictions. The pilot should vertically navigate to comply with all speed and/or altitude restrictions published on the STAR.*

CAUTION−
When descending on a STAR, pilots should not speed up excessively beyond the previously issued speed. Otherwise, adequate spacing between aircraft descending on the STAR that was established by ATC with the previous restriction may be lost.

33.8 Approach clearances supersede any prior speed adjustment assignments, and pilots are expected to make their own speed adjustments as necessary to complete the approach. However, under certain circumstances, it may be necessary for ATC to issue further speed adjustments after approach clearance is issued to maintain separation between successive arrivals. Under such circumstances, previously issued speed adjustments will be restated if that speed is to be maintained or additional speed adjustments are requested. Speed adjustments should not be assigned inside the final approach fix on final or a point 5 miles from the runway, whichever is closer to the runway.

33.9 The pilots retain the prerogative of rejecting the application of speed adjustment by ATC if the minimum safe airspeed for any particular operation is greater than the speed adjustment. IN SUCH CASES, PILOTS ARE EXPECTED TO ADVISE ATC OF THE SPEED THAT WILL BE USED.

33.10 Pilots are reminded that they are responsible for rejecting the application of speed adjustment by ATC if, in their opinion, it will cause them to exceed the maximum indicated airspeed prescribed by 14 CFR Section 91.117(a), (c) and (d). IN SUCH CASES, THE PILOT IS EXPECTED TO SO INFORM ATC. Pilots operating at or above 10,000 feet MSL who are issued speed adjustments which exceed 250 knots IAS and are subsequently cleared below 10,000 feet MSL are expected to comply with 14 CFR Section 91.117(a).

33.11 Speed restrictions of 250 knots do not apply to U.S. registered aircraft operating beyond 12 nautical miles from the coastline within the U.S. Flight Information Region, in Class E airspace below 10,000 feet MSL. However, in airspace underlying a Class B airspace area designated for an airport, or in a VFR corridor designated through such as a Class B airspace area, pilots are expected to comply with the 200 knot speed limit specified in 14 CFR Section 91.117(c).

33.12 For operations in a Class C and Class D surface area, ATC is authorized to request or approve a speed greater than the maximum indicated airspeeds prescribed for operation within that airspace (14 CFR Section 91.117(b)).

NOTE−
Pilots are expected to comply with the maximum speed of 200 knots when operating beneath Class B airspace or in a Class B VFR corridor (14 CFR Section 91.117(c) and (d)).

33.13 When in communication with the ARTCC or approach control facility, pilots should, as a good operating practice, state any ATC assigned speed restriction on initial radio contact associated with an ATC communications frequency change.

34. Runway Separation

34.1 Tower controllers establish the sequence of arriving and departing aircraft by requiring them to adjust flight or ground operation as necessary to achieve proper spacing. They may "HOLD" an aircraft short of the runway to achieve spacing between it and another arriving aircraft; the controller may instruct a pilot to "EXTEND DOWNWIND" in order to establish spacing from another arriving or departing aircraft. At times a clearance may include the word "IMMEDIATE." For example: "CLEARED FOR IMMEDIATE TAKEOFF." In such cases "IMMEDIATE" is used for purposes of air traffic separation. It is up to the pilot to refuse the clearance if, in the pilot's opinion, compliance would adversely affect the operation.

35. Visual Separation

35.1 Visual separation is a means employed by ATC to separate aircraft in terminal areas and en route airspace. There are two methods employed to effect this separation:

35.1.1 The tower controller sees the aircraft involved and issues instructions, as necessary, to ensure that the aircraft avoid each other.

35.1.2 A pilot sees the other aircraft involved and upon instructions from the controller provides separation by maneuvering the aircraft to avoid it. When pilots accept responsibility to maintain visual separation, they must maintain constant visual surveillance and not pass the other aircraft until it is no longer a factor.

NOTE−
Traffic is no longer a factor when during approach phase the other aircraft is in the landing phase of flight or executes a missed approach; and during departure or en route, when the other aircraft turns away or is on a diverging course.

35.2 A pilot's acceptance of instructions to follow another aircraft or provide visual separation from it is an acknowledgment that the pilot will maneuver the aircraft as necessary to avoid the other aircraft or to maintain in−trail separation. In operations conducted behind heavy aircraft, or a small aircraft behind a B757 or other large aircraft, it is also an acknowledgment that the pilot accepts the responsibility for wake turbulence separation. Visual separation is prohibited behind super aircraft.

NOTE−
When a pilot has been told to follow another aircraft or to provide visual separation from it, the pilot should promptly notify the controller if visual contact with the other aircraft is lost or cannot be maintained or if the pilot cannot accept the responsibility for the separation for any reason.

35.3 Scanning the sky for other aircraft is a key factor in collision avoidance. Pilots and copilots (or the right seat passenger) should continuously scan to cover all areas of the sky visible from the cockpit. Pilots must develop an effective scanning technique which maximizes one's visual capabilities. Spotting a potential collision threat increases directly as more time is spent looking outside the aircraft. One must use timesharing techniques to effectively scan the surrounding airspace while monitoring instruments as well.

35.4 Since the eye can focus only on a narrow viewing area, effective scanning is accomplished with a series of short, regularly spaced eye movements that bring successive areas of the sky into the central visual field. Each movement should not exceed ten degrees, and each area should be observed for at least one second to enable collision detection. Although many pilots seem to prefer the method of horizontal back−and−forth scanning every pilot should develop a scanning pattern that is not only comfortable but assures optimum effectiveness. Pilots should remember, however, that they have a regulatory responsibility (14 CFR Section 91.113) to see and avoid other aircraft when weather conditions permit.

36. Use of Visual Clearing Procedures and Scanning Techniques

36.1 Before Takeoff. Prior to taxiing onto a runway or landing area in preparation for takeoff, pilots should scan the approach areas for possible landing traffic, executing appropriate clearing maneuvers to provide them a clear view of the approach areas.

36.2 Climbs and Descents. During climbs and descents in flight conditions which permit visual detection of other traffic, pilots should execute gentle banks, left and right at a frequency which permits continuous visual scanning of the airspace about them.

36.3 Straight and Level. Sustained periods of straight and level flight in conditions which permit visual detection of other traffic should be broken at intervals with appropriate clearing procedures to provide effective visual scanning.

36.4 Traffic Patterns. Entries into traffic patterns while descending create specific collision hazards and should be avoided.

36.5 Traffic at VOR Sites. All operators should emphasize the need for sustained vigilance in the vicinity of VORs and airway intersections due to the convergence of traffic.

36.6 Training Operations. Operators of pilot training programs are urged to adopt the following practices:

36.6.1 Pilots undergoing flight instruction at all levels should be requested to verbalize clearing procedures (call out, "Clear" left, right, above, or below) to instill and sustain the habit of vigilance during maneuvering.

36.6.2 High−wing Airplane. Momentarily raise the wing in the direction of the intended turn and look.

36.6.3 Low−wing Airplane. Momentarily lower the wing in the direction of the intended turn and look.

36.6.4 Appropriate clearing procedures should precede the execution of all turns including chandelles, lazy eights, stalls, slow flight, climbs, straight and level, spins, and other combination maneuvers.

36.7 Scanning Techniques for Traffic Avoidance.

36.7.1 Pilots must be aware of the limitations inherent in the visual scanning process. These limitations may include:

36.7.1.1 Reduced scan frequency due to concentration on flight instruments or tablets and distraction with passengers.

36.7.1.2 Blind spots related to high-wing and low-wing aircraft in addition to windshield posts and sun visors.

36.7.1.3 Prevailing weather conditions including reduced visibility and the position of the sun.

36.7.1.4 The attitude of the aircraft will create additional blind spots.

36.7.1.5 The physical limitations of the human eye, including the time required to (re)focus on near and far objects, from the instruments to the horizon for example; empty field myopia, narrow field of vision and atmospheric lighting all affect our ability to detect another aircraft.

36.7.2 Best practices to see and avoid:

36.7.2.1 ADS-B In is an effective system to help pilots see and avoid other aircraft. If your aircraft is equipped with ADS-B In, it is important to understand its features and how to use it properly. Many units provide visual and/or audio alerts to supplement the system's traffic display. Pilots should incorporate the traffic display in their normal traffic scan to provide awareness of nearby aircraft. Prior to taxiing onto an airport movement area, ADS-B In can provide advance indication of arriving aircraft and aircraft in the traffic pattern. Systems that incorporate a traffic−alerting feature can help minimize the pilot's inclination to fixate on the display. Refer to ENR 1.1−45.5, ADS-B Limitations.

36.7.2.2 Understand the limitations of ADS-B In. In certain airspace, not all aircraft will be equipped with ADS-B Out or transponders and will not be visible on your ADS-B In display.

36.7.2.3 Limit the amount of time that you focus on flight instruments or tablets.

36.7.2.4 Develop a strategic approach to scanning for traffic. Scan the entire sky and try not to focus straight ahead.

37. Surveillance Systems

37.1 Radar

37.1.1 Capabilities

37.1.1.1 Radar is a method whereby radio waves are transmitted into the air and are then received when they have been reflected by an object in the path of the beam. Range is determined by measuring the time it takes (at the speed of light) for the radio wave to go out to the object and then return to the receiving antenna. The direction of a detected object from a radar site is determined by the position of the rotating antenna when the reflected portion of the radio wave is received.

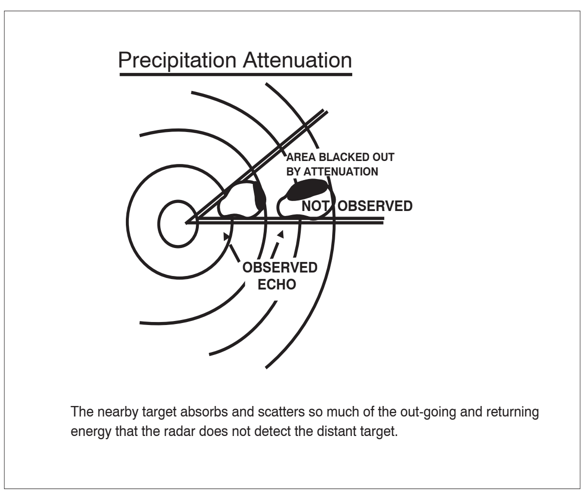
37.1.1.2 More reliable maintenance and improved equipment have reduced radar system failures to a negligible factor. Most facilities actually have some components duplicated − one operating and another which immediately takes over when a malfunction occurs to the primary component.

37.1.2 Limitations

37.1.2.1 It is very important for the aviation community to recognize the fact that there are limitations to radar service and that ATC controllers may not always be able to issue traffic advisories concerning aircraft which are not under ATC control and cannot be seen on radar. (See FIG ENR 1.1−25).

FIG ENR 1.1−25

Limitations to Radar Service



a) The characteristics of radio waves are such that they normally travel in a continuous straight line unless they are:

1) "Bent" by abnormal atmospheric phenomena such as temperature inversions.

2) Reflected or attenuated by dense objects such as heavy clouds, precipitation, ground obstacles, mountains, etc.

3) Screened by high terrain features.

b) The bending of radar pulses, often called anomalous propagation or ducting, may cause many extraneous blips to appear on the radar operator's display if the beam has been bent toward the ground, or may decrease the detection range if the wave is bent upward. It is difficult to solve the effects of anomalous propagation, but using beacon radar and electronically eliminating stationary and slow moving targets by a method called moving target indicator (MTI) usually negate the problem.

c) Radar energy that strikes dense objects will be reflected and displayed on the operator's scope, thereby blocking out aircraft at the same range and greatly weakening or completely eliminating the display of targets at a greater range. Again, radar beacon and MTI are effectively used to combat ground clutter and weather phenomena, and a method of circularly polarizing the radar beam will eliminate some weather returns. A negative characteristic of MTI is that an aircraft flying a speed that coincides with the canceling signal of the MTI (tangential or "blind" speed) may not be displayed to the radar controller.

d) Relatively low altitude aircraft will not be seen if they are screened by mountains or are below the radar beam due to earth curvature. The historical solution to screening has been the installation of strategically placed multiple radars, which has been done in some areas, but ADS−B now provides ATC surveillance in some areas with challenging terrain where multiple radar installations would be impractical.

e) There are several other factors which affect radar control. The amount of reflective surface of an aircraft will determine the size of the radar return. Therefore, a small light airplane or a sleek jet fighter will be more difficult to see on primary radar than a large commercial jet or military bomber. Here again, the use of transponder or ADS−B equipment is invaluable. In addition, all FAA ATC facilities display automatically reported altitude information to the controller from appropriately equipped aircraft.

f) At some locations within the ATC en route environment, secondary−radar−only (no primary radar) gap filler radar systems are used to give lower altitude radar coverage between two larger radar systems, each of which provides both primary and secondary radar coverage. ADS−B serves this same role, supplementing both primary and secondary radar. In those geographical areas served by secondary radar only or ADS−B, aircraft without either transponders or ADS−B equipment cannot be provided with radar service. Additionally, transponder or ADS−B equipped aircraft cannot be provided with radar advisories concerning primary targets and ATC radar−derived weather.

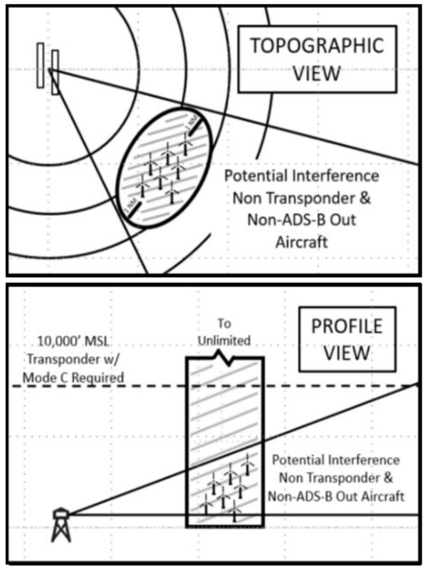
g) With regard to air traffic radar reception, wind turbines generally do not affect the quality of air traffic surveillance radar returns for transponder and ADS−B Out equipped aircraft. Air traffic interference issues apply to the search radar and Non−Transponder/Non−ADS−B Out−equipped aircraft.

NOTE−
Generally, one or two wind turbines don't present a significant radar reception loss. A rule of thumb is three (3) or more turbines constitute a wind turbine farm and thus negatively affect the search radar product.

1) Detection loss in the area of a wind turbine farm is substantial. In extreme circumstances, this can extend for more than 1.0 nautical mile (NM) horizontally around the nearest turbine and at all altitudes above the wind turbine farm. (See FIG ENR 1.1−26.)

FIG ENR 1.1−26

Wind Turbine Farm Area of Potential Interference



NOTE−
All aircraft should comply with 14 CFR §91.119(c) "…aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure."

2) To avoid interference, Non−Transponder/Non−ADS−B Out equipped aircraft should avoid flight within 1.0 NM horizontally, at all altitudes, from the wind turbine farms.

3) Because detection loss near and above wind turbine farms for search−only targets causes dropped tracks, erroneous tracks, and can result in loss of separation, it is imperative that Non−Transponder/Non−ADS−B Out equipped aircraft operate at the proper VFR altitudes per the hemispheric rule and utilize see−and−avoid techniques.

4) Pilots should be aware that air traffic controllers cannot provide separation from Non−Transponder/Non−ADS−B Out equipped aircraft in the vicinity of wind turbine farms. See−and−avoid is the pilot's responsibility, as these non−equipped aircraft may not appear on radar and will not appear on Traffic Information Service−Broadcast (TIS−B).

h) The controller's ability to advise a pilot flying on instruments or in visual conditions of the aircraft's proximity to another aircraft will be limited if the unknown aircraft is not observed on radar, if no flight plan information is available, or if the volume of traffic and workload prevent issuing traffic information. First priority is given to establishing vertical, lateral, or longitudinal separation between aircraft flying IFR under the control of ATC.

37.2 Air Traffic Control Radar Beacon System (ATCRBS)

37.2.1 The ATCRBS, sometimes referred to as a secondary surveillance radar, consists of three main components:

37.2.1.1 Interrogator. Primary radar relies on a signal being transmitted from the radar antenna site and for this signal to be reflected or "bounced back" from an object (such as an aircraft). This reflected signal is then displayed as a "target" on the controller's radar scope. In the ATCRBS, the Interrogator, a ground−based radar beacon transmitter−receiver, scans in synchronism with the primary radar and transmits discrete radio signals which repetitiously requests all transponders, on the mode being used, to reply. The replies received are then mixed with the primary returns and both are displayed on the same radar scope.

37.2.1.2 Transponder. This airborne radar beacon transmitter−receiver automatically receives the signals from the interrogator and selectively replies with a specific pulse group (code) only to those interrogations being received on the mode to which it is set. These replies are independent of, and much stronger than a primary radar return.

37.2.1.3 Radar scope. The radar scope used by the controller displays returns from both the primary radar system and the ATCRBS. These returns, called targets, are what the controller refers to in the control and separation of traffic.

37.2.2 The job of identifying and maintaining identification of primary radar targets is a long and tedious task for the controller. Some of the advantages of ATCRBS over primary radar are:

37.2.2.1 Reinforcement of radar targets.

37.2.2.2 Rapid target identification.

37.2.2.3 Unique display of selected codes.

37.2.3 A part of the ATCRBS ground equipment is the decoder. This equipment enables the controller to assign discrete transponder codes to each aircraft under his/her control. Normally only one code will be assigned for the entire flight. Assignments are made by the ARTCC computer on the basis of the National Beacon Code Allocation Plan. The equipment is also designed to receive Mode C altitude information from the aircraft. See FIG ENR 1.1−27 and FIG ENR 1.1−28 for an illustration of the target symbology depicted on radar scopes in the NAS Stage A (en route), the ARTS III (terminal) Systems, and other nonautomated (broadband) radar systems.

37.3 Surveillance Radar

37.3.1 Surveillance radars are divided into two general categories: Airport Surveillance Radar (ASR) and Air Route Surveillance Radar (ARSR).

37.3.1.1 ASR is designed to provide relatively short range coverage in the general vicinity of an airport and to serve as an expeditious means of handling terminal area traffic through observation of precise aircraft locations on a radar scope. The ASR can also be used as an instrument approach aid.

37.3.1.2 ARSR is a long−range radar system designed primarily to provide a display of aircraft locations over large areas.

37.3.2 Surveillance radars scan through 360 degrees of azimuth and present target information on a radar display located in a tower or center. This information is used independently or in conjunction with other navigational aids in the control of air traffic.

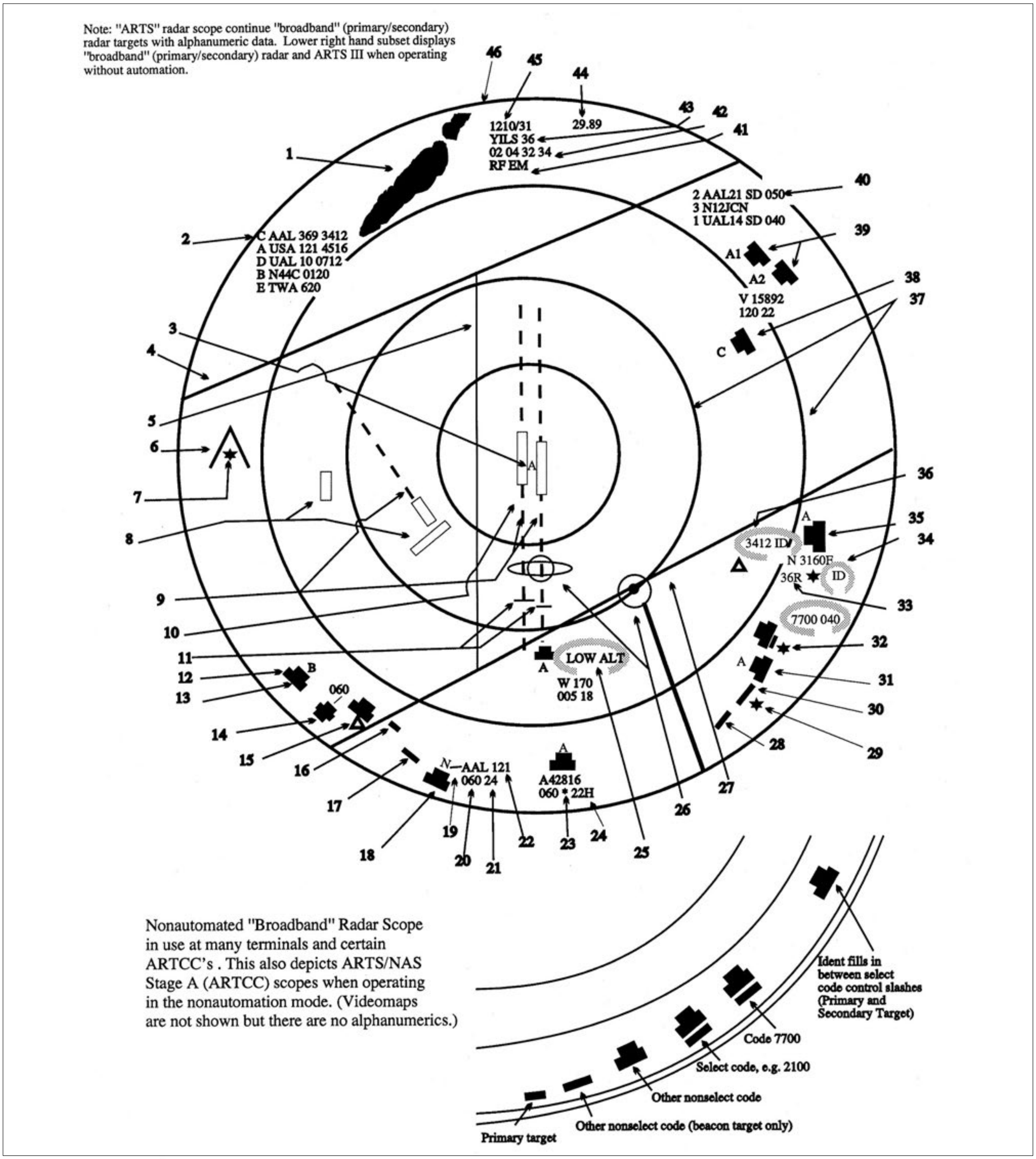
37.4 Precision Approach Radar (PAR)

37.4.1 PAR is designed for use as a landing aid rather than an aid for sequencing and spacing aircraft. PAR equipment may be used as a primary landing aid (See ENR 1.5 for additional information), or it may be used to monitor other types of approaches. It is designed to display range, azimuth, and elevation information.

37.4.2 Two antennas are used in the PAR array, one scanning a vertical plane, and the other scanning horizontally. Since the range is limited to 10 miles, azimuth to 20 degrees, and elevation to 7 degrees, only the final approach area is covered. Each scope is divided into two parts. The upper half presents altitude and distance information, and the lower half presents azimuth and distance.

FIG ENR 1.1−27

ARTS III Radar Scope With Alphanumeric Data



NOTE−
A number of radar terminals do not have ARTS equipment. Those facilities and certain ARTCCs outside the contiguous U.S. would have radar displays similar to the lower right hand subset. ARTS facilities and NAS Stage A ARTCCs, when operating in the nonautomation mode, would also have similar displays and certain services based on automation may not be available.

EXAMPLE−

__1.__ Areas of precipitation (can be reduced by CP)

__2.__ Arrival/departure tabular list

__3.__ Trackball (control) position symbol (A)

__4.__ Airway (lines are sometimes deleted in part)

__5.__ Radar limit line for control

__6.__ Obstruction (video map)

__7.__ Primary radar returns of obstacles or terrain (can be removed by MTI)

__8.__ Satellite airports

__9.__ Runway centerlines (marks and spaces indicate miles)

__10.__ Primary airport with parallel runways

__11.__ Approach gates

__12.__ Tracked target (primary and beacon target)

__13.__ Control position symbol

__14.__ Untracked target select code (monitored) with Mode C readout of 5,000'

__15.__ Untracked target without Mode C

__16.__ Primary target

__17.__ Beacon target only (secondary radar) (transponder)

__18.__ Primary and beacon target

__19.__ Leader line

__20.__ Altitude Mode C readout is 6,000'
(Note: readouts may not be displayed because of nonreceipt of beacon information, garbled beacon signals, and flight plan data which is displayed alternately with the altitude readout)

__21.__ Ground speed readout is 240 knots
(Note: readouts may not be displayed because of a loss of beacon signal, a controller alert that a pilot was squawking emergency, radio failure, etc.)

__22.__ Aircraft ID

__23.__ Asterisk indicates a controller entry in Mode C block. In this case 5,000' is entered and "05" would alternate with Mode C readout.

__24.__ Indicates heavy

__25.__ "Low ALT" flashes to indicate when an aircraft's predicted descent places the aircraft in an unsafe proximity to terrain.
(Note: this feature does not function if the aircraft is not squawking Mode C. When a helicopter or aircraft is known to be operating below the lower safe limit, the "low ALT" can be changed to "inhibit" and flashing ceases.)

__26.__ NAVAIDs

__27.__ Airways

28. *Primary target only*

29. *Nonmonitored. No Mode C (an asterisk would indicate nonmonitored with Mode C)*

30. *Beacon target only (secondary radar based on aircraft transponder)*

31. *Tracked target (primary and beacon target) control position A*

32. *Aircraft is squawking emergency code 7700 and is nonmonitored, untracked, Mode C*

33. *Controller assigned runway 36 right alternates with Mode C readout*
(Note: a three letter identifier could also indicate the arrival is at specific airport)

34. *Ident flashes*

35. *Identing target blossoms*

36. *Untracked target identing on a selected code*

37. *Range marks (10 and 15 miles) (can be changed/ offset)*

38. *Aircraft controlled by center*

39. *Targets in suspend status*

40. *Coast/suspend list (aircraft holding, temporary loss of beacon/target, etc.)*

41. *Radio failure (emergency information)*

42. *Select beacon codes (being monitored)*

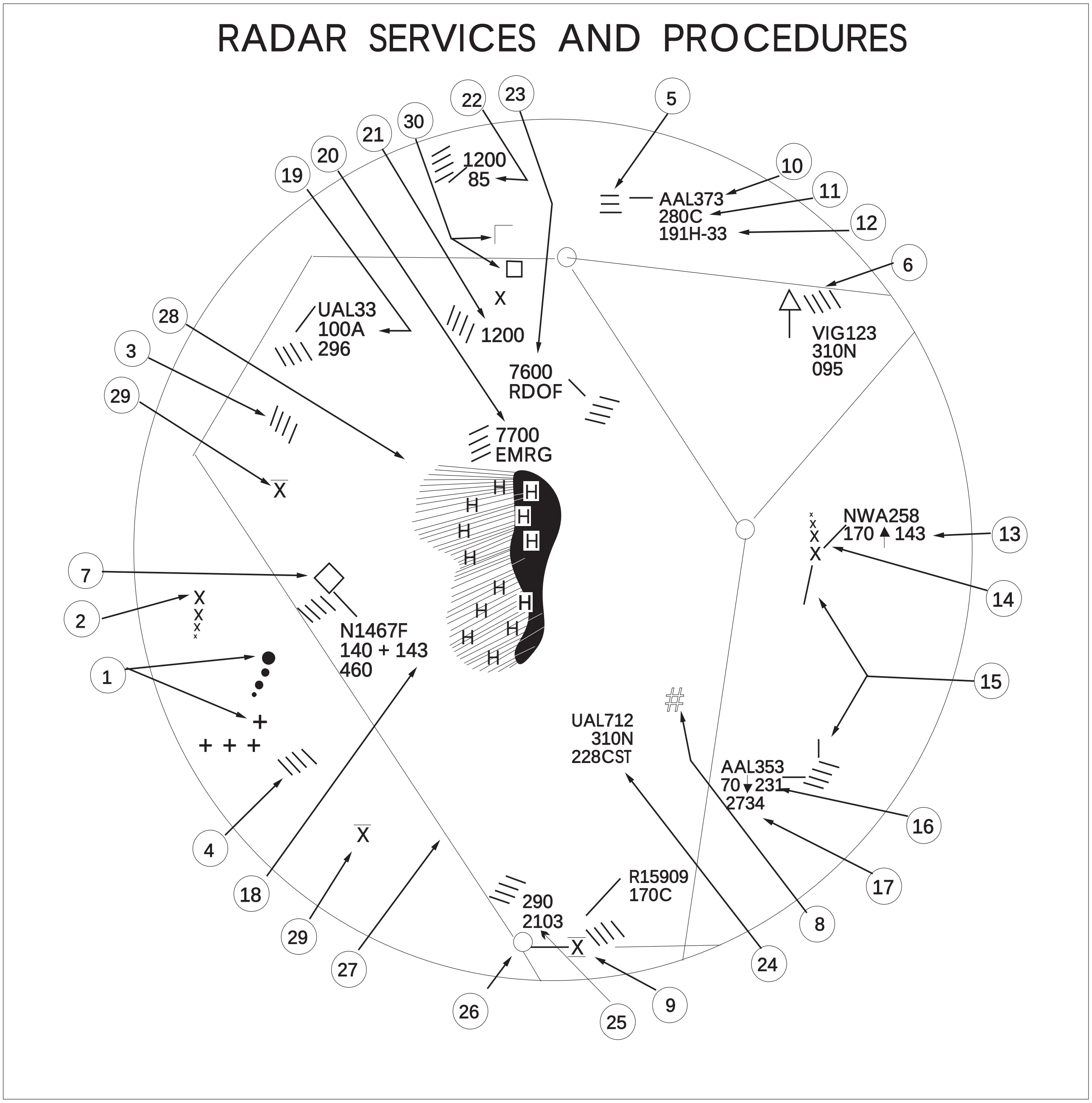
43. *General information (ATIS, runway, approach in use)*

44. *Altimeter setting*

45. *Time*

46. *System data area*

FIG ENR 1.1−28
NAS Stage A Controller's View Plan Display



NOTE−
FIG ENR 1.1−28 illustrates the controller's radar scope (PVD) when operating in the full automation (RDP) mode, which is normally 20 hours per day. When not in automation mode, the display is similar to the broadband mode shown in the ARTS III Radar Scope (FIG ENR 1.1−27). Certain ARTCCs outside the contiguous U.S. also operate in "broadband" mode.

EXAMPLE−
Target symbols:

1. Uncorrelated primary radar target [○] [**+**]

2. Correlated primary radar target [×]
✻See note below.

3. Uncorrelated beacon target [/]

4. Correlated beacon target [\ ]

5. Identing beacon target [≡]

✻Note: in Number 2 correlated means the association of radar data with the computer projected track of an identified aircraft.

Position symbols:

6. Free track (no flight plan tracking) [ ]

7. Flat track (flight plan tracking) [◊]

8. Coast (beacon target lost) [**#**]

9. Present position hold [$\overline{\times}$]

Data block information:

10. Aircraft ident
✻See note below.

11. Assigned altitude FL 280, Mode C altitude same or within $\pm$ *200' of assigned altitude.*
✻See note below.

12. Computer ID #191, handoff is to sector 33
(0−33 would mean handoff accepted)
✻See note below.

13. Assigned altitude 17,000', aircraft is climbing, Mode C readout was 14,300 when last beacon interrogation was received.

14. Leader line connecting target symbol and data block.

15. Track velocity and direction vector line (projected ahead of target)

16. Assigned altitude 7,000, aircraft is descending, last Mode C readout (or last reported altitude) was 100' above FL 230

17. Transponder code shows in full data block only when different than assigned code

18. Aircraft is 300' above assigned altitude

19. Reported altitude (no Mode C readout) same as assigned. (An "n" would indicate no reported altitude.)

20. Transponder set on emergency Code 7700. (EMRG flashes to attract attention.)

21. Transponder Code 1200 (VFR) with no Mode C

22. Code 1200 (VFR) with Mode C and last altitude readout

23. Transponder set on radio failure Code 7600 (RDOF flashes)

24. Computer ID #228, CST indicates target is in coast status

25. Assigned altitude FL 290, transponder code (these two items constitute a "limited data block")

✳Note: numbers 10, 11, and 12 constitute a "full data block"

Other symbols:

26. Navigational aid

27. Airway or jet route

28. Outline of weather returns based on primary radar. "H" represents areas of high density precipitation which might be thunderstorms. Radial lines indicated lower density precipitation.

29. Obstruction

30. Airports

Major: □
Small: ⌜

37.5 Airport Surface Detection Equipment (ASDE−X)/Airport Surface Surveillance Capability (ASSC)

37.5.1 ASDE−X/ASSC is a multi−sensor surface surveillance system the FAA is acquiring for airports in the United States. This system provides high resolution, short−range, clutter free surveillance information about aircraft and vehicles, both moving and fixed, located on or near the surface of the airport's runways and taxiways under all weather and visibility conditions. The system consists of:

37.5.1.1 A Primary Radar System. ASDE−X/ASSC system coverage includes the airport surface and the airspace 5 miles from the arrival and departure ends of the runway and up to 200 feet above the surface. Typically located on the control tower or other strategic location on the airport, the Primary Radar antenna is able to detect and display aircraft that are not equipped with or have malfunctioning transponders or ADS−B.

37.5.1.2 Interfaces. ASDE−X/ASSC contains an automation interface for flight identification via all automation platforms and interfaces with the terminal radar for position information.

37.5.1.3 ASDE−X/ASSC Automation. A Multi−sensor Data Processor (MSDP) combines all sensor reports into a single target which is displayed to the air traffic controller.

37.5.1.4 Air Traffic Control Tower Display. A high resolution, color monitor in the control tower cab provides controllers with a seamless picture of airport operations on the airport surface.

37.5.2 The combination of data collected from the multiple sensors ensures that the most accurate information about aircraft location is received in the tower, thereby increasing surface safety and efficiency.

37.5.3 The following facilities are operational with ASDE−X:

TBL ENR 1.1−2

BWI	Baltimore Washington International
BOS	Boston Logan International
BDL	Bradley International
MDW	Chicago Midway
ORD	Chicago O'Hare International
CLT	Charlotte Douglas International
DFW	Dallas/Fort Worth International
DEN	Denver International
DTW	Detroit Metro Wayne County
FLL	Fort Lauderdale/Hollywood Intl
MKE	General Mitchell International
IAH	George Bush International
ATL	Hartsfield−Jackson Atlanta Intl
HNL	Honolulu International
JFK	John F. Kennedy International
SNA	John Wayne−Orange County
LGA	LaGuardia
STL	Lambert St. Louis International

LAS	Las Vegas Harry Reid International
LAX	Los Angeles International
SDF	Louisville International
MEM	Memphis International
MIA	Miami International
MSP	Minneapolis St. Paul International
EWR	Newark International
MCO	Orlando International
PHL	Philadelphia International
PHX	Phoenix Sky Harbor International
DCA	Ronald Reagan Washington National
SAN	San Diego International
SLC	Salt Lake City International
SEA	Seattle−Tacoma International
PVD	Theodore Francis Green State
IAD	Washington Dulles International
HOU	William P. Hobby International

37.5.4 The following facilities have been projected to receive ASSC:

TBL ENR 1.1−3

SFO	San Francisco International
CLE	Cleveland−Hopkins International
MCI	Kansas City International
CVG	Cincinnati/Northern Kentucky Intl
PDX	Portland International

MSY	Louis Armstrong New Orleans Intl
PIT	Pittsburgh International
ANC	Ted Stevens Anchorage International
ADW	Joint Base Andrews AFB

37.6 Radar Availability

37.6.1 FAA radar units operate continuously at the locations shown in the Chart Supplement U.S., and their services are available to all pilots, both civil and military. Contact the associated FAA control tower or ARTCC on any frequency guarded for initial instructions, or in an emergency, any FAA facility for information on the nearest radar service.

37.7 Transponder and ADS−B Out Operation

37.7.1 General

37.7.1.1 Pilots should be aware that proper application of transponder and ADS-B operating procedures will provide both VFR and IFR aircraft with a higher degree of safety while operating on the ground and airborne. Transponder/ADS-B panel designs differ; therefore, a pilot should be thoroughly familiar with the operation of their particular equipment to maximize its full potential. ADS-B Out, and transponders with altitude reporting mode turned ON (Mode C or S), substantially increase the capability of surveillance systems to see an aircraft. This provides air traffic controllers, as well as pilots of suitably equipped aircraft (TCAS and ADS-B In), increased situational awareness and the ability to identify potential traffic conflicts. Even VFR pilots who are not in contact with ATC will be afforded greater protection from IFR aircraft and VFR aircraft that are receiving traffic advisories. Nevertheless, pilots should never relax their visual scanning for other aircraft, and should include the ADS-B In display (if equipped) in their normal traffic scan.

37.7.1.2 ATCRBS is similar to and compatible with military coded radar beacon equipment. Civil Mode A is identical to military Mode 3.

37.7.1.3 Transponder and ADS-B operations on the ground. Civil and military aircraft should operate with the transponder in the altitude reporting mode (consult the aircraft's flight manual to determine the specific transponder position to enable altitude reporting) and ADS-B Out transmissions enabled at all airports, any time the aircraft is positioned on any portion of the airport movement area. This includes all defined taxiways and runways. Pilots must pay particular attention to ATIS and airport diagram notations, General Notes (included on airport charts), and comply with directions pertaining to transponder and ADS-B usage. Generally, these directions are:

a) Departures. Select the transponder mode which allows altitude reporting and enable ADS-B during pushback or taxi-out from parking spot. Select TA or TA/RA (if equipped with TCAS) when taking the active runway.

b) Arrivals. If TCAS equipped, deselect TA or TA/RA upon leaving the active runway, but continue transponder and ADS−B transmissions in the altitude reporting mode. Select STBY or OFF for transponder and ADS−B upon arriving at the aircraft's parking spot or gate.

37.7.1.4 Transponder and ADS-B Operations While Airborne.

a) Unless otherwise requested by ATC, aircraft equipped with an ATC transponder maintained in accordance with 14 CFR Section 91.413 MUST operate with this equipment on the appropriate Mode 3/A code, or other code as assigned by ATC, and with altitude reporting enabled whenever in controlled airspace. If practicable, aircraft SHOULD operate with the transponder enabled in uncontrolled airspace.

b) Aircraft equipped with ADS−B Out MUST operate with this equipment in the transmit mode at all times, unless otherwise requested by ATC.

c) When participating in a VFR formation flight that is not receiving ATC services, only the lead aircraft should operate their transponder and ADS−B Out. All other aircraft should disable transponder and ADS−B transmissions once established within the formation.

NOTE−
If the formation flight is receiving ATC services, pilots can expect ATC to direct all non−lead aircraft to STOP SQUAWK, and should not do so until instructed.

37.7.1.5 A pilot on an IFR flight who elects to cancel the IFR flight plan prior to reaching their destination, should adjust the transponder/ADS−B according to VFR operations.

37.7.1.6 If entering a U.S. OFFSHORE AIRSPACE AREA from outside the U.S., the pilot should advise on first radio contact with a U.S. radar ATC facility that such equipment is available by adding "transponder" or "ADS−B" (if equipped) to the aircraft identification.

37.7.1.7 It should be noted by all users of ATC transponders and ADS−B Out systems that the surveillance coverage they can expect is limited to "line of sight" with ground radar and ADS−B radio sites. Low altitude or aircraft antenna shielding by the aircraft itself may result in reduced range or loss of aircraft contact. Though ADS−B often provides superior reception at low altitudes, poor coverage from any surveillance system can be improved by climbing to a higher altitude.

NOTE−
Pilots should refer to AIP, ENR 1.1 Paragraph 45. Automatic Dependent Surveillance − Broadcast Services (ADS−B) Services, for a complete description of operating limitations and procedures.

37.7.2 Transponder/ADS−B Code Designation

37.7.2.1 For ATC to utilize one of the 4096 discrete codes, a four−digit code designation will be used; for example, code 2102 will be expressed as "TWO ONE ZERO TWO."

NOTE−
Circumstances may occasionally require ATC to assign a non−discrete code; i.e., a code ending in "00."

REFERENCE−
FAA Order JO 7110.66, National Beacon Code Allocation Plan.

37.7.3 Automatic Altitude Reporting

37.7.3.1 Most transponders (Modes C and S) and all ADS−B Out systems are capable of automatic altitude reporting. This system converts aircraft altitude in 100−foot increments to coded digital information that is transmitted to the appropriate surveillance facility as well as to ADS−B In and TCAS systems.

37.7.3.2 Adjust the transponder/ADS−B to reply on the Mode 3/A code specified by ATC and with altitude reporting enabled, unless otherwise directed by ATC or unless the altitude reporting equipment has not been tested and calibrated as required by 14 CFR Section 91.217. If deactivation is required by ATC, turn off the altitude reporting feature of your transponder/ADS−B. An instruction by ATC to "STOP ALTITUDE SQUAWK, ALTITUDE DIFFERS BY (number of feet) FEET," may be an indication that the transmitted altitude information is incorrect, or that the aircraft's altimeter setting is incorrect. While an incorrect altimeter setting has no effect on the transmitted altitude information, it will cause the aircraft to fly at a true altitude different from the assigned altitude. When a controller indicates that an altitude readout is invalid, the pilot should verify that the aircraft altimeter is set correctly.

NOTE−
Altitude encoders are preset at standard atmospheric pressure. Local altimeter correction is applied by the surveillance facility before the altitude information is presented to ATC.

37.7.3.3 Pilots should report exact altitude or flight level to the nearest hundred foot increment when establishing initial contact with an ATC facility. Exact altitude or flight level reports on initial contact provide ATC with information that is required prior to using automatically reported altitude information for separation purposes. This will significantly reduce altitude verification requests.

37.7.4 IDENT Feature

37.7.4.1 Transponder/ADS−B Out equipment must be operated only as specified by ATC. Activate the "IDENT" feature only when requested by ATC.

37.7.5 Code Changes

37.7.5.1 When making routine code changes, pilots should avoid inadvertent selection of Codes 7500, 7600, or 7700 thereby causing momentary false alarms at automated ground facilities. For example when switching from Code 2700 to Code 7200, switch first to 2200 then 7200, NOT to 7700 and then 7200. This procedure applies to nondiscrete Code 7500 and all discrete codes in the 7600 and 7700 series (i.e., 7600−7677, 7700−7777) which will trigger special indicators in automated facilities. Only nondiscrete Code 7500 will be decoded as the hijack code.

37.7.5.2 Under no circumstances should a pilot of a civil aircraft operate the transponder on Code 7777. This code is reserved for military interceptor operations.

37.7.5.3 Military pilots operating VFR or IFR within restricted/warning areas should adjust their transponders to Code 4000, unless another code has been assigned by ATC.

37.7.6 Mode C Transponder and ADS−B Out Requirements

37.7.6.1 Specific details concerning requirements to carry and operate Mode C transponders and ADS−B Out, as well as exceptions and ATC authorized deviations from those requirements, are found in 14 CFR Sections 91.215, 91.225, and 99.13.

37.7.6.2 In general, the CFRs require aircraft to be equipped with an operable Mode C transponder and ADS−B Out when operating:

a) In Class A, Class B, or Class C airspace areas;

b) Above the ceiling and within the lateral boundaries of Class B or Class C airspace up to 10,000 feet MSL;

c) Class E airspace at and above 10,000 feet MSL within the 48 contiguous states and the District of Columbia, excluding the airspace at and below 2,500 feet AGL;

d) Within 30 miles of a Class B airspace primary airport, below 10,000 feet MSL (commonly referred to as the "Mode C Veil");

e) For ADS−B Out: Class E airspace at and above 3,000 feet MSL over the Gulf of Mexico from the coastline of the United States out to 12 nautical miles.

NOTE−
The airspace described in (e) above is specified in 14 CFR § 91.225 for ADS−B Out requirements. However, 14 CFR § 91.215 does not include this airspace for ATC transponder requirements.

f) Transponder and ADS−B Out requirements do not apply to any aircraft that was not originally certificated with an electrical system, or that has not subsequently been certified with such a system installed, including balloons and gliders. These aircraft may conduct operations without a transponder or ADS−B Out when operating:

1) Outside any Class B or Class C airspace area; and

2) Below the altitude of the ceiling of a Class B or Class C airspace area designated for an airport, or 10,000 feet MSL, whichever is lower.

37.7.6.3 14 CFR Section 99.13 requires all aircraft flying into, within, or across the contiguous U.S. ADIZ be equipped with a Mode C or Mode S transponder. Balloons, gliders, and aircraft not equipped with an engine−driven electrical system are excepted from this requirement.

REFERENCE−
AIP, ENR 1.12, National Security and Interception Procedures.

37.7.6.4 Pilots must ensure that their aircraft transponder/ADS−B is operating on an appropriate ATC−assigned VFR/IFR code with altitude reporting enabled when operating in such airspace. If in doubt about the operational status of either feature of your transponder while airborne, contact the nearest ATC facility or FSS and they will advise you what facility you should contact for determining the status of your equipment.

37.7.6.5 In−flight requests for "immediate" deviation from the transponder requirements may be approved by controllers only for failed equipment, and only when the flight will continue IFR or when weather conditions prevent VFR descent and continued VFR flight in airspace not affected by the CFRs. All other requests for deviation should be made at least 1 hour before the proposed operation by contacting the nearest Flight Service or Air Traffic facility in person or by telephone. The nearest ARTCC will normally be the controlling agency and is responsible for coordinating requests involving deviations in other ARTCC areas.

37.7.6.6 In−flight requests for "immediate" deviation from the ADS−B Out requirements may be approved by ATC only for failed equipment, and may be accommodated based on workload, alternate surveillance availability, or other factors. All other requests for deviation must be made at least 1 hour before the proposed operation, following the procedures contained in Advisory Circular (AC) 90−114, Automatic Dependent Surveillance−Broadcast Operations.

37.7.7 Transponder/ADS−B Operation Under Visual Flight Rules (VFR)

37.7.7.1 Unless otherwise instructed by an ATC facility, adjust transponder/ADS−B to reply on Mode 3/A Code 1200 regardless of altitude.

NOTE−
1. *Firefighting aircraft not in contact with ATC may squawk 1255 in lieu of 1200 while en route to, from, or within the designated firefighting area(s).*

2. *VFR aircraft flying authorized SAR missions for the USAF or USCG may be advised to squawk 1277 in lieu of 1200 while en route to, from, or within the designated search area.*

3. *VFR gliders should squawk 1202 in lieu of 1200.*

REFERENCE−
FAA Order JO 7110.66, National Beacon Code Allocation Plan.

37.7.7.2 When required to operate their transponder/ADS−B, pilots must always operate that equipment with altitude reporting enabled, unless otherwise instructed by ATC or unless the installed equipment has not been tested and calibrated as required by 14 CFR Section 91.217. If deactivation is required, turn off altitude reporting.

37.7.7.3 When participating in a VFR formation flight that is not receiving ATC services, only the lead aircraft should operate their transponder and ADS−B Out. All other aircraft should disable transponder and ADS−B transmissions once established within the formation.

NOTE−
If the formation flight is receiving ATC services, pilots can expect ATC to direct all non−lead aircraft to STOP SQUAWK, and should not do so until instructed.

37.7.8 Cooperative Surveillance Phraseology

37.7.8.1 Air traffic controllers, both civil and military, will use the following phraseology when referring to operation of cooperative ATC surveillance equipment. Except as noted, the following ATC instructions do not apply to military transponders operating in other than Mode 3/A/C/S.

a) SQUAWK (number). Operate radar beacon transponder/ADS−B on designated code with altitude reporting enabled.

b) IDENT. Engage the "IDENT" feature (military I/P) of the transponder/ADS−B.

c) SQUAWK (number) AND IDENT. Operate transponder/ADS−B on specified code with altitude reporting enabled, and engage the "IDENT" (military I/P) feature.

d) SQUAWK STANDBY. Switch transponder/ADS−B to standby position.

e) SQUAWK NORMAL. Resume normal transponder/ADS−B operation on previously assigned code. (Used after "SQUAWK STANDBY," or by military after specific transponder tests).

f) SQUAWK ALTITUDE. Activate Mode C with automatic altitude reporting.

g) STOP ALTITUDE SQUAWK. Turn off automatic altitude reporting.

h) STOP SQUAWK (Mode in use). Stop transponder and ADS−B Out transmissions, or switch off only specified mode of the aircraft transponder (military).

i) SQUAWK MAYDAY. Operate transponder/ADS−B in the emergency position (Mode A Code 7700 for civil transponder. Mode 3 Code 7700 and emergency feature for military transponder.)

j) SQUAWK VFR. Operate radar beacon transponder/ADS−B on Code 1200 in the Mode A/3, or other appropriate VFR code, with altitude reporting enabled.

37.8 Emergency Operation

37.8.1 When an emergency occurs, the pilot of an aircraft equipped with a coded radar beacon transponder who desires to alert a ground radar facility to an emergency condition and who cannot establish communications without delay with an ATC facility may adjust the transponder to reply on Mode A/3, Code 7700.

37.8.2 Pilots should understand that they may not be within a radar coverage area and that, even if they are, certain radar facilities are not yet equipped to automatically recognize Code 7700 as an emergency signal. Therefore, they should establish radio communications with an ATC facility as soon as possible.

37.9 Radio Failure Operation

37.9.1 Should the pilot of an aircraft equipped with a coded radar beacon transponder experience a loss of two−way radio capability the pilot should:

37.9.1.1 Adjust the transponder to reply on MODE A/3, Code 7600.

37.9.1.2 Understand that the aircraft may not be in an area of radar coverage.

37.9.2 Pilots should understand that they may not be in an area of radar coverage. Also, many radar facilities are not presently equipped to automatically display Code 7600 and will interrogate 7600 only when the aircraft is under direct radar control at the time of radio failure. However, replying on Code 7700 first, increases the probability of early detection of a radio failure condition.

37.10 Radar Services

37.10.1 Safety Alert

37.10.1.1 A safety alert will be issued to pilots of aircraft being controlled by ATC if the controller is aware the aircraft is at an altitude which, in the controller's judgment, places the aircraft in unsafe proximity to terrain, obstructions, or other aircraft. The provision of this service is contingent upon the capability of the controller to have an awareness of situations involving unsafe proximity to terrain, obstructions, and uncontrolled aircraft. The issuance of a safety alert cannot be mandated, but it can be expected on a reasonable, though intermittent, basis. Once the alert is issued, it is solely the pilot's prerogative to determine what course of action, if any, will be taken. This procedure is intended for use in time critical situations where aircraft safety is in question. Noncritical situations should be handled via the normal traffic alert procedures.

37.10.2 Terrain/Obstruction Alert

37.10.2.1 Controllers will immediately issue an alert to the pilots of aircraft under their control when they recognize that the aircraft is at an altitude which, in their judgment, may be in unsafe proximity to terrain/obstructions. The primary method of detecting unsafe proximity is through Mode C automatic altitude reports.

EXAMPLE−
Low altitude alert Cessna Three Four Juliet, check your altitude immediately. And if the aircraft is not yet on final approach, the MVA (MEA/MIA/MOCA) in your area is six thousand.

37.10.2.2 Most En Route and Terminal radar facilities have an automated function which, if operating, alerts controllers when a tracked Mode C equipped aircraft under their control is below or is predicted to be below a predetermined minimum safe altitude. This function, called Minimum Safe Altitude Warning (MSAW), is designed solely as a controller aid in detecting potentially unsafe aircraft proximity to terrain/obstructions. The radar facility will, when MSAW is operating, provide MSAW monitoring for all aircraft with an operating Mode C altitude encoding transponder that are tracked by the system and are:

a) Operating on a IFR flight plan.

b) Operating VFR and have requested MSAW monitoring.

NOTE−
Pilots operating VFR may request MSAW or monitoring if their aircraft are equipped with Mode C transponders.

EXAMPLE−
Apache Three Three Papa requests MSAW monitoring.

37.10.2.3 Due to the lack of terrain and obstacle clearance data, accurate automation databases may not be available for providing MSAW information to aircraft overflying Mexico and Canada. Air traffic facilities along the United States/Mexico/Canada borders may have MSAW computer processing inhibited where accurate terrain data is not available.

37.10.3 Aircraft Conflict Alert

37.10.3.1 Controllers will immediately issue an alert to the pilots of aircraft under their control if they are aware of an aircraft that is not under their control at an altitude which, in the controller's judgment, places both aircraft in unsafe proximity to each other. With the alert, when feasible, the controller will offer the pilot the position of the traffic if time permits and an alternate course(s) of action. Any alternate course of action the controller may recommend to the pilot will be predicated only on other traffic in the controller's jurisdiction.

EXAMPLE−
American Three, traffic alert, (position of traffic, if time permits), advise you turn right/left heading (degrees) and/or climb/descend to (altitude) immediately.

37.10.4 Radar Traffic Information Service (RTIS)

37.10.4.1 This is a service provided by radar ATC facilities. Pilots receiving this service are advised of any radar target observed on the radar display which may be in such proximity to the position of their aircraft or its intended route of flight that it warrants their attention. This service is not intended to relieve the pilot of the responsibility for continual vigilance to see and avoid other aircraft.

a) Purpose of this Service

1) The issuance of traffic information as observed on a radar display is based on the principle of assisting and advising a pilot that a particular radar target's position and track indicates it may intersect or pass in such proximity to the intended flight path that it warrants the pilot's attention. This is to alert the pilot to the traffic, to be on the lookout for it, and thereby be in a better position to take appropriate action should the need arise.

2) Pilots are reminded that the surveillance radar used by ATC does not provide altitude information unless the aircraft is equipped with Mode C and the radar facility is capable of displaying altitude information.

b) Provisions of the Service

1) Many factors, such as limitations of the radar, volume of traffic, controller workload, and communications frequency congestion could prevent the controller from providing this service. Controllers possess complete discretion for determining whether they are able to provide or continue to provide this service in a specific case. The controller's reason against providing or continuing to provide the service in a particular case is not subject to question nor need it be communicated to the pilot. In other words, the provision of this service is entirely dependent upon whether controllers believe they are in a position to provide it. Traffic information is routinely provided to all aircraft operating on IFR flight plans except when the pilot declines the service, or the pilot is operating within Class A airspace. Traffic information may be provided to flights not operating on IFR Flight Plans when requested by pilots of such flights.

NOTE−
Radar ATC facilities normally display and monitor both primary and secondary radar as well as ADS−B, except that secondary radar or ADS−B may be used as the sole display source in Class A airspace, and under some circumstances outside of Class A airspace (beyond primary coverage and in en route areas where only secondary and/or ADS−B is available). Secondary radar and/or ADS−B may also be used outside Class A airspace as the sole display source when the primary radar is temporarily unusable or out of service. Pilots in contact with the affected ATC facility are normally advised when a temporary outage occurs; i.e., "primary radar out of service; traffic advisories available on transponder or ADS−B aircraft only." This means simply that only aircraft that have transponders and ADS−B installed and in use will be depicted on ATC displays when the primary and/or secondary radar is temporarily out of service.

2) When receiving VFR radar advisory service, pilots should monitor the assigned frequency at all times. This is to preclude controllers' concern for radio failure of emergency assistance to aircraft under the controller's jurisdiction. VFR radar advisory service does not include vectors away from conflicting traffic unless requested by the pilot. When advisory service is no longer desired, advise the controller before changing frequencies, then change your transponder code to 1200 if applicable. THE, as appropriate, MEA/MVA/MOCA IN YOUR AREA IS (altitude) or if past the final approach fix, THE, as appropriate, MDA/DH (if known) is (altitude). Except in programs where radar service is automatically terminated, the controller will advise the aircraft when radar is terminated.

NOTE−
Participation by VFR pilots in formal programs implemented at certain terminal locations constitutes pilot request. This also applies to participating pilots at those locations where arriving VFR flights are encouraged to make their first contact with the tower on the approach control frequency.

c) Issuance of Traffic Information. Traffic information will include the following concerning a target which may constitute traffic for an aircraft that is:

1) Radar identified.

(a) Azimuth from the aircraft in terms of the twelve hour clock.

(b) When rapidly maneuvering civil test or military aircraft prevent accurate issuance of traffic as in a) above, specify the direction from an aircraft's position in terms of the eight cardinal compass points (N, NE, E, SE, S, SW, W, NW). This method must be terminated at the pilot's request.

(c) Distance from the aircraft in nautical miles.

(d) Direction in which the target is proceeding.

(e) Type of aircraft and altitude if known.

EXAMPLE−
Traffic 10 o'clock, 3 miles, west-bound (type aircraft and altitude, if known, of the observed traffic). The altitude may be known, by means of Mode C, but not verified with the pilot for accuracy. (To be valid for separation purposes by ATC, the accuracy of Mode C readouts must be verified. This is usually accomplished upon initial entry into the radar system by a comparison of the readout to pilot stated altitude, or the field elevation in the case of continuous readout being received from an aircraft on the airport.) When necessary to issue traffic advisories containing unverified altitude information, the controller will issue the indicated altitude of the aircraft. The pilot may upon receipt of traffic information, request a vector (heading) to avoid such traffic. The vector will be provided to the extent possible as determined by the controller provided the aircraft to be vectored is within the airspace under the jurisdiction of the controller.

2) Not radar identified

(a) Distance and direction with respect to a fix.

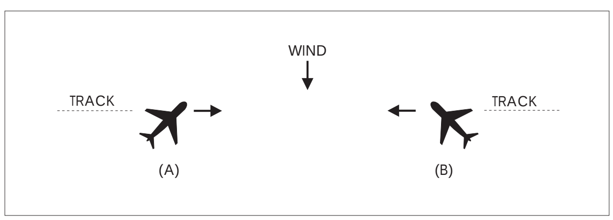
(b) Direction in which the target is proceeding.

(c) Type of aircraft and altitude if known.

EXAMPLE−
Traffic 8 miles south of the airport northeastbound, (type aircraft and altitude if known).

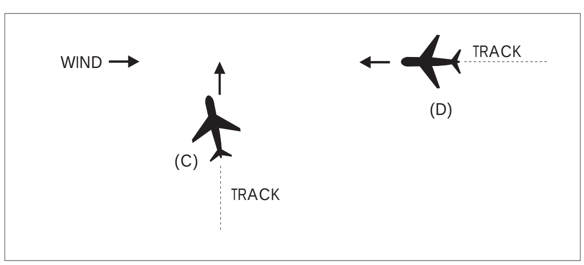
(d) The examples depicted in FIG ENR 1.1−29 and FIG ENR 1.1−30 point out the possible error in the position of this traffic when it is necessary for a pilot to apply drift correction to maintain this track. This error could also occur in the event a change in course is made at the time radar traffic information is issued.

FIG ENR 1.1−29
Induced Error in Position of Traffic



EXAMPLE−
In FIG ENR 1.1−29, traffic information would be issued to the pilot of aircraft "A" as 12 o'clock. The actual position of the traffic as seen by the pilot of aircraft "A" would be one o'clock. Traffic information issued to aircraft "B" would also be given as 12 o'clock, but in this case, the pilot of "B" would see the traffic at 11 o'clock.

FIG ENR 1.1−30
Induced Error in Position of Traffic



EXAMPLE−
In FIG ENR 1.1−30, traffic information would be issued to the pilot of aircraft "C" as two o'clock. The actual position of the traffic as seen by the pilot of aircraft "C" would be three o'clock. Traffic information issued to aircraft "D" would be at an 11 o'clock position. Since it is not necessary for the pilot of aircraft "D" to apply wind correction (CRAB) to remain on track, the actual position of the traffic issued would be correct. Since the radar controller can only observe aircraft track (course) on the radar display, traffic advisories are issued accordingly, and pilots should give due consideration to this fact when looking for reported traffic.

37.11 Radar Assistance to VFR Aircraft

37.11.1 Radar equipped FAA ATC facilities provide radar assistance and navigation service (vectors) to VFR aircraft provided the aircraft can communicate with the facility, are within radar coverage, and can be radar identified.

37.11.2 Pilots should clearly understand that authorization to proceed in accordance with such radar navigational assistance does not constitute authorization for the pilot to violate Federal Aviation Regulations. In effect, assistance provided is on the basis that navigational guidance information issued is advisory in nature and the job of flying the aircraft safely remains with the pilot.

37.11.3 In many cases, controllers will be unable to determine if flight into instrument conditions will result from their instructions. To avoid possible hazards resulting from being vectored into IFR conditions, pilots should keep controllers advised of the weather conditions in which they are operating and along the course ahead.

37.11.4 Radar navigation assistance (vectors) may be initiated by the controller when one of the following conditions exist:

37.11.4.1 The controller suggests the vector and the pilot concurs.

37.11.4.2 A special program has been established and vectoring service has been advertised.

37.11.4.3 In the controller's judgment the vector is necessary for air safety.

37.11.5 Radar navigation assistance (vectors) and other radar derived information may be provided in response to pilot requests. Many factors, such as limitations of radar, volume of traffic, communications frequency, congestion, and controller workload could prevent the controller from providing it. Controllers have complete discretion for determining if they are able to provide the service in a particular case. Their decision not to provide the service in a particular case is not subject to question.

38. Operational Policy/Procedures for Reduced Vertical Separation Minimum (RVSM) in the Domestic U.S., Alaska, Offshore Airspace and the San Juan FIR

38.1 Applicability and RVSM Mandate (Date/Time and Area)

38.1.1 Applicability. The policies, guidance and direction in this section are consistent with the policies and procedures used in Domestic U.S. RVSM Airspace, as specified in the Aeronautical Information Manual, Chapter 4, Section 6. For any oceanic area specific items, see Part II, ENR 7. Oceanic Procedures.

38.1.2 Requirement. The FAA implemented RVSM between flight level (FL) 290−410 (inclusive) in the following airspace: the airspace of the lower 48 states of the United States, Alaska, Atlantic and Gulf of Mexico High Offshore Airspace and the San Juan FIR. RVSM has been implemented worldwide and may be applied in all ICAO Flight Information Regions (FIR).

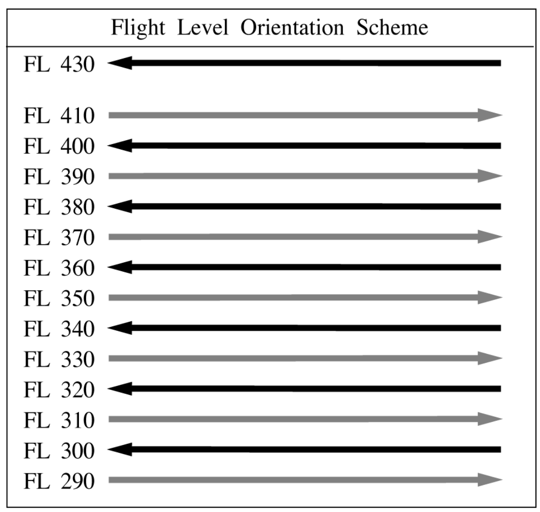
38.1.3 In accordance with 14 CFR Section 91.706, with only limited exceptions, prior to operating in RVSM airspace, operators must comply with the standards of Part 91, Appendix G, and be authorized by the Administrator. If the operator has not been authorized for RVSM operations, or the aircraft is not RVSM compliant, the aircraft will be referred to as "non−RVSM" aircraft. Paragraph 38.10 discusses ATC policies for accommodation of non−RVSM aircraft flown by the Department of Defense, Air Ambulance (MEDEVAC) operators, foreign State governments and aircraft flown for certification and development. Paragraph 38.11, Non−RVSM Aircraft Requesting Climb to and Descent from Flight Levels Above RVSM Airspace Without Intermediate Level Off, contains policies for non−RVSM aircraft climbing and descending through RVSM airspace to/from flight levels above RVSM airspace.

38.1.4 Benefits. RVSM enhances ATC flexibility, mitigates conflict points, enhances sector throughput, reduces controller workload and enables crossing traffic. Operators gain fuel savings and operating efficiency benefits by flying at more fuel efficient flight levels and on more user preferred routings.

38.2 Flight Level Orientation Scheme

Altitude assignments for direction of flight follow a scheme of odd altitude assignment for magnetic courses 000−179 degrees and even altitudes for magnetic courses 180−359 degrees for flights up to and including FL 410, as indicated in FIG ENR 1.1−31.

FIG ENR 1.1−31
Flight Level Orientation Scheme



NOTE−
Odd Flight Levels: Magnetic Course 000−179 Degrees Even Flight Levels: Magnetic Course 180−359 Degrees.

38.3 Aircraft and Operator Approval Policy/Procedures, RVSM Monitoring and Databases for Aircraft and Operator Approval

38.3.1 RVSM Authority. 14 CFR Section 91.180 applies to RVSM operations within the U.S. 14 CFR Section 91.706 applies to RVSM operations outside the U.S. Both sections require that the operator obtain authorization prior to operating in RVSM airspace.

38.3.2 Sources of Information. Advisory Circular (AC) 91−85, Authorization of Aircraft and Operators for Flight in Reduced Vertical Separation Minimum (RVSM) Airspace, and the FAA RVSM Website.

38.3.3 TCAS Equipage. TCAS equipage requirements are contained in 14 CFR Sections 121.356, 125.224, 129.18 and 135.189. Part 91 Appendix G does not contain TCAS equipage requirements specific to RVSM, however, Appendix G does require that aircraft equipped with TCAS II and flown in RVSM airspace be modified to incorporate TCAS II Version 7.0 or a later version.

38.3.4 Aircraft Monitoring. Operators are required to participate in the RVSM altitude−keeping performance monitoring program that is appropriate for the type of operation being conducted. The monitoring programs are described in FAA AC 91−85, Authorization of Aircraft and Operators for Flight in Reduced Vertical Separation Minimum Airspace. Monitoring is a quality control program that enables the FAA and other civil aviation authorities to assess the in−service altitude−keeping performance of aircraft and operators.

38.3.5 RVSM Approvals Databases for U.S. operators can be found on the RVSM Documentation Webpage in the “RVSM Approvals” section.

38.4 Flight Planning into RVSM Airspace

38.4.1 Operators that do not file the correct aircraft equipment suffix on the FAA or ICAO Flight Plan may be denied clearance into RVSM airspace. Policies for the FAA Flight Plan are detailed in subparagraph 38.4.3 below. Policies for the ICAO Flight Plan are detailed in subparagraph 38.4.4.

38.4.2 The operator will annotate the equipment block of the FAA or ICAO Flight Plan with an aircraft equipment suffix indicating RVSM capability only after the responsible civil aviation authority has determined that both the operator and its aircraft are RVSM−compliant and has issued RVSM authorization to the operator.

38.4.3 General Policies for FAA Flight Plan Equipment Suffix. Appendix 2, TBL 2−2, allows operators to indicate that the aircraft has both RVSM and Advanced Area Navigation (RNAV) capabilities or has only RVSM capability.

38.4.3.1 The operator will annotate the equipment block of the FAA Flight Plan with the appropriate aircraft equipment suffix from Appendix 2, TBL 2−2 and/or TBL 2−3.

38.4.3.2 Operators can only file one equipment suffix in block 3 of the FAA Flight Plan. Only this equipment suffix is displayed directly to the controller.

38.4.3.3 Aircraft with RNAV Capability. For flight in RVSM airspace, aircraft with RNAV capability, but not Advanced RNAV capability, will file "/W". Filing "/W" will not preclude such aircraft from filing and flying direct routes in en route airspace.

38.4.4 Policy for ICAO Flight Plan Equipment Suffixes.

38.4.4.1 Operators/aircraft that are RVSM−compliant and that file ICAO flight plans will file "/W" in block 10 (Equipment) to indicate RVSM authorization and will also file the appropriate ICAO Flight Plan suffixes to indicate navigation and communication capabilities.

38.4.4.2 Operators/aircraft that file ICAO flight plans that include flight in Domestic U.S. RVSM airspace must file "/W" in block 10 to indicate RVSM authorization.

38.4.5 Importance of Flight Plan Equipment Suffixes. Military users, and civilians who file stereo route flight plans, must file the appropriate equipment suffix in the equipment block of the FAA Form 7233−1, Flight Plan, or DD Form 175, Military Flight Plan, or FAA Form 7233−4, International Flight Plan, or DD Form 1801, DOD International Flight Plan. All other users must file the appropriate equipment suffix in the equipment block of FAA Form 7233−4, International Flight Plan. The equipment suffix informs ATC:

38.4.5.1 Whether or not the operator and aircraft are authorized to fly in RVSM airspace.

38.4.5.2 The navigation and/or transponder capability of the aircraft (e.g., advanced RNAV, Transponder with Mode C).

38.4.6 Significant ATC uses of the flight plan equipment suffix information are:

38.4.6.1 To issue or deny clearance into RVSM airspace.

38.4.6.2 To apply a 2,000 foot vertical separation minimum in RVSM airspace to aircraft that are not authorized for RVSM, but are in one of the limited categories that the FAA has agreed to accommodate. (See paragraphs 38.10, Procedures for Accommodation of Non−RVSM Aircraft, and 38.11, Non−RVSM Aircraft Requesting Climb to and Descent from Flight Levels Above RVSM Airspace Without Intermediate Level Off, for policy on limited operation of unapproved aircraft in RVSM airspace).

38.4.7 Improperly changing an aircraft equipment suffix and/or adding "NON-RVSM" in the NOTES or REMARKS section (Field 18) while not removing the "W" from Field 10, will not provide air traffic control with the proper visual indicator necessary to detect Non-RVSM aircraft. To ensure information processes correctly for Non-RVSM aircraft, the "W" in Field 10 must be removed. Entry of information in the NOTES or REMARKS section (Field 18) will not affect the determination of RVSM capability and must not be used to indicate a flight is Non-RVSM.

38.5 Pilot RVSM Operating Practices and Procedures

38.5.1 RVSM Requirement. If either the operator is not authorized for RVSM operations, or the aircraft is not RVSM compliant, the pilot will neither request nor accept a clearance into RVSM airspace unless:

38.5.1.1 The flight is conducted by a non−RVSM DOD, MEDEVAC, certification/development or foreign State (government) aircraft in accordance with Paragraph 38.10, Procedures for Accommodation of Non−RVSM Aircraft.

38.5.1.2 The pilot intends to climb to or descend from FL 430 or above in accordance with Paragraph 38.11, Non−RVSM Aircraft Requesting Climb to and Descent from Flight Levels Above RVSM Airspace Without Intermediate Level Off.

38.5.1.3 An emergency situation exists.

38.5.2 Basic RVSM Operating Practices and Procedures. FAA AC 91−85 contains pilot practices and procedures for RVSM. Operators must incorporate RVSM practices and procedures, as supplemented by the applicable paragraphs of this section, into operator training or pilot knowledge programs and operator documents containing RVSM operational policies.

38.5.3 FAA AC 91−85 contains practices and procedures for flight planning, preflight procedures at the aircraft, procedures prior to RVSM airspace entry, inflight (en route) procedures, contingency procedures and post flight.

38.5.4 The following paragraphs either clarify or supplement FAA AC 91−85 practices and procedures.

38.6 Guidance on Severe Turbulence and Mountain Wave Activity (MWA)

38.6.1 Introduction/Explanation

38.6.1.1 The information and practices in this paragraph are provided to emphasize to pilots and controllers the importance of taking appropriate action in RVSM airspace when aircraft experience severe turbulence and/or MWA that is of sufficient magnitude to significantly affect altitude−keeping.

38.6.1.2 Severe Turbulence. Severe turbulence causes large, abrupt changes in altitude and/or attitude usually accompanied by large variations in indicated airspeed. Aircraft may be momentarily out of control. Encounters with severe turbulence must be remedied immediately in any phase of flight. Severe turbulence may be associated with MWA.

38.6.1.3 Mountain Wave Activity (MWA)

a) Significant MWA occurs both below and above the floor of RVSM airspace, FL 290. MWA often occurs in western states in the vicinity of mountain ranges. It may occur when strong winds blow perpendicular to mountain ranges resulting in up and down or wave motions in the atmosphere. Wave action can produce altitude excursions and airspeed fluctuations accompanied by only light turbulence. With sufficient amplitude, however, wave action can induce altitude and airspeed fluctuations accompanied by severe turbulence. MWA is difficult to forecast and can be highly localized and short lived.

b) Wave activity is not necessarily limited to the vicinity of mountain ranges. Pilots experiencing wave activity anywhere that significantly affects altitude−keeping can follow the guidance provided below.

c) Inflight MWA Indicators (Including Turbulence). Indicators that the aircraft is being subjected to MWA are:

1) Altitude excursions and/or airspeed fluctuations with or without associated turbulence.

2) Pitch and trim changes required to maintain altitude with accompanying airspeed fluctuations.

3) Light to severe turbulence depending on the magnitude of the MWA.

38.6.1.4 Priority for Controller Application of Merging Target Procedures

a) Explanation of Merging Target Procedures. As described in subparagraph 38.6.3.3 below, ATC will use "merging target procedures" to mitigate the effects of both severe turbulence and MWA. The procedures in subparagraph 38.6.3.3 have been adapted from existing procedures published in FAA Order JO 7110.65, Air Traffic Control, paragraph 5−1−4, Merging Target Procedures. paragraph 5−1−4 calls for en route controllers to advise pilots of potential traffic that they perceive may fly directly above or below his/her aircraft at minimum vertical separation. In response, pilots are given the option of requesting a radar vector to ensure their radar target will not merge or overlap with the traffic's radar target.

b) The provision of "merging target procedures" to mitigate the effects of severe turbulence and/or MWA is not optional for the controller, but rather is a priority responsibility. Pilot requests for vectors for traffic avoidance when encountering MWA or pilot reports of "Unable RVSM due turbulence or MWA" are considered first priority aircraft separation and sequencing responsibilities. (FAA Order JO 7110.65, paragraph 2−1−2, Duty Priority, states that the controller's first priority is to separate aircraft and issue safety alerts).

c) Explanation of the term "traffic permitting." The contingency actions for MWA and severe turbulence detailed in Paragraph 38.9, Contingency Actions: Weather Encounters and Aircraft System Failures that Occur After Entry into RVSM Airspace, state that the controller will "vector aircraft to avoid merging targets with traffic at adjacent flight levels, traffic permitting." The term "traffic permitting" is not intended to imply that merging target procedures are not a priority duty. The term is intended to recognize that, as stated in FAA Order JO 7110.65, paragraph 2−1−2, Duty Priority, there are circumstances when the controller is required to perform more than one action and must "exercise their best judgment based on the facts and circumstances known to them" to prioritize their actions. Further direction given is: "That action which is most critical from a safety standpoint is performed first."

38.6.1.5 TCAS Sensitivity. For both MWA and severe turbulence encounters in RVSM airspace, an additional concern is the sensitivity of collision avoidance systems when one or both aircraft operating in close proximity receive TCAS advisories in response to disruptions in altitude hold capability.

38.6.2 Pre−flight tools. Sources of observed and forecast information that can help the pilot ascertain the possibility of MWA or severe turbulence are: Forecast Winds and Temperatures Aloft (FD), Area Forecast (FA), Graphical Turbulence Guidance (GTG), SIGMETs and PIREPs.

38.6.3 Pilot Actions When Encountering Weather (for example, Severe Turbulence or MWA)

38.6.3.1 Weather Encounters Inducing Altitude Deviations of Approximately 200 feet. When the pilot experiences weather induced altitude deviations of approximately 200 feet, the pilot will contact ATC and state "Unable RVSM Due (state reason)" (e.g., turbulence, mountain wave). See contingency actions in paragraph 38.9.

38.6.3.2 Severe Turbulence (including that associated with MWA). When pilots encounter severe turbulence, they should contact ATC and report the situation. Until the pilot reports clear of severe turbulence, the controller will apply merging target vectors to one or both passing aircraft to prevent their targets from merging:

EXAMPLE−
"Yankee 123, FL 310, unable RVSM due severe turbulence."

"Yankee 123, fly heading 290; traffic twelve o'clock, 10 miles, opposite direction; eastbound MD−80 at FL 320" (or the controller may issue a vector to the MD−80 traffic to avoid Yankee 123).

38.6.3.3 MWA. When pilots encounter MWA, they should contact ATC and report the magnitude and location of the wave activity. When a controller makes a merging targets traffic call, the pilot may request a vector to avoid flying directly over or under the traffic. In situations where the pilot is experiencing altitude deviations of 200 feet or greater, the pilot will request a vector to avoid traffic. Until the pilot reports clear of MWA, the controller will apply merging target vectors to one or both passing aircraft to prevent their targets from merging:

EXAMPLE−
"Yankee 123, FL 310, unable RVSM due mountain wave."

"Yankee 123, fly heading 290; traffic twelve o'clock, 10 miles, opposite direction; eastbound MD−80 at FL 320" (or the controller may issue a vector to the MD−80 traffic to avoid Yankee 123).

38.6.3.4 FL Change or Re−route. To leave airspace where MWA or severe turbulence is being encountered, the pilot may request a FL change and/or re−route, if necessary.

38.7 Guidance on Wake Turbulence

38.7.1 Pilots should be aware of the potential for wake turbulence encounters in RVSM airspace. Experience gained since 1997 has shown that such encounters in RVSM airspace are generally moderate or less in magnitude.

38.7.2 Prior to DRVSM implementation, the FAA established provisions for pilots to report wake turbulence events in RVSM airspace using the NASA Aviation Safety Reporting System (ASRS). A “Safety Reporting” section established on the FAA RVSM Documentation webpage provides contacts, forms, and reporting procedures.

38.7.3 To date, wake turbulence has not been reported as a significant factor in DRVSM operations. European authorities also found that reports of wake turbulence encounters did not increase significantly after RVSM implementation (eight versus seven reports in a ten−month period). In addition, they found that reported wake turbulence was generally similar to moderate clear air turbulence.

38.7.4 Pilot Action to Mitigate Wake Turbulence Encounters

38.7.4.1 Pilots should be alert for wake turbulence when operating:

a) In the vicinity of aircraft climbing or descending through their altitude.

b) Approximately 10−30 miles after passing 1,000 feet below opposite−direction traffic.

c) Approximately 10−30 miles behind and 1,000 feet below same−direction traffic.

38.7.4.2 Pilots encountering or anticipating wake turbulence in DRVSM airspace have the option of requesting a vector, FL change, or if capable, a lateral offset.

NOTE−
1. *Offsets of approximately a wing span upwind generally can move the aircraft out of the immediate vicinity of another aircraft's wake vortex.*

2. *In domestic U.S. airspace, pilots must request clearance to fly a lateral offset. Strategic lateral offsets flown in oceanic airspace do not apply.*

38.8 Pilot/Controller Phraseology

TBL ENR 1.1−4 shows standard phraseology that pilots and controllers will use to communicate in DRVSM operations.

TBL ENR 1.1−4

Pilot/Controller Phraseology

Message	Phraseology
For a controller to ascertain the RVSM approval status of an aircraft:	(call sign) confirm RVSM approved
Pilot indication that flight is RVSM approved	Affirm RVSM
Pilot report of lack of RVSM approval (non−RVSM status). Pilot will report non−RVSM status, as follows: **a.** On the initial call on any frequency in the RVSM airspace and . . . **b.** In all requests for flight level changes pertaining to flight levels within the RVSM airspace and . . . **c.** In all read backs to flight level clearances pertaining to flight levels within the RVSM airspace and . . . **d.** In read back of flight level clearances involving climb and descent through RVSM airspace (FL 290 − 410)	Negative RVSM, (supplementary information, e.g., "Certification flight").
Pilot report of one of the following after entry into RVSM airspace: all primary altimeters, automatic altitude control systems or altitude alerters have failed. (See Paragraph 38.9, Contingency Actions: Weather Encounters and Aircraft System Failures that Occur After Entry into RVSM Airspace). ***NOTE−*** *This phrase is to be used to convey both the initial indication of RVSM aircraft system failure and on initial contact on all frequencies in RVSM airspace until the problem ceases to exist or the aircraft has exited RVSM airspace.*	Unable RVSM Due Equipment
ATC denial of clearance into RVSM airspace	Unable issue clearance into RVSM airspace, maintain FL
*Pilot reporting inability to maintain cleared flight level due to weather encounter. (See Paragraph 38.9, Contingency Actions: Weather Encounters and Aircraft System Failures that Occur after Entry into RVSM Airspace).	*Unable RVSM due (state reason) (e.g., turbulence, mountain wave)
ATC requesting pilot to confirm that an aircraft has regained RVSM−approved status or a pilot is ready to resume RVSM	Confirm able to resume RVSM
Pilot ready to resume RVSM after aircraft system or weather contingency	Ready to resume RVSM

38.9 Contingency Actions: Weather Encounters and Aircraft System Failures that Occur After Entry into RVSM Airspace

TBL ENR 1.1−5 provides pilot guidance on actions to take under certain conditions of aircraft system failure that occur after entry into RVSM airspace and weather encounters. It also describes the expected ATC controller actions in these situations. It is recognized that the pilot and controller will use judgment to determine the action most appropriate to any given situation.

TBL ENR 1.1−5

Contingency Actions: Weather Encounters and Aircraft System Failures that Occur After Entry into RVSM Airspace

Initial Pilot Actions in Contingency Situations
Initial pilot actions when unable to maintain flight level (FL) or unsure of aircraft altitude−keeping capability: •Notify ATC and request assistance as detailed below. •Maintain cleared flight level, to the extent possible, while evaluating the situation. •Watch for conflicting traffic both visually and by reference to TCAS, if equipped**.** •Alert nearby aircraft by illuminating exterior lights (commensurate with aircraft limitations).

Severe Turbulence and/or Mountain Wave Activity (MWA) Induced Altitude Deviations of Approximately 200 feet	
Pilot will:	**Controller will:**
•When experiencing severe turbulence and/or MWA induced altitude deviations of approximately 200 feet or greater, pilot will contact ATC and state "Unable RVSM Due (state reason)" (e.g., turbulence, mountain wave) •If not issued by the controller, request vector clear of traffic at adjacent FLs •If desired, request FL change or re−route •Report location and magnitude of turbulence or MWA to ATC	•Vector aircraft to avoid merging target with traffic at adjacent flight levels, traffic permitting •Advise pilot of conflicting traffic •Issue FL change or re−route, traffic permitting •Issue PIREP to other aircraft
See Paragraph 38.6, Guidance on Severe Turbulence and Mountain Wave Activity (MWA), for detailed guidance.	Paragraph 38.6 explains "traffic permitting."

Mountain Wave Activity (MWA) Encounters − General	
Pilot actions:	**Controller actions:**
•Contact ATC and report experiencing MWA •If so desired, pilot may request a FL change or re−route •Report location and magnitude of MWA to ATC	•Advise pilot of conflicting traffic at adjacent FL •If pilot requests, vector aircraft to avoid merging target with traffic at adjacent RVSM flight levels, traffic permitting •Issue FL change or re−route, traffic permitting •Issue PIREP to other aircraft
See paragraph 38.6 for guidance on MWA.	Paragraph 38.6 explains "traffic permitting."
NOTE− *MWA encounters do not necessarily result in altitude deviations on the order of 200 feet. The guidance below is intended to address less significant MWA encounters.*	

Wake Turbulence Encounters	
Pilot should:	**Controller should:**
•Contact ATC and request vector, FL change or, if capable, a lateral offset	•Issue vector, FL change or lateral offset clearance, traffic permitting
See Paragraph 38.7, Guidance on Wake Turbulence.	Paragraph 38.6 explains "traffic permitting."

"Unable RVSM Due Equipment" Failure of Automatic Altitude Control System, Altitude Alerter or All Primary Altimeters	
Pilot will:	**Controller will:**
•Contact ATC and state "Unable RVSM Due Equipment"	•Provide 2,000 feet vertical separation or appropriate horizontal separation
•Request clearance out of RVSM airspace unless operational situation dictates otherwise	•Clear aircraft out of RVSM airspace unless operational situation dictates otherwise

One Primary Altimeter Remains Operational	
Pilot will:	**Controller will:**
•Cross check stand−by altimeter	•Acknowledge operation with single primary altimeter
•Notify ATC of operation with single primary altimeter	
•If unable to confirm primary altimeter accuracy, follow actions for failure of all primary altimeters	

Transponder Failure	
Pilot will:	**Controller will:**
•Contact ATC and request authority to continue to operate at cleared flight level	•Consider request to continue to operate at cleared flight level
•Comply with revised ATC clearance, if issued	•Issue revised clearance, if necessary
NOTE− *14 CFR Section 91.215 (ATC transponder and altitude reporting equipment and use) regulates operation with the transponder inoperative.*	

38.10 Procedures for Accommodation of Non−RVSM Aircraft

38.10.1 General Policies for Accommodation of Non−RVSM Aircraft

38.10.1.1 The RVSM mandate calls for only RVSM authorized aircraft/operators to fly in designated RVSM airspace with limited exceptions. The policies detailed below are intended exclusively for use by aircraft that the FAA has agreed to accommodate. They are not intended to provide other operators a means to circumvent the normal RVSM approval process.

38.10.1.2 If either the operator is not authorized or the aircraft is not RVSM−compliant, the aircraft will be referred to as a "non−RVSM" aircraft. 14 CFR Section 91.180 and Part 91 Appendix G enable the FAA to authorize a deviation to operate a non−RVSM aircraft in RVSM airspace.

38.10.1.3 Non−RVSM aircraft flights will be handled on a workload permitting basis. The vertical separation standard applied between aircraft not approved for RVSM and all other aircraft must be 2,000 feet.

38.10.1.4 Required Pilot Calls. The pilot of non−RVSM aircraft will inform the controller of the lack of RVSM approval in accordance with the direction provided in Paragraph 38.8, Pilot/Controller Phraseology.

38.10.2 Categories of Non−RVSM Aircraft that may be Accommodated

Subject to FAA approval and clearance, the following categories of non−RVSM aircraft may operate in domestic U.S. RVSM airspace provided they have an operational transponder.

38.10.2.1 Department of Defense (DOD) aircraft.

38.10.2.2 Flights conducted for aircraft certification and development purposes.

38.10.2.3 Active air ambulance flights utilizing a "MEDEVAC" call sign.

38.10.2.4 Aircraft climbing/descending through RVSM flight levels (without intermediate level off) to/from FLs above RVSM airspace (Policies for these flights are detailed in paragraph 38.11, Non−RVSM Aircraft Requesting Climb to and Descent from Flight Levels Above RVSM Airspace Without Intermediate Level Off.

38.10.2.5 Foreign State (government) aircraft.

38.10.3 Methods for operators of non−RVSM aircraft to request access to RVSM Airspace. Operators may:

38.10.3.1 LOA/MOU. Enter into a Letter of Agreement (LOA)/Memorandum of Understanding (MOU) with the RVSM facility (the Air Traffic facility that provides air traffic services in RVSM airspace). Operators must comply with LOA/MOU.

38.10.3.2 File−and−Fly. File a flight plan to notify the FAA of their intention to request access to RVSM airspace.

NOTE−
Priority for access to RVSM airspace will be afforded to RVSM compliant aircraft, then File−and−Fly flights.

38.11 Non−RVSM Aircraft Requesting Climb to and Descent from Flight Levels Above RVSM Airspace Without Intermediate Level Off

38.11.1 File−and−Fly. Operators of Non−RVSM aircraft climbing to and descending from RVSM flight levels should just file a flight plan.

38.11.2 Non−RVSM aircraft climbing to and descending from flight levels above RVSM airspace will be handled on a workload permitting basis. The vertical separation standard applied in RVSM airspace between non−RVSM aircraft and all other aircraft must be 2,000 feet.

38.11.3 Non−RVSM aircraft climbing to/descending from RVSM airspace can only be considered for accommodation provided:

38.11.3.1 Aircraft is capable of a continuous climb/descent and does not need to level off at an intermediate altitude for any operational considerations and

38.11.3.2 Aircraft is capable of climb/descent at the normal rate for the aircraft.

38.11.4 Required Pilot Calls. The pilot of non−RVSM aircraft will inform the controller of the lack of RVSM approval in accordance with the direction provided in paragraph 38.8, Pilot/Controller Phraseology.

39. Terminal Radar Services for VFR Aircraft

39.1 Basic Radar Service

39.1.1 In addition to the use of radar for the control of IFR aircraft, all commissioned radar facilities provide the following basic radar services for VFR aircraft:

39.1.1.1 Safety alerts.

39.1.1.2 Traffic advisories.

39.1.1.3 Limited radar vectoring (on a workload permitting basis).

39.1.1.4 Sequencing at locations where procedures have been established for this purpose and/or when covered by a letter of agreement.

NOTE−
When the stage services were developed, two basic radar services (traffic advisories and limited vectoring) were identified as "Stage I." This definition became unnecessary and the term "Stage I" was eliminated from use. The term "Stage II" has been eliminated in conjunction with the airspace reclassification, and sequencing services to locations with local procedures and/or letters of agreement to provide this service have been included in basic services to VFR aircraft. These basic services will still be provided by all terminal radar facilities whether they include Class B, C, D, or E airspace. "Stage III" services have been replaced with "Class B" and "Terminal Radar Service Area" service where applicable.

39.1.2 Vectoring service may be provided when requested by the pilot or with pilot concurrence when suggested by ATC.

39.1.3 Pilots of arriving aircraft should contact approach control on the publicized frequency and give their position, altitude, aircraft call sign, type aircraft, radar beacon code (if transponder equipped), destination, and should request traffic information.

39.1.4 Approach control will issue wind and runway, except when the pilot states "have numbers" or this information is contained in the ATIS broadcast and the pilot states that the current ATIS information has been received. Traffic information is provided on a workload permitting basis. Approach control will specify the time or place at which the pilot is to contact the tower on local control frequency for further landing information. Radar service is automatically terminated and the aircraft need not be advised of termination when an arriving VFR aircraft receiving radar services to a tower−controlled airport where basic radar service is provided has landed, or to all other airports, is instructed to change to tower or advisory frequency.

39.1.5 Sequencing for VFR aircraft is available at certain terminal locations (see locations listed in the Chart Supplement U.S.). The purpose of the service is to adjust the flow of arriving VFR and IFR aircraft into the traffic pattern in a safe and orderly manner and to provide radar traffic information to departing VFR aircraft. Pilot participation is urged but is not mandatory. Traffic information is provided on a workload permitting basis. Standard radar separation between VFR or between VFR and IFR aircraft is not provided.

39.1.5.1 Pilots of arriving VFR aircraft should initiate radio contact on the publicized frequency with approach control when approximately 25 miles from the airport at which sequencing services are being provided. On initial contact by VFR aircraft, approach control will assume that sequencing service is requested. After radar contact is established, the pilot may use pilot navigation to enter the traffic pattern or, depending on traffic conditions, approach control may provide the pilot with routings or vectors necessary for proper sequencing with other participating VFR and IFR traffic en route to the airport. When a flight is positioned behind a preceding aircraft and the pilot reports having that aircraft in sight, the pilot will be instructed to follow the preceding aircraft. THE ATC INSTRUCTION TO FOLLOW THE PRECEDING AIRCRAFT DOES NOT AUTHORIZE THE PILOT TO COMPLY WITH ANY ATC CLEARANCE OR INSTRUCTION ISSUED TO THE PRECEDING AIRCRAFT. If other "nonparticipating" or "local" aircraft are in the traffic pattern, the tower will issue a landing sequence. If an arriving aircraft does not want radar service, the pilot should state "NEGATIVE RADAR SERVICE" or make a similar comment, on initial contact with approach control.

39.1.5.2 Pilots of departing VFR aircraft are encouraged to request radar traffic information by notifying ground control, or where applicable, clearance delivery, on initial contact with their request and proposed direction of flight.

EXAMPLE−
Xray ground control, November One Eight Six, Cessna One Seventy Two, ready to taxi, VFR southbound at 2,500, have information bravo and request radar traffic information.

NOTE−
Following takeoff, the tower will advise when to contact departure control.

39.1.5.3 Pilots of aircraft transiting the area and in radar contact/communication with approach control will receive traffic information on a controller workload permitting basis. Pilots of such aircraft should give their position, altitude, aircraft call sign, aircraft type, radar beacon code (if transponder equipped), destination, and/or route of flight.

39.2 Terminal Radar Service Area (TRSA) Service (Radar Sequencing and Separation Service for VFR Aircraft in a TRSA).

39.2.1 This service has been implemented at certain terminal locations. The service is advertised in the Chart Supplement U.S. The purpose of this service is to provide separation between all participating VFR aircraft and all IFR aircraft operating within the airspace defined as the TRSA. Pilot participation is urged but is not mandatory.

39.2.2 If any aircraft does not want the service, the pilot should state "NEGATIVE TRSA SERVICE" or make a similar comment, on initial contact with approach control or ground control, as appropriate.

39.2.3 TRSAs are depicted on sectional aeronautical charts and listed in the Chart Supplement U.S.

39.2.4 While operating within a TRSA, pilots are provided TRSA service and separation as prescribed in this paragraph. In the event of a radar outage, separation and sequencing of VFR aircraft will be suspended as this service is dependent on radar. The pilot will be advised that the service is not available and will be issued wind, runway information, and the time or place to contact the tower. Traffic information will be provided on a workload permitting basis.

39.2.5 Visual separation is used when prevailing conditions permit and it will be applied as follows:

39.2.5.1 When a VFR flight is positioned behind a preceding aircraft and the pilot reports having that aircraft in sight, the pilot will be instructed by ATC to follow the preceding aircraft. THE ATC INSTRUCTION TO FOLLOW THE PRECEDING AIRCRAFT DOES NOT AUTHORIZE THE PILOT TO COMPLY WITH ANY ATC CLEARANCE OR INSTRUCTION ISSUED TO THE PRECEDING AIRCRAFT. Radar service will be continued to the runway.

39.2.5.2 If other "nonparticipating" or "local" aircraft are in the traffic pattern, the tower will issue a landing sequence.

39.2.5.3 Departing VFR aircraft may be asked if they can visually follow a preceding departure out of the TRSA. The pilot will be instructed to follow the other aircraft provided that the pilot can maintain visual contact with that aircraft.

39.2.6 Participating VFR aircraft will be separated from IFR and other participating VFR aircraft by one of the following:

39.2.6.1 500 feet vertical separation.

39.2.6.2 Visual separation.

39.2.6.3 Target resolution (a process to ensure that correlated radar targets do not touch).

39.2.7 Participating pilots operating VFR in a TRSA:

39.2.7.1 Must maintain an altitude when assigned by ATC unless the altitude assignment is to maintain at or below a specified altitude. ATC may assign altitudes for separation that do not conform to 14 CFR Section 91.159. When the altitude assignment is no longer needed for separation or when leaving the TRSA, the instruction will be broadcast, "RESUME APPROPRIATE VFR ALTITUDES." Pilots must then return to an altitude that conforms to 14 CFR Section 91.159 as soon as practicable.

39.2.7.2 When not assigned an altitude, the pilot should coordinate with ATC prior to any altitude change.

39.2.8 Within the TRSA, traffic information on observed but unidentified targets will, to the extent possible, be provided to all IFR and participating VFR aircraft. The pilot will be vectored upon request to avoid the observed traffic, provided the aircraft to be vectored is within the airspace under the jurisdiction of the controller.

39.2.9 Departing aircraft should inform ATC of their intended destination and/or route of flight and proposed cruising altitude.

39.2.10 ATC will normally advise participating VFR aircraft when leaving the geographical limits of the TRSA. Radar service is not automatically terminated with this advisory unless specifically stated by the controller.

39.3 Class C Service. This service provides, in addition to basic radar service, approved separation between IFR and VFR aircraft, and sequencing of VFR arrivals to the primary airport.

39.4 Class B Service. This service provides, in addition to basic radar service, approved separation of aircraft based on IFR, VFR, and/or weight, and sequencing of VFR arrivals to the primary airport(s).

39.5 PILOT RESPONSIBILITY. THESE SERVICES ARE NOT TO BE INTERPRETED AS RELIEVING PILOTS OF THEIR RESPONSIBILITIES TO SEE AND AVOID OTHER TRAFFIC OPERATING IN BASIC VFR WEATHER CONDITIONS, TO ADJUST THEIR OPERATIONS AND FLIGHT PATH AS NECESSARY TO PRECLUDE SERIOUS WAKE ENCOUNTERS, TO MAINTAIN APPROPRIATE TERRAIN AND OBSTRUCTION CLEARANCE, OR TO REMAIN IN WEATHER CONDITIONS EQUAL TO OR BETTER THAN THE MINIMUMS REQUIRED BY 14 CFR SECTION 91.155. WHENEVER COMPLIANCE WITH AN ASSIGNED ROUTE, HEADING AND/OR ALTITUDE IS LIKELY TO COMPROMISE PILOT RESPONSIBILITY RESPECTING TERRAIN AND OBSTRUCTION CLEARANCE, VORTEX EXPOSURE, AND WEATHER MINIMUMS, APPROACH CONTROL SHOULD BE SO ADVISED AND A REVISED CLEARANCE OR INSTRUCTION OBTAINED.

39.6 ATC services for VFR aircraft participating in terminal radar services are dependent on ATC radar. Services for VFR aircraft are not available during periods of radar outages. The pilot will be advised when VFR services are limited or not available.

NOTE−
Class B and Class C airspace are areas of regulated airspace. The absence of ATC radar does not negate the requirement of an ATC clearance to enter Class B airspace or two−way radio contact with ATC to enter Class C airspace.

40. Tower En Route Control (TEC)

40.1 TEC is an ATC program to provide a service to aircraft proceeding to and from metropolitan areas. It links designated approach control areas by a network of identified routes made up of the existing airway structure of the National Airspace System. The FAA has initiated an expanded TEC program to include as many facilities as possible. The program's intent is to provide an overflow resource in the low altitude system which would enhance ATC services. A few facilities have historically allowed turbojets to proceed between certain city pairs, such as Milwaukee and Chicago, via tower en route and these locations may continue this service. However, the expanded TEC program will be applied, generally, for nonturbojet aircraft operating at and below 10,000 feet. The program is entirely within the approach control airspace of multiple terminal facilities. Essentially, it is for relatively short flights. Participating pilots are encouraged to use TEC for flights of 2 hours duration or less. If longer flights are planned, extensive coordination may be required with the multiple complex which could result in unanticipated delays.

40.2 There are no unique requirements upon pilots to use the TEC program. Normal flight plan filing procedures will ensure proper flight plan processing. Pilots should include the acronym "TEC" in the remarks selection of the flight plan when requesting tower en route.

40.3 All approach controls in the system may not operate up to the maximum TEC altitude of 10,000 feet. IFR flight may be planned to any satellite airport in proximity to the major primary airport via the same routing.

41. Services in Offshore Controlled Airspace

41.1 Pilots requesting TEC are subject to the same delay factor at the destination airport as other aircraft in the ATC system. In addition, departure and en route delays may occur depending upon individual facility workload. When a major metropolitan airport is incurring significant delays, pilots in the TEC program may want to consider an alternative airport experiencing no delay.

41.2 Flights which operate between the U.S. 3−mile territorial limit and the adjoining oceanic controlled airspace/flight information region (CTA/FIR) boundaries generally operate in airspace designated by federal regulation as “controlled airspace,” or “offshore controlled airspace.”

41.3 Within the designated areas ATC radar surveillance, ground based navigational signal coverage, and air/ground communications are capable of supporting air traffic services comparable to those provided over U.S. domestic controlled airspace.

41.4 Pilots should be aware that domestic procedures will be applied in offshore controlled airspace to both VFR and IFR aircraft using ATC services.

42. Pilot/Controller Roles/Responsibilities

42.1 General

42.1.1 The roles and responsibilities of the pilot and controller for effective participation in the ATC system are contained in several documents. Pilot responsibilities are in the Federal Aviation Regulations (Title 14 of the U.S. Code of Federal Regulations) and the air traffic controller’s are in FAA Order JO 7110.65, Air Traffic Control, and supplemental FAA directives. Additional and supplemental information for pilots can be found in the current Aeronautical Information Manual, Notices to Air Missions, advisory circulars, and aeronautical charts. Since there are many other excellent publications produced by nongovernment organizations as well as other Government organizations with various updating cycles, questions concerning the latest or most current material can be resolved by cross−checking with the above mentioned documents.

42.1.2 The pilot in command of an aircraft is directly responsible for and is the final authority as to the safe operation of that aircraft. In an emergency requiring immediate action, the pilot in command may deviate from any rule in the General, Subpart A, and Flight Rules, Subpart B, in accordance with 14 CFR Section 91.3.

42.1.3 The air traffic controller is responsible to give first priority to the separation of aircraft and to the issuance of radar safety alerts; second priority to other services that are required, but do not involve separation of aircraft; and third priority to additional services to the extent possible.

42.1.4 In order to maintain a safe and efficient air traffic system, it is necessary that every party fulfill their responsibilities to the fullest.

42.1.5 The responsibilities of the pilot and the controller intentionally overlap in many areas providing a degree of redundancy. Should one or the other fail in any manner, this overlapping responsibility is expected to compensate, in many cases, for failures that may affect safety.

42.1.6 The following, while not intended to be all inclusive, is a brief listing of pilot and controller responsibilities for some commonly used procedures or phases of flight. More detailed explanations are contained in the appropriate Federal Aviation Regulations, Advisory Circulars, and similar publications. The information provided here is an overview of the principles involved and is not meant as an interpretation of the rules nor is it intended to extend or diminish responsibilities.

42.2 Air Traffic Clearance

42.2.1 Pilot

42.2.1.1 Acknowledges receipt and understanding of an ATC clearance.

42.2.1.2 Reads back any hold short of runway instructions issued by ATC.

42.2.1.3 Requests clarification or amendment, as appropriate, any time a clearance is not fully understood, or considered unacceptable from a safety standpoint.

42.2.1.4 Promptly complies with an air traffic clearance upon receipt, except as necessary to cope with an emergency. Advises ATC as soon as possible and obtains an amended clearance if deviation is necessary.

NOTE−
A clearance to land means that appropriate separation on the landing runway will be ensured. A landing clearance does not relieve the pilot from compliance with any previously issued altitude crossing restriction.

42.2.2 Controller

42.2.2.1 Issues appropriate clearances for the operation being, or to be, conducted in accordance with established criteria.

42.2.2.2 Assigns altitudes in IFR clearances that are at or above the minimum IFR altitudes in Classes A, B, C, D, and E airspace.

42.2.2.3 Ensures acknowledgements by the pilot for issued information, clearance, or instructions.

42.2.2.4 Ensures that readbacks by the pilot of altitude, heading, or other items are correct. If incorrect, distorted, or incomplete, makes corrections as appropriate.

42.3 Contact Approach

42.3.1 Pilot

42.3.1.1 This approach must be requested by the pilot and is made in lieu of a standard or special instrument approach.

42.3.1.2 By requesting the contact approach, the pilot indicates that the flight is operating clear of clouds, has at least 1 mile flight visibility, and can reasonably expect to continue to the destination airport in those conditions.

42.3.1.3 Be aware that while conducting a contact approach, the pilot assumes responsibility for obstruction clearance.

42.3.1.4 Advises ATC immediately if you are unable to continue the contact approach or if you encounter less than 1 mile flight visibility.

42.3.1.5 Be aware that, if radar service is being received, it may automatically terminate when the pilot is told to contact the tower. "Radar service terminated" is used by ATC to inform a pilot that he/she will no longer be provided any of the services that could be received while in radar contact.

REFERENCE−
The Pilot/Controller Glossary is published in the Aeronautical Information Manual (AIM) and FAA Orders JO 7110.10, Flight Services, and JO 7110.65, Air Traffic Control.

42.3.2 Controller

42.3.2.1 Issues clearance for contact approach only when requested by the pilot. Does not solicit the use of this procedure.

42.3.2.2 Before issuing clearance, ascertains that reported ground visibility at destination airport is at least 1 mile.

42.3.2.3 Provides approved separation between aircraft cleared for contact approach and other IFR or special VFR aircraft. When using vertical separation, does not assign a fixed altitude but clears the aircraft at or below an altitude which is at least 1,000 feet below any IFR traffic but not below minimum safe altitudes prescribed in 14 CFR Section 91.119.

42.3.2.4 Issues alternative instructions if, in the controller's judgment, weather conditions may make completion of the approach impractical.

42.4 Instrument Approach

42.4.1 Pilot

42.4.1.1 Be aware that the controller issues clearance for approach based only on known traffic.

42.4.1.2 Follows the procedures as shown on the instrument approach chart including all restrictive notations, such as:

a) Procedure not authorized at night.

b) Approach not authorized when local area altimeter not available.

c) Procedure not authorized when control tower not in operation.

d) Procedure not authorized when glide slope not used.

e) Straight−in minimums not authorized at night.

f) Radar required.

g) The circling minimums published on the instrument approach chart provide adequate obstruction clearance. The pilot should not descend below the circling altitude until the aircraft is in a position to make final descent for landing. Sound judgment and knowledge of the pilot's and the aircraft's capabilities are the criteria for a pilot to determine the exact maneuver in each instance since airport design and the aircraft position, altitude, and airspeed must all be considered. (See ENR 1.5, Paragraph 11.6, Circling Minimums.)

42.4.1.3 Upon receipt of an approach clearance while on an unpublished route or being radar vectored:

a) Complies with the minimum altitude for IFR.

b) Maintains last assigned altitude until established on a segment of a published route or Instrument Approach Procedure (IAP), at which time published altitudes apply.

42.4.1.4 There are currently two temperature limitations that may be published in the notes box of the middle briefing strip on an instrument approach procedure (IAP). The two published temperature limitations are:

a) A temperature range limitation associated with the use of Baro−VNAV that may be published on an United States PBN IAP titled RNAV (GPS) or RNAV (RNP); and/or

b) A Cold Temperature Airport (CTA) limitation designated by a snowflake ICON and temperature in Celsius (C) that is published on every IAP for the airfield.

42.4.1.5 Any planned altitude correction for the intermediate and/or missed approach holding segments must be coordinated with ATC. Pilots do not have to advise ATC of a correction in the final segment.

REFERENCE−
AIP, Section ENR 1.8, Cold Temperature Barometric Altimeter Errors, Setting Procedures, and Cold Temperature Airports (CTA).

42.4.2 Controller

42.4.2.1 Issues an approach clearance based on known traffic.

42.4.2.2 Issues an IFR approach clearance only after aircraft is established on a segment of published route or IAP; or assigns an appropriate altitude for the aircraft to maintain until so established.

42.5 Missed Approach

42.5.1 Pilot

42.5.1.1 Executes a missed approach when one of the following conditions exist:

a) Arrival at the missed approach point (MAP) or the decision height (DH) and visual reference to the runway environment is insufficient to complete the landing.

b) Determines that a safe approach or landing is not possible (see ENR 1.5 paragraph 27.8).

c) Instructed to do so by ATC.

42.5.1.2 Advises ATC that a missed approach will be made. Include the reason for the missed approach unless initiated by ATC.

42.5.1.3 Complies with the missed approach instructions for the IAP being executed from the MAP, unless other missed approach instructions are specified by ATC.

42.5.1.4 If executing a missed approach prior to reaching the MAP, fly the lateral navigation path of the instrument procedure to the MAP. Climb to the altitude specified in the missed approach procedure, except when a maximum altitude is specified between the final approach fix (FAF) and the MAP. In that case, comply with the maximum altitude restriction. Note, this may require a continued descent on the final approach.

42.5.1.5 Cold Temperature Airports (CTA) are designated by a snowflake ICON and temperature in Celsius (C) that are published in the notes box of the middle briefing strip on an instrument approach procedure (IAP). Pilots should apply a cold temperature correction to the final missed approach holding altitude when the reported temperature is at or below the CTA temperature limitation, if applicable. Pilots must inform ATC of the correction.

REFERENCE−
AIP, Section ENR 1.8, Cold Temperature Barometric Altimeter Errors, Setting Procedures, and Cold Temperature Airports (CTA).

42.5.1.6 Following a missed approach, requests clearance for specific action; i.e., another approach, hold for improved conditions, proceed to an alternate airport, etc.

42.5.2 Controller

42.5.2.1 Issues an approved alternate missed approach procedure if it is desired that the pilot execute a procedure other than as depicted on the instrument approach chart.

42.5.2.2 May vector a radar identified aircraft executing a missed approach when operationally advantageous to the pilot or the controller.

42.5.2.3 In response to the pilot's stated intentions, issues a clearance to an alternate airport, to a holding fix, or for reentry into the approach sequence, as traffic conditions permit.

42.6 Vectors

42.6.1 Pilot

42.6.1.1 Promptly complies with headings and altitudes assigned to you by the controller.

42.6.1.2 Questions any assigned heading or altitude believed to be incorrect.

42.6.1.3 If operating VFR and compliance with any radar vector or altitude would cause a violation of any Federal Aviation Regulation, advises ATC and obtain a revised clearance or instruction.

42.6.2 Controller

42.6.2.1 Vectors aircraft in Class A, B, C, D, and E airspace:

a) For separation.

b) For noise abatement.

c) To obtain an operational advantage for the pilot or the controller.

42.6.2.2 Vectors aircraft in Class A, B, C, D, E, and G airspace when requested by the pilot.

42.6.2.3 Except where authorized for radar approaches, radar departures, special VFR, or when operating in accordance with vectors below minimum altitude procedures, vector IFR aircraft at or above minimum vectoring altitudes.

42.6.2.4 May vector aircraft off assigned procedures. When published altitude or speed restrictions are included, controllers must assign an altitude, or if necessary, a speed.

42.6.2.5 May vector VFR aircraft, not at an ATC assigned altitude, at any altitude. In these cases, terrain separation is the pilot's responsibility.

42.7 Speed Adjustments

42.7.1 Pilot (In U.S. Domestic Class A, B, C, D, and E airspace)

42.7.2 Except as stated in paragraphs 42.7.5 and 42.7.6, advises ATC anytime the true airspeed at cruising level varies or is expected to vary by plus or minus 10 knots or 0.02 Mach number, whichever is less, of the filed true airspeed.

42.7.3 Complies with speed adjustments from ATC unless:

42.7.3.1 Except as stated in paragraphs 42.7.5 and 42.7.6, advises ATC anytime the true airspeed at cruising level varies or is expected to vary by plus or minus 10 knots or 0.02 Mach number, whichever is less, of the filed true airspeed.

42.7.3.2 Complies with speed adjustments from ATC unless:

a) The minimum or maximum safe airspeed for any particular operation is greater or less than the requested airspeed. In such cases, advises ATC.

b) Operating at or above 10,000 feet MSL on an ATC assigned SPEED ADJUSTMENT of more than 250 knots IAS and subsequent clearance is received for descent below 10,000 feet MSL. In such cases, pilots are expected to comply with 14 CFR Section 97.117(a).

42.7.4 Controller (In U.S. Domestic Class A, B, C, D, and E Airspaces)

42.7.4.1 Assigns aircraft to speed adjustments when necessary, but not as a substitute for good vectoring technique.

42.7.4.2 Adheres to the restrictions of FAA Order JO 7110.65, Air Traffic Control, as to when speed adjustment procedures may be applied.

42.7.4.3 Avoids speed adjustments requiring alternate decreases and increases.

42.7.4.4 Assigns speed adjustments to a specified IAS knots/Mach number or to increase or decrease speed utilizing increments of 5 knots or multiples thereof.

42.7.4.5 Terminates ATC-assigned speed adjustments when no longer required by issuing further instructions to pilots in the following manner:

a) Advises pilots to "resume normal speed" when the aircraft is on a heading, random routing, charted procedure, or route without published speed restrictions.

b) Instructs pilots to "comply with speed restrictions" when the aircraft is joining or resuming a charted procedure or route with published speed restrictions.

CAUTION−
The phraseology "Climb via SID" requires compliance with all altitude and/or speed restrictions depicted on the procedure.

c) Instructs pilots to "resume published speed" when aircraft are cleared via a charted instrument flight procedure that contains published speed restrictions.

d) Advises aircraft to "delete speed restrictions" when ATC assigned or published speed restrictions on a charted procedure are no longer required.

e) Clears pilots for approach without restating previously issued speed adjustments.

42.7.4.6 Gives due consideration to aircraft capabilities to reduce speed while descending.

42.7.5 Pilot (In Oceanic Class A and E Airspace)

42.7.5.1 If ATC has not assigned an airspeed, advises ATC anytime the true airspeed at cruising level varies or is expected to vary by ± 10 knots or 0.02 Mach number, whichever is less, of the filed true airspeed.

42.7.5.2 If ATC has assigned an airspeed, aircraft must adhere to the ATC assigned airspeed and must request ATC approval before making any change thereto. If it is essential to make an immediate temporary change in the Mach number (e.g., due to turbulence), ATC must be notified as soon as possible. If it is not feasible, due to aircraft performance, to maintain the last assigned Mach number during an en route climb or descent, advises ATC at the time of the request.

42.7.6 Controller (In Oceanic Class A and E Airspace)

42.7.6.1 Assigns airspeed when necessary for separation of aircraft to comply with 14 CFR, ICAO regulations and procedures, or letters of agreement.

42.8 Traffic Advisories (Traffic Information)

42.8.1 Pilot

42.8.1.1 Acknowledges receipt of traffic advisories.

42.8.1.2 Informs controller if traffic is in sight.

42.8.1.3 Advises ATC if a vector to avoid traffic is desired.

42.8.1.4 Does not expect to receive radar traffic advisories on all traffic. Some aircraft may not appear on the radar display. Be aware that the controller may be occupied with high priority duties and unable to issue traffic information for a variety of reasons.

42.8.1.5 Advises controller if service is not desired.

42.8.2 Controller

42.8.2.1 Issues radar traffic to the maximum extent consistent with higher priority duties except in Class A airspace.

42.8.2.2 Provides vectors to assist aircraft to avoid observed traffic when requested by the pilot.

42.8.2.3 Issues traffic information to aircraft in Class D airspace for sequencing purposes.

42.8.2.4 Controllers are required to issue traffic advisories to each aircraft operating on intersecting or nonintersecting converging runways where projected flight paths will cross.

42.9 Safety Alert

42.9.1 Pilot

42.9.1.1 Initiates appropriate action if a safety alert is received from ATC.

42.9.1.2 Be aware that this service is not always available and that many factors affect the ability of the controller to be aware of a situation in which unsafe proximity to terrain, obstructions, or another aircraft may be developing.

42.9.2 Controller

42.9.2.1 Issues a safety alert if aware an aircraft under their control is at an altitude which, in the controller's judgment, places the aircraft in unsafe proximity to terrain, obstructions, or another aircraft. Types of safety alerts are:

a) Terrain/Obstruction Alerts. Immediately issued to an aircraft under their control if aware the aircraft is at an altitude believed to place the aircraft in unsafe proximity to terrain/obstruction.

b) Aircraft Conflict Alerts. Immediately issued to an aircraft under their control if aware of an aircraft not under their control at an altitude believed to place the aircraft in unsafe proximity to each other. With the alert, they offer the pilot an alternative if feasible.

42.9.2.2 Discontinues further alerts if informed by the pilot action is being taken to correct the situation or that the other aircraft is in sight.

42.10 See and Avoid

42.10.1 Pilot

42.10.1.1 When meteorological conditions permit, regardless of type of flight plan or whether or not under control of a radar facility, the pilot is responsible to see and avoid other traffic, terrain, or obstacles.

42.10.2 Controller

42.10.2.1 Provides radar traffic information to radar identified aircraft operating outside positive control airspace on a workload permitting basis.

42.10.2.2 Issues a safety advisory to an aircraft under their control if aware the aircraft is at an altitude believed to place the aircraft in unsafe proximity to terrain, obstructions or other aircraft.

42.11 Visual Approach

42.11.1 Pilot

42.11.1.1 If a visual approach is not desired, advises ATC.

42.11.1.2 Complies with controller's instructions for vectors toward the airport of intended landing or to a visual position behind a preceding aircraft.

42.11.1.3 The pilot must, at all times, have either the airport or the preceding aircraft in sight. After being cleared for a visual approach, proceed to the airport in a normal manner or follow the preceding aircraft. Remain clear of clouds while conducting a visual approach.

42.11.1.4 If the pilot accepts a visual approach clearance to visually follow a preceding aircraft, you are required to establish a safe landing interval behind the aircraft you were instructed to follow. You are responsible for wake turbulence separation.

42.11.1.5 Advise ATC immediately if the pilot is unable to continue following the preceding aircraft, cannot remain clear of clouds, needs to climb, or loses sight of the airport.

42.11.1.6 In the event of a go−around, the pilot is responsible to maintain terrain and obstruction avoidance until reaching an ATC assigned altitude if issued.

42.11.1.7 Be aware that radar service is automatically terminated, without being advised by ATC, when the pilot is instructed to change to advisory frequency.

42.11.1.8 Be aware that there may be other traffic in the traffic pattern and the landing sequence may differ from the traffic sequence assigned by the approach control or ARTCC.

42.11.2 Controller

42.11.2.1 Does not clear an aircraft for a visual approach unless reported weather at the airport is ceiling at or above 1,000 feet and visibility is 3 miles or greater. When weather is not available for the destination airport, informs the pilot and does not initiate a visual approach to that airport unless there is reasonable assurance that descent and flight to the airport can be made visually.

42.11.2.2 Issues visual approach clearance when the pilot reports sighting either the airport or a preceding aircraft which is to be followed.

42.11.2.3 Provides separation except when visual separation is being applied by the pilot.

42.11.2.4 Continues flight following and traffic information until the aircraft has landed or has been instructed to change to advisory frequency.

42.11.2.5 For all aircraft, inform the pilot when the preceding aircraft is a heavy. Inform the pilot of a small aircraft when the preceding aircraft is a B757. Visual separation is prohibited behind super aircraft.

42.11.2.6 When weather is available for the destination airport, does not initiate a vector for a visual approach unless the reported ceiling at the airport is 500 feet or more above the MVA and visibility is 3 miles or more. If vectoring weather minima are not available but weather at the airport is ceiling at or above 1,000 feet and visibility of 3 miles or greater, visual approaches may still be conducted.

42.11.2.7 Informs the pilot conducting the visual approach of the aircraft class when pertinent traffic is known to be a heavy aircraft.

42.12 Visual Separation

42.12.1 Pilot

42.12.1.1 Acceptance of instructions to follow another aircraft or to provide visual separation from it is an acknowledgment that the pilot will maneuver the aircraft as necessary to avoid the other aircraft or to maintain in−trail separation. Pilots are responsible to maintain visual separation until flight paths (altitudes and/or courses) diverge.

42.12.1.2 If instructed by ATC to follow another aircraft or to provide visual separation from it, promptly notify the controller if you lose sight of that aircraft, are unable to maintain continued visual contact with it, or cannot accept the responsibility for your own separation for any reason.

42.12.1.3 The pilot also accepts responsibility for wake turbulence separation under these conditions.

42.12.2 Controller Applies Visual Separation Only:

42.12.2.1 Within the terminal area when a controller has both aircraft in sight or by instructing a pilot who sees the other aircraft to maintain visual separation from it.

42.12.2.2 Pilots are responsible to maintain visual separation until flight paths (altitudes and/or courses) diverge.

42.12.2.3 Within en route airspace when aircraft are on opposite courses and one pilot reports having seen the other aircraft and that the aircraft have passed each other.

42.13 VFR−on−top

42.13.1 Pilot

42.13.1.1 This clearance must be requested by the pilot on an IFR flight plan, and if approved, allows the pilot the choice to select (subject to any ATC restrictions) an altitude or flight level in lieu of an assigned altitude.

NOTE−
1. *VFR−on−top is not permitted in certain airspace areas, such as Class A airspace, certain restricted areas, etc. Consequently, IFR flights operating VFR−on−top will avoid such airspace.*

2. *See paragraph 32. of this section, IFR Separation Standards; GEN 3.3, Paragraph 6, Position Reporting; and GEN 3.3, Paragraph 7, Additional Reports.*

42.13.1.2 By requesting a VFR−on−top clearance, the pilot assumes the sole responsibility to be vigilant so as to see and avoid other aircraft and to:

a) Fly at the appropriate VFR altitude as prescribed in 14 CFR Section 91.159.

b) Comply with the VFR visibility and distance from clouds criteria in 14 CFR Section 91.155 (Basic VFR Weather Minimums).

c) Comply with instrument flight rules that are applicable to this flight; i.e., minimum IFR altitudes, position reporting, radio communications, course to be flown, adherence to ATC clearance, etc.

d) Advise ATC prior to any altitude change to ensure the exchange of accurate traffic information.

42.13.2 Controller

42.13.2.1 May clear an aircraft to maintain VFR−on−top if the pilot of an aircraft on an IFR flight plan requests the clearance.

42.13.2.2 Informs the pilot of an aircraft cleared to climb to VFR−on−top the reported height of the tops or that no top report is available; issues an alternate clearance if necessary; and once the aircraft reports reaching VFR−on−top, reclears the aircraft to maintain VFR−on−top.

42.13.2.3 Before issuing clearance, ascertains that the aircraft is not in or will not enter Class A airspace.

42.14 Instrument Departures

42.14.1 Pilot

42.14.1.1 Prior to departure, considers the type of terrain and other obstructions on or in the vicinity of the departure airport.

42.14.1.2 Determines if obstruction avoidance can be maintained visually or that the departure procedure should be followed.

42.14.1.3 Determines whether an obstacle departure procedure (ODP) and/or DP is available for obstruction avoidance. One option may be a Visual Climb Over Airport (VCOA). Pilots must advise ATC as early as possible of the intent to fly the VCOA prior to departure.

42.14.1.4 At airports where instrument approach procedures have not been published, hence no published departure procedure, determines what action will be necessary and takes such action that will assure a safe departure.

42.14.2 Controller

42.14.2.1 At locations with airport traffic control service, when necessary, specifies direction of takeoff, turn, or initial heading to be flown after takeoff, consistent with published departure procedures (DP) or diverse vector areas (DVA), where applicable.

42.14.2.2 At locations without airport traffic control service but within Class E surface area, when necessary to specify direction of takeoff/turn or initial heading to be flown, obtains pilot's concurrence that the procedure will allow him/her to comply with local traffic patterns, terrain, and obstruction avoidance.

42.14.2.3 When the initial heading will take the aircraft off an assigned procedure (for example, an RNAV SID with a published lateral path to a waypoint and crossing restrictions from the departure end of runway), the controller will assign an altitude to maintain with the initial heading.

42.14.2.4 Includes established departure procedures as part of the air traffic control clearance when pilot compliance is necessary to ensure separation.

42.14.2.5 At locations with both SIDs and DVAs, ATC will provide an amended departure clearance to cancel a previously assigned SID and subsequently utilize a DVA or vice versa. The amended clearance will be provided to the pilot in a timely manner so that the pilot may confirm adequate climb performance exists to determine if the amended clearance is acceptable, and brief the changes in advance of entering the runway.

42.14.2.6 At locations with a DVA, ATC is not permitted to utilize a SID and DVA concurrently.

42.15 Minimum Fuel Advisory

42.15.1 Pilot

42.15.1.1 Advises ATC of your "minimum fuel" status when your fuel supply has reached a state where, upon reaching destination, you cannot accept any undue delay.

42.15.1.2 Be aware that this is not an emergency situation but merely an advisory that indicates an emergency situation is possible should any undue delay occur.

42.15.1.3 On initial contact the term "minimum fuel" should be used after stating call sign.

EXAMPLE−
Salt Lake Approach, United 621, "minimum fuel."

42.15.1.4 Be aware a minimum fuel advisory does not imply a need for traffic priority.

42.15.1.5 If the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, you should declare an emergency due to low fuel, and report the fuel remaining in minutes.

42.15.2 Controller

42.15.2.1 When an aircraft declares a state of "minimum fuel," relay this information to the facility to whom control jurisdiction is transferred.

42.15.2.2 Be alert for any occurrence which might delay the aircraft.

43. Traffic Alert and Collision Avoidance System (TCAS I & II)

43.1 TCAS I provides proximity warning only, to assist the pilot in the visual acquisition of intruder aircraft. No recommended avoidance maneuvers are provided nor authorized as a direct result of a TCAS I warning. It is intended for use by smaller commuter aircraft holding 10 to 30 passenger seats, and general aviation aircraft.

43.2 TCAS II provides traffic advisories (TA) and resolution advisories (RA). Resolution advisories provide recommended maneuvers in a vertical direction (climb or descend only) to avoid conflicting traffic. Transport category aircraft, and larger commuter and business aircraft holding 31 passenger seats or more, are required to be TCAS II equipped.

43.2.1 When a TA occurs, attempt to establish visual contact with the traffic but do not deviate from an assigned clearance based only on TA information.

43.2.2 When an RA occurs, pilots should respond immediately to the RA displays and maneuver as indicated unless doing so would jeopardize the safe operation of the flight, or the flight crew can ensure separation with the help of definitive visual acquisition of the aircraft causing the RA.

43.2.3 Each pilot who deviates from an ATC clearance in response to an RA must notify ATC of that deviation as soon as practicable, and notify ATC when clear of conflict and returning to their previously assigned clearance.

43.3 Deviations from rules, policies, or clearances should be kept to the minimum necessary to satisfy an RA. Most RA maneuvering requires minimum excursion from assigned altitude.

43.4 The serving IFR air traffic facility is not responsible to provide approved standard IFR separation to an IFR aircraft, from other aircraft, terrain, or obstructions after an RA maneuver until one of the following conditions exists:

43.4.1 The aircraft has returned to its assigned altitude and course.

43.4.2 Alternate ATC instructions have been issued.

43.4.3 A crew member informs ATC that the TCAS maneuver has been completed.

NOTE−
TCAS does not alter or diminish the pilot's basic authority and responsibility to ensure safe flight. Since TCAS does not respond to aircraft which are not transponder equipped or aircraft with a transponder failure, TCAS alone does not ensure safe separation in every case. At this time, no air traffic service nor handling is predicated on the availability of TCAS equipment in the aircraft.

44. Traffic Information Service (TIS)

44.1 Introduction

The Traffic Information Service (TIS) provides information to the cockpit via data link, that is similar to VFR radar traffic advisories normally received over voice radio. Among the first FAA−provided data services, TIS is intended to improve the safety and efficiency of "see and avoid" flight through an automatic display that informs the pilot of nearby traffic and potential conflict situations. This traffic display is intended to assist the pilot in visual acquisition of these aircraft. TIS employs an enhanced capability of the terminal Mode S radar system, which contains the surveillance data, as well as the data link required to "uplink" this information to suitably−equipped aircraft (known as a TIS "client"). TIS provides estimated position, altitude, altitude trend, and ground track information for up to 8 intruder aircraft within 7 NM horizontally, +3,500 and −3,000 feet vertically of the client aircraft (see FIG ENR 1.1−32, TIS Proximity Coverage Volume). The range of a target reported at a distance greater than 7 NM only indicates that this target will be a threat within 34 seconds and does not display a precise distance. TIS will alert the pilot to aircraft (under surveillance of the Mode S radar) that are estimated to be within 34 seconds of potential collision, regardless of distance or altitude. TIS surveillance data is derived from the same radar used by ATC; this data is uplinked to the client aircraft on each radar scan (nominally every 5 seconds).

44.2 Requirements

44.2.1 In order to use TIS, the client and any intruder aircraft must be equipped with the appropriate cockpit equipment and fly within the radar coverage of a Mode S radar capable of providing TIS. Typically, this will be within 55 NM of the sites depicted in FIG ENR 1.1−33, Terminal Mode S Radar Sites. ATC communication is not a requirement to receive TIS, although it may be required by the particular airspace or flight operations in which TIS is being used.

FIG ENR 1.1−32

TIS Proximity Coverage Volume

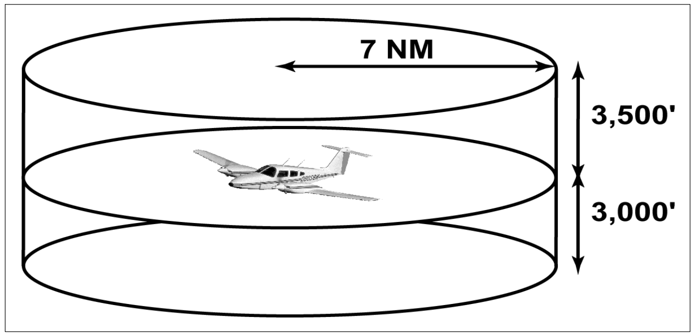


FIG ENR 1.1−33

Terminal Mode S Radar Sites

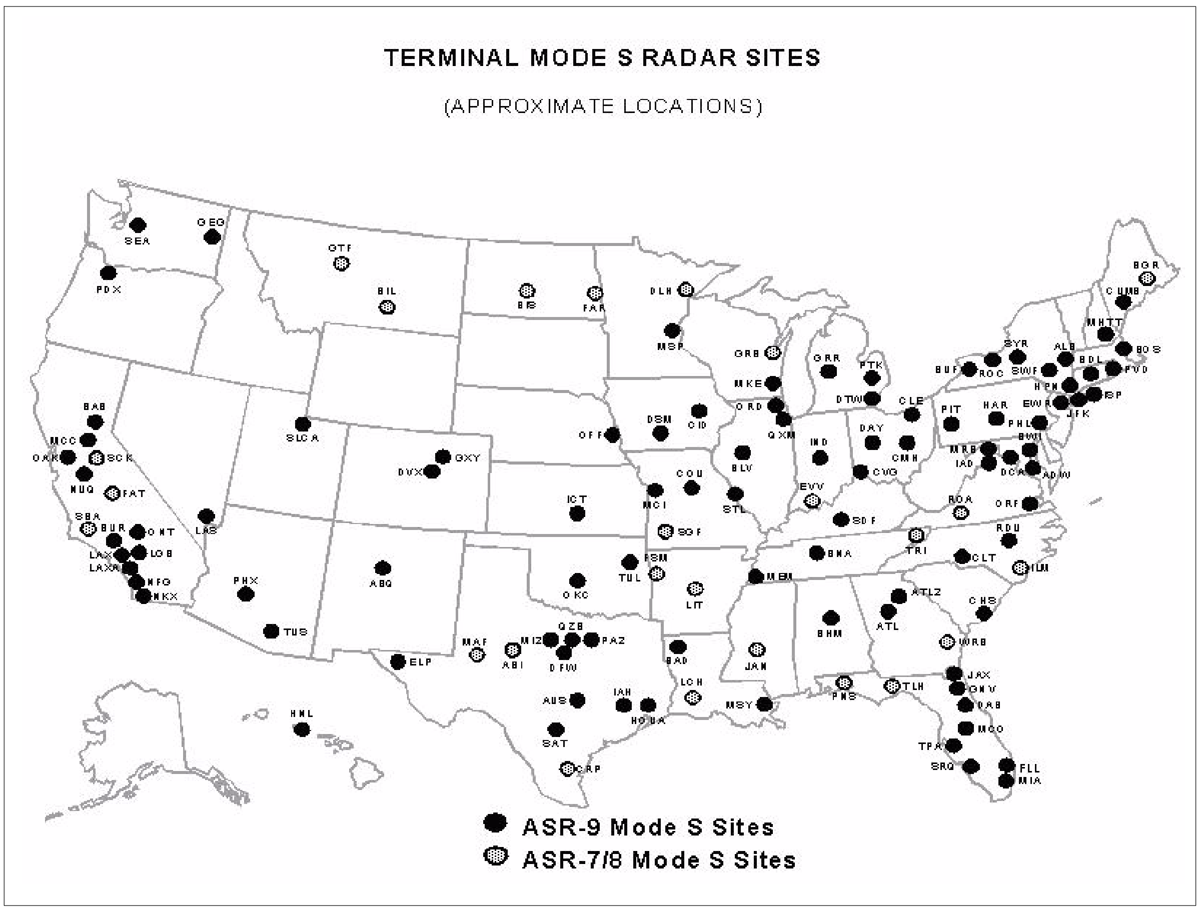
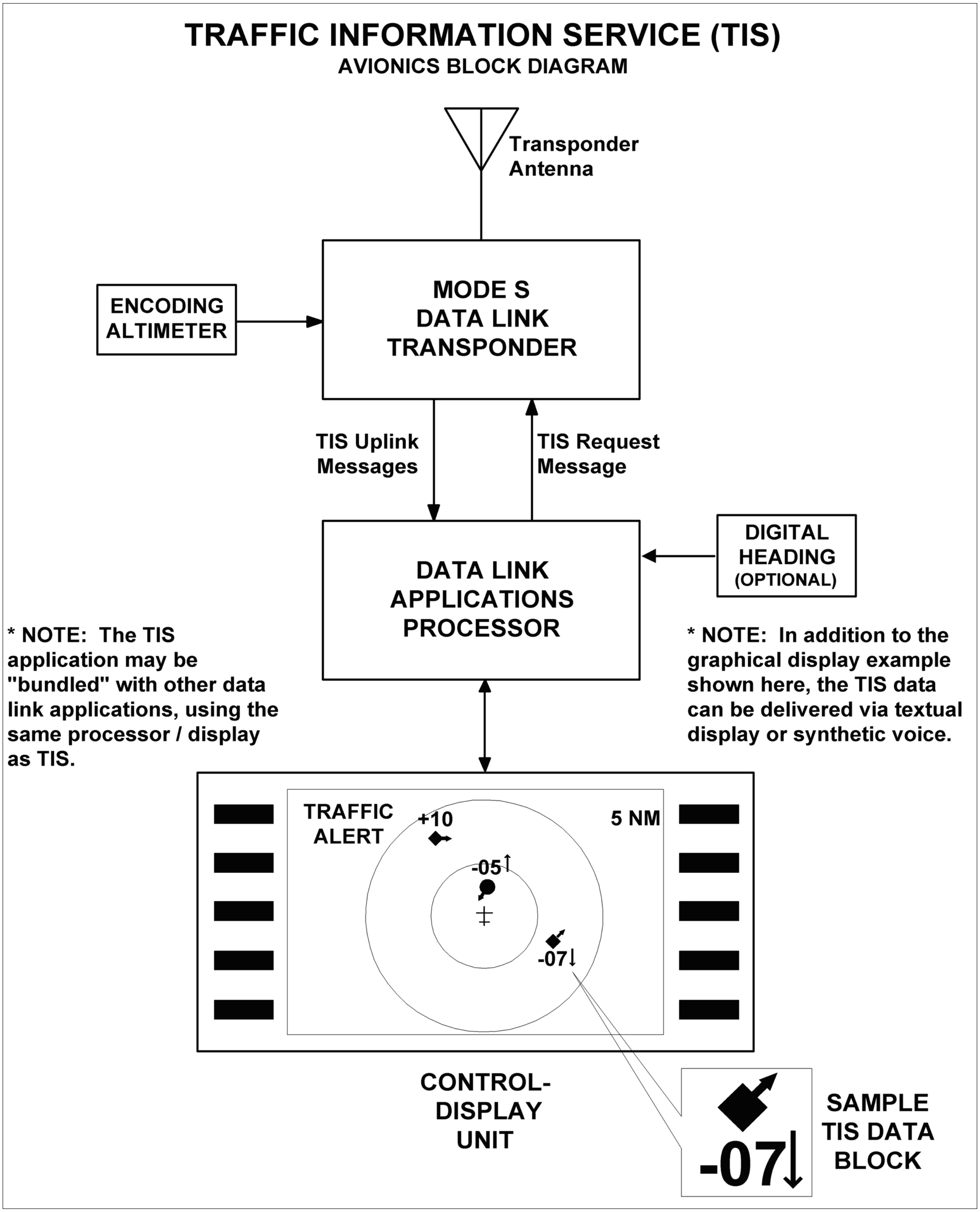


FIG ENR 1.1−34
Traffic Information Service (TIS)
Avionics Block Diagram



44.2.2 The cockpit equipment functionality required by a TIS client aircraft to receive the service consists of the following (refer to FIG ENR 1.1−34):

44.2.2.1 Mode S data link transponder with altitude encoder.

44.2.2.2 Data link applications processor with TIS software installed.

44.2.2.3 Control−display unit.

44.2.2.4 Optional equipment includes a digital heading source to correct display errors caused by "crab angle" and turning maneuvers.

NOTE−
Some of the above functions will likely be combined into single pieces of avionics, such as subparagraphs 44.2.2.1 and 44.2.2.2.

44.2.3 To be visible to the TIS client, the intruder aircraft must, at a minimum, have an operating transponder (Mode A, C or S). All altitude information provided by TIS from intruder aircraft is derived from Mode C reports, if appropriately equipped.

44.2.4 TIS will initially be provided by the terminal Mode S systems that are paired with ASR−9 digital primary radars. These systems are in locations with the greatest traffic densities, thus will provide the greatest initial benefit. The remaining terminal Mode S sensors, which are paired with ASR−7 or ASR−8 analog primary radars, will provide TIS pending modification or relocation of these sites. See FIG ENR 1.1−33, Terminal Mode S Radar Sites, for site locations. There is no mechanism in place, such as NOTAMs, to provide status update on individual radar sites since TIS is a nonessential, supplemental information service.

The FAA also operates en route Mode S radars (not illustrated) that rotate once every 12 seconds. These sites will require additional development of TIS before any possible implementation. There are no plans to implement TIS in the en route Mode S radars at the present time.

44.3 Capabilities

44.3.1 TIS provides ground−based surveillance information over the Mode S data link to properly equipped client aircraft to aid in visual acquisition of proximate air traffic. The actual avionics capability of each installation will vary and the supplemental handbook material must be consulted prior to using TIS. A maximum of eight (8) intruder aircraft may be displayed; if more than eight aircraft match intruder parameters, the eight "most significant" intruders are uplinked. These "most significant" intruders are usually the ones in closest proximity and/or the greatest threat to the TIS client.

44.3.2 TIS, through the Mode S ground sensor, provides the following data on each intruder aircraft:

44.3.2.1 Relative bearing information in 6−degree increments.

44.3.2.2 Relative range information in 1/8 NM to 1 NM increments (depending on range).

44.3.2.3 Relative altitude in 100−foot increments (within 1,000 feet) or 500−foot increments (from 1,000−3,500 feet) if the intruder aircraft has operating altitude reporting capability.

44.3.2.4 Estimated intruder ground track in 45−degree increments.

44.3.2.5 Altitude trend data (level within 500 fpm or climbing/descending >500 fpm) if the intruder aircraft has operating altitude reporting capability.

44.3.2.6 Intruder priority as either a "traffic advisory" or "proximate" intruder.

44.3.3 When flying from surveillance coverage of one Mode S sensor to another, the transfer of TIS is an automatic function of the avionics system and requires no action from the pilot.

44.3.4 There are a variety of status messages that are provided by either the airborne system or ground equipment to alert the pilot of high priority intruders and data link system status. These messages include the following:

44.3.4.1 Alert. Identifies a potential collision hazard within 34 seconds. This alert may be visual and/or audible, such as a flashing display symbol or a headset tone. A target is a threat if the time to the closest approach in vertical and horizontal coordinates is less than 30 seconds and the closest approach is expected to be within 500 feet vertically and 0.5 nautical miles laterally.

44.3.4.2 TIS Traffic. TIS traffic data is displayed.

44.3.4.3 Coasting. The TIS display is more than 6 seconds old. This indicates a missing uplink from the ground system. When the TIS display information is more than 12 seconds old, the "No Traffic" status will be indicated.

44.3.4.4 No Traffic. No intruders meet proximate or alert criteria. This condition may exist when the TIS system is fully functional or may indicate "coasting" between 12 and 59 seconds old (see paragraph 44.3.4.3 above).

44.3.4.5 TIS Unavailable. The pilot has requested TIS, but no ground system is available. This condition will also be displayed when TIS uplinks are missing for 60 seconds or more.

44.3.4.6 TIS Disabled. The pilot has not requested TIS or has disconnected from TIS.

44.3.4.7 Good−bye. The client aircraft has flown outside of TIS coverage.

NOTE−
Depending on the avionics manufacturer implementation, it is possible that some of these messages will not be directly available to the pilot.

44.3.5 Depending on avionics system design, TIS may be presented to the pilot in a variety of different displays, including text and/or graphics. Voice annunciation may also be used, either alone or in combination with a visual display. FIG ENR 1.1−34, Traffic Information Service (TIS), Avionics Block Diagram, shows an example of a TIS display using symbology similar to the Traffic Alert and Collision Avoidance System (TCAS) installed on most passenger air carrier/commuter aircraft in the U.S. The small symbol in the center represents the client aircraft and the display is oriented "track up," with the 12 o'clock position at the top. The range rings indicate 2 and 5 NM. Each intruder is depicted by a symbol positioned at the approximate relative bearing and range from the client aircraft. The circular symbol near the center indicates an "alert" intruder and the diamond symbols indicate "proximate" intruders.

44.3.6 The inset in the lower right corner of FIG ENR 1.1−34, Traffic Information Service (TIS), Avionics Block Diagram, shows a possible TIS data block display. The following information is contained in this data block:

44.3.6.1 The intruder, located approximately four o'clock, three miles, is a "proximate" aircraft and currently not a collision threat to the client aircraft. This is indicated by the diamond symbol used in this example.

44.3.6.2 The intruder ground track diverges to the right of the client aircraft, indicated by the small arrow.

44.3.6.3 The intruder altitude is 700 feet less than or below the client aircraft, indicated by the "−07" located under the symbol.

44.3.6.4 The intruder is descending >500 fpm, indicated by the downward arrow next to the "−07" relative altitude information. The absence of this arrow when an altitude tag is present indicates level flight or a climb/descent rate less than 500 fpm.

NOTE−
If the intruder did not have an operating altitude encoder (Mode C), the altitude and altitude trend "tags" would have been omitted.

44.4 Limitations

44.4.1 TIS is NOT intended to be used as a collision avoidance system and does not relieve the pilot's responsibility to "see and avoid" other aircraft (see Paragraph 42.10, See and Avoid). TIS must not be used for avoidance maneuvers during IMC or other times when there is no visual contact with the intruder aircraft. TIS provides proximity warning only, to assist the pilot in the visual acquisition of intruder aircraft. It is intended for use by aircraft in which TCAS is not required. Avoidance maneuvers are neither provided nor authorized, as a direct result of a TIS intruder display or TIS alert.

44.4.2 TIS does not alter or diminish the pilot's basic authority and responsibility to ensure safe flight. Since TIS does not respond to aircraft which are not transponder equipped, aircraft with a transponder failure, or aircraft out of radar coverage, TIS alone does not ensure safe separation in every case.

44.4.3 At this time, no air traffic service nor handling is predicated on the availability of TIS equipment in the aircraft.

44.4.4 While TIS is a useful aid to visual traffic avoidance, it has some system limitations that must be fully understood to ensure proper use. Many of these limitations are inherent in secondary radar surveillance. In other words, the information provided by TIS will be no better than that provided to ATC. Other limitations and anomalies are associated with the TIS predictive algorithm.

44.4.4.1 Intruder Display Limitations. TIS will only display aircraft with operating transponders installed. TIS relies on surveillance of the Mode S radar, which is a "secondary surveillance" radar similar to the ATCRBS described in paragraph 37.2, Air Traffic Control Radar Beacon System (ATCRBS).

44.4.4.2 TIS Client Altitude Reporting Requirement. Altitude reporting is required by the TIS client aircraft in order to receive TIS. If the altitude encoder is inoperative or disabled, TIS will be unavailable, as TIS requests will not be honored by the ground system. As such, TIS requires altitude reporting to determine the Proximity Coverage Volume as indicated in FIG ENR 1.1−32. TIS users must be alert to altitude encoder malfunctions, as TIS has no mechanism to determine if client altitude reporting is correct. A failure of this nature will cause erroneous and possibly unpredictable TIS operation. If this malfunction is suspected, confirmation of altitude reporting with ATC is suggested.

44.4.4.3 Intruder Altitude Reporting. Intruders without altitude reporting capability will be displayed without the accompanying altitude tag. Additionally, nonaltitude reporting intruders are assumed to be at the same altitude as the TIS client for alert computations. This helps to ensure that the pilot will be alerted to all traffic under radar coverage, but the actual altitude difference may be substantial. Therefore, visual acquisition may be difficult in this instance.

44.4.4.4 Coverage Limitations. Since TIS is provided by ground−based, secondary surveillance radar, it is subject to all limitations of that radar. If an aircraft is not detected by the radar, it cannot be displayed on TIS. Examples of these limitations are as follows:

a) TIS will typically be provided within 55 NM of the radars depicted in FIG ENR 1.1−33, Terminal Mode S Radar Sites. This maximum range can vary by radar site and is always subject to "line of sight" limitations; the radar and data link signals will be blocked by obstructions, terrain, and curvature of the earth.

b) TIS will be unavailable at low altitudes in many areas of the country, particularly in mountainous regions. Also, when flying near the "floor" of radar coverage in a particular area, intruders below the client aircraft may not be detected by TIS.

c) TIS will be temporarily disrupted when flying directly over the radar site providing coverage if no adjacent site assumes the service. A ground−based radar, similar to a VOR or NDB, has a zenith cone, sometimes referred to as the cone of confusion or cone of silence. This is the area of ambiguity directly above the station where bearing information is unreliable. The zenith cone setting for TIS is 34 degrees: any aircraft above that angle with respect to the radar horizon will lose TIS coverage from that radar until it is below this 34 degree angle. The aircraft may not actually lose service in areas of multiple radar coverage since an adjacent radar will provide TIS. If no other TIS−capable radar is available, the "Good−bye" message will be received and TIS terminated until coverage is resumed.

44.4.4.5 Intermittent Operations. TIS operation may be intermittent during turns or other maneuvering, particularly if the transponder system does not include antenna diversity (antenna mounted on the top and bottom of the aircraft). As in subparagraph 44.4.4.4 above, TIS is dependent on two−way, "line of sight" communications between the aircraft and the Mode S radar. Whenever the structure of the client aircraft comes between the transponder antenna (usually located on the underside of the aircraft) and the ground−based radar antenna, the signal may be temporarily interrupted.

44.4.4.6 TIS Predictive Algorithm. TIS information is collected one radar scan prior to the scan during which the uplink occurs. Therefore, the surveillance information is approximately 5 seconds old. In order to present the intruders in a "real time" position, TIS uses a "predictive algorithm" in its tracking software. This algorithm uses track history data to extrapolate intruders to their expected positions consistent with the time of display in the cockpit. Occasionally, aircraft maneuvering will cause this algorithm to induce errors in the TIS display. These errors primarily affect relative bearing information; intruder distance and altitude will remain relatively accurate and may be used to assist in "see and avoid." Some of the more common examples of these errors are as follows:

a) When client or intruder aircraft maneuver excessively or abruptly, the tracking algorithm will report incorrect horizontal position until the maneuvering aircraft stabilizes.

b) When a rapidly closing intruder is on a course that crosses the client at a shallow angle (either overtaking or head on) and either aircraft abruptly changes course within ¼ NM, TIS will display the intruder on the opposite side of the client than it actually is.

These are relatively rare occurrences and will be corrected in a few radar scans once the course has stabilized.

44.4.4.7 Heading/Course Reference. Not all TIS aircraft installations will have onboard heading reference information. In these installations, aircraft course reference to the TIS display is provided by the Mode S radar. The radar only determines ground track information and has no indication of the client aircraft heading. In these installations, all intruder bearing information is referenced to ground track and does not account for wind correction. Additionally, since ground−based radar will require several scans to determine aircraft course following a course change, a lag in TIS display orientation (intruder aircraft bearing) will occur. As in subparagraph 44.4.4.6 above, intruder distance and altitude are still usable.

44.4.4.8 Closely−Spaced Intruder Errors. When operating more than 30 NM from the Mode S sensor, TIS forces any intruder within 3/8 NM of the TIS client to appear at the same horizontal position as the client aircraft. Without this feature, TIS could display intruders in a manner confusing to the pilot in critical situations (for example, a closely−spaced intruder that is actually to the right of the client may appear on the TIS display to the left). At longer distances from the radar, TIS cannot accurately determine relative bearing/distance information on intruder aircraft that are in close proximity to the client.

Because TIS uses a ground−based, rotating radar for surveillance information, the accuracy of TIS data is dependent on the distance from the sensor (radar) providing the service. This is much the same phenomenon as experienced with ground−based navigational aids, such as a VOR. As distance from the radar increases, the accuracy of surveillance decreases. Since TIS does not inform the pilot of distance from the Mode S radar, the pilot must assume that any intruder appearing at the same position as the client aircraft may actually be up to 3/8 NM away in any direction. Consistent with the operation of TIS, an alert on the display (regardless of distance from the radar) should stimulate an outside visual scan, intruder acquisition, and traffic avoidance based on outside reference.

44.5 Reports of TIS Malfunctions

44.5.1 Users of TIS can render valuable assistance in the early correction of malfunctions by reporting their observations of undesirable performance. Reporters should identify the time of observation, location, type and identity of aircraft, and describe the condition observed; the type of transponder processor, and software in use can also be useful information. Since TIS performance is monitored by maintenance personnel rather than ATC, it is suggested that malfunctions be reported by radio or telephone to the nearest Flight Service Station (FSS) facility.

NOTE−
TIS operates at only those terminal Mode S radar sites depicted in FIG ENR 1.1−33. Though similar in some ways, TIS is not related to TIS−B (Traffic Information Service−Broadcast).

45. Automatic Dependent Surveillance−Broadcast (ADS−B) Services

45.1 Introduction

45.1.1 Automatic Dependent Surveillance−Broadcast (ADS−B) is a surveillance technology deployed throughout the NAS (see FIG ENR 1.1−35). The ADS−B system is composed of aircraft avionics and a ground infrastructure. Onboard avionics determine the position of the aircraft by using the GNSS and transmit its position along with additional information about the aircraft to ground stations for use by ATC and other ADS−B services. This information is transmitted at a rate of approximately once per second.
(See FIG ENR 1.1−36 and FIG ENR 1.1−37.)

45.1.2 In the United States, ADS−B equipped aircraft exchange information on one of two frequencies: 978 or 1090 MHz. The 1090 MHz frequency is also associated with Mode A, C, and S transponder operations. 1090 MHz transponders with integrated ADS−B functionality extend the transponder message sets with additional ADS−B information. This additional information is known as an "extended squitter" message and is referred to as 1090ES. ADS−B equipment operating on 978 MHz is known as the Universal Access Transceiver (UAT).

45.1.3 ADS−B avionics can have the ability to both transmit and receive information. The transmission of ADS−B information from an aircraft is known as ADS−B Out. The receipt of ADS−B information by an aircraft is known as ADS−B In. All aircraft operating within the airspace defined in 14 CFR § 91.225 are required to transmit the information defined in § 91.227 using ADS−B Out avionics.

45.1.4 In general, operators flying at 18,000 feet and above (Class A airspace) are required to have 1090ES equipment. Those that do not fly above 18,000 may use either UAT or 1090ES equipment. (Refer to 14 CFR §§ 91.225 and 91.227.) While the regulations do not require it, operators equipped with ADS−B In will realize additional benefits from ADS−B broadcast services: Traffic Information Service – Broadcast (TIS−B) (paragraph 46.) and Flight Information Service – Broadcast (FIS−B) (paragraph 47.).

FIG ENR 1.1−35
ADS−B, TIS−B, and FIS−B:
Broadcast Services Architecture

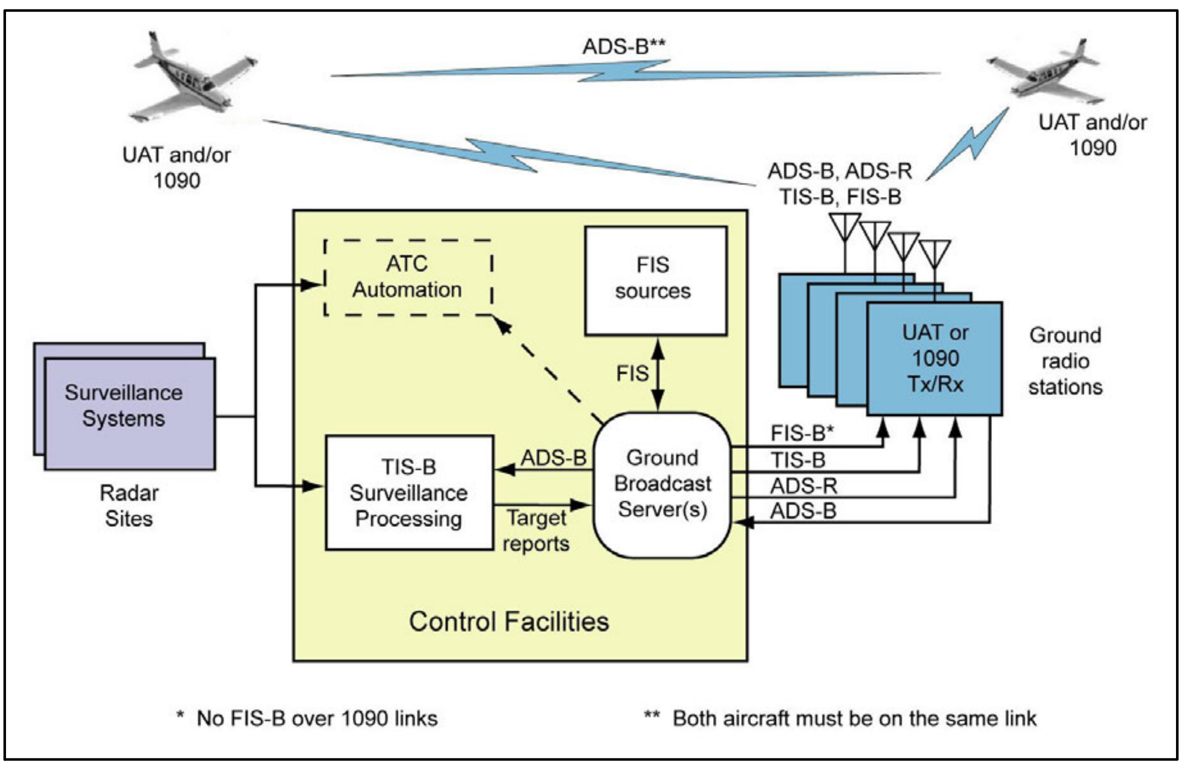


FIG ENR 1.1−36
En Route − ADS−B/ADS−R/TIS−B/FIS−B Service Ceilings/Floors

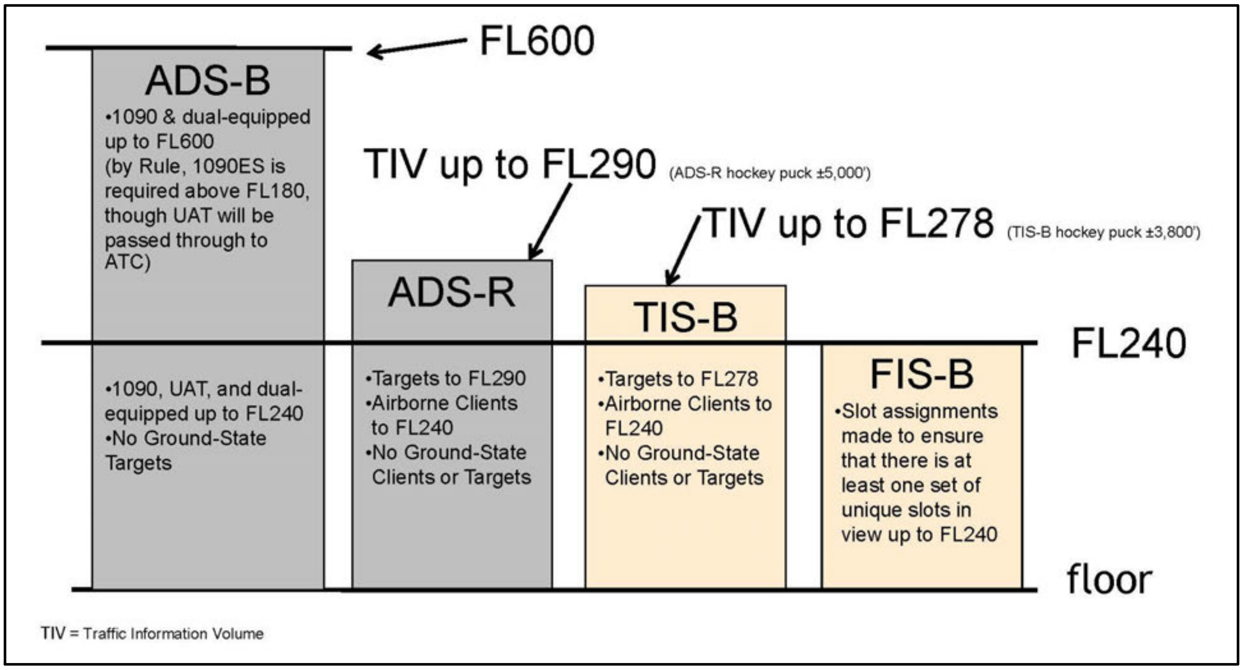
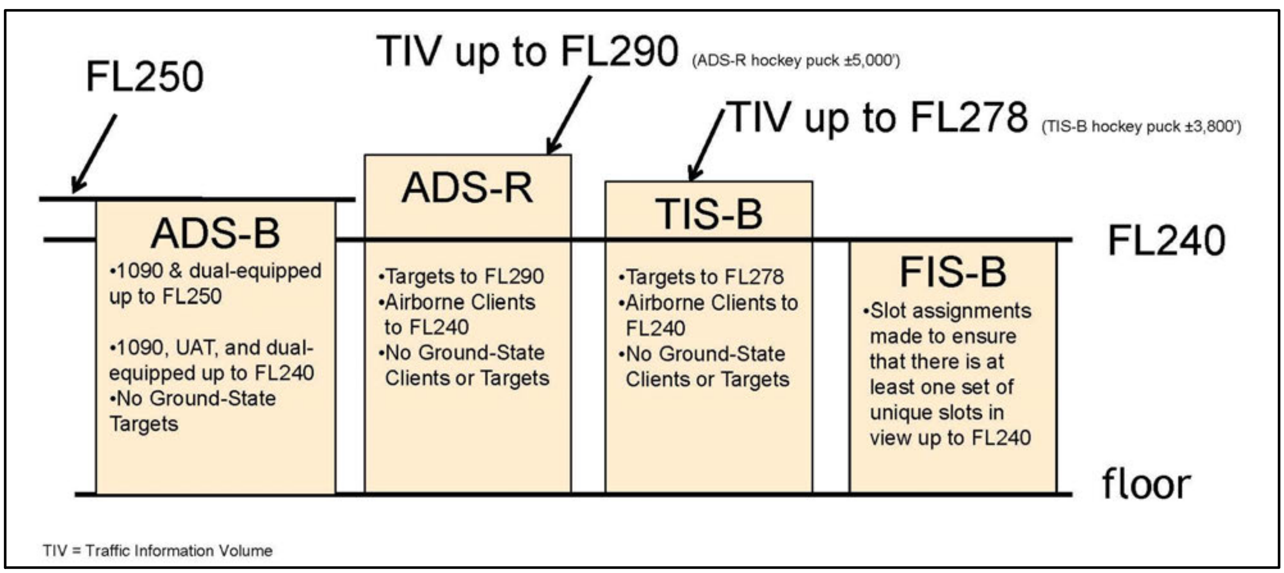


FIG ENR 1.1−37
Terminal − ADS−B/ADS−R/TIS−B/FIS−B Service Ceilings/Floors



45.2 ADS−B Certification and Performance Requirements

ADS−B equipment may be certified as a surveillance source for air traffic separation services using ADS−B Out. ADS−B equipment may also be certified for use with ADS−B In advisory services that enable appropriately equipped aircraft to display traffic and flight information. Refer to the aircraft's flight manual supplement or Pilot Operating Handbook for the capabilities of a specific aircraft installation.

45.3 ADS−B Capabilities and Procedures

45.3.1 ADS−B enables improved surveillance services, both air−to−air and air−to−ground, especially in areas where radar is ineffective due to terrain or where it is impractical or cost prohibitive. Initial NAS applications of air−to−air ADS−B are for "advisory" use only, enhancing a pilot's visual acquisition of other nearby equipped aircraft either when airborne or on the airport surface. Additionally, ADS−B will enable ATC and fleet operators to monitor aircraft throughout the available ground station coverage area.

45.3.2 One of the data elements transmitted by ADS−B is the aircraft's Flight Identification (FLT ID). The FLT ID is comprised of a maximum of seven alphanumeric characters and must correspond to the aircraft identification filed in the flight plan. For airline and commuter aircraft, the FLT ID is usually the company name and flight number (for example, AAL3432), and is typically entered into the avionics by the flight crew during preflight. For general aviation (GA), if aircraft avionics allow dynamic modification of the FLT ID, the pilot can enter it prior to flight. However, some ADS−B avionics require the FLT ID to be set to the aircraft registration number (for example, N1234Q) by the installer and cannot be changed by the pilot from the cockpit. In both cases, the FLT ID must correspond to the aircraft identification filed in its flight plan.

ATC automation systems use the transmitted ADS−B FLT ID to uniquely identify each aircraft within a given airspace, and to correlate it to its filed flight plan for the purpose of providing surveillance and separation services. If the FLT ID and the filed aircraft identification are not identical, a Call Sign Mis−Match (CSMM) is generated and ATC automation systems may not associate the aircraft with its filed flight plan. In this case, air traffic services may be delayed or unavailable until the CSMM is corrected. Consequently, it is imperative that flight crews and GA pilots ensure the FLT ID entry correctly matches the aircraft identification filed in their flight plan.

45.3.3 Each ADS−B aircraft is assigned a unique ICAO address (also known as a 24−bit address) that is broadcast by the ADS−B transmitter. This ICAO address is programmed at installation. Should multiple aircraft broadcast the same ICAO address while transiting the same ADS−B Only Service Volume, the ADS−B network may be unable to track the targets correctly. If radar reinforcement is available, tracking will continue. If radar is unavailable, the controller may lose target tracking entirely on one or both targets. Consequently, it is imperative that the ICAO address entry is correct.

45.3.4 Aircraft that are equipped with ADS−B avionics on the UAT datalink have a feature that allows them to broadcast an anonymous 24−bit ICAO address. In this mode, the UAT system creates a randomized address that does not match the actual ICAO address assigned to the aircraft. The UAT anonymous 24−bit address feature may only be used when the operator has not filed an IFR flight plan and is not requesting ATC services. In the anonymity mode, the aircraft's beacon code must be set to 1200 and, depending on the manufacturer's implementation, the aircraft FLT ID might not be transmitted. Pilots should be aware that while in UAT anonymity mode, they will not be eligible to receive ATC separation and flight following services, and may not benefit from enhanced ADS−B search and rescue capabilities.

45.3.5 ADS−B systems integrated with the transponder will automatically set the applicable emergency status when 7500, 7600, or 7700 are entered into the transponder. ADS−B systems not integrated with the transponder, or systems with optional emergency codes, will require that the appropriate emergency code is entered through a pilot interface. ADS−B is intended for inflight and airport surface use. Unless otherwise directed by ATC, transponder/ADS−B systems should be turned "on" and remain "on" whenever operating in the air or on the airport surface movement area.

45.4 ATC Surveillance Services using ADS−B − Procedures and Recommended Phraseology

Radar procedures, with the exceptions found in this paragraph, are identical to those procedures prescribed for radar in the AIP.

45.4.1 Preflight:

If ATC services are anticipated when either a VFR or IFR flight plan is filed, the aircraft identification (as entered in the flight plan) must be entered as the FLT ID in the ADS−B avionics as described in paragraph 45.3.2.

45.4.2 Inflight:

When requesting surveillance services while airborne, pilots must disable the anonymous feature, if so equipped, prior to contacting ATC. Pilots must also ensure that their transmitted ADS−B FLT ID matches the aircraft identification as entered in their flight plan.

45.4.3 Aircraft with an Inoperative/Malfunctioning ADS−B Transmitter:

45.4.3.1 ATC will inform the flight crew when the aircraft's ADS−B transmitter appears to be inoperative or malfunctioning:

PHRASEOLOGY−
YOUR ADS−B TRANSMITTER APPEARS TO BE INOPERATIVE/MALFUNCTIONING. STOP ADS−B TRANSMISSIONS.

45.4.3.2 ATC will inform the flight crew if it becomes necessary to turn off the aircraft's ADS−B transmitter.

PHRASEOLOGY−
STOP ADS−B TRANSMISSIONS.

45.4.3.3 Other malfunctions and considerations: Loss of automatic altitude reporting capabilities (encoder failure) will result in loss of ATC altitude advisory services.

45.4.4 Procedures for Accommodation of Non−ADS−B Equipped Aircraft:

45.4.4.1 Pilots of aircraft not equipped with ADS−B may only operate outside airspace designated as ADS−B airspace in 14 CFR §91.225. Pilots of unequipped aircraft wishing to fly any portion of a flight in ADS−B airspace may seek a deviation from the regulation to conduct operations without the required equipment. Direction for obtaining this deviation are available in Advisory Circular 90−114.

45.4.4.2 While air traffic controllers can identify which aircraft are ADS−B equipped and which are not, there is no indication if a non−equipped pilot has obtained a preflight authorization to enter ADS−B airspace. Situations may occur when the pilot of a non−equipped aircraft, without an authorization to operate in ADS−B airspace receives an ATC−initiated in−flight clearance to fly a heading, route, or altitude that would penetrate ADS−B airspace. Such clearances may be for traffic, weather, or simply to shorten the aircraft's route of flight. When this occurs, the pilot should acknowledge and execute the clearance, but must advise the controller that they are not ADS−B equipped and have not received prior authorization to operate in ADS−B airspace. The controller, at their discretion, will either acknowledge and proceed with the new clearance, or modify the clearance to avoid ADS−B airspace. In either case, the FAA will normally not take enforcement action for non−equipage in these circumstances.

NOTE−
Pilots operating without ADS−B equipment must not request route or altitude changes that will result in an incursion into ADS−B airspace except for safety of flight; for example, weather avoidance. Unequipped aircraft that have not received a pre−flight deviation authorization will only be considered in compliance with regulation if the amendment to flight is initiated by ATC.

EXAMPLE−
1. ***ATC:*** *"November Two Three Quebec, turn fifteen degrees left, proceed direct Bradford when able, rest of route unchanged."*
Aircraft: *"November Two Three Quebec, turning fifteen degrees left, direct Bradford when able, rest of route unchanged. Be advised, we are negative ADS−B equipment and have not received authorization to operate in ADS−B airspace."*
ATC*: "November Two Three Quebec, roger"*
or
"November Two Three Quebec, roger, turn twenty degrees right, rejoin Victor Ten, rest of route unchanged."

2. ***ATC:*** *"November Four Alpha Tango, climb and maintain one zero thousand for traffic."*
Aircraft: *"November Four Alpha Tango, leaving eight thousand for one zero thousand. Be advised, we are negative ADS−B equipment and have not received authorization to operate in ADS−B airspace."*
ATC: *"November Four Alpha Tango, roger"*
or
"November Four Alpha Tango, roger, cancel climb clearance, maintain eight thousand."

REFERENCE−
Federal Register Notice, Volume 84, Number 62, dated April 1, 2019

45.5 ADS−B Limitations

45.5.1 The ADS−B cockpit display of traffic is <u>NOT</u> intended to be used as a collision avoidance system and does not relieve the pilot's responsibility to "see and avoid" other aircraft. (See Paragraph 42.10, See and Avoid).

ADS−B provides proximity warning only to assist the pilot in the visual acquisition of other aircraft. ADS−B must not be used for avoidance maneuvers during IMC or other times when there is no visual contact with the intruder aircraft. No avoidance maneuvers are provided or authorized, as a direct result of an ADS−B display or an ADS−B alert.

45.5.2 ADS−B does not alter or diminish the pilot's basic authority and responsibility to ensure safe flight. ADS−B only displays aircraft that are ADS−B equipped; therefore, aircraft that are not ADS−B equipped or aircraft that are experiencing an ADS−B failure will not be displayed. ADS−B alone does not ensure safe separation.

45.5.3 Presently, no air traffic services or handling is predicated on the availability of an ADS−B cockpit display. A "traffic−in−sight" reply to ATC must be based on seeing an aircraft out−the−window, NOT on the cockpit display.

45.6 Reports of ADS−B Malfunctions

Users of ADS−B can provide valuable assistance in the correction of malfunctions by reporting instances of undesirable system performance. Since ADS−B performance is monitored by maintenance personnel rather than ATC, report malfunctions to the nearest Flight Service Station (FSS) facility by radio or telephone, or by sending an email to the ADS−B help desk at adsb@faa.gov. Reports should include:

45.6.1 Condition observed;

45.6.2 Date and time of observation;

45.6.3 Altitude and location of observation;

45.6.4 Type and call sign of the aircraft; and

45.6.5 Type and software version of avionics system.

46. Traffic Information Service−Broadcast (TIS−B)

46.1 Introduction

TIS−B is the broadcast of ATC derived traffic information to ADS−B equipped (1090ES or UAT) aircraft from ground radio stations. The source of this traffic information is derived from ground−based air traffic surveillance sensors. TIS−B service will be available throughout the NAS where there are both adequate surveillance coverage from ground sensors and adequate broadcast coverage from ADS−B ground radio stations. The quality level of traffic information provided by TIS−B is dependent upon the number and type of ground sensors available as TIS−B sources and the timeliness of the reported data. (See FIG ENR 1.1−36 and FIG ENR 1.1−37.)

46.2 TIS−B Requirements

In order to receive TIS−B service, the following conditions must exist:

46.2.1 Aircraft must be equipped with an ADS−B transmitter/receiver or transceiver, and a cockpit display of traffic information (CDTI).

46.2.2 Aircraft must fly within the coverage volume of a compatible ground radio station that is configured for TIS−B uplinks. (Not all ground radio stations provide TIS−B due to a lack of radar coverage or because a radar feed is not available).

46.2.3 Aircraft must be within the coverage of and detected by at least one ATC radar serving the ground radio station in use.

46.3 TIS−B Capabilities

46.3.1 TIS−B is intended to provide ADS−B equipped aircraft with a more complete traffic picture in situations where not all nearby aircraft are equipped with ADS−B Out. This advisory−only application is intended to enhance a pilot's visual acquisition of other traffic.

46.3.2 Only transponder−equipped targets (i.e., Mode A/C or Mode S transponders) are transmitted through the ATC ground system architecture. Current radar siting may result in limited radar surveillance coverage at lower altitudes near some airports, with subsequently limited TIS−B service volume coverage. If there is no radar coverage in a given area, then there will be no TIS−B coverage in that area.

46.4 TIS−B Limitations

46.4.1 TIS−B is NOT intended to be used as a collision avoidance system and does not relieve the pilot's responsibility to "see and avoid" other aircraft, in accordance with 14CFR §91.113b. TIS−B must not be used for avoidance maneuvers during times when there is no visual contact with the intruder aircraft. TIS−B is intended only to assist in the visual acquisition of other aircraft.

NOTE−
No aircraft avoidance maneuvers are authorized as a direct result of a TIS−B target being displayed in the cockpit.

46.4.2 While TIS−B is a useful aid to visual traffic avoidance, its inherent system limitations must be understood to ensure proper use.

46.4.2.1 A pilot may receive an intermittent TIS−B target of themselves, typically when maneuvering (e.g., climbing turns) due to the radar not tracking the aircraft as quickly as ADS−B.

46.4.2.2 The ADS−B−to−radar association process within the ground system may at times have difficulty correlating an ADS−B report with corresponding radar returns from the same aircraft. When this happens the pilot may see duplicate traffic symbols (i.e., "TIS−B shadows") on the cockpit display.

46.4.2.3 Updates of TIS−B traffic reports will occur less often than ADS−B traffic updates. TIS−B position updates will occur approximately once every 3−13 seconds depending on the type of radar system in use within the coverage area. In comparison, the update rate for ADS−B is nominally once per second.

46.4.2.4 The TIS−B system only uplinks data pertaining to transponder−equipped aircraft. Aircraft without a transponder will not be displayed as TIS−B traffic.

46.4.2.5 There is no indication provided when any aircraft is operating inside or outside the TIS−B service volume, therefore it is difficult to know if one is receiving uplinked TIS−B traffic information.

46.4.3 Pilots and operators are reminded that the airborne equipment that displays TIS−B targets is for pilot situational awareness only and is not approved as a collision avoidance tool. Unless there is an imminent emergency requiring immediate action, any deviation from an air traffic control clearance in response to perceived converging traffic appearing on a TIS−B display must be approved by the controlling ATC facility before commencing the maneuver, except as permitted under certain conditions in 14CFR §91.123. Uncoordinated deviations may place an aircraft in close proximity to other aircraft under ATC control not seen on the airborne equipment and may result in a pilot deviation or other incident.

46.5 Reports of TIS−B Malfunctions

Users of TIS−B can provide valuable assistance in the correction of malfunctions by reporting instances of undesirable system performance. Since TIS−B performance is monitored by maintenance personnel rather than ATC, report malfunctions to the nearest Flight Service Station (FSS) facility by radio or telephone, or by sending an email to the ADS−B help desk at adsb@faa.gov. Reports should include:

46.5.1 Condition observed;

46.5.2 Date and time of observation;

46.5.3 Altitude and location of observation;

46.5.4 Type and call sign of the aircraft; and

46.5.5 Type and software version of avionics system.

47. Flight Information Service− Broadcast (FIS−B)

47.1 Introduction.

FIS−B is a ground broadcast service provided through the ADS−B Services network over the 978 MHz UAT data link. The FAA FIS−B system provides pilots and flight crews of properly equipped aircraft with a cockpit display of certain aviation weather and aeronautical information. FIS−B reception is line−of−sight within the service volume of the ground infrastructure. (See FIG ENR 1.1−36 and FIG ENR 1.1−37.)

47.2 Weather Products Provided by FIS−B.

FIS-B does not replace a preflight weather briefing from a source listed in GEN 3.5, paragraph 3.5, FAA Weather Services, or inflight updates from an FSS or ATC. FIS-B information may be used by the pilot for the safe conduct of flight and aircraft movement; however, the information should not be the only source of weather or aeronautical information. A pilot should be particularly alert and understand the limitations and quality assurance issues associated with individual products. This includes graphical representation of next generation weather radar (NEXRAD) imagery and Notices to Air Missions (NOTAM)/temporary flight restrictions (TFR).

REFERENCE−
AIP, ENR 3.5 Paragraph 7, Flight Information Services (FIS).
Advisory Circular AC 00−63, "Use of Cockpit Displays of Digital Weather and Aeronautical Information"

47.3 Reports of FIS−B Malfunctions.

Users of FIS−B can provide valuable assistance in the correction of malfunctions by reporting instances of undesirable system performance. Since FIS−B performance is monitored by maintenance personnel rather than ATC, report malfunctions to the nearest Flight Service Station (FSS) facility by radio or telephone, or by sending an email to the ADS−B help desk at adsb@faa.gov. Reports should include:

47.3.1 Condition observed;

47.3.2 Date and time of observation;

47.3.3 Altitude and location of observation;

47.3.4 Type and call sign of the aircraft; and

47.3.5 Type and software version of avionics system.

TBL ENR 1.1−6

FIS−B Over UAT Product Update and Transmission Intervals

Product	Update Interval[1]	Transmission Interval (95%)[2]	Basic Product
AIRMET	As Available	5 minutes	Yes
AWW/WW	As Available, then at 15 minute intervals for 1 hour	5 minutes	No
Ceiling	As Available	10 minutes	No
Convective SIGMET	As Available, then at 15 minute intervals for 1 hour	5 minutes	Yes
D−ATIS	As Available	1 minute	No
Echo Top	5 minutes	5 minutes	No
METAR/SPECI	1 minute (where available), As Available otherwise	5 minutes	Yes
MRMS NEXRAD (CONUS)	2 minutes	15 minutes	Yes
MRMS NEXRAD (Regional)	2 minutes	2.5 minutes	Yes
NOTAMs−D/FDC	As Available	10 minutes	Yes
NOTAMs−TFR	As Available	10 minutes	Yes
PIREP	As Available	10 minutes	Yes
SIGMET	As Available, then at 15 minute intervals for 1 hour	5 minutes	Yes
SUA Status	As Available	10 minutes	Yes
TAF/AMEND	6 Hours (±15 minutes)	10 minutes	Yes
Temperature Aloft	12 Hours (±15 minutes)	10 minutes	Yes
TWIP	As Available	1 minute	No
Winds aloft	12 Hours (±15 minutes)	10 minutes	Yes
Lightning strikes [3]	5 minutes	5 minutes	Yes
Turbulence [3]	1 minute	15 minutes	Yes
Icing, Forecast Potential (FIP) [3]	60 minutes	15 minutes	Yes
Cloud tops [3]	30 minutes	15 minutes	Yes
1 Minute AWOS [3]	1 minute	10 minutes	No
Graphical−AIRMET [3]	As Available	5 minutes	Yes
Center Weather Advisory (CWA) [3]	As Available	10 minutes	Yes
Temporary Restricted Areas (TRA)	As Available	10 minutes	Yes
Temporary Military Operations Areas (TMOA)	As Available	10 minutes	Yes

[1] The Update Interval is the rate at which the product data is available from the source.

[2] The Transmission Interval is the amount of time within which a new or updated product transmission must be completed (95%) and the rate or repetition interval at which the product is rebroadcast (95%).

[3] The transmission and update intervals for the expanded set of basic meteorological products may be adjusted based on FAA and vendor agreement on the final product formats and performance requirements.

NOTE−

1. *Details concerning the content, format, and symbols of the various data link products provided should be obtained from the specific avionics manufacturer.*

2. *NOTAM−D and NOTAM−FDC products broadcast via FIS−B are limited to those issued or effective within the past 30 days.*

48. Automatic Dependent Surveillance−Rebroadcast (ADS−R)

48.1 Introduction.

ADS−R is a datalink translation function of the ADS−B ground system required to accommodate the two separate operating frequencies (978 MHz and 1090 ES). The ADS−B system receives the ADS−B messages transmitted on one frequency and ADS−R translates and reformats the information for rebroadcast and use on the other frequency. This allows ADS−B In equipped aircraft to see nearby ADS−B Out traffic regardless of the operating link of the other aircraft. Aircraft operating on the same ADS−B frequency exchange information directly and do not require the ADS−R translation function. (See FIG ENR 1.1−36 and FIG ENR 1.1−37.)

48.2 Reports of ADS−R Malfunctions.

Users of ADS–R can provide valuable assistance in the correction of malfunctions by reporting instances of undesirable system performance. Since ADS–R performance is monitored by maintenance personnel rather than ATC, report malfunctions to the nearest Flight Service Station (FSS) facility by radio or telephone, or by sending an email to the ADS−B help desk at adsb@faa.gov. Reports should include:

48.2.1 Condition observed;

48.2.2 Date and time of observation;

48.2.3 Altitude and location of observation;

48.2.4 Type and call sign of the aircraft; and

48.2.5 Type and software version of avionics system.

49. Heavy Traffic Around Military Fields

49.1 Pilots are advised to exercise vigilance when in close proximity to most military airports. These airports may have jet aircraft traffic patterns extending up to 2,500 feet above the surface. In addition, they may have an unusually heavy concentration of jet aircraft operating within a 25−nautical mile radius and from the surface to all altitudes. The precautionary note also applies to the larger civil airports.

the aircraft remains outside Class A, B or C airspace; and below the altitude of the ceiling of a Class B or Class C airspace area designated for an airport or 10,000 feet MSL, whichever is lower.

2.3.3 Charts. Class B airspace is charted on Sectional Charts, IFR En Route Low Altitude Charts, and Terminal Area Charts.

2.3.4 Flight Procedures

2.3.4.1 Flights. Aircraft within Class B airspace are required to operate in accordance with current IFR procedures. A clearance for a visual approach to a primary airport is not authorization for turbine powered airplanes to operate below the designated floors of the Class B airspace.

2.3.4.2 VFR Flights

a) Arriving aircraft must obtain an ATC clearance prior to entering Class B airspace and must contact ATC on the appropriate frequency, and in relation to geographical fixes shown on local charts. Although a pilot may be operating beneath the floor of the Class B airspace on initial contact, communications with ATC should be established in relation to the points indicated for spacing and sequencing purposes.

b) Departing aircraft require a clearance to depart Class B airspace and should advise the clearance delivery position of their intended altitude and route of flight. ATC will normally advise VFR aircraft when leaving the geographical limits of the Class B airspace. Radar service is not automatically terminated with this advisory unless specifically stated by the controller.

c) Aircraft not landing or departing the primary airport may obtain an ATC clearance to transit the Class B airspace when traffic conditions permit and provided the requirements of 14 CFR Section 91.131 are met. Such VFR aircraft are encouraged, to the extent possible, to operate at altitudes above or below the Class B airspace or transit through established VFR corridors. Pilots operating in VFR corridors are urged to use frequency 122.750 MHz for the exchange of aircraft position information.

2.3.5 ATC Clearances and Separation. An ATC clearance is required to enter and operate within Class B airspace. VFR pilots are provided sequencing and separation from other aircraft while operating within Class B airspace. (See ENR 1.1, Paragraph 39., Terminal Radar Service for VFR Aircraft.)

NOTE−
Separation and sequencing of VFR will be suspended in the event of a power outage as this service is dependent on radar. The pilot will be advised that the service is not available and issued wind, runway information, and the time or place to contact the tower.

2.3.5.1 VFR aircraft are separated from all VFR/IFR aircraft which weigh 19,000 pounds or less by a minimum of:

a) Target resolution; or

b) 500 feet vertical separation; or

c) Visual separation.

2.3.5.2 VFR aircraft are separated from all VFR/IFR aircraft which weigh more than 19,000 and turbojets by no less than:

a) 1 $^{1}/_{2}$ miles lateral separation; or

b) 500 feet vertical separation; or

c) Visual separation.

2.3.5.3 This program is not to be interpreted as relieving pilots of their responsibilities to see and avoid other traffic operating in basic VFR weather conditions, to adjust their operations and flight path as necessary to preclude serious wake encounters, to maintain appropriate terrain and obstruction clearance, or to remain in weather conditions equal to or better than the minimums required by 14 CFR Section 91.155. Approach control should be advised and a revised clearance or instruction obtained when compliance with an assigned route, heading, and/or altitude is likely to compromise pilot responsibility with respect to terrain and obstruction clearance, vortex exposure, and weather minimums.

2.3.5.4 ATC may assign altitudes to VFR aircraft that do not conform to 14 CFR Section 91.159. "RESUME APPROPRIATE VFR ALTITUDES" will be broadcast when the altitude assignment is no longer needed for separation or when leaving Class B airspace. Pilots must return to an altitude that conforms to 14 CFR Section 91.159.

2.3.5.5 Proximity Operations. VFR aircraft operating in proximity to Class B airspace are cautioned against operating too closely to the boundaries, especially where the floor of the Class B airspace is 3,000 feet or less above the surface or where VFR cruise altitudes are at or near the floor of higher levels. Observance of this precaution will reduce the potential for encountering an aircraft operating at the altitudes of Class B floors. Additionally, VFR aircraft are encouraged to utilize the VFR Planning Chart as a tool for planning flight in proximity to Class B airspace. Charted VFR Flyway Planning charts are published on the back of the existing VFR Terminal Area Charts.

2.4 Class C Airspace

2.4.1 Definition. Generally, that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C airspace area is individually tailored, the airspace usually consists of a surface area with a 5 NM radius, and an outer area with a 10 NM radius that extends no lower than 1,200 feet up to 4,000 feet above the airport elevation.

2.4.2 Outer Area. Class C airspace areas have a procedural (nonregulatory) Outer Area. Normally this area is 20 NM from the primary Class C airspace airport. Its vertical limit extends from the lower limits of radio/radar coverage up to the ceiling of the approach control's delegated airspace, excluding the Class C airspace itself, and other airspace as appropriate. (This outer area is not charted.)

2.4.3 Charts. Class C airspace is charted on Sectional Charts, IFR En Route Low Altitude, and Terminal Area Charts where appropriate.

2.4.4 Operating Rules and Pilot Equipment Requirements

2.4.4.1 Pilot Certification. No specific certification required.

2.4.4.2 Equipment

a) Two-way radio.

b) Unless otherwise authorized by ATC, an operable radar beacon transponder with automatic altitude reporting capability and operable ADS−B Out equipment.

1) Within the 48 contiguous states and the District of Columbia at and above 10,000 feet MSL, excluding the airspace at and below 2,500 feet above the surface, and

2) At and above 3,000 feet MSL over the Gulf of Mexico from the coastline of the United States out to 12 nautical miles.

NOTE−
See Section ENR 1.1, Paragraph 37.7, Transponder/ADS−B Operation, subparagraph 37.7.6 for Mode C Transponder Requirements and ENR 1.1, paragraph 45, for ADS−B requirements for operating above Class C airspace.

c) Arrival or Through Flight Entry Requirements. Two−way radio communication must be established with the ATC facility providing ATC services prior to entry and thereafter maintain those communications while in Class C airspace. Pilots of arriving aircraft should contact the Class C airspace ATC facility on the publicized frequency and give their position, altitude, radar beacon code, destination, and request Class C service. Radio contact should be initiated far enough from the Class C airspace boundary to preclude entering Class C airspace before two−way radio communications are established.

NOTE−
1. *If the controller responds to a radio call with, "(aircraft callsign) standby," radio communications have been established and the pilot can enter the Class C airspace.*

2. *If workload or traffic conditions prevent immediate provision of Class C services, the controller will inform the pilot to remain outside the Class C airspace until conditions permit the services to be provided.*

3. *It is important to understand that if the controller responds to the initial radio call without using the aircraft identification, radio communications have not been established and the pilot may not enter the Class C airspace.*

4. *Class C airspace areas have a procedural Outer Area. Normally this area is 20 NM from the primary Class C airspace airport. Its vertical limit extends from the lower limits of radio/radar coverage up to the ceiling of the approach control's delegated airspace, excluding the Class C airspace itself, and other airspace as appropriate. (This outer area is not charted.)*

5. *Pilots approaching an airport with Class C service should be aware that if they descend below the base altitude of the 5 to 10 mile shelf during an instrument or visual approach, they may encounter non−transponder/non−ADS−B VFR aircraft.*

EXAMPLE−
1. *[Aircraft callsign] "remain outside the Class Charlie airspace and standby."*

2. *"Aircraft calling Dulles approach control, standby."*

d) Departures from:

1) A primary or satellite airport with an operating control tower. Two−way radio communications must be established and maintained with the control tower, and thereafter as instructed by ATC while operating in Class C airspace.

2) A satellite airport without an operating control tower. Two−way radio communications must be established as soon as practicable after departing with the ATC facility having jurisdiction over the Class C airspace.

e) Aircraft Speed. Unless otherwise authorized or required by ATC, no person may operate an aircraft at or below 2,500 feet above the surface within 4 nautical miles of the primary airport of a Class C airspace area at an indicated airspeed of more than 200 knots (230 mph).

2.4.5 Air Traffic Services. When two−way radio communications and radar contact are established, all VFR aircraft are:

2.4.5.1 Sequenced to the primary airport.

2.4.5.2 Provided Class C services within the Class C airspace and the Outer Area.

2.4.5.3 Provided basic radar services beyond the outer area on a workload permitting basis. This can be terminated by the controller if workload dictates.

2.4.6 Aircraft Separation. Separation is provided within the Class C airspace and the Outer Area after two−way radio communications and radar contact are established. VFR aircraft are separated from IFR aircraft within the Class C airspace by any of the following:

2.4.6.1 Visual separation.

2.4.6.2 500 feet vertical separation.

2.4.6.3 Target resolution.

2.4.6.4 Wake turbulence separation will be provided to all aircraft operating:

a) Behind and less than 1,000 feet below super or heavy aircraft,

b) To small aircraft operating behind and less than 500 feet below B757 aircraft, and

c) To small aircraft following a large aircraft on final approach.

NOTE−
1. *Separation and sequencing of VFR aircraft will be suspended in the event of a radar outage as this service is dependent*

on radar. The pilot will be advised that the service is not available and issued wind, runway information, and the time or place to contact the tower.

2. *Pilot participation is voluntary within the outer area and can be discontinued within the outer area at the pilots request. Class C services will be provided in the outer area unless the pilot requests termination of the service.*

3. *Some facilities provide Class C services only during published hours. At other times, terminal IFR radar service will be provided. It is important to note that the communications and transponder/ADS−B requirements are dependent on the class of airspace established outside of the published hours.*

2.4.7 Secondary Airports

2.4.7.1 In some locations, Class C airspace may overlie the Class D surface area of a secondary airport. In order to allow that control tower to provide service to aircraft, portions of the overlapping Class C airspace may be procedurally excluded when the secondary airport tower is in operation. Aircraft operating in these procedurally excluded areas will only be provided airport traffic control services when in communication with the secondary airport tower.

2.4.7.2 Aircraft proceeding inbound to a satellite airport will be terminated at a sufficient distance to allow time to change to the appropriate tower or advisory frequency. Class C services to these aircraft will be discontinued when the aircraft is instructed to contact the tower or change to advisory frequency.

2.4.7.3 Aircraft departing secondary controlled airports will not receive Class C services until they have been radar identified and two−way communications have been established with the Class C airspace facility.

2.4.7.4 This program is not to be interpreted as relieving pilots of their responsibilities to see and avoid other traffic operating in basic VFR weather conditions, to adjust their operations and flight path as necessary to preclude serious wake encounters, to maintain appropriate terrain and obstruction clearance, or to remain in weather conditions equal to or better than the minimums required by 14 CFR Section 91.155. Approach control should be advised and a revised clearance or instruction obtained when compliance with an assigned route, heading, and/or altitude is likely to compromise pilot responsibility with respect to terrain and obstruction clearance, vortex exposure, and weather minimums.

2.4.8 Class C Airspace Areas By State

These states currently have designated Class C airspace areas that are depicted on sectional charts. Pilots should consult current sectional charts and NOTAMs for the latest information on services available. Pilots should be aware that some Class C airspace underlies or is adjacent to Class B airspace. (See TBL ENR 1.4−4.)

FIG ENR 1.5−9
Example of an RNAV Approach with RF Leg

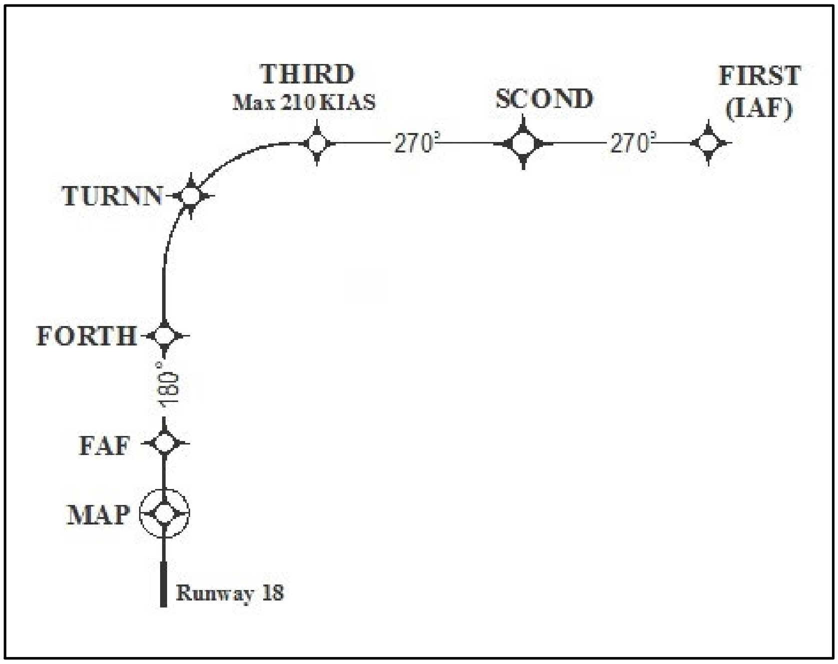


FIG ENR 1.5−10

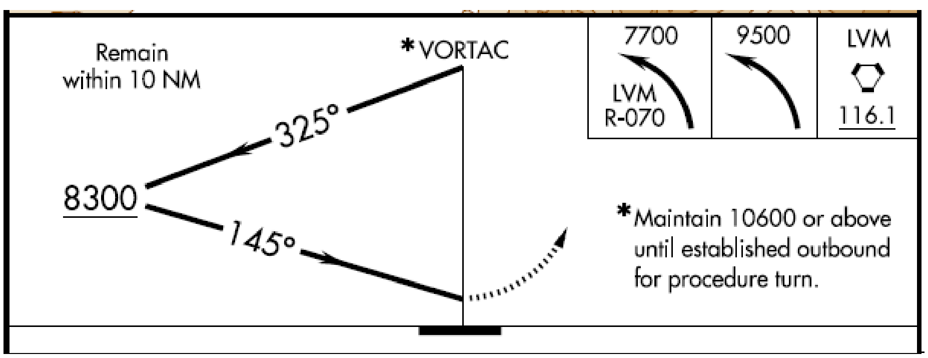
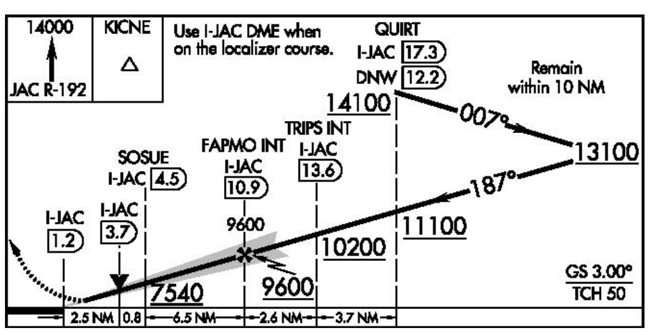


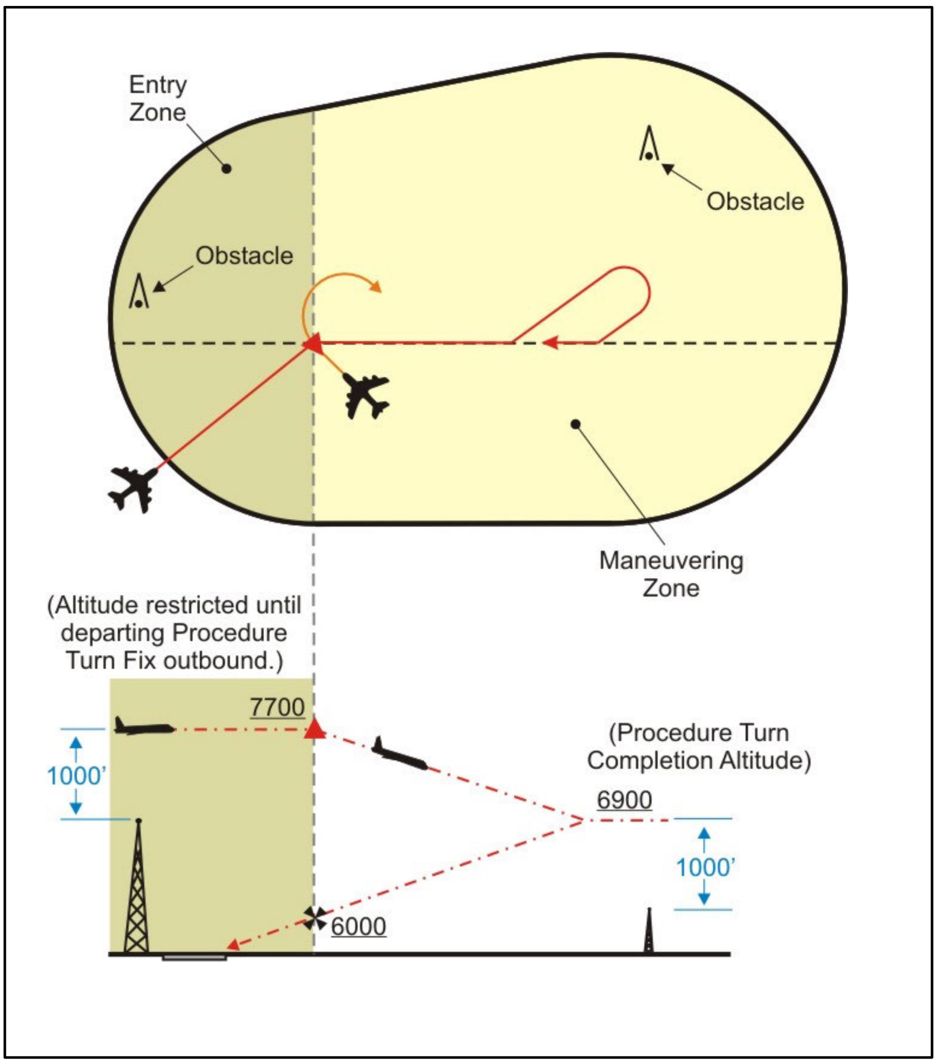
FIG ENR 1.5−11



8.1.5 A holding pattern in lieu of procedure turn may be specified for course reversal in some procedures. In such cases, the holding pattern is established over an intermediate fix or a final approach fix. The holding pattern distance or time specified in the profile view must be observed. For a hold−in−lieu−of−PT, the holding pattern direction must be flown as depicted and the specified leg length/timing must not be exceeded. Maximum holding airspeed limitations as set forth for all holding patterns apply. The holding pattern maneuver is completed when the aircraft is established on the inbound course after executing the appropriate entry. If cleared for the approach prior to returning to the holding fix, and the aircraft is at the prescribed altitude, additional circuits of the holding pattern are not necessary nor expected by ATC. If pilots elect to make additional circuits to lose excessive altitude or to become better established on course, it is their responsibility to so advise ATC upon receipt of their approach clearance.

8.1.6 A procedure turn is not required when an approach can be made directly from a specified intermediate fix to the final approach fix. In such cases, the term “NoPT” is used with the appropriate course and altitude to denote that the procedure turn is not required. If a procedure turn is desired, and when cleared to do so by ATC, descent below the procedure turn altitude should not be made until the aircraft is established on the inbound course, since some NoPT altitudes may be lower than the procedure turn altitudes.

FIG ENR 1.5−12



with an RNAV missed approach would require a specific capability to fly the missed approach portion of the procedure. That required capability will be listed in the PBN box. The separate Equipment Requirements box will list ground−based equipment requirements. On procedures with both PBN elements and equipment requirements, the PBN requirements box will be listed first. The publication of these notes will continue incrementally until all charts have been amended to comply with the new standard.

12.1.4 Approach minimums are based on the local altimeter setting for that airport, unless annotated otherwise; for example, Oklahoma City/Will Rogers World approaches are based on having a Will Rogers World altimeter setting. When a different altimeter source is required, or more than one source is authorized, it will be annotated on the approach chart; e.g., use Sidney altimeter setting, if not received, use Scottsbluff altimeter setting. Approach minimums may be raised when a nonlocal altimeter source is authorized. When more than one altimeter source is authorized, and the minima are different, they will be shown by separate lines in the approach minima box or a note; e.g., use Manhattan altimeter setting; when not available use Salina altimeter setting and increase all MDAs 40 feet. When the altimeter must be obtained from a source other than air traffic a note will indicate the source; e.g., Obtain local altimeter setting on CTAF. When the altimeter setting(s) on which the approach is based is not available, the approach is not authorized. Baro−VNAV must be flown using the local altimeter setting only. Where no local altimeter is available, the LNAV/VNAV line will still be published for use by WAAS receivers with a note that Baro−VNAV is not authorized. When a local and at least one other altimeter setting source is authorized and the local altimeter is not available Baro−VNAV is not authorized; however, the LNAV/VNAV minima can still be used by WAAS receivers using the alternate altimeter setting source.

NOTE−
Barometric Vertical Navigation (baro−VNAV). An RNAV system function which uses barometric altitude information from the aircraft's altimeter to compute and present a vertical guidance path to the pilot. The specified vertical path is computed as a geometric path, typically computed between two waypoints or an angle based computation from a single waypoint. Further guidance may be found in Advisory Circular 90−105.

12.1.5 A pilot adhering to the altitudes, flight paths, and weather minimums depicted on the IAP chart or vectors and altitudes issued by the radar controller, is assured of terrain and obstruction clearance and runway or airport alignment during approach for landing.

12.1.6 IAPs are designed to provide an IFR descent from the en route environment to a point where a safe landing can be made. They are prescribed and approved by appropriate civil or military authority to ensure a safe descent during instrument flight conditions at a specific airport. It is important that pilots understand these procedures and their use prior to attempting to fly instrument approaches.

12.1.7 TERPS criteria are provided for the following types of instrument approach procedures:

12.1.7.1 Precision Approach (PA). An instrument approach based on a navigation system that provides course and glidepath deviation information meeting the precision standards of ICAO Annex 10. For example, PAR, ILS,and GLS are precision approaches.

12.1.7.2 Approach with Vertical Guidance (APV). An instrument approach based on a navigation system that is not required to meet the precision approach standards of ICAO Annex 10 but provides course and glidepath deviation information. For example, Baro−VNAV, LDA with glidepath, LNAV/VNAV and LPV are APV approaches.

12.1.7.3 Nonprecision Approach (NPA). An instrument approach based on a navigation system which provides course deviation information, but no glidepath deviation information. For example, VOR, NDB and LNAV. As noted in subparagraph 12.10, Vertical Descent Angle (VDA) on Nonprecision Approaches, some approach procedures may provide a Vertical Descent Angle as an aid in flying a stabilized approach, without requiring its use in order to fly the procedure. This does not make the approach an APV procedure, since it must still be flown to an MDA and has not been evaluated with a glidepath.

12.2 The method used to depict prescribed altitudes on instrument approach charts differs according to techniques employed by different chart publishers. Prescribed altitudes may be depicted in four different configurations: minimum, maximum, mandatory, and recommended. The U.S. Government distributes charts produced by National Geospatial−Intelligence Agency (NGA) and FAA. Altitudes are depicted on these charts in the profile view with underscore, overscore, both or none to identify them as minimum, maximum, mandatory or recommended.

12.2.1 Minimum altitude will be depicted with the altitude value underscored. Aircraft are required to maintain altitude at or above the depicted value, for example, $\underline{3000}$.

12.2.2 Maximum altitude will be depicted with the altitude value overscored. Aircraft are required to maintain altitude at or below the depicted value, for example, $\overline{4000}$.

12.2.3 Mandatory altitude will be depicted with the altitude value both underscored and overscored. Aircraft are required to maintain altitude at the depicted value, for example, $\overline{\underline{5000}}$.

12.2.4 Recommended altitude will be depicted with no overscore or underscore. These altitudes are depicted for descent planning, for example, 6000.

NOTE−

1. *Pilots are cautioned to adhere to altitudes as prescribed because, in certain instances, they may be used as the basis for vertical separation of aircraft by ATC. When a depicted altitude is specified in the ATC clearance, that altitude becomes mandatory as defined above.*

2. *The ILS glide slope is intended to be intercepted at the published glide slope intercept altitude. This point marks the PFAF and is depicted by the "lightning bolt" symbol on U.S. Government charts. Intercepting the glide slope at this altitude marks the beginning of the final approach segment and ensures required obstacle clearance during descent from the glide slope intercept altitude to the lowest published decision altitude for the approach. Interception and tracking of the glide slope prior to the published glide slope interception altitude does not necessarily ensure that minimum, maximum, and/or mandatory altitudes published for any preceding fixes will be complied with during the descent. If the pilot chooses to track the glide slope prior to the glide slope interception altitude, they remain responsible for complying with published altitudes for any preceding stepdown fixes encountered during the subsequent descent.*

3. *Approaches used for simultaneous (parallel) independent and simultaneous close parallel operations procedurally require descending on the glideslope from the altitude at which the approach clearance is issued (refer to ENR 1.5−19. and ENR 1.5−20.). For simultaneous close parallel (PRM) approaches, the Attention All Users Page (AAUP) may publish a note which indicates that descending on the glideslope/glidepath meets all crossing restrictions. However, if no such note is published, and for simultaneous independent approaches (4300 and greater runway separation) where an AAUP is not published, pilots are cautioned to monitor their descent on the glideslope/path outside of the PFAF to ensure compliance with published crossing restrictions during simultaneous operations.*

4. *When parallel approach courses are less than 2500 feet apart and reduced in-trail spacing is authorized for simultaneous dependent operations, a chart note will indicate that simultaneous operations require use of vertical guidance and that the pilot should maintain last assigned altitude until established on glide slope. These approaches procedurally require utilization of the ILS glide slope for wake turbulence mitigation. Pilots should not confuse these simultaneous dependent operations with (SOIA) simultaneous close parallel PRM approaches, where PRM appears in the approach title.*

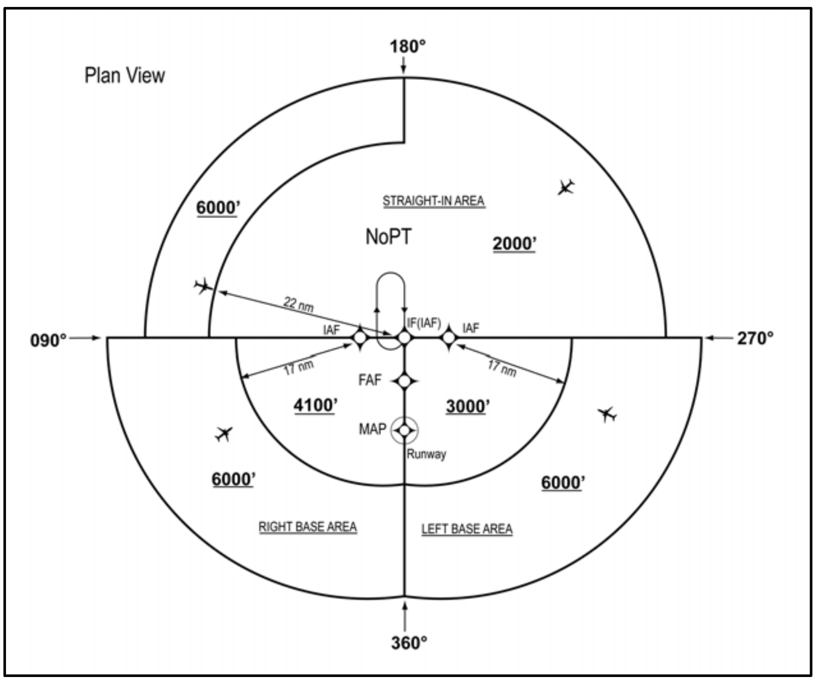
12.2.5 Altitude restrictions depicted at stepdown fixes within the final approach segment are applicable only when flying a Non−Precision Approach to a straight−in or circling line of minima identified as an MDA. These altitude restrictions may be annotated with a note "LOC only" or "LNAV only." Stepdown fix altitude restrictions within the final approach segment do not apply to pilots using Precision Approach (ILS) or Approach with Vertical Guidance (LPV, LNAV/VNAV) lines of minima identified as a DA, since obstacle clearance on these approaches is based on the aircraft following the applicable vertical guidance. Pilots are responsible for adherence to stepdown fix altitude restrictions when outside the final approach segment (i.e., initial or intermediate segment), regardless of which type of procedure the pilot is flying. (See FIG ENR 1.5−17).

will enter by determining the magnetic bearing of the aircraft TO the fix labeled IF/IAF. The bearing should then be compared to the published lateral boundary bearings that define the TAA areas. Do not use magnetic bearing to the right-base or left-base IAFs to determine position.

12.4.5.1 An ATC clearance direct to an IAF or to the IF/IAF without an approach clearance does not authorize a pilot to descend to a lower TAA altitude. If a pilot desires a lower altitude without an approach clearance, request the lower TAA altitude from ATC. Pilots not sure of the clearance should confirm their clearance with ATC or request a specific clearance. Pilots entering the TAA with two−way radio communications failure (14 CFR Section 91.185, IFR Operations: Two−way Radio Communications Failure), must maintain the highest altitude prescribed by Section 91.185(c)(2) until arriving at the appropriate IAF.

12.4.5.2 Once cleared for the approach, pilots may descend in the TAA sector to the minimum altitude depicted within the defined area/subdivision, unless instructed otherwise by air traffic control. Pilots should plan their descent within the TAA to permit a normal descent from the IF/IAF to the FAF. In FIG ENR 1.5−21, pilots within the left or right−base areas are expected to maintain a minimum altitude of 6,000 feet until within 17 NM of the associated IAF. After crossing the 17 NM arc, descent is authorized to the lower charted altitudes. Pilots approaching from the northwest are expected to maintain a minimum altitude of 6,000 feet, and when within 22 NM of the IF/IAF, descend to a minimum altitude of 2,000 feet MSL until crossing the IF/IAF.

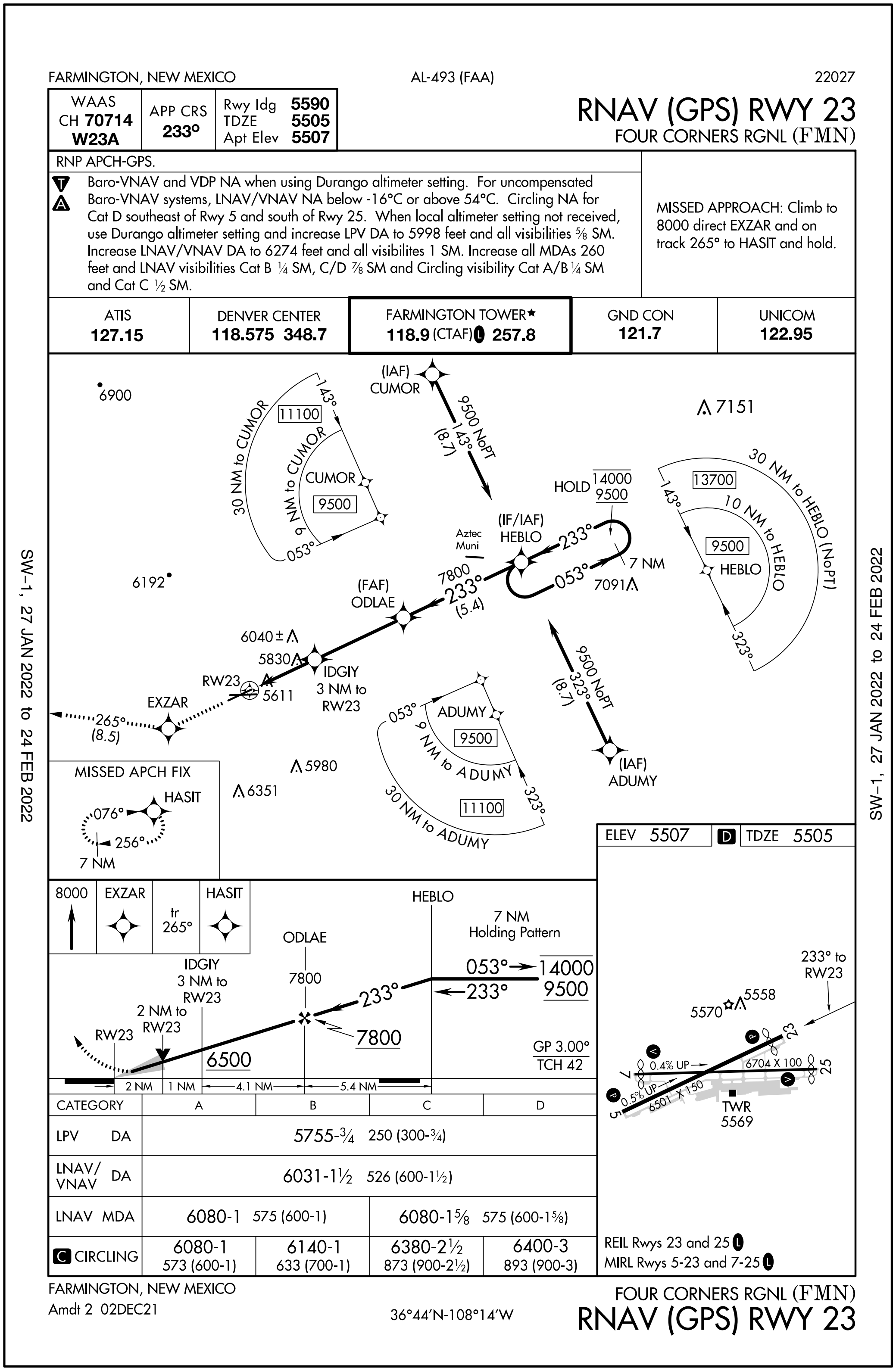
FIG ENR 1.5−21
Sectored TAA Areas



12.4.6 U.S. Government charts depict TAAs using icons located in the plan view outside the depiction of the actual approach procedure. (See FIG ENR 1.5−22). Use of icons is necessary to avoid obscuring any portion of the "T" procedure (altitudes, courses, minimum altitudes, etc.). The icon for each TAA area will be located and oriented on the plan view with respect to the direction of arrival to the approach procedure, and will show all TAA minimum altitudes and sector/radius subdivisions. The IAF for each area of the TAA is included on the icon where it appears on the approach to help the pilot orient the icon to the approach procedure. The IAF name and the distance of the TAA area boundary from the IAF are included on the outside arc of the TAA area icon.

FIG ENR 1.5−22

RNAV (GPS) Approach Chart

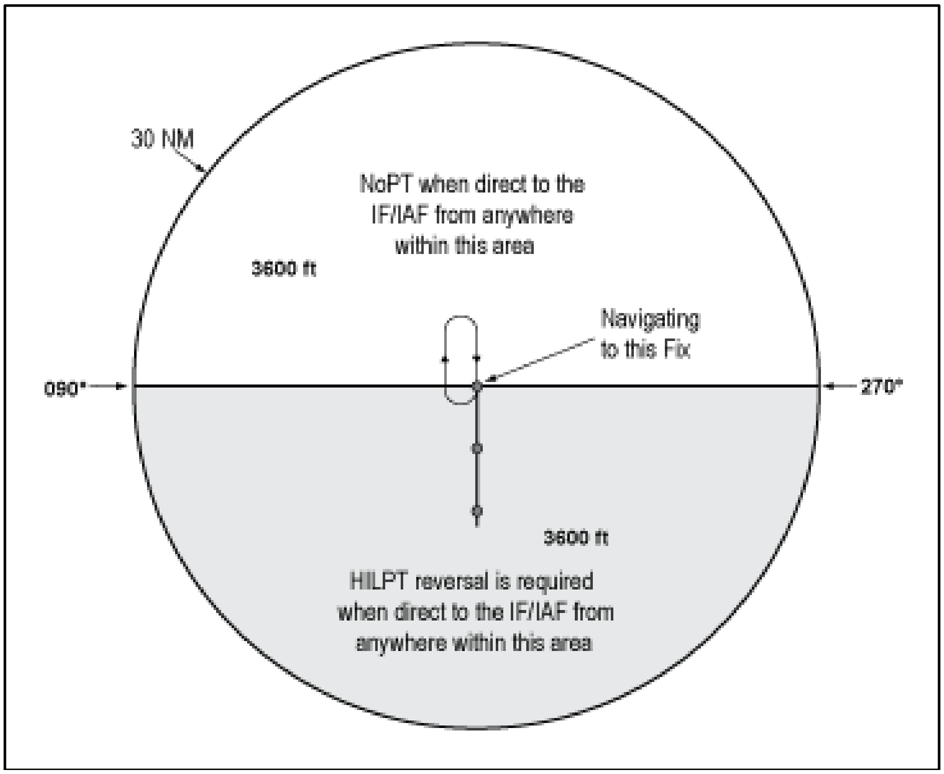


12.4.7 TAAs may be modified from the standard size and shape to accommodate operational or ATC requirements. Some areas may be eliminated, while the other areas are expanded. The "T" design may be modified by the procedure designers where required by terrain or ATC considerations. For instance, the "T" design may appear more like a regularly or irregularly shaped "Y," upside down "L," or an "I."

12.4.7.1 FIG ENR 1.5−23 depicts a TAA without a left base leg and right base leg. In this generalized example, pilots approaching on a bearing TO the IF/IAF from 271 clockwise to 089 are expected to execute a course reversal because the amount of turn required at the IF/IAF exceeds 90 degrees. The term "NoPT" will be annotated on the boundary of the TAA icon for the other portion of the TAA.

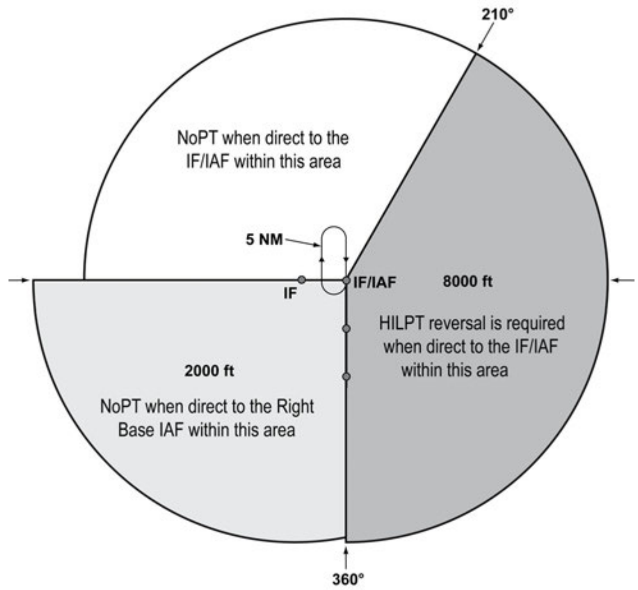
FIG ENR 1.5−23

TAA with Left and Right Base Areas Eliminated



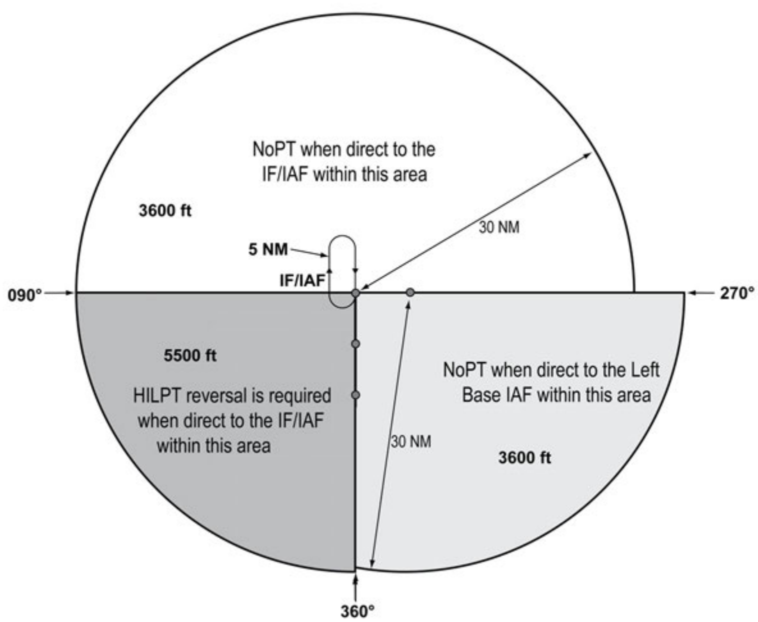
12.4.7.2 FIG ENR 1.5−24 depicts another TAA modification that pilots may encounter. In this generalized example, the left base area and part of the straight-in area have been eliminated. Pilots operating within the TAA between 210 clockwise to 360 bearing TO the IF/IAF are expected to proceed direct to the IF/IAF and then execute the course reversal in order to properly align the aircraft for entry onto the intermediate segment or to avoid an excessive descent rate. Aircraft operating in areas from 001 clockwise to 090 bearing TO the IF/IAF are expected to proceed direct to the right base IAF and not execute course reversal maneuver. Aircraft cleared direct the IF/IAF by ATC in this sector will be expected to accomplish HILTP. Aircraft operating in areas 091 clockwise to 209 bearing TO the IF/IAF are expected to proceed direct to the IF/IAF and not execute the course reversal. These two areas are annotated "NoPT" at the TAA boundary of the icon in these areas when displayed on the approach chart's plan view.

FIG ENR 1.5−24
TAA with Left Base and Part of Straight−In Area Eliminated



12.4.7.3 FIG ENR 1.5−25 depicts a TAA with right base leg and part of the straight-in area eliminated.

FIG ENR 1.5−25
TAA with Right Base Eliminated



approved baro-VNAV equipment may plan for LNAV/VNAV DA at an alternate airport. Specifically authorized WAAS users with and using approved baro-VNAV equipment may also plan for RNP 0.3 DA at the alternate airport as long as the pilot has verified RNP availability through an approved prediction program.

13. Special Instrument Approach Procedures

13.1 Instrument Approach Procedure (IAP) charts reflect the criteria associated with the U.S. Standard for Terminal Instrument [Approach] Procedures (TERPs), which prescribes standardized methods for use in developing IAPs. Standard IAPs are published in the Federal Register (FR) in accordance with Title 14 of the Code of Federal Regulations, Part 97, and are available for use by appropriately qualified pilots operating properly equipped and airworthy aircraft in accordance with operating rules and procedures acceptable to the FAA. Special IAPs are also developed using TERPS but are not given public notice in the FR. The FAA authorizes only certain individual pilots and/or pilots in individual organizations to use special IAPs, and may require additional crew training and/or aircraft equipment or performance, and may also require the use of landing aids, communications, or weather services not available for public use. Additionally, IAPs that service private use airports or heliports are generally special IAPs. FDC NOTAMs for Specials, FDC T-NOTAMs, may also be used to promulgate safety-of-flight information relating to Specials provided the location has a valid landing area identifier and is serviced by the United States NOTAM system. Pilots may access NOTAMs online or through an FAA Flight Service Station (FSS). FSS specialists will not automatically provide NOTAM information to pilots for special IAPs during telephone pre−flight briefings. Pilots who are authorized by the FAA to use special IAPs must specifically request FDC NOTAM information for the particular special IAP they plan to use.

14. Radar Approaches

14.1 The only airborne radio equipment required for radar approaches is a functioning radio transmitter and receiver. The radar controller vectors the aircraft to align it with the runway centerline. The controller continues the vectors to keep the aircraft on course until the pilot can complete the approach and landing by visual reference to the surface. There are two types of radar approaches, “Precision” (PAR) and “Surveillance” (ASR).

14.2 A radar approach may be given to any aircraft upon request and may be offered to pilots of aircraft in distress or to expedite traffic; however, a surveillance approach might not be approved unless there is an ATC operational requirement, or in an unusual or emergency situation. Acceptance of a precision or surveillance approach by a pilot does not waive the prescribed weather minimums for the airport or for the particular aircraft operator concerned. The decision to make a radar approach when the reported weather is below the established minimums rests with the pilot.

14.3 Precision and surveillance approach minimums are published on separate pages in the Federal Aviation Administration Instrument Approach Procedure charts.

14.3.1 A Precision Approach (PAR) is one in which a controller provides highly accurate navigational guidance in azimuth and elevation to a pilot. Pilots are given headings to fly to direct them to and keep their aircraft aligned with the extended centerline of the landing runway. They are told to anticipate glidepath interception approximately 10 to 30 seconds before it occurs and when to start descent. The published decision height will be given only if the pilot requests it. If the aircraft is observed to deviate above or below the glidepath, the pilot is given the relative amount of deviation by use of terms “slightly” or “well” and is expected to adjust the aircraft’s rate of descent to return to the glidepath. Trend information is also issued with respect to the elevation of the aircraft and may be modified by the terms “rapidly” and “slowly”; e.g., “well above glidepath, coming down rapidly.” Range from touchdown is given at least once each mile. If an aircraft is observed by the controller to proceed outside of specified safety zone limits in azimuth and/or elevation and continues to operate outside these prescribed limits, the pilot will be directed to execute a missed approach or to fly a specified course unless the pilot has the runway environment (runway, approach lights, etc.) in sight. Navigational guidance in azimuth and elevation is provided the pilot until the aircraft reaches the published decision height (DH). Advisory course and glidepath information is furnished by the controller until the aircraft passes over the landing threshold, at which point the pilot is advised of any deviation from the runway centerline. Radar service is automatically terminated upon completion of the approach.

14.3.2 A Surveillance Approach (ASR) is one in which a controller provides navigational guidance in azimuth only. The pilot is furnished headings to fly to align the aircraft with the extended centerline of the landing runway. Since the radar information used for a surveillance approach is considerably less precise than that used for a precision approach, the accuracy of the approach will not be as great, and higher minimums will apply. Guidance in elevation is not possible but the pilot will be advised when to commence descent to the minimum descent altitude (MDA) or, if appropriate, to an intermediate "step down fix" minimum crossing altitude and subsequently to the prescribed MDA. In addition, the pilot will be advised of the location of the missed approach point (MAP) prescribed for the procedure and the aircraft's position each mile on final from the runway, airport/heliport, or MAP, as appropriate. If requested by the pilot, recommended altitudes will be issued at each mile, based on the descent gradient established for the procedure, down to the last mile that is at or above the MDA. Normally, navigational guidance will be provided until the aircraft reaches the MAP. Controllers will terminate guidance and instruct the pilot to execute a missed approach unless at the MAP the pilot has the runway, airport/heliport in sight or, for a helicopter point−in−space approach, the prescribed visual reference with the surface is established. Also, if at any time during the approach the controller considers that safe guidance for the remainder of the approach cannot be provided, the controller will terminate guidance and instruct the pilot to execute a missed approach. Similarly, guidance termination and missed approach will be effected upon pilot request, and for civil aircraft only, controllers may terminate guidance when the pilot reports the runway, airport/heliport, or visual surface route (point−in−space approach) in sight or otherwise indicates that continued guidance is not required. Radar service is automatically terminated at the completion of a radar approach.

NOTE−
The published MDA for straight−in approaches will be issued to the pilot before beginning descent. When a surveillance approach will terminate in a circle−to−land maneuver, the pilot must furnish the aircraft approach category to the controller. The controller will then provide the pilot with the appropriate MDA.

14.3.3 A No−Gyro Approach is available to a pilot under radar control who experiences circumstances wherein the directional gyro or other stabilized compass is inoperative or inaccurate. When this occurs, the pilot should so advise ATC and request a No−Gyro vector or approach. Pilots of aircraft not equipped with a directional gyro or other stabilized compass who desire radar handling may also request a No−Gyro vector or approach. The pilot should make all turns at standard rate and should execute the turn immediately upon receipt of instructions. For example, "TURN RIGHT," "STOP TURN." When a surveillance or precision approach is made, the pilot will be advised after the aircraft has been turned onto final approach to make turns at half standard rate.

15. Radar Monitoring of Instrument Approaches

15.1 PAR facilities operated by the FAA and the military services at some joint−use (civil/military) and military installations monitor aircraft on instrument approaches and issue radar advisories to the pilot when weather is below VFR minimum (1,000 and 3), at night, or when requested by a pilot. This service is provided only when the PAR final approach course coincides with the final approach of the navigational aid and only during the operational hours of the PAR. The radar advisories serve only as a secondary aid since the pilot has selected the navigational aid as the primary aid for the approach.

15.2 Prior to starting final approach, the pilot will be advised of the frequency on which the advisories will be transmitted. If, for any reason, radar advisories cannot be furnished, the pilot will be so advised.

15.3 Advisory information, derived from radar observations, includes information on:

15.3.1 Passing the final approach fix inbound (nonprecision approach) or passing the outer marker or the fix used in lieu of the outer marker inbound (precision approach).

15.3.2 Trend advisories with respect to elevation and/or azimuth radar position and movement will be provided.

NOTE−
At this point, the pilot may be requested to report sighting the approach lights or the runway.

yet been developed for straight−in landing operations below DA/DH or MDA under IFR to heliports or platforms. An EFVS cannot be used in lieu of natural vision to descend below published minimums on copter approaches to a point in space (PinS) followed by a "proceed visual flight rules (VFR)" visual segment, or on approaches designed to a specific landing site using a "proceed visually" visual segment.

24.7 EFVS Pilot Requirements. A pilot who conducts EFVS operations must receive ground and flight training specific to the EFVS operation to be conducted. The training must be obtained from an authorized training provider under a training program approved by the FAA. Additionally, recent flight experience and proficiency or competency check requirements apply to EFVS operations. These requirements are addressed in 14 CFR §§ 61.66, 91.1065, 121.441, Appendix F to Part 121, 125.287, and 135.293.

24.8 Enhanced Flight Visibility and Visual Reference Requirements. To descend below DA/DH or MDA during EFVS operations under 14 CFR § 91.176(a) or (b), a pilot must make a determination that the enhanced flight visibility observed by using an EFVS is not less than what is prescribed by the IAP being flown. In addition, the visual references required in 14 CFR § 91.176(a) or (b) must be distinctly visible and identifiable to the pilot using the EFVS. The determination of enhanced flight visibility is a separate action from that of identifying required visual references, and is different from ground−reported visibility. Even though the reported visibility or the visibility observed using natural vision may be less, as long as the EFVS provides the required enhanced flight visibility and a pilot meets all of the other requirements, the pilot can continue descending below DA/DH or MDA using the EFVS. Suitable enhanced flight visibility is necessary to ensure the aircraft is in a position to continue the approach and land. It is important to understand that using an EFVS does not result in obtaining lower minima with respect to the visibility or the DA/DH or MDA specified in the IAP. An EFVS simply provides another means of operating in the visual segment of an IAP. The DA/DH or MDA and the visibility value specified in the IAP to be flown do not change.

24.9 Flight Planning and Beginning or Continuing an Approach Under IFR. A Part 121, 125, or 135 operator's OpSpec or LOA for EFVS operations may authorize an EFVS operational credit dispatching or releasing a flight and for beginning or continuing an instrument approach procedure. When a pilot reaches DA/DH or MDA, the pilot conducts the EFVS operation in accordance with 14 CFR § 91.176(a) or (b) and their authorization to conduct EFVS operations.

24.10 Missed Approach Considerations. In order to conduct an EFVS operation, the EFVS must be operable. In the event of a failure of any required component of an EFVS at any point in the approach to touchdown, a missed approach is required. However, this provision does not preclude a pilot's authority to continue an approach if continuation of an approach is considered by the pilot to be a safer course of action.

24.11 Light Emitting Diode (LED) Airport Lighting Impact on EFVS Operations. Incandescent lamps are being replaced with LEDs at some airports in threshold lights, taxiway edge lights, taxiway centerline lights, low intensity runway edge lights, windcone lights, beacons, and some obstruction lighting. Additionally, there are plans to replace incandescent lamps with LEDs in approach lighting systems. Pilots should be aware that LED lights cannot be sensed by infrared−based EFVSs. Further, the FAA does not currently collect or disseminate information about where LED lighting is installed.

24.12 Other Vision Systems. Unlike an EFVS that meets the equipment requirements of 14 CFR § 91.176, a Synthetic Vision System (SVS) or Synthetic Vision Guidance System (SVGS) does not provide a real−time sensor image of the outside scene and also does not meet the equipment requirements for EFVS operations. A pilot cannot use a synthetic vision image on a head−up or a head−down display in lieu of natural vision to descend below DA/DH or MDA. An EFVS can, however, be integrated with an SVS, also known as a Combined Vision System (CVS). A CVS can be used to conduct EFVS operations if all of the requirements for an EFVS are satisfied and the SVS image does not interfere with the pilot's ability to see the external scene, to identify the required visual references, or to see the sensor image.

24.13 Additional Information. Operational criteria for EFVS can be found in Advisory Circular (AC) 90−106, Enhanced Flight Vision System Operations, and airworthiness criteria for EFVS can be found in AC 20−167, Airworthiness Approval of Enhanced Vision System, Synthetic Vision System, Combined Vision System, and Enhanced Flight Vision System Equipment.

25. Visual Approach

25.1 A visual approach is conducted on an IFR flight plan and authorizes a pilot to proceed visually and clear of clouds to the airport. The pilot must have either the airport or the preceding identified aircraft in sight. This approach must be authorized and controlled by the appropriate air traffic control facility. Reported weather at the airport must have a ceiling at or above 1,000 feet and visibility 3 miles or greater. ATC may authorize this type of approach when it will be operationally beneficial. Visual approaches are an IFR procedure conducted under Instrument Flight Rules in visual meteorological conditions. Cloud clearance requirements of 14 CFR Section 91.155 are not applicable, unless required by operation specifications. When conducting visual approaches, pilots are encouraged to use other available navigational aids to assist in positive lateral and vertical alignment with the runway.

25.2 Operating to an Airport Without Weather Reporting Service. ATC will advise the pilot when weather is not available at the destination airport. ATC may initiate a visual approach provided there is a reasonable assurance that weather at the airport is a ceiling at or above 1,000 feet and visibility 3 miles or greater (e.g., area weather reports, PIREPs, etc.).

25.3 Operating to an Airport With an Operating Control Tower. Aircraft may be authorized to conduct a visual approach to one runway while other aircraft are conducting IFR or VFR approaches to another parallel, intersecting, or converging runway. ATC may authorize a visual approach after advising all aircraft involved that other aircraft are conducting operations to the other runway. This may be accomplished through use of the ATIS.

25.3.1 When operating to parallel runways separated by less than 2,500 feet, ATC will ensure approved separation is provided unless the succeeding aircraft reports sighting the preceding aircraft to the adjacent parallel and visual separation is applied.

25.3.2 When operating to parallel runways separated by at least 2,500 feet but less than 4,300 feet, ATC will ensure approved separation is provided until the aircraft are issued an approach clearance and one pilot has acknowledged receipt of a visual approach clearance, and the other pilot has acknowledged receipt of a visual or instrument approach clearance, and aircraft are established on a heading or established on a direct course to a fix or cleared on an RNAV/instrument approach procedure which will intercept the extended centerline of the runway at an angle not greater than 30 degrees.

25.3.3 When operating to parallel runways separated by 4,300 feet or more, ATC will ensure approved separation is provided until one of the aircraft has been issued and the pilot has acknowledged receipt of the visual approach clearance, and each aircraft is assigned a heading, or established on a direct course to a fix, or cleared on an RNAV/instrument approach procedure which will allow the aircraft to intercept the extended centerline of the runway at an angle not greater than 30 degrees.

NOTE−
The intent of the 30 degree intercept angle is to reduce the potential for overshoots of the final and to preclude side−by−side operations with one or both aircraft in a belly−up configuration during the turn−on.

25.4 Clearance for Visual Approach. At locations with an operating control tower, ATC will issue approach clearances that will include an assigned runway. At locations without an operating control tower or where a part−time tower is closed, ATC will issue a visual approach clearance to the airport only.

25.5 Separation Responsibilities. If the pilot has the airport in sight but cannot see the aircraft to be followed, ATC may clear the aircraft for a visual approach; however, ATC retains both separation and wake vortex separation responsibility. When visually following a preceding aircraft, acceptance of the visual approach clearance constitutes acceptance of pilot responsibility for maintaining a safe approach interval and adequate wake turbulence separation.

25.6 A visual approach is not an IAP and therefore has no missed approach segment. If a go−around is necessary for any reason, aircraft operating at controlled airports will be issued an appropriate clearance or instruction by the tower to enter the traffic pattern for landing or proceed as otherwise instructed. In either case, the pilot is responsible to maintain terrain and obstruction avoidance until reaching an ATC assigned altitude if issued, and

ATC will provide approved separation or visual separation from other IFR aircraft. At uncontrolled airports, aircraft are expected to remain clear of clouds and complete a landing as soon as possible. If a landing cannot be accomplished, the aircraft is expected to remain clear of clouds and contact ATC as soon as possible for further clearance. Separation from other IFR aircraft will be maintained under these circumstances.

25.7 Visual approaches reduce pilot/controller workload and expedite traffic by shortening flight paths to the airport. It is the pilot's responsibility to advise ATC as soon as possible if a visual approach is not desired.

25.8 Authorization to conduct a visual approach is an IFR authorization and does not alter IFR flight plan cancellation responsibility. See ENR 1.10, Paragraph 11.2, Canceling IFR Flight Plan.

25.9 Radar service is automatically terminated, without advising the pilot, when the aircraft is instructed to change to advisory frequency.

26. Charted Visual Flight Procedures (CVFPs)

26.1 CVFPs are charted visual approaches established for environmental/noise considerations, and/or when necessary for the safety and efficiency of air traffic operations. The approach charts depict prominent landmarks, courses, and recommended altitudes to specific runways. CVFPs are designed to be used primarily for turbojet aircraft.

26.2 These procedures will be used only at airports with an operating control tower.

26.3 Most approach charts will depict some NAVAID information which is for supplemental navigational guidance only.

26.4 Unless indicating a Class B airspace floor, all depicted altitudes are for noise abatement purposes and are recommended only. Pilots are not prohibited from flying other than recommended altitudes if operational requirements dictate.

26.5 When landmarks used for navigation are not visible at night, the approach will be annotated "PROCEDURE NOT AUTHORIZED AT NIGHT."

26.6 CVFPs usually begin within 20 flying miles from the airport.

26.7 Published weather minimums for CVFPs are based on minimum vectoring altitudes rather than the recommended altitudes depicted on charts.

26.8 CVFPs are not instrument approaches and do not have missed approach segments.

26.9 ATC will not issue clearances for CVFPs when the weather is less than the published minimum.

26.10 ATC will clear aircraft for a CVFP after the pilot reports siting a charted landmark or a preceding aircraft. If instructed to follow a preceding aircraft, pilots are responsible for maintaining a safe approach interval and wake turbulence separation.

26.11 Pilots should advise ATC if at any point they are unable to continue an approach or lose sight of a preceding aircraft. Missed approaches will be handled as a go−around.

26.12 When conducting visual approaches, pilots are encouraged to use other available navigational aids to assist in positive lateral and vertical alignment with the assigned runway.

27. Missed Approach

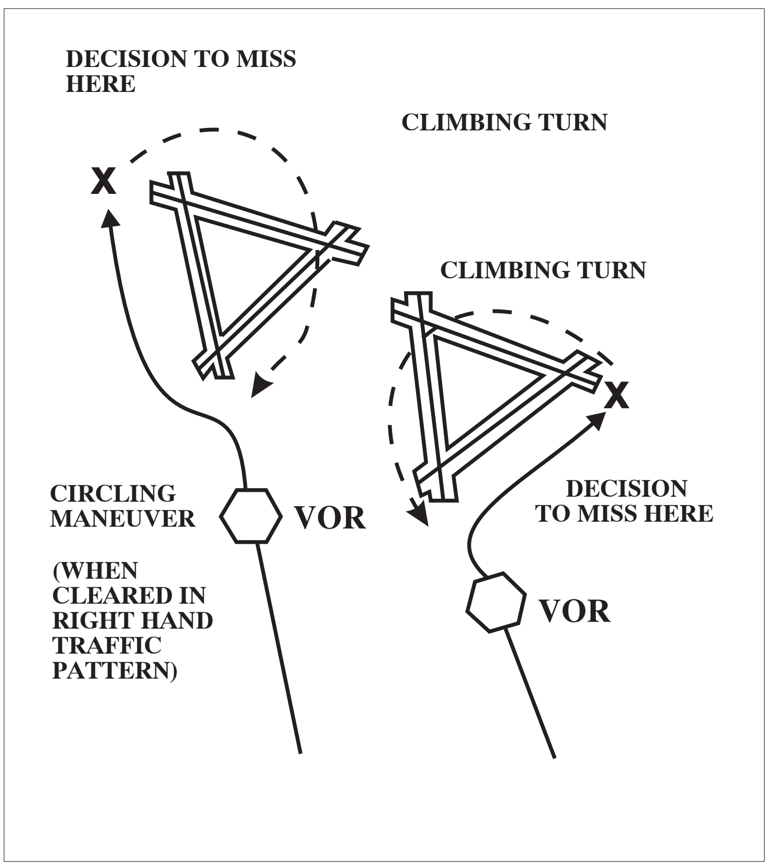
27.1 When a landing cannot be accomplished, advise ATC and, upon reaching the missed approach point defined on the approach procedure chart, the pilot must comply with the missed approach instructions for the procedure being used or with an alternate missed approach procedure specified by ATC.

27.2 Obstacle protection for missed approach is predicated on the missed approach being initiated at the decision altitude/decision height (DA/DH) or at the missed approach point and not lower than minimum descent altitude

(MDA). A climb gradient of at least 200 feet per nautical mile is required, (except for Copter approaches, where a climb of at least 400 feet per nautical mile is required), unless a higher climb gradient is published in the notes section of the approach procedure chart. When higher than standard climb gradients are specified, the end point of the non−standard climb will be specified at either an altitude or a fix. Pilots must preplan to ensure that the aircraft can meet the climb gradient (expressed in feet per nautical mile) required by the procedure in the event of a missed approach, and be aware that flying at a higher than anticipated ground speed increases the climb rate requirement (feet per minute). Tables for the conversion of climb gradients (feet per nautical mile) to climb rate (feet per minute), based on ground speed, are included on page D1 of the U.S. Terminal Procedures booklets. Reasonable buffers are provided for normal maneuvers. However, no consideration is given to an abnormally early turn. Therefore, when an early missed approach is executed, pilots should, unless otherwise cleared by ATC, fly the IAP as specified on the approach plate to the missed approach point at or above the MDA or DH before executing a turning maneuver.

27.3 If visual reference is lost while circling to land from an instrument approach, the missed approach specified for that particular procedure must be followed (unless an alternate missed approach procedure is specified by ATC). To become established on the prescribed missed approach course, the pilot should make an initial climbing turn toward the landing runway and continue the turn until established on the missed approach course. Inasmuch as the circling maneuver may be accomplished in more than one direction, different patterns will be required to become established on the prescribed missed approach course depending on the aircraft position at the time visual reference is lost. Adherence to the procedure will help assure that an aircraft will remain laterally within the circling and missed approach obstruction clearance areas. Refer to paragraph 27.8 concerning vertical obstruction clearance when starting a missed approach at other than the MAP. (See FIG ENR 1.5−40.)

FIG ENR 1.5−40
Circling and Missed Approach Obstruction Clearance Areas



a) Intermediate. Use steps 6.1.1.1 a) thru e). Do not correct the IAF or IF when using individual segments method.

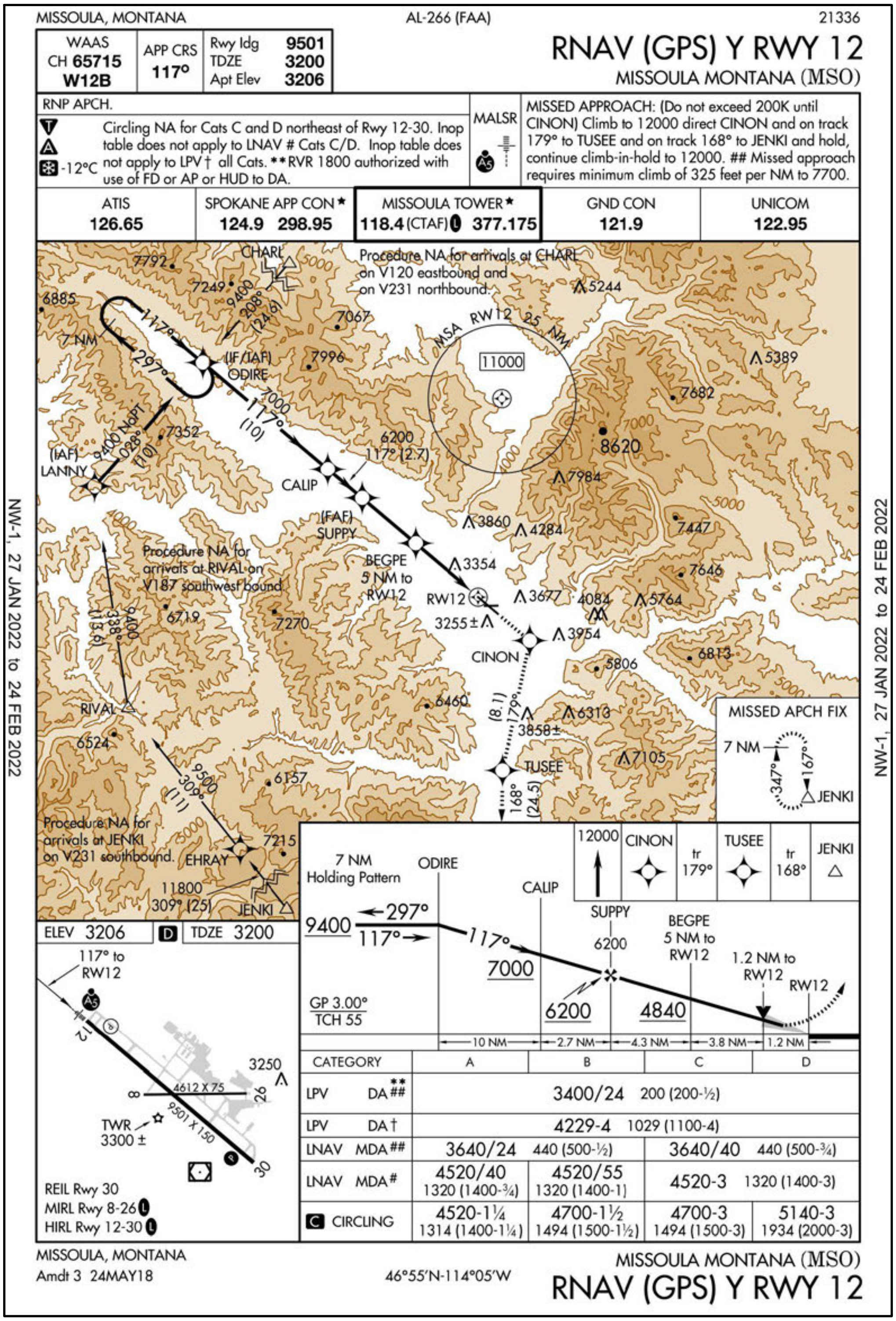
b) Final. Use steps 6.1.1.1 f) thru i).

c) Missed Approach. Use steps 6.1.1.1 j) thru l).

6.1.2.2 Temperature Compensating System: Operators using a temperature compensating RNAV system to make altitude corrections will be set to the current airport temperature (−12°C) and activated at a point needed to correct the altitude for the segment. A manual calculation of the cold temperature altitude correction is required for the MDA/DA.

FIG ENR 1.8−2

Missoula Intl RNAV (GPS) Y RWY 12



9.1.6 Category IIIb. No DH or DH below 50 feet and RVR less than 700 feet but not less than 150 feet; and

9.1.7 Category IIIc. No DH and no RVR limitation.

NOTE−
Special authorization and equipment are required for Category II and III.

10. Inoperative ILS Components

10.1 Inoperative Localizer. When the localizer fails, an ILS approach is not authorized.

10.2 Inoperative Glide Slope. When the glide slope fails, the ILS reverts to a nonprecision localizer approach.

REFERENCE−
See the Inoperative Component Table in the U.S. Government Terminal Procedures Publication (TPP) for adjustments to minimums due to inoperative airborne or ground system equipment.

11. ILS Course Distortion

11.1 All pilots should be aware that disturbances to ILS localizer and glide slope courses may occur when surface vehicles or aircraft are operated near the localizer or glide slope antennas. Most ILS installations are subject to signal interference by either surface vehicles, aircraft, or both. ILS CRITICAL AREAS are established near each localizer and glide slope antenna.

11.2 ATC issues control instruction to avoid interfering operations within ILS critical areas at controlled airports during the hours the Airport Traffic Control Tower (ATCT) is in operation as follows:

11.2.1 Weather Conditions. Official weather observation including controller observations and pilot reports (PIREPs) indicates a ceiling of less than 800 feet and/or visibility less than 2 miles.

11.2.1.1 Localizer Critical Area. Except for aircraft that land, exit a runway, depart, or execute a missed approach, vehicles and aircraft operations are not authorized in or over the precision approach critical area when an arriving aircraft is inside the outer marker (OM) or the fix used in lieu of the OM. Additionally, whenever the official weather observation, controller observation, or PIREPs on the final approach course indicate a ceiling of less than 200 feet or RVR less than 2,000 feet, vehicles or aircraft are not authorized in or over the area when an arriving aircraft is inside the MM, or in the absence of a MM, ½ mile final.

11.2.1.2 Glide Slope Critical Area. Vehicles or aircraft operations are not authorized in or over the area when an arriving aircraft is inside the ILS outer marker (OM), or the fix used in lieu of the OM, unless the arriving aircraft has reported the runway insight and is circling or side−stepping to land on another runway.

11.2.2 Weather Conditions. At or above ceiling 800 feet and/or visibility 2 miles.

11.2.2.1 No critical area protective action is provided under these conditions.

11.2.2.2 A flight crew, under these conditions, should advise the tower that it will conduct an autoland or coupled approach. ATC will promptly issue an advisory if the critical area will not be protected.

EXAMPLE−
Denver Tower, United 1153, Request Autoland/Coupled Approach (runway)
ATC replies with:
United 1153, Denver Tower, Roger, Critical Areas not protected.

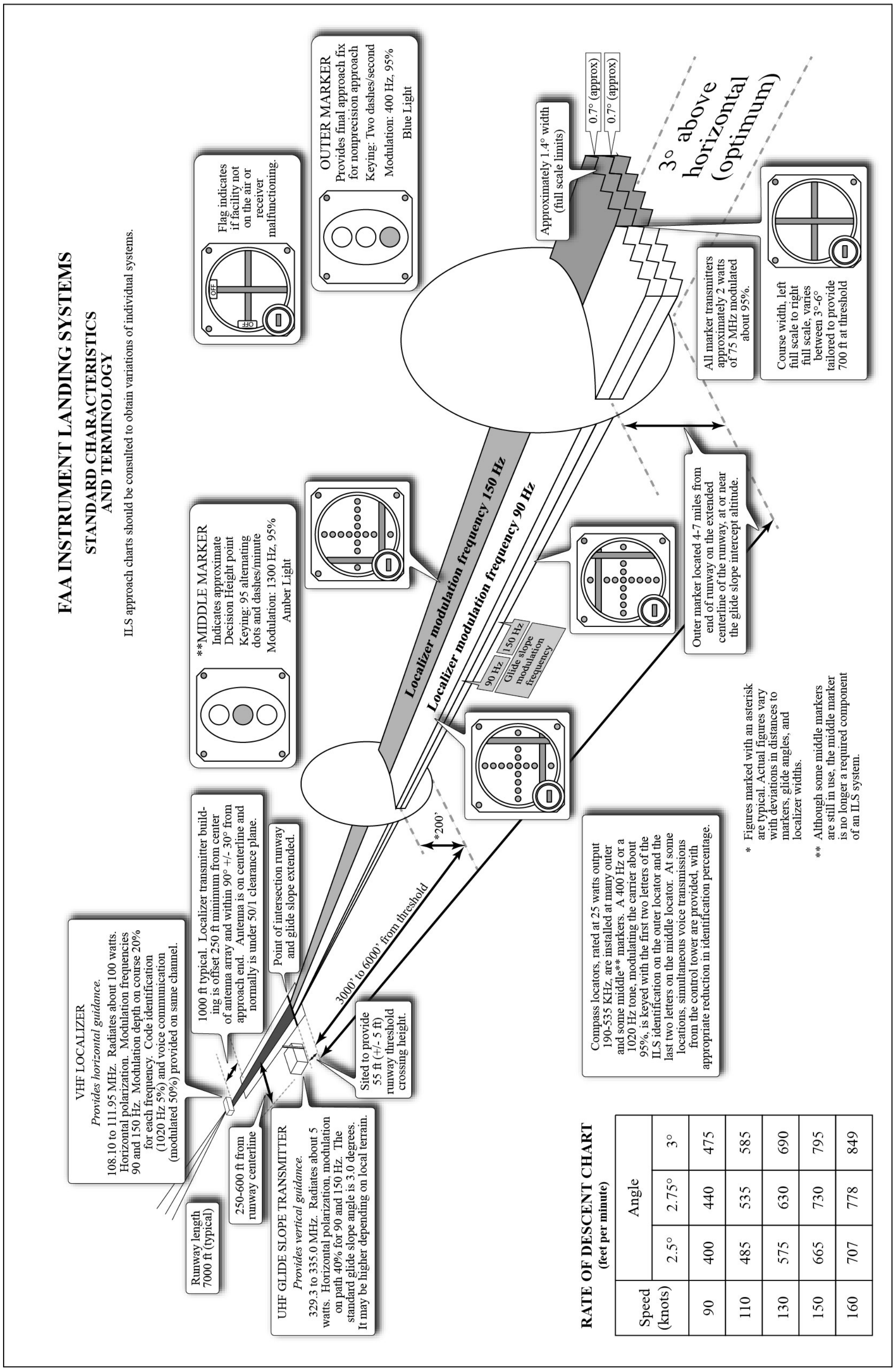
11.3 Aircraft holding below 5000 feet between the outer marker and the airport may cause localizer signal variations for aircraft conducting the ILS approach. Accordingly, such holding is not authorized when weather or visibility conditions are less than ceiling 800 feet and/or visibility 2 miles.

11.4 Pilots are cautioned that vehicular traffic not subject to control by ATC may cause momentary deviation to ILS course/glide slope signals. Also, "critical areas" are not protected at uncontrolled airports or at airports with an operating control tower when weather/visibility conditions are above those requiring protective measures. Aircraft conducting "coupled" or "autoland" operations should be especially alert in monitoring automatic flight control systems. (See FIG ENR 4.1−3.)

NOTE−
Unless otherwise coordinated through Flight Standards, ILS signals to Category I runways are not flight inspected below the point that is 100 feet less than the decision altitude (DA). Guidance signal anomalies may be encountered below this altitude.

FIG ENR 4.1−3

FAA Instrument Landing Systems



Speed (knots)	Angle 2.5°	2.75°	3°
90	400	440	475
110	485	535	585
130	575	630	690
150	665	730	795
160	707	778	849

12. Continuous Power Facilities

12.1 In order to ensure that a basic ATC system remains in operation despite an area wide or catastrophic commercial power failure, key equipment and certain airports have been designated to provide a network of facilities whose operational capability can be utilized independent of any commercial power supply.

12.2 In addition to those facilities comprising the basic ATC system, the following approach and lighting aids have been included in this program for a selected runway:

12.2.1 ILS (Localizer, Glide Slope, Compass Locator, Inner, Middle and Outer Markers).

12.2.2 Wind Measuring Capability.

12.2.3 Approach Light System (ALS) or Short ALS (SALS).

12.2.4 Ceiling Measuring Capability.

12.2.5 Touchdown Zone Lighting (TDZL).

12.2.6 Centerline Lighting (CL).

12.2.7 Runway Visual Range (RVR).

12.2.8 High Intensity Runway Lighting (HIRL).

12.2.9 Taxiway Lighting.

12.2.10 Apron Light (Perimeter Only).

TBL ENR 4.1−3

Continuous Power Airports

Airport/Ident	Runway No.
Albuquerque (ABQ)	08
Andrews AFB (ADW)	1L
Atlanta (ATL)	9R
Baltimore (BWI)	10
Bismarck (BIS)	31
Boise (BOI)	10R
Boston (BOS)	4R
Charlotte (CLT)	36L
Chicago (ORD)	14R
Cincinnati (CVG)	36
Cleveland (CLE)	5R
Dallas/Fort Worth (DFW)	17L
Denver (DEN)	35R
Des Moines (DSM)	30R
Detroit (DTW)	3L
El Paso (ELP)	22
Great Falls (GTF)	03
Houston (IAH)	08
Indianapolis (IND)	4L
Jacksonville (JAX)	07
Kansas City (MCI)	19
Los Angeles (LAX)	24R
Memphis (MEM)	36L

Airport/Ident	Runway No.
Miami (MIA)	9L
Milwaukee (MKE)	01
Minneapolis (MSP)	29L
Nashville (BNA)	2L
Newark (EWR)	4R
New Orleans (MSY)	10
New York (JFK)	4R
New York (LGA)	22
Oklahoma City (OKC)	35R
Omaha (OMA)	14
Ontario, California (ONT)	26R
Philadelphia (PHL)	9R
Phoenix (PHX)	08R
Pittsburgh (PIT)	10L
Reno (RNO)	16
Salt Lake City (SLC)	34L
San Antonio (SAT)	12R
San Diego (SAN)	09
San Francisco (SFO)	28R
Seattle (SEA)	16R
St. Louis (STL)	24
Tampa (TPA)	36L
Tulsa (TUL)	35R
Washington (DCA)	36
Washington (IAD)	1R
Wichita (ICT)	01

12.3 The above have been designated "Continuous Power Airports," and have independent back up capability for the equipment installed.

NOTE−
The existing CPA runway is listed. Pending and future changes at some locations will require a revised runway designation.

13. Simplified Directional Facility (SDF)

13.1 The SDF provides a final approach course similar to that of the ILS localizer. It does not provide glide slope information. A clear understanding of the ILS localizer and the additional factors listed below completely describe the operational characteristics and use of the SDF.

13.2 The SDF transmits signals within the range of 108.10 to 111.95 MHz.

13.3 The approach techniques and procedures used in an SDF instrument approach are essentially the same as those employed in executing a standard no−glide−slope localizer approach except the SDF course may not be aligned with the runway and the course may be wider, resulting in less precision.

13.4 Usable off−course indications are limited to 35 degrees either side of the course centerline. Instrument indications received beyond 35 degrees should be disregarded.

13.5 The SDF antenna may be offset from the runway centerline. Because of this, the angle of convergence between the final approach course and the runway bearing should be determined by reference to the instrument approach procedure chart. This angle is generally not more than 3 degrees. However, it should be noted that inasmuch as the approach course originates at the antenna site, an approach which is continued beyond the runway threshold will lead the aircraft to the SDF offset position rather than along the runway centerline.

13.6 The SDF signal is fixed at either 6 degrees or 12 degrees as necessary to provide maximum "fly ability" and optimum course quality.

13.7 Identification consists of a three−letter identifier transmitted in Morse Code on the SDF frequency. The appropriate instrument approach chart will indicate the identifier used at a particular airport.

14. LORAN

NOTE−
In accordance with the 2010 DHS Appropriations Act, the U.S. Coast Guard (USCG) terminated the transmission of all U.S. LORAN−C signals on 08 Feb 2010. The USCG also terminated the transmission of the Russian American signals on 01 Aug 2010, and the Canadian LORAN−C signals on 03 Aug 2010. For more information, visit http://www.navcen.uscg.gov/. Operators should also note that TSO−C60b, AIRBORNE AREA NAVIGATION EQUIPMENT USING LORAN−C INPUTS, has been canceled by the FAA.

15. Inertial Reference Unit (IRU), Inertial Navigation System (INS), and Attitude Heading Reference System (AHRS)

15.1 IRUs are self−contained systems comprised of gyros and accelerometers that provide aircraft attitude (pitch, roll, and heading), position, and velocity information in response to signals resulting from inertial effects on system components. Once aligned with a known position, IRUs continuously calculate position and velocity. IRU position accuracy decays with time. This degradation is known as "drift."

15.2 INSs combine the components of an IRU with an internal navigation computer. By programming a series of waypoints, these systems will navigate along a predetermined track.

15.3 AHRSs are electronic devices that provide attitude information to aircraft systems such as weather radar and autopilot, but do not directly compute position information.

15.4 Aircraft equipped with slaved compass systems may be susceptible to heading errors caused by exposure to magnetic field disturbances (flux fields) found in materials that are commonly located on the surface or buried under taxiways and ramps. These materials generate a magnetic flux field that can be sensed by the aircraft's compass system flux detector or "gate", which can cause the aircraft's system to align with the material's magnetic field rather than the earth's natural magnetic field. The system's erroneous heading may not self-correct. Prior to take off pilots should be aware that a heading misalignment may have occurred during taxi. Pilots are encouraged to follow the manufacturer's or other appropriate procedures to correct possible heading misalignment before take off is commenced.

16. Global Positioning System (GPS)

16.1 System Overview

16.1.1 System Description. The Global Positioning System is a space-based radio navigation system used to determine precise position anywhere in the world. The 24 satellite constellation is designed to ensure at least five satellites are always visible to a user worldwide. A minimum of four satellites is necessary for receivers to establish an accurate three−dimensional position. The receiver uses data from satellites above the mask angle (the lowest angle above the horizon at which a receiver can use a satellite). The Department of Defense (DOD) is responsible for operating the GPS satellite constellation and monitors the GPS satellites to ensure proper operation. Each satellite's orbital parameters (ephemeris data) are sent to each satellite for broadcast as part of the data message embedded in the GPS signal. The GPS coordinate system is the Cartesian earth−centered, earth−fixed coordinates as specified in the World Geodetic System 1984 (WGS−84).

16.1.2 System Availability and Reliability

16.1.2.1 The status of GPS satellites is broadcast as part of the data message transmitted by the GPS satellites. GPS status information is also available by means of the U.S. Coast Guard navigation information service: (703) 313−5907, Internet: http://www.navcen.uscg.gov/. Additionally, satellite status is available through the Notice to Air Missions (NOTAM) system.

16.1.2.2 GNSS operational status depends on the type of equipment being used. For GPS−only equipment TSO−C129 or TSO-C196(), the operational status of non−precision approach capability for flight planning purposes is provided through a prediction program that is embedded in the receiver or provided separately.

16.1.3 Receiver Autonomous Integrity Monitoring (RAIM). RAIM is the capability of a GPS receiver to perform integrity monitoring on itself by ensuring available satellite signals meet the integrity requirements for a given phase of flight. Without RAIM, the pilot has no assurance of the GPS position integrity. RAIM provides immediate feedback to the pilot. This fault detection is critical for performance-based navigation (PBN)(see ENR 1.17, Performance−Based Navigation (PBN) and Area Navigation (RNAV), for an introduction to PBN), because delays of up to two hours can occur before an erroneous satellite transmission is detected and corrected by the satellite control segment.

16.1.3.1 In order for RAIM to determine if a satellite is providing corrupted information, at least one satellite, in addition to those required for navigation, must be in view for the receiver to perform the RAIM function. RAIM requires a minimum of 5 satellites, or 4 satellites and barometric altimeter input (baro−aiding), to detect an integrity anomaly. Baro−aiding is a method of augmenting the GPS integrity solution by using a non-satellite input source in lieu of the fifth satellite. Some GPS receivers also have a RAIM capability, called fault detection and exclusion (FDE), that excludes a failed satellite from the position solution; GPS receivers capable of FDE require 6 satellites or 5 satellites with baro−aiding. This allows the GPS receiver to isolate the corrupt satellite signal, remove it from the position solution, and still provide an integrity-assured position. To ensure that baro−aiding is available, enter the current altimeter setting into the receiver as described in the operating manual. Do not use the GPS derived altitude due to the large GPS vertical errors that will make the integrity monitoring function invalid.

16.1.3.2 There are generally two types of RAIM fault messages. The first type of message indicates that there are not enough satellites available to provide RAIM integrity monitoring. The GPS navigation solution may be acceptable, but the integrity of the solution cannot be determined. The second type indicates that the RAIM integrity monitor has detected a potential error and that there is an inconsistency in the navigation solution for the given phase of flight. Without RAIM capability, the pilot has no assurance of the accuracy of the GPS position.

16.1.4 Selective Availability. Selective Availability (SA) is a method by which the accuracy of GPS is intentionally degraded. This feature was designed to deny hostile use of precise GPS positioning data. SA was discontinued on May 1, 2000, but many GPS receivers are designed to assume that SA is still active. New receivers may take advantage of the discontinuance of SA based on the performance values in ICAO Annex 10.

16.2 Operational Use of GPS. U.S. civil operators may use approved GPS equipment in oceanic airspace, certain remote areas, the National Airspace System and other States as authorized (please consult the applicable Aeronautical Information Publication). Equipage other than GPS may be required for the desired operation. GPS navigation is used for both Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) operations.

16.2.1 VFR Operations

16.2.1.1 GPS navigation has become an asset to VFR pilots by providing increased navigational capabilities and enhanced situational awareness. Although GPS has provided many benefits to the VFR pilot, care must be exercised to ensure that system capabilities are not exceeded. VFR pilots should integrate GPS navigation with electronic navigation (when possible), as well as pilotage and dead reckoning.

16.2.1.2 GPS receivers used for VFR navigation vary from fully integrated IFR/VFR installation used to support VFR operations to hand−held devices. Pilots must understand the limitations of the receivers prior to using in flight to avoid misusing navigation information. (See TBL ENR 4.1−5.) Most receivers are not intuitive. The pilot must learn the various keystrokes, knob functions, and displays that are used in the operation of the receiver. Some manufacturers provide computer−based tutorials or simulations of their receivers that pilots can use to become familiar with operating the equipment.

16.2.1.3 When using GPS for VFR operations, RAIM capability, database currency, and antenna location are critical areas of concern.

a) RAIM Capability. VFR GPS panel mount receivers and hand−held units have no RAIM alerting capability. This prevents the pilot from being alerted to the loss of the required number of satellites in view, or the detection of a position error. Pilots should use a systematic cross−check with other navigation techniques to verify position. Be suspicious of the GPS position if a disagreement exists between the two positions.

b) Database Currency. Check the currency of the database. Databases must be updated for IFR operations and should be updated for all other operations. However, there is no requirement for databases to be updated for VFR navigation. It is not recommended to use a moving map with an outdated database in and around critical airspace. Pilots using an outdated database should verify waypoints using current aeronautical products; for example, Chart Supplement U.S., Sectional Chart, or En Route Chart.

c) Antenna Location. The antenna location for GPS receivers used for IFR and VFR operations may differ. VFR antennae are typically placed for convenience more than performance, while IFR installations ensure a clear view is provided with the satellites. Antennae not providing a clear view have a greater opportunity to lose the satellite navigational signal. This is especially true in the case of hand−held GPS receivers. Typically, suction cups are used to place the GPS antennas on the inside of cockpit windows. While this method has great utility, the antenna location is limited to the cockpit or cabin which rarely provides a clear view of all available satellites. Consequently, signal losses may occur due to aircraft structure blocking satellite signals, causing a loss of navigation capability. These losses, coupled with a lack of RAIM capability, could present erroneous position and navigation information with no warning to the pilot. While the use of a hand−held GPS for VFR operations is not limited by regulation, modification of the aircraft, such as installing a panel− or yoke−mounted holder, is governed by 14 CFR Part 43. Consult with your mechanic to ensure compliance with the regulation and safe installation.

16.2.1.4 Do not solely rely on GPS for VFR navigation. No design standard of accuracy or integrity is used for a VFR GPS receiver. VFR GPS receivers should be used in conjunction with other forms of navigation during VFR operations to ensure a correct route of flight is maintained. Minimize head−down time in the aircraft by being familiar with your GPS receiver's operation and by keeping eyes outside scanning for traffic, terrain, and obstacles.

16.2.1.5 VFR Waypoints

a) VFR waypoints provide VFR pilots with a supplementary tool to assist with position awareness while navigating visually in aircraft equipped with area navigation receivers. VFR waypoints should be used as a tool to supplement current navigation procedures. The uses of VFR waypoints include providing navigational aids for pilots unfamiliar with an area, waypoint definition of existing reporting points, enhanced navigation in and around Class B and Class C airspace, enhanced navigation around Special Use Airspace, and entry points for commonly flown mountain passes. VFR pilots should rely on appropriate and current aeronautical charts published specifically for visual navigation. If operating in a terminal area, pilots should take advantage of the Terminal Area Chart available for that area, if published. The use of VFR waypoints does not relieve the pilot of any responsibility to comply with the operational requirements of 14 CFR Part 91.

b) VFR waypoint names (for computer entry and flight plans) consist of five letters beginning with the letters "VP" and are retrievable from navigation databases. The VFR waypoint names are not intended to be pronounceable, and they are not for use in ATC communications. On VFR charts, stand−alone VFR waypoints will be portrayed using the same four−point star symbol used for IFR waypoints. VFR waypoints collocated with visual check−points on the chart will be identified by small magenta flag symbols. VFR waypoints collocated with visual check−points will be pronounceable based on the name of the visual check−point and may be used for ATC communications. Each VFR waypoint name will appear in parentheses adjacent to the geographic location on the chart. Latitude/longitude data for all established VFR waypoints may be found in FAA Order JO 7350.9, Location Identifiers.

c) VFR waypoints may not be used on IFR flight plans. VFR waypoints are not recognized by the IFR system and will be rejected for IFR routing purposes.

d) Pilots may use the five−letter identifier as a waypoint in the route of flight section on a VFR flight plan. Pilots may use the VFR waypoints only when operating under VFR conditions. The point may represent an intended course change or describe the planned route of flight. This VFR filing would be similar to how a VOR would be used in a route of flight.

e) VFR waypoints intended for use during flight should be loaded into the receiver while on the ground. Once airborne, pilots should avoid programming routes or VFR waypoint chains into their receivers.

f) Pilots should be vigilant to see and avoid other traffic when near VFR waypoints. With the increased use of GPS navigation and accuracy, expect increased traffic near VFR waypoints. Regardless of the class of airspace, monitor the available ATC frequency for traffic information on other aircraft operating in the vicinity. See ENR 1.17, paragraph 3. VFR in Congested Areas, for more information.

g) Mountain pass entry points are marked for convenience to assist pilots with flight planning and visual navigation. Do not attempt to fly a mountain pass directly from VFR waypoint to VFR waypoint—they do not create a path through the mountain pass. Alternative routes are always available. It is the pilot in command's responsibility to choose a suitable route for the intended flight and known conditions.

REFERENCE−
AIP, Para ENR 5.7−7., Mountain Flying.

16.2.2 IFR Use of GPS

16.2.2.1 General Requirements. Authorization to conduct any GPS operation under IFR requires:

a) GPS navigation equipment used for IFR operations must be approved in accordance with the requirements specified in Technical Standard Order (TSO) TSO−C129(), TSO−C196(), TSO−C145(), or TSO−C146(), and the installation must be done in accordance with Advisory Circular AC 20−138(), *Airworthiness Approval of Positioning and Navigation Systems*. Equipment approved in accordance with TSO−C115a does not meet the requirements of TSO−C129. Visual flight rules (VFR) and hand−held GPS systems are not authorized for IFR navigation, instrument approaches, or as a principal instrument flight reference.

b) Aircraft using un-augmented GPS (TSO-C129() or TSO-C196()) for navigation under IFR must be equipped with an alternate approved and operational means of navigation suitable for navigating the proposed route of flight. (Examples of alternate navigation equipment include VOR or DME/DME/IRU capability). Active monitoring of alternative navigation equipment is not required when RAIM is available for integrity monitoring. Active monitoring of an alternate means of navigation is required when the GPS RAIM capability is lost.

c) Procedures must be established for use in the event that the loss of RAIM capability is predicted to occur. In situations where RAIM is predicted to be unavailable, the flight must rely on other approved navigation equipment, re-route to where RAIM is available, delay departure, or cancel the flight.

d) The GPS operation must be conducted in accordance with the FAA−approved aircraft flight manual (AFM) or flight manual supplement. Flight crew members must be thoroughly familiar with the particular GPS equipment installed in the aircraft, the receiver operation manual, and the AFM or flight manual supplement. Operation, receiver presentation and capabilities of GPS equipment vary. Due to these differences, operation of GPS receivers of different brands, or even models of the same brand, under IFR should not be attempted without thorough operational knowledge. Most receivers have a built−in simulator mode, which allows the pilot to become familiar with operation prior to attempting operation in the aircraft.

e) Aircraft navigating by IFR−approved GPS are considered to be performance−based navigation (PBN) aircraft and have special equipment suffixes. File the appropriate equipment suffix in accordance with Appendix

2, TBL 2−2, on the ATC flight plan. If GPS avionics become inoperative, the pilot should advise ATC and amend the equipment suffix.

f) Prior to any GPS IFR operation, the pilot must review appropriate NOTAMs and aeronautical information. (See GPS NOTAMs/Aeronautical Information).

16.2.2.2 Database Requirements. The onboard navigation data must be current and appropriate for the region of intended operation and should include the navigation aids, waypoints, and relevant coded terminal airspace procedures for the departure, arrival, and alternate airfields.

a) Further database guidance for terminal and en route requirements may be found in AC 90-100, U.S. Terminal and En Route Area Navigation (RNAV) Operations.

b) Further database guidance on Required Navigation Performance (RNP) instrument approach operations, RNP terminal, and RNP en route requirements may be found in AC 90-105, Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System.

c) All approach procedures to be flown must be retrievable from the current airborne navigation database supplied by the equipment manufacturer or other FAA−approved source. The system must be able to retrieve the procedure by name from the aircraft navigation database, not just as a manually entered series of waypoints. Manual entry of waypoints using latitude/longitude or place/bearing is not permitted for approach procedures.

d) Prior to using a procedure or waypoint retrieved from the airborne navigation database, the pilot should verify the validity of the database. This verification should include the following preflight and inflight steps:

1) Preflight:

(a) Determine the date of database issuance, and verify that the date/time of proposed use is before the expiration date/time.

(b) Verify that the database provider has not published a notice limiting the use of the specific waypoint or procedure.

2) Inflight:

(a) Determine that the waypoints and transition names coincide with names found on the procedure chart. Do not use waypoints which do not exactly match the spelling shown on published procedure charts.

(b) Determine that the waypoints are logical in location, in the correct order, and their orientation to each other is as found on the procedure chart, both laterally and vertically.

NOTE−
There is no specific requirement to check each waypoint latitude and longitude, type of waypoint and/or altitude constraint, only the general relationship of waypoints in the procedure, or the logic of an individual waypoint's location.

(c) If the cursory check of procedure logic or individual waypoint location, specified in [b] above, indicates a potential error, do not use the retrieved procedure or waypoint until a verification of latitude and longitude, waypoint type, and altitude constraints indicate full conformity with the published data.

e) Air carrier and commercial operators must meet the appropriate provisions of their approved operations specifications.

1) During domestic operations for commerce or for hire, operators must have a second navigation system capable of reversion or contingency operations.

2) Operators must have two independent navigation systems appropriate to the route to be flown, or one system that is suitable and a second, independent backup capability that allows the operator to proceed safely and land at a different airport, and the aircraft must have sufficient fuel (reference 14 CFR 121.349, 125.203, 129.17, and 135.165). These rules ensure the safety of the operation by preventing a single point of failure.

NOTE−
An aircraft approved for multi-sensor navigation and equipped with a single navigation system must maintain an ability to

navigate or proceed safely in the event that any one component of the navigation system fails, including the flight management system (FMS). Retaining a FMS-independent VOR capability would satisfy this requirement.

3) The requirements for a second system apply to the entire set of equipment needed to achieve the navigation capability, not just the individual components of the system such as the radio navigation receiver. For example, to use two RNAV systems (e.g., GPS and DME/DME/IRU) to comply with the requirements, the aircraft must be equipped with two independent radio navigation receivers and two independent navigation computers (e.g., flight management systems (FMS)). Alternatively, to comply with the requirements using a single RNAV system with an installed and operable VOR capability, the VOR capability must be independent of the FMS.

4) To satisfy the requirement for two independent navigation systems, if the primary navigation system is GPS−based, the second system must be independent of GPS (for example, VOR or DME/DME/IRU). This allows continued navigation in case of failure of the GPS or WAAS services. Recognizing that GPS interference and test events resulting in the loss of GPS services have become more common, the FAA requires operators conducting IFR operations under 14 CFR 121.349, 125.203, 129.17 and 135.65 to retain a non-GPS navigation capability consisting of either DME/DME, IRU, or VOR for en route and terminal operations, and VOR and ILS for final approach. Since this system is to be used as a reversionary capability, single equipage is sufficient.

16.2.3 Oceanic, Domestic, En Route, and Terminal Area Operations

16.2.3.1 Conduct GPS IFR operations in oceanic areas only when approved avionics systems are installed. TSO−C196 users and TSO−C129 GPS users authorized for Class A1, A2, B1, B2, C1, or C2 operations may use GPS in place of another approved means of long−range navigation, such as dual INS. (See TBL ENR 4.1−4 and TBL ENR 4.1−5.) Aircraft with a single installation GPS, meeting the above specifications, are authorized to operate on short oceanic routes requiring one means of long−range navigation (reference AC 20-138, Appendix 1).

16.2.3.2 Conduct GPS domestic, en route, and terminal IFR operations only when approved avionics systems are installed. Pilots may use GPS via TSO−C129 authorized for Class A1, B1, B3, C1, or C3 operations GPS via TSO-C196; or GPS/WAAS with either TSO-C145 or TSO-C146. When using TSO-C129 or TSO-C196 receivers, the avionics necessary to receive all of the ground−based facilities appropriate for the route to the destination airport and any required alternate airport must be installed and operational. Ground−based facilities necessary for these routes must be operational.

a) GPS en route IFR operations may be conducted in Alaska outside the operational service volume of ground−based navigation aids when a TSO−C145 or TSO−C146 GPS/wide area augmentation system (WAAS) system is installed and operating. WAAS is the U.S. version of a satellite-based augmentation system (SBAS).

1) In Alaska, aircraft may operate on GNSS Q-routes with GPS (TSO-C129 or TSO-C196) equipment while the aircraft remains in Air Traffic Control (ATC) radar surveillance or with GPS/WAAS (TSO-C145 or TSO-C146) which does not require ATC radar surveillance.

2) In Alaska, aircraft may only operate on GNSS T-routes with GPS/WAAS (TSO-C145 or TSO-C146) equipment.

b) Ground−based navigation equipment is not required to be installed and operating for en route IFR operations when using GPS/WAAS navigation systems. All operators should ensure that an alternate means of navigation is available in the unlikely event the GPS/WAAS navigation system becomes inoperative.

c) Q-routes and T-routes outside Alaska. Q-routes require system performance currently met by GPS, GPS/WAAS, or DME/DME/IRU RNAV systems that satisfy the criteria discussed in AC 90−100, U.S. Terminal and En Route Area Navigation (RNAV) Operations. T-routes require GPS or GPS/WAAS equipment.

REFERENCE−
ENR 3.5, Paragraph 1. Airways and Route Systems.

16.2.3.3 GPS IFR approach/departure operations can be conducted when approved avionics systems are installed and the following requirements are met:

a) The aircraft is TSO−C145 or TSO−C146 or TSO−C196 or TSO−C129 in Class A1, B1, B3, C1, or C3; and

b) The approach/departure must be retrievable from the current airborne navigation database in the navigation computer. The system must be able to retrieve the procedure by name from the aircraft navigation database. Manual entry of waypoints using latitude/longitude or place/bearing is not permitted for approach procedures.

c) The authorization to fly instrument approaches/departures with GPS is limited to U.S. airspace.

d) The use of GPS in any other airspace must be expressly authorized by the FAA Administrator.

e) GPS instrument approach/departure operations outside the U.S. must be authorized by the appropriate sovereign authority.

16.2.4 Departures and Instrument Departure Procedures (DPs)

The GPS receiver must be set to terminal (±1 NM) CDI sensitivity and the navigation routes contained in the database in order to fly published IFR charted departures and DPs. Terminal RAIM should be automatically provided by the receiver. (Terminal RAIM for departure may not be available unless the waypoints are part of the active flight plan rather than proceeding direct to the first destination.) Certain segments of a DP may require some manual intervention by the pilot, especially when radar vectored to a course or required to intercept a specific course to a waypoint. The database may not contain all of the transitions or departures from all runways and some GPS receivers do not contain DPs in the database. It is necessary that helicopter procedures be flown at 70 knots or less since helicopter departure procedures and missed approaches use a 20:1 obstacle clearance surface (OCS), which is double the fixed−wing OCS, and turning areas are based on this speed as well.

16.2.5 GPS Instrument Approach Procedures

16.2.5.1 GPS overlay approaches are designated non−precision instrument approach procedures that pilots are authorized to fly using GPS avionics. Localizer (LOC), localizer type directional aid (LDA), and simplified directional facility (SDF) procedures are not authorized. Overlay procedures are identified by the “name of the procedure” and “or GPS” (e.g., VOR/DME or GPS RWY 15) in the title. Authorized procedures must be retrievable from a current onboard navigation database. The navigation database may also enhance position orientation by displaying a map containing information on conventional NAVAID approaches. This approach information should not be confused with a GPS overlay approach (see the receiver operating manual, AFM, or AFM Supplement for details on how to identify these approaches in the navigation database).

NOTE−
Overlay approaches do not adhere to the design criteria described in ENR 1.5 Paragraph 12.13, Area Navigation (RNAV) Instrument Approach Charts, for stand−alone GPS approaches. Overlay approach criteria is based on the design criteria used for ground−based NAVAID approaches.

16.2.5.2 Stand−alone approach procedures specifically designed for GPS systems have replaced many of the original overlay approaches. All approaches that contain “GPS” in the title (e.g., “VOR or GPS RWY 24,” “GPS RWY 24,” or “RNAV (GPS) RWY 24”) can be flown using GPS. GPS−equipped aircraft do not need underlying ground−based NAVAIDs or associated aircraft avionics to fly the approach. Monitoring the underlying approach with ground−based NAVAIDs is suggested when able. Existing overlay approaches may be requested using the GPS title; for example, the VOR or GPS RWY 24 may be requested as “GPS RWY 24.” Some GPS procedures have a Terminal Arrival Area (TAA) with an underlining RNAV approach.

16.2.5.3 For flight planning purposes, TSO-C129 and TSO-C196−equipped users (GPS users) whose navigation systems have fault detection and exclusion (FDE) capability, who perform a preflight RAIM prediction for the approach integrity at the airport where the RNAV (GPS) approach will be flown, and have proper knowledge and any required training and/or approval to conduct a GPS-based IAP, may file based on a GPS−based IAP at either the destination or the alternate airport, but not at both locations. At the alternate airport, pilots may plan for:

a) Lateral navigation (LNAV) or circling minimum descent altitude (MDA);

b) LNAV/vertical navigation (LNAV/VNAV) DA, if equipped with and using approved barometric vertical navigation (baro-VNAV) equipment;

c) RNP 0.3 DA on an RNAV (RNP) IAP, if they are specifically authorized users using approved baro-VNAV equipment and the pilot has verified required navigation performance (RNP) availability through an approved prediction program.

16.2.5.4 If the above conditions cannot be met, any required alternate airport must have an approved instrument approach procedure other than GPS−based that is anticipated to be operational and available at the estimated time of arrival, and which the aircraft is equipped to fly.

16.2.5.5 Procedures for Accomplishing GPS Approaches

a) An RNAV (GPS) procedure may be associated with a Terminal Arrival Area (TAA). The basic design of the RNAV procedure is the "T" design or a modification of the "T" (See ENR 1.5, Paragraph 12.4, Terminal Arrival Area (TAA), for complete information).

b) Pilots cleared by ATC for an RNAV (GPS) approach should fly the full approach from an Initial Approach Waypoint (IAWP) or feeder fix. Randomly joining an approach at an intermediate fix does not assure terrain clearance.

c) When an approach has been loaded in the navigation system, GPS receivers will give an "arm" annunciation 30 NM straight line distance from the airport/heliport reference point. Pilots should arm the approach mode at this time if not already armed (some receivers arm automatically). Without arming, the receiver will not change from en route CDI and RAIM sensitivity of ±5 NM either side of centerline to ±1 NM terminal sensitivity. Where the IAWP is inside this 30 mile point, a CDI sensitivity change will occur once the approach mode is armed and the aircraft is inside 30 NM. Where the IAWP is beyond 30 NM from the airport/heliport reference point and the approach is armed, the CDI sensitivity will not change until the aircraft is within 30 miles of the airport/heliport reference point. Feeder route obstacle clearance is predicated on the receiver being in terminal (±1 NM) CDI sensitivity and RAIM within 30 NM of the airport/heliport reference point; therefore, the receiver should always be armed (if required) not later than the 30 NM annunciation.

d) The pilot must be aware of what bank angle/turn rate the particular receiver uses to compute turn anticipation, and whether wind and airspeed are included in the receiver's calculations. This information should be in the receiver operating manual. Over or under banking the turn onto the final approach course may significantly delay getting on course and may result in high descent rates to achieve the next segment altitude.

e) When within 2 NM of the Final Approach Waypoint (FAWP) with the approach mode armed, the approach mode will switch to active, which results in RAIM and CDI changing to approach sensitivity. Beginning 2 NM prior to the FAWP, the full scale CDI sensitivity will smoothly change from ±1 NM to ±0.3 NM at the FAWP. As sensitivity changes from ±1 NM to ±0.3 NM approaching the FAWP, with the CDI not centered, the corresponding increase in CDI displacement may give the impression that the aircraft is moving further away from the intended course even though it is on an acceptable intercept heading. Referencing the digital track displacement information (cross track error), if it is available in the approach mode, may help the pilot remain position oriented in this situation. Being established on the final approach course prior to the beginning of the sensitivity change at 2 NM will help prevent problems in interpreting the CDI display during ramp down. Therefore, requesting or accepting vectors which will cause the aircraft to intercept the final approach course within 2 NM of the FAWP is not recommended.

f) When receiving vectors to final, most receiver operating manuals suggest placing the receiver in the non−sequencing mode on the FAWP and manually setting the course. This provides an extended final approach course in cases where the aircraft is vectored onto the final approach course outside of any existing segment which is aligned with the runway. Assigned altitudes must be maintained until established on a published segment of the approach. Required altitudes at waypoints outside the FAWP or stepdown fixes must be considered. Calculating the distance to the FAWP may be required in order to descend at the proper location.

g) Overriding an automatically selected sensitivity during an approach will cancel the approach mode annunciation. If the approach mode is not armed by 2 NM prior to the FAWP, the approach mode will not become active at 2 NM prior to the FAWP, and the equipment will flag. In these conditions, the RAIM and CDI sensitivity will not ramp down, and the pilot should not descend to MDA, but fly to the MAWP and execute a missed approach. The approach active annunciator and/or the receiver should be checked to ensure the approach mode is active prior to the FAWP.

h) Do not attempt to fly an approach unless the procedure in the onboard database is current and identified as "GPS" on the approach chart. The navigation database may contain information about non−overlay approach procedures that enhances position orientation generally by providing a map, while flying these approaches using conventional NAVAIDs. This approach information should not be confused with a GPS overlay approach (see the receiver operating manual, AFM, or AFM Supplement for details on how to identify these procedures in the navigation database). Flying point to point on the approach does not assure compliance with the published approach procedure. The proper RAIM sensitivity will not be available and the CDI sensitivity will not automatically change to ±0.3 NM. Manually setting CDI sensitivity does not automatically change the RAIM sensitivity on some receivers. Some existing non−precision approach procedures cannot be coded for use with GPS and will not be available as overlays.

i) Pilots should pay particular attention to the exact operation of their GPS receivers for performing holding patterns and in the case of overlay approaches, operations such as procedure turns. These procedures may require manual intervention by the pilot to stop the sequencing of waypoints by the receiver and to resume automatic GPS navigation sequencing once the maneuver is complete. The same waypoint may appear in the route of flight more than once consecutively (for example, IAWP, FAWP, MAHWP on a procedure turn). Care must be exercised to ensure that the receiver is sequenced to the appropriate waypoint for the segment of the procedure being flown, especially if one or more fly−overs are skipped (for example, FAWP rather than IAWP if the procedure turn is not flown). The pilot may have to sequence past one or more fly−overs of the same waypoint in order to start GPS automatic sequencing at the proper place in the sequence of waypoints.

j) Incorrect inputs into the GPS receiver are especially critical during approaches. In some cases, an incorrect entry can cause the receiver to leave the approach mode.

k) A fix on an overlay approach identified by a DME fix will not be in the waypoint sequence on the GPS receiver unless there is a published name assigned to it. When a name is assigned, the along track distance (ATD) to the waypoint may be zero rather than the DME stated on the approach chart. The pilot should be alert for this on any overlay procedure where the original approach used DME.

l) If a visual descent point (VDP) is published, it will not be included in the sequence of waypoints. Pilots are expected to use normal piloting techniques for beginning the visual descent, such as ATD.

m) Unnamed stepdown fixes in the final approach segment may or may not be coded in the waypoint sequence of the aircraft's navigation database and must be identified using ATD. Stepdown fixes in the final approach segment of RNAV (GPS) approaches are being named, in addition to being identified by ATD. However, GPS avionics may or may not accommodate waypoints between the FAF and MAP. Pilots must know the capabilities of their GPS equipment and continue to identify stepdown fixes using ATD when necessary.

16.2.5.6 Missed Approach

a) A GPS missed approach requires pilot action to sequence the receiver past the MAWP to the missed approach portion of the procedure. The pilot must be thoroughly familiar with the activation procedure for the particular GPS receiver installed in the aircraft and must initiate appropriate action after the MAWP. Activating the missed approach prior to the MAWP will cause CDI sensitivity to immediately change to terminal (±1NM) sensitivity and the receiver will continue to navigate to the MAWP. The receiver will not sequence past the MAWP. Turns should not begin prior to the MAWP. If the missed approach is not activated, the GPS receiver will display an extension of the inbound final approach course and the ATD will increase from the MAWP until it is manually sequenced after crossing the MAWP.

b) Missed approach routings in which the first track is via a course rather than direct to the next waypoint require additional action by the pilot to set the course. Being familiar with all of the inputs required is especially critical during this phase of flight.

16.2.5.7 Receiver Autonomous Integrity Monitoring (RAIM)

a) RAIM outages may occur due to an insufficient number of satellites or due to unsuitable satellite geometry which causes the error in the position solution to become too large. Loss of satellite reception and RAIM warnings may occur due to aircraft dynamics (changes in pitch or bank angle). Antenna location on the aircraft, satellite position relative to the horizon, and aircraft attitude may affect reception of one or more satellites. Since the relative positions of the satellites are constantly changing, prior experience with the airport does not guarantee reception at all times, and RAIM availability should always be checked.

b) Civilian pilots may obtain GPS RAIM availability information for nonprecision approach procedures by using a manufacturer−supplied RAIM prediction tool, or using the Service Availability Prediction Tool (SAPT) on the FAA en route and terminal RAIM prediction website. Pilots can also request GPS RAIM aeronautical information from a flight service station during preflight briefings. GPS RAIM aeronautical information can be obtained for a period of 3 hours (for example, if you are scheduled to arrive at 1215 hours, then the GPS RAIM information is available from 1100 to 1400 hours) or a 24−hour timeframe at a particular airport. FAA briefers will provide RAIM information for a period of 1 hour before to 1 hour after the ETA hour, unless a specific timeframe is requested by the pilot. If flying a published GPS departure, a RAIM prediction should also be requested for the departure airport.

c) The military provides airfield specific GPS RAIM NOTAMs for nonprecision approach procedures at military airfields. The RAIM outages are issued as M−series NOTAMs and may be obtained for up to 24 hours from the time of request.

d) Receiver manufacturers and/or database suppliers may supply "NOTAM" type information concerning database errors. Pilots should check these sources, when available, to ensure that they have the most current information concerning their electronic database.

e) If RAIM is not available, use another type of navigation and approach system, select another route or destination, or delay the trip until RAIM is predicted to be available on arrival. On longer flights, pilots should consider rechecking the RAIM prediction for the destination during the flight. This may provide an early indication that an unscheduled satellite outage has occurred since takeoff.

f) If a RAIM failure/status annunciation occurs prior to the final approach waypoint (FAWP), the approach should not be completed since GPS no longer provides the required integrity. The receiver performs a RAIM prediction by 2 NM prior to the FAWP to ensure that RAIM is available as a condition for entering the approach mode. The pilot should ensure the receiver has sequenced from "Armed" to "Approach" prior to the FAWP (normally occurs 2 NM prior). Failure to sequence may be an indication of the detection of a satellite anomaly, failure to arm the receiver (if required), or other problems which preclude flying the approach.

g) If the receiver does not sequence into the approach mode or a RAIM failure/status annunciation occurs prior to the FAWP, the pilot must not initiate the approach nor descend, but instead, proceed to the missed approach waypoint (MAWP) via the FAWP, perform a missed approach, and contact ATC as soon as practical. The GPS receiver may continue to operate after a RAIM flag/status annunciation appears, but the navigation information should be considered advisory only. Refer to the receiver operating manual for specific indications and instructions associated with loss of RAIM prior to the FAF.

h) If the RAIM flag/status annunciation appears after the FAWP, the pilot should initiate a climb and execute the missed approach. The GPS receiver may continue to operate after a RAIM flag/status annunciation appears, but the navigation information should be considered advisory only. Refer to the receiver operating manual for operating mode information during a RAIM annunciation.

16.2.5.8 Waypoints

a) GPS receivers navigate from one defined point to another retrieved from the aircraft's onboard navigational database. These points are waypoints (5-letter pronounceable name), existing VHF intersections, DME fixes with 5−letter pronounceable names and 3-letter NAVAID IDs. Each waypoint is a geographical location defined by a latitude/longitude geographic coordinate. These 5−letter waypoints, VHF intersections, 5−letter pronounceable DME fixes and 3−letter NAVAID IDs are published on various FAA aeronautical navigation products (IFR En Route Charts, VFR Charts, Terminal Procedures Publications, etc.).

b) A Computer Navigation Fix (CNF) is also a point defined by a latitude/longitude coordinate and is required to support Performance−Based Navigation (PBN) operations. The GPS receiver uses CNFs in conjunction with waypoints to navigate from point to point. However, CNFs are not recognized by ATC. ATC does not maintain CNFs in their database and they do not use CNFs for any air traffic control purpose. CNFs may or may not be charted on FAA aeronautical navigation products, are listed in the chart legends, and are for advisory purposes only. Pilots are not to use CNFs for point to point navigation (proceed direct), filing a flight plan, or in aircraft/ATC communications. CNFs that do appear on aeronautical charts allow pilots increased situational awareness by identifying points in the aircraft database route of flight with points on the aeronautical chart. CNFs are random five-letter identifiers, not pronounceable like waypoints and placed in parenthesis. Eventually, all CNFs will begin with the letters "CF" followed by three consonants (for example, CFWBG). This five-letter identifier will be found next to an "x" on en route charts and possibly on an approach chart. On instrument approach procedures (charts) in the terminal procedures publication, CNFs may represent unnamed DME fixes, beginning and ending points of DME arcs, and sensor (ground-based signal i.e., VOR, NDB, ILS) final approach fixes on GPS overlay approaches. These CNFs provide the GPS with points on the procedure that allow the overlay approach to mirror the ground-based sensor approach. These points should only be used by the GPS system for navigation and should not be used by pilots for any other purpose on the approach. The CNF concept has not been adopted or recognized by the International Civil Aviation Organization (ICAO).

c) GPS approaches use fly−over and fly−by waypoints to join route segments on an approach. Fly−by waypoints connect the two segments by allowing the aircraft to turn prior to the current waypoint in order to roll out on course to the next waypoint. This is known as turn anticipation and is compensated for in the airspace and terrain clearances. The missed approach waypoint (MAWP) will always be a fly−over waypoint. A holding waypoint will always be designed as a fly−over waypoint in the navigational database but may be charted as a fly−by event unless the holding waypoint is used for another purpose in the procedure and both events require the waypoint to be a fly−over event. Some waypoints may have dual use; for example, as a fly−by waypoint when used as an IF for a NoPT route and as a fly−over waypoint when the same waypoint is also used as an IAF/IF hold−in−lieu of PT. Since the waypoint can only be charted one way, when this situation occurs, the fly−by waypoint symbol will be charted in all uses of the waypoint.

d) Unnamed waypoints for each airport will be uniquely identified in the database. Although the identifier may be used at different airports (for example, RW36 will be the identifier at each airport with a runway 36), the actual point, at each airport, is defined by a specific latitude/longitude coordinate.

e) The runway threshold waypoint, normally the MAWP, may have a five−letter identifier (for example, SNEEZ) or be coded as RW## (for example, RW36, RW36L). MAWPs located at the runway threshold are being changed to the RW## identifier, while MAWPs not located at the threshold will have a five−letter identifier. This may cause the approach chart to differ from the aircraft database until all changes are complete. The runway threshold waypoint is also used as the center of the Minimum Safe Altitude (MSA) on most GPS approaches.

16.2.5.9 Position Orientation

Pilots should pay particular attention to position orientation while using GPS. Distance and track information are provided to the next active waypoint, not to a fixed navigation aid. Receivers may sequence when the pilot is not flying along an active route, such as when being vectored or deviating for weather, due to the proximity to another waypoint in the route. This can be prevented by placing the receiver in the non-sequencing mode. When the receiver is in the non-sequencing mode, bearing and distance are provided to the selected waypoint and the receiver will not sequence to the next waypoint in the route until placed back in the auto sequence mode or the pilot selects a different waypoint. The pilot may have to compute the ATD to stepdown fixes and other points on overlay approaches, due to the receiver showing ATD to the next waypoint rather than DME to the VOR or ILS ground station.

16.2.5.10 Impact of Magnetic Variation on PBN Systems

a) Differences may exist between PBN systems and the charted magnetic courses on ground−based NAVAID instrument flight procedures (IFP), en route charts, approach charts, and Standard Instrument Departure/Standard Terminal Arrival (SID/STAR) charts. These differences are due to the magnetic variance used to calculate the magnetic course. Every leg of an instrument procedure is first computed along a desired ground track with reference to true north. A magnetic variation correction is then applied to the true course in order to calculate a magnetic course for publication. The type of procedure will determine what magnetic variation value is added to the true course. A ground−based NAVAID IFP applies the facility magnetic variation of record to the true course to get the charted magnetic course. Magnetic courses on PBN procedures are calculated two different ways. SID/STAR procedures use the airport magnetic variation of record, while IFR en route charts use magnetic reference bearing. PBN systems make a correction to true north by adding a magnetic variation calculated with an algorithm based on aircraft position, or by adding the magnetic variation coded in their navigational database. This may result in the PBN system and the procedure designer using a different magnetic variation, which causes the magnetic course ***displayed*** by the PBN system and the magnetic course ***charted*** on the IFP plate to be different. It is important to understand, however, that PBN systems, (with the exception of VOR/DME RNAV equipment) navigate by reference to true north and display magnetic course only for pilot reference. As such, a ***properly functioning*** PBN system, containing a ***current and accurate navigational database***, should fly the correct ground track for any loaded instrument procedure, despite differences in displayed magnetic course that may be attributed to magnetic variation application. Should significant differences between the approach chart and the PBN system avionics' application of the navigation database arise, the published approach chart, supplemented by NOTAMs, holds precedence.

b) The course into a waypoint may not always be 180 degrees different from the course leaving the previous waypoint, due to the PBN system avionics' computation of geodesic paths, distance between waypoints, and differences in magnetic variation application. Variations in distances may also occur since PBN system distance−to−waypoint values are ATDs computed to the next waypoint and the DME values published on underlying procedures are slant−range distances measured to the station. This difference increases with aircraft altitude and proximity to the NAVAID.

16.2.5.11 GPS Familiarization

Pilots should practice GPS approaches in visual meteorological conditions (VMC) until thoroughly proficient with all aspects of their equipment (receiver and installation) prior to attempting flight in instrument meteorological conditions (IMC). Pilots should be proficient in the following areas:

a) Using the receiver autonomous integrity monitoring (RAIM) prediction function;

b) Inserting a DP into the flight plan, including setting terminal CDI sensitivity, if required, and the conditions under which terminal RAIM is available for departure;

c) Programming the destination airport;

d) Programming and flying the approaches (especially procedure turns and arcs);

e) Changing to another approach after selecting an approach;

f) Programming and flying "direct" missed approaches;

g) Programming and flying "routed" missed approaches;

h) Entering, flying, and exiting holding patterns, particularly on approaches with a second waypoint in the holding pattern;

i) Programming and flying a "route" from a holding pattern;

j) Programming and flying an approach with radar vectors to the intermediate segment;

k) Indication of the actions required for RAIM failure both before and after the FAWP; and

l) Programming a radial and distance from a VOR (often used in departure instructions).

TBL ENR 4.1−4

GPS IFR Equipment Classes/Categories

TSO−C129						
Equipment Class	**RAIM**	**Int. Nav Sys. to Prov. RAIM Equiv.**	**Oceanic**	**En Route**	**Terminal**	**Nonprecision Approach Capable**
Class A – GPS sensor and navigation capability.						
A1	yes		yes	yes	yes	yes
A2	yes		yes	yes	yes	no
Class B – GPS sensor data to an integrated navigation system (i.e. FMS, multi−sensor navigation system, etc.).						
B1	yes		yes	yes	yes	yes
B2	yes		yes	yes	yes	no
B3		yes	yes	yes	yes	yes
B4		yes	yes	yes	yes	no
Class C – GPS sensor data to an integrated navigation system (as in Class B) which provides enhanced guidance to an autopilot, or flight director, to reduce flight tech. errors. Limited to 14 CFR Part 121 or equivalent criteria.						
C1	yes		yes	yes	yes	yes
C2	yes		yes	yes	yes	no
C3		yes	yes	yes	yes	yes
C4		yes	yes	yes	yes	no

TBL ENR 4.1−5

GPS Approval Required/Authorized Use

Equipment Type[1]	Installation Approval Required	Operational Approval Required	IFR En Route[2]	IFR Terminal[2]	IFR Approach[3]	Oceanic Remote	In Lieu of ADF and/or DME[3]
Hand held[4]	X[5]						
VFR Panel Mount[4]	X						
IFR En Route and Terminal	X	X	X	X			X
IFR Oceanic/ Remote	X	X	X	X		X	X
IFR En Route, Terminal, and Approach	X	X	X	X	X		X

NOTE−

[1]*To determine equipment approvals and limitations, refer to the AFM, AFM supplements, or pilot guides.*

[2]*Requires verification of data for correctness if database is expired.*

[3]*Requires current database or verification that the procedure has not been amended since the expiration of the database.*

[4]*VFR and hand−held GPS systems are not authorized for IFR navigation, instrument approaches, or as a primary instrument flight reference. During IFR operations they may be considered only an aid to situational awareness.*

[5]*Hand−held receivers require no approval. However, any aircraft modification to support the hand−held receiver; i.e., installation of an external antenna or a permanent mounting bracket, does require approval.*

17. Wide Area Augmentation System (WAAS)

17.1 General

17.1.1 The FAA developed the WAAS to improve the accuracy, integrity and availability of GPS signals. WAAS will allow GPS to be used, as the aviation navigation system, from takeoff through approach when it is complete.

WAAS is a critical component of the FAA's strategic objective for a seamless satellite navigation system for civil aviation, improving capacity and safety.

17.1.2 The International Civil Aviation Organization (ICAO) has defined Standards and Recommended Practices (SARPs) for satellite−based augmentation systems (SBAS) such as WAAS. India and Europe are building similar systems: EGNOS, the European Geostationary Navigation Overlay System; and India's GPS and Geo−Augmented Navigation (GAGAN) system. The merging of these systems will create an expansive navigation capability similar to GPS, but with greater accuracy, availability, and integrity.

17.1.3 Unlike traditional ground−based navigation aids, WAAS will cover a more extensive service area. Precisely surveyed wide−area reference stations (WRS) are linked to form the U.S. WAAS network. Signals from the GPS satellites are monitored by these WRSs to determine satellite clock and ephemeris corrections and to model the propagation effects of the ionosphere. Each station in the network relays the data to a wide−area master station (WMS) where the correction information is computed. A correction message is prepared and uplinked to a geostationary earth orbit satellite (GEO) via a GEO uplink subsystem (GUS) which is located at the ground earth station (GES). The message is then broadcast on the same frequency as GPS (L1, 1575.42 MHz) to WAAS receivers within the broadcast coverage area of the WAAS GEO.

17.1.4 In addition to providing the correction signal, the WAAS GEO provides an additional pseudorange measurement to the aircraft receiver, improving the availability of GPS by providing, in effect, an additional GPS satellite in view. The integrity of GPS is improved through real−time monitoring, and the accuracy is improved by providing differential corrections to reduce errors. The performance improvement is sufficient to enable approach procedures with GPS/WAAS glide paths (vertical guidance).

17.1.5 The FAA has completed installation of 3 GEO satellite links, 38 WRSs, 3 WMSs, 6 GES, and the required terrestrial communications to support the WAAS network including 2 operational control centers. Prior to the commissioning of the WAAS for public use, the FAA conducted a series of test and validation activities. Future dual frequency operations are planned.

17.1.6 GNSS navigation, including GPS and WAAS, is referenced to the WGS−84 coordinate system. It should only be used where the Aeronautical Information Publications (including electronic data and aeronautical charts) conform to WGS−84 or equivalent. Other countries civil aviation authorities may impose additional limitations on the use of their SBAS systems.

17.2 Instrument Approach Capabilities

17.2.1 A class of approach procedures which provide vertical guidance, but which do not meet the ICAO Annex 10 requirements for precision approaches has been developed to support satellite navigation use for aviation applications worldwide. These procedures are not precision and are referred to as Approach with Vertical Guidance (APV), are defined in ICAO Annex 6, and include approaches such as the LNAV/VNAV and localizer performance with vertical guidance (LPV). These approaches provide vertical guidance, but do not meet the more stringent standards of a precision approach. Properly certified WAAS receivers will be able to fly to LPV minima and LNAV/VNAV minima, using a WAAS electronic glide path, which eliminates the errors that can be introduced by using Barometric altimetry.

17.2.2 LPV minima takes advantage of the high accuracy guidance and increased integrity provided by WAAS. This WAAS generated angular guidance allows the use of the same TERPS approach criteria used for ILS approaches. LPV minima may have a decision altitude as low as 200 feet height above touchdown with visibility minimums as low as $^1/_2$ mile, when the terrain and airport infrastructure support the lowest minima. LPV minima is published on the RNAV (GPS) approach charts (see paragraph 12., Instrument Approach Procedure Charts).

17.2.3 A different WAAS-based line of minima, called Localizer Performance (LP) is being added in locations where the terrain or obstructions do not allow publication of vertically guided LPV minima. LP takes advantage of the angular lateral guidance and smaller position errors provided by WAAS to provide a lateral only procedure similar to an ILS Localizer. LP procedures may provide lower minima than a LNAV procedure due to the narrower obstacle clearance surface.

NOTE−
WAAS receivers certified prior to TSO−C145b and TSO−C146b, even if they have LPV capability, do not contain LP capability unless the receiver has been upgraded. Receivers capable of flying LP procedures must contain a statement in the Aircraft Flight Manual (AFM), AFM Supplement, or Approved Supplemental Flight Manual stating that the receiver has LP capability, as well as the capability for the other WAAS and GPS approach procedure types.

17.2.4 WAAS provides a level of service that supports all phases of flight, including RNAV (GPS) approaches to LNAV, LP, LNAV/VNAV and LPV lines of minima, within system coverage. Some locations close to the edge of the coverage may have a lower availability of vertical guidance.

17.3 General Requirements

17.3.1 WAAS avionics must be certified in accordance with Technical Standard Order (TSO) TSO−C145, Airborne Navigation Sensors Using the (GPS) Augmented by the Wide Area Augmentation System (WAAS); or TSO−C146, Stand−Alone Airborne Navigation Equipment Using the Global Positioning System (GPS) Augmented by the Wide Area Augmentation System (WAAS), and installed in accordance with Advisory Circular (AC) 20−138, *Airworthiness Approval of Positioning and Navigation Systems*.

17.3.2 GPS/WAAS operation must be conducted in accordance with the FAA−approved aircraft flight manual (AFM) and flight manual supplements. Flight manual supplements will state the level of approach procedure that the receiver supports. IFR approved WAAS receivers support all GPS only operations as long as lateral capability at the appropriate level is functional. WAAS monitors both GPS and WAAS satellites and provides integrity.

17.3.3 GPS/WAAS equipment is inherently capable of supporting oceanic and remote operations if the operator obtains a fault detection and exclusion (FDE) prediction program.

17.3.4 Air carrier and commercial operators must meet the appropriate provisions of their approved operations specifications.

17.3.5 Prior to GPS/WAAS IFR operation, the pilot must review appropriate Notices to Air Missions (NOTAMs) and aeronautical information. This information is available on request from an Automated Flight Service Station. The FAA will provide NOTAMs to advise pilots of the status of the WAAS and level of service available.

17.3.5.1 The term MAY NOT BE AVBL is used in conjunction with WAAS NOTAMs and indicates that due to ionospheric conditions, lateral guidance may still be available when vertical guidance is unavailable. Under certain conditions, both lateral and vertical guidance may be unavailable. This NOTAM language is an advisory to pilots indicating the expected level of WAAS service (LNAV/VNAV, LPV, LP) may not be available.

EXAMPLE−
!FDC FDC NAV WAAS VNAV/LPV/LP MINIMA MAY NOT BE AVBL 1306111330-1306141930EST
or
!FDC FDC NAV WAAS VNAV/LPV MINIMA NOT AVBL, WAAS LP MINIMA MAY NOT BE AVBL 1306021200-1306031200EST

WAAS MAY NOT BE AVBL NOTAMs are predictive in nature and published for flight planning purposes. Upon commencing an approach at locations NOTAMed WAAS MAY NOT BE AVBL, if the WAAS avionics indicate LNAV/VNAV or LPV service is available, then vertical guidance may be used to complete the approach using the displayed level of service. Should an outage occur during the approach, reversion to LNAV minima or an alternate instrument approach procedure may be required. When GPS testing NOTAMS are published and testing is actually occurring, Air Traffic Control will advise pilots requesting or cleared for a GPS or RNAV (GPS) approach that GPS may not be available and request intentions. If pilots have reported GPS anomalies, Air Traffic Control will request the pilot's intentions and/or clear the pilot for an alternate approach, if available and operational.

17.3.5.2 WAAS area-wide NOTAMs are originated when WAAS assets are out of service and impact the service area. Area−wide WAAS NOT AVAILABLE (AVBL) NOTAMs indicate loss or malfunction of the WAAS system. In flight, Air Traffic Control will advise pilots requesting a GPS or RNAV (GPS) approach of WAAS NOT AVBL NOTAMs if not contained in the ATIS broadcast.

EXAMPLE−
For unscheduled loss of signal or service, an example NOTAM is: !FDC FDC NAV WAAS NOT AVBL 1311160600−1311191200EST.
For scheduled loss of signal or service, an example NOTAM is: !FDC FDC NAV WAAS NOT AVBL 1312041015-1312082000EST

17.3.5.3 Site−specific WAAS MAY NOT BE AVBL NOTAMs indicate an expected level of service; for example, LNAV/VNAV, LP, or LPV may not be available. Pilots must request site−specific WAAS NOTAMs during flight planning. In flight, Air Traffic Control will not advise pilots of WAAS MAY NOT BE AVBL NOTAMs.

NOTE−
Though currently unavailable, the FAA is updating its prediction tool software to provide this site-service in the future.

17.3.5.4 Most of North America has redundant coverage by two or more geostationary satellites. One exception is the northern slope of Alaska. If there is a problem with the satellite providing coverage to this area, a NOTAM similar to the following example will be issued:

EXAMPLE−
*!FDC **4/3406** (PAZA A0173/14) ZAN NAV WAAS SIGNAL MAY NOT BE AVBL NORTH OF LINE FROM 7000N150000W TO 6400N16400W. RMK WAAS USERS SHOULD CONFIRM RAIM AVAILABILITY FOR IFR OPERATIONS IN THIS AREA. T-ROUTES IN THIS SECTOR NOT AVBL. ANY REQUIRED ALTERNATE AIRPORT IN THIS AREA MUST HAVE AN APPROVED INSTRUMENT APPROACH PROCEDURE OTHER THAN GPS THAT IS ANTICIPATED TO BE OPERATIONAL AND AVAILABLE AT THE ESTIMATED TIME OF ARRIVAL AND WHICH THE AIRCRAFT IS EQUIPPED TO FLY. 1406030812-1406050812EST .*

17.3.6 When GPS−testing NOTAMS are published and testing is actually occurring, Air Traffic Control will advise pilots requesting or cleared for a GPS or RNAV (GPS) approach that GPS may not be available and request intentions. If pilots have reported GPS anomalies, Air Traffic Control will request the pilot's intentions and/or clear the pilot for an alternate approach, if available and operational.

EXAMPLE−
Here is an example of a GPS testing NOTAM:
*!GPS **06/001** ZAB NAV GPS (INCLUDING WAAS, GBAS, AND ADS-B) MAY NOT BE AVAILABLE WITHIN A 468NM RADIUS CENTERED AT 330702N1062540W (TCS 093044) FL400-UNL DECREASING IN AREA WITH A DECREASE IN ALTITUDE DEFINED AS: 425NM RADIUS AT FL250, 360NM RADIUS AT 10000FT, 354NM RADIUS AT 4000FT AGL, 327NM RADIUS AT 50FT AGL. 1406070300-1406071200.*

17.3.7 When the approach chart is annotated with the W symbol, site−specific WAAS MAY NOT BE AVBL NOTAMs or Air Traffic advisories are not provided for outages in WAAS LNAV/VNAV and LPV vertical service. Vertical outages may occur daily at these locations due to being close to the edge of WAAS system coverage. Use LNAV or circling minima for flight planning at these locations, whether as a destination or alternate. For flight operations at these locations, when the WAAS avionics indicate that LNAV/VNAV or LPV service is available, then the vertical guidance may be used to complete the approach using the displayed level of service. Should an outage occur during the procedure, reversion to LNAV minima may be required.

NOTE−
Area−wide WAAS NOT AVBL NOTAMs apply to all airports in the WAAS NOT AVBL area designated in the NOTAM, including approaches at airports where an approach chart is annotated with the W symbol.

17.3.8 GPS/WAAS was developed to be used within GEO coverage over North America without the need for other radio navigation equipment appropriate to the route of flight to be flown. Outside the WAAS coverage or in the event of a WAAS failure, GPS/WAAS equipment reverts to GPS−only operation and satisfies the requirements for basic GPS equipment. (See ENR 4.1 paragraph 17. for these requirements).

17.3.9 Unlike TSO−C129 avionics, which were certified as a supplement to other means of navigation, WAAS avionics are evaluated without reliance on other navigation systems. As such, installation of WAAS avionics does not require the aircraft to have other equipment appropriate to the route to be flown. (See ENR 4.1 paragraph 17. for more information on equipment requirements.)

17.3.9.1 Pilots with WAAS receivers may flight plan to use any instrument approach procedure authorized for use with their WAAS avionics as the planned approach at a required alternate, with the following restrictions. When using WAAS at an alternate airport, flight planning must be based on flying the RNAV (GPS) LNAV or circling minima line, or minima on a GPS approach procedure, or conventional approach procedure with "or GPS" in the title. Code of Federal Regulation (CFR) Part 91 nonprecision weather requirements must be used for planning. Upon arrival at an alternate, when the WAAS navigation system indicates that LNAV/VNAV or LPV service is available, then vertical guidance may be used to complete the approach using the displayed level of service. The FAA has begun removing the ▲ **NA** (Alternate Minimums Not Authorized) symbol from select RNAV (GPS) and GPS approach procedures so they may be used by approach approved WAAS receivers at alternate airports. Some approach procedures will still require the ▲ **NA** for other reasons, such as no weather reporting, so it cannot be removed from all procedures. Since every procedure must be individually evaluated, removal of the ▲ **NA** from RNAV (GPS) and GPS procedures will take some time.

NOTE−
Properly trained and approved, as required, TSO-C145 and TSO-C146 equipped users (WAAS users) with and using approved baro-VNAV equipment may plan for LNAV/VNAV DA at an alternate airport. Specifically authorized WAAS users with and using approved baro-VNAV equipment may also plan for RNP 0.3 DA at the alternate airport as long as the pilot has verified RNP availability through an approved prediction program.

17.4 Flying procedures with WAAS

17.4.1 WAAS receivers support all basic GPS approach functions and provide additional capabilities. One of the major improvements is the ability to generate glide path guidance, independent of ground equipment or barometric aiding. This eliminates several problems such as hot and cold temperature effects, incorrect altimeter setting or lack of a local altimeter source. It also allows approach procedures to be built without the cost of installing ground stations at each airport or runway. Some approach certified receivers may only generate a glide path with performance similar to Baro−VNAV and are only approved to fly the LNAV/VNAV line of minima on the RNAV (GPS) approach charts. Receivers with additional capability (including faster update rates and smaller integrity limits) are approved to fly the LPV line of minima. The lateral integrity changes dramatically from the 0.3 NM (556 meter) limit for GPS, LNAV and LNAV/VNAV approach mode, to 40 meters for LPV. It also provides vertical integrity monitoring, which bounds the vertical error to 50 meters for LNAV/VNAV and LPVs with minima of 250' or above, and bounds the vertical error to 35 meters for LPVs with minima below 250'.

17.4.2 When an approach procedure is selected and active, the receiver will notify the pilot of the most accurate level of service supported by the combination of the WAAS signal, the receiver, and the selected approach, using the naming conventions on the minima lines of the selected approach procedure. For example, if an approach is published with LPV minima and the receiver is only certified for LNAV/VNAV, the equipment would indicate "LNAV/VNAV available," even though the WAAS signal would support LPV. If flying an existing LNAV/VNAV procedure with no LPV minima, the receiver will notify the pilot "LNAV/VNAV available," even if the receiver is certified for LPV and the signal supports LPV. If the signal does not support vertical guidance on procedures with LPV and/or LNAV/VNAV minima, the receiver annunciation will read "LNAV available." On lateral only procedures with LP and LNAV minima the receiver will indicate "LP available" or "LNAV available" based on the level of lateral service available. Once the level of service notification has been given, the receiver will operate in this mode for the duration of the approach procedure, unless that level of service becomes unavailable. The receiver cannot change back to a more accurate level of service until the next time an approach is activated.

NOTE−
Receivers do not "fail down" to lower levels of service once the approach has been activated. If only the vertical off flag appears, the pilot may elect to use the LNAV minima if the rules under which the flight is operating allow changing the type of approach being flown after commencing the procedure. If the lateral integrity limit is exceeded on an LP approach, a missed approach will be necessary since there is no way to reset the lateral alarm limit while the approach is active.

17.4.3 Another additional feature of WAAS receivers is the ability to exclude a bad GPS signal and continue operating normally. This is normally accomplished by the WAAS correction information. Outside WAAS coverage or when WAAS is not available, it is accomplished through a receiver algorithm called FDE. In most cases this operation will be invisible to the pilot since the receiver will continue to operate with other available satellites after excluding the "bad" signal. This capability increases the reliability of navigation.

17.4.4 Both lateral and vertical scaling for the LNAV/VNAV and LPV approach procedures are different than the linear scaling of basic GPS. When the complete published procedure is flown, ±1 NM linear scaling is provided until two (2) NM prior to the FAF, where the sensitivity increases to be similar to the angular scaling of an ILS. There are two differences in the WAAS scaling and ILS: 1) on long final approach segments, the initial scaling will be ±0.3 NM to achieve equivalent performance to GPS (and better than ILS, which is less sensitive far from the runway); 2) close to the runway threshold, the scaling changes to linear instead of continuing to become more sensitive. The width of the final approach course is tailored so that the total width is usually 700 feet at the runway threshold. Since the origin point of the lateral splay for the angular portion of the final is not fixed due to antenna placement like localizer, the splay angle can remain fixed, making a consistent width of final for aircraft being vectored onto the final approach course on different length runways. When the complete published procedure is not flown, and instead the aircraft needs to capture the extended final approach course similar to ILS, the vector to final (VTF) mode is used. Under VTF, the scaling is linear at ±1 NM until the point where the ILS angular splay reaches a width of ±1 NM regardless of the distance from the FAWP.

17.4.5 The WAAS scaling is also different than GPS TSO−C129 in the initial portion of the missed approach. Two differences occur here. First, the scaling abruptly changes from the approach scaling to the missed approach scaling, at approximately the departure end of the runway or when the pilot selects missed approach guidance rather than ramping as GPS does. Second, when the first leg of the missed approach is a Track to Fix (TF) leg aligned within 3 degrees of the inbound course, the receiver will change to 0.3 NM linear sensitivity until the turn initiation point for the first waypoint in the missed approach procedure, at which time it will abruptly change to terminal (±1 NM) sensitivity. This allows the elimination of close in obstacles in the early part of the missed approach that may otherwise cause the DA to be raised.

17.4.6 There are two ways to select the final approach segment of an instrument approach. Most receivers use menus where the pilot selects the airport, the runway, the specific approach procedure and finally the IAF, there is also a channel number selection method. The pilot enters a unique 5−digit number provided on the approach chart, and the receiver recalls the matching final approach segment from the aircraft database. A list of information including the available IAFs is displayed and the pilot selects the appropriate IAF. The pilot should confirm that the correct final approach segment was loaded by cross checking the Approach ID, which is also provided on the approach chart.

17.4.7 The Along−Track Distance (ATD) during the final approach segment of an LNAV procedure (with a minimum descent altitude) will be to the MAWP. On LNAV/VNAV and LPV approaches to a decision altitude, there is no missed approach waypoint so the along−track distance is displayed to a point normally located at the runway threshold. In most cases, the MAWP for the LNAV approach is located on the runway threshold at the centerline, so these distances will be the same. This distance will always vary slightly from any ILS DME that may be present, since the ILS DME is located further down the runway. Initiation of the missed approach on the LNAV/VNAV and LPV approaches is still based on reaching the decision altitude without any of the items listed in 14 CFR Section 91.175 being visible, and must not be delayed while waiting for the ATD to reach zero. The WAAS receiver, unlike a GPS receiver, will automatically sequence past the MAWP if the missed approach procedure has been designed for RNAV. The pilot may also select missed approach prior to the MAWP; however, navigation will continue to the MAWP prior to waypoint sequencing taking place.

18. Ground Based Augmentation System (GBAS) Landing System (GLS)

18.1 A GBAS ground installation at an airport can provide localized, differential augmentation to the Global Positioning System (GPS) signal−in−space enabling an aircraft's GLS precision approach capability. Through the GBAS service and the aircraft's GLS installation a pilot may complete an instrument approach offering three−dimensional angular lateral, and vertical guidance for exact alignment and descent to a runway. The operational benefits of a GLS approach are similar to the benefits of an ILS or LPV approach operation.

NOTE−
To remain consistent with international terminology, the FAA will use the term GBAS in place of the former term Local Area Augmentation System (LAAS).

18.2 An aircraft's GLS approach capability relies on the broadcast from a GBAS Ground Facility (GGF) installation. The GGF installation includes at least four ground reference stations near the airport's runway(s), a corrections processor, and a VHF Data Broadcast (VDB) uplink antenna. To use the GBAS GGF output and be eligible to conduct a GLS approach, the aircraft requires eligibility to conduct RNP approach (RNP APCH) operations and must meet the additional, specific airworthiness requirements for installation of a GBAS receiver intended to support GLS approach operations. When the aircraft achieves GLS approach eligibility, the aircraft's onboard navigation database may then contain published GLS instrument approach procedures.

18.3 During a GLS instrument approach procedure, the installation of an aircraft's GLS capability provides the pilot three−dimensional (3D) lateral and vertical navigation guidance much like an ILS instrument approach. GBAS corrections augment the GPS signal−in−space by offering position corrections, ensures the availability of enhanced integrity parameters, and then transmits the actual approach path definition over the VDB uplink antenna. A single GBAS ground station can support multiple GLS approaches to one or more runways.

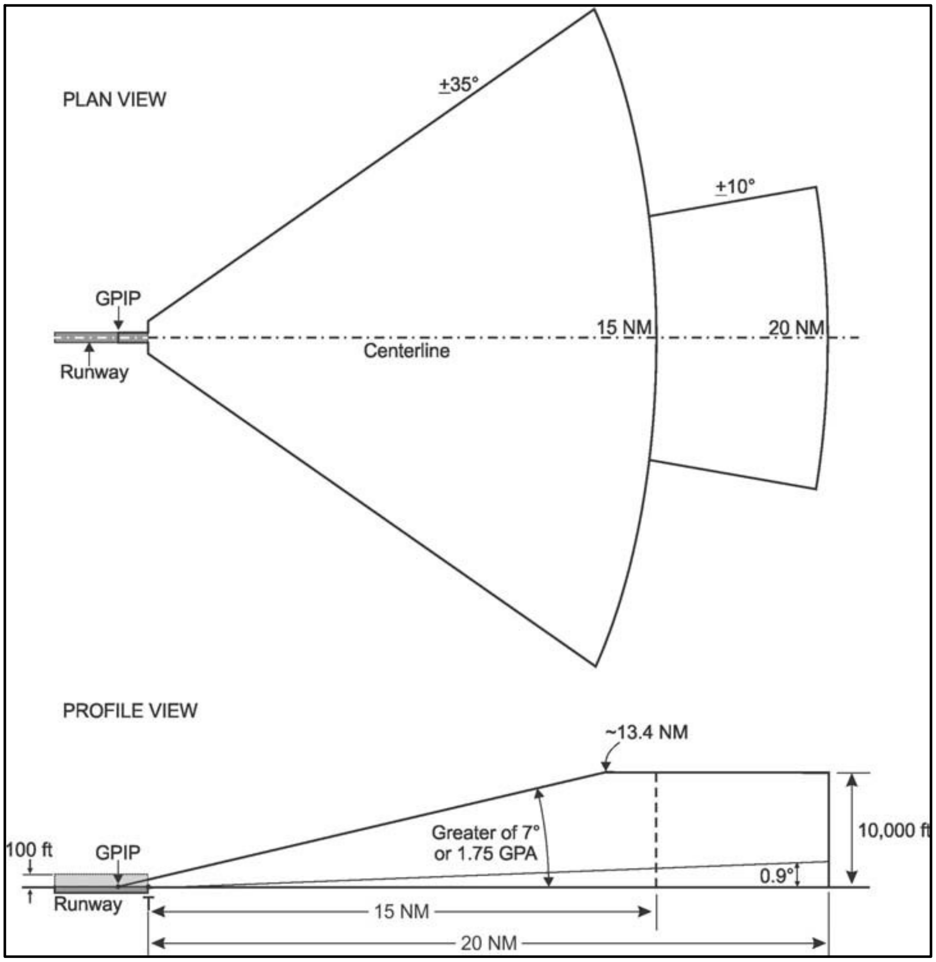
18.4 Through the GBAS ground station, a GLS approach offers a unique operational service volume distinct from the traditional ILS approach service volume (see FIG ENR 4.1−4). However, despite the unique service volume, in the final approach segment, a GLS approach provides precise 3D angular lateral and vertical guidance mimicking the precision guidance of an ILS approach.

18.5 Transitions to and segments of the published GLS instrument approach procedures may rely on use of RNAV 1 or RNP 1 prior to an IAF. Then, during the approach procedure prior to the aircraft entering the GLS approach mode, a GLS approach procedure design uses the RNP APCH procedure design criteria to construct the procedural path (the criteria used to publish procedures titled "RNAV (GPS)" in the US). Thus, a GLS approach procedure may include paths requiring turns after the aircraft crosses the IAF, prior to the aircraft's flight guidance entering the GLS approach flight guidance mode. Likewise, the missed approach procedure for a GLS approach procedure relies exclusively on the same missed approach criteria supporting an RNP APCH.

18.6 When maneuvering the aircraft in compliance with an ATC clearance to intercept a GLS approach prior to the final approach segment (e.g. "being vectored"), the pilot should adhere to the clearance and ensure the aircraft intercepts the extended GLS final approach course within the specified service volume. Once on the GLS final approach course, the pilot should ensure the aircraft is in the GLS approach mode prior to reaching the procedure's glidepath intercept point. Once the aircraft is in the GLS flight guidance mode and captures the GLS glidepath, the pilot should fly the GLS final approach segment using the same pilot techniques they use to fly an ILS final approach or the final approach of an RNAV (GPS) approach flown to LPV minimums. See also the Instrument Procedures Handbook for more information on how to conduct a GLS instrument approach procedure.

FIG ENR 4.1−4

GLS Standard Approach Service Volume



19. Precision Approach Systems Other than ILS and GLS

19.1 General

Approval and use of precision approach systems other than ILS and GLS require the issuance of special instrument approach procedures.

19.2 Special Instrument Approach Procedure

19.2.1 Special instrument approach procedures must be issued to the aircraft operator if pilot training, aircraft equipment, and/or aircraft performance is different than published procedures. Special instrument approach procedures are not distributed for general public use. These procedures are issued to an aircraft operator when the conditions for operations approval are satisfied.

19.2.2 General aviation operators requesting approval for special procedures should contact the local Flight Standards District Office to obtain a letter of authorization. Air carrier operators requesting approval for use of special procedures should contact their Certificate Holding District Office for authorization through their Operations Specification.

19.3 Transponder Landing System (TLS)

19.3.1 The TLS is designed to provide approach guidance utilizing existing airborne ILS localizer, glide slope, and transponder equipment.

19.3.2 Ground equipment consists of a transponder interrogator, sensor arrays to detect lateral and vertical position, and ILS frequency transmitters. The TLS detects the aircraft's position by interrogating its transponder. It then broadcasts ILS frequency signals to guide the aircraft along the desired approach path.

19.3.3 TLS instrument approach procedures are designated Special Instrument Approach Procedures. Special aircrew training is required. TLS ground equipment provides approach guidance for only one aircraft at a time. Even though the TLS signal is received using the ILS receiver, no fixed course or glidepath is generated. The concept of operation is very similar to an air traffic controller providing radar vectors, and just as with radar vectors, the guidance is valid only for the intended aircraft. The TLS ground equipment tracks one aircraft, based on its transponder code, and provides correction signals to course and glidepath based on the position of the tracked aircraft. Flying the TLS corrections computed for another aircraft will not provide guidance relative to the approach; therefore, aircrews must not use the TLS signal for navigation unless they have received approach clearance and completed the required coordination with the TLS ground equipment operator. Navigation fixes based on conventional NAVAIDs or GPS are provided in the special instrument approach procedure to allow aircrews to verify the TLS guidance.

19.4 Special Category I Differential GPS (SCAT−I DGPS)

19.4.1 The SCAT−I DGPS is designed to provide approach guidance by broadcasting differential correction to GPS.

19.4.2 SCAT−I DGPS procedures require aircraft equipment and pilot training.

19.4.3 Ground equipment consists of GPS receivers and a VHF digital radio transmitter. The SCAT−I DGPS detects the position of GPS satellites relative to GPS receiver equipment and broadcasts differential corrections over the VHF digital radio.

19.4.4 Category I Ground Based Augmentation System (GBAS) will displace SCAT−I DGPS as the public−use service.

20. Area Navigation

20.1 General

20.1.1 Area Navigation (RNAV) provides enhanced navigational capability to the pilot. RNAV equipment can compute the airplane position, actual track and ground speed and then provide meaningful information relative to a route of flight selected by the pilot. Typical equipment will provide the pilot with distance, time, bearing and crosstrack error relative to the selected "TO" or "active" waypoint and the selected route. Several navigational systems with different navigational performance characteristics are capable of providing area navigational functions. Present day RNAV includes INS, VOR/DME, and GPS systems. Modern multi−sensor systems can integrate one or more of the above systems to provide a more accurate and reliable navigational system. Due to the different levels of performance, area navigational capabilities can satisfy different levels of required navigation performance (RNP).

20.2 RNAV Operations Incorporating RNP

20.2.1 During the past four decades, domestic and international air navigation have been conducted using a system of airways and instrument procedures based upon ground−based navigational systems such as NDB, VOR, and ILS. Reliance on ground−based navigational systems has served the aviation community well, but often results in less than optimal routes or instrument procedures and an inefficient use of airspace. With the widespread deployment of RNAV systems and the advent of GPS−based navigation, greater flexibility in defining routes, procedures, and airspace design is now possible with an associated increase in flight safety. To capitalize on the potential of RNAV systems, both the FAA and International Civil Aviation Organization (ICAO) are affecting a shift toward a new standard of navigation and airspace management called RNP.

20.2.2 Navigational systems are typically described as being sensor specific, such as a VOR or ILS system. By specifying airspace requirements as RNP, various navigation systems or combination of systems may be used as long as the aircraft can achieve the RNP. RNP is intended to provide a single performance standard that can be used and applied by aircraft and aircraft equipment manufacturers, airspace planners, aircraft certification and operations, pilots and controllers, and international aviation authorities. RNP can be applied to obstacle clearance or aircraft separation requirements to ensure a consistent application level.

20.2.3 ICAO has defined RNP values for the four typical navigation phases of flight: oceanic, en route, terminal, and approach. The RNP applicable to a selected airspace, route, or procedure is designated by it's RNP Level or Type. As defined in the Pilot/Controller Glossary, the RNP Level or Type is a value typically expressed as a distance, in nautical miles, from the procedure, route or path within which an aircraft would typically operate. RNP applications also provide performance to protect against larger errors at some multiple of RNP level (e.g., twice the RNP level).

20.3 Standard RNP Levels

20.3.1 U.S. standard values supporting typical RNP airspace are as specified in TBL ENR 4.1−6 below. Other RNP levels as identified by ICAO, other states and the FAA may also be used.

TBL ENR 4.1−6
U.S. Standard RNP Levels

RNP Level	Typical Application
.3	Approach
1	Departure, Terminal
2	En Route

20.3.1.1 Application of Standard RNP Levels. U.S. standard levels of RNP typically used for various routes and procedures supporting RNAV operations may be based on use of a specific navigational system or sensor such as GPS, or on multi−sensor RNAV systems having suitable performance. New RNAV routes and procedures will be FAA's first public use procedures to include a specified RNP level. These procedures are being developed based on earth referenced navigation and do not rely on conventional ground−based navigational aids. Unless otherwise noted on affected charts or procedures, depiction of a specified RNP level will not preclude the use of other airborne RNAV navigational systems.

20.3.1.2 Depiction of Standard RNP Levels. The applicable RNP level will be depicted on affected charts and procedures. For example, an RNAV departure procedure may contain a notation referring to eligible aircraft by equipment suffix and a phrase "or RNP−1.0." A typical RNAV approach procedure may include a notation referring to eligible aircraft by specific navigation sensor(s), equipment suffix, and a phrase "or RNP−0.3." Specific guidelines for the depiction of RNP levels will be provided through chart bulletins and accompany affected charting changes.

20.4 Aircraft and Airborne Equipment Eligibility for RNP Operations. Aircraft meeting RNP criteria will have an appropriate entry including special conditions and limitations, if any, in its Aircraft/Rotorcraft Flight Manual (AFM), or supplement. RNAV installations with AFM−RNP certification based on GPS or systems integrating GPS are considered to meet U.S. standard RNP levels for all phases of flight. Aircraft with AFM−RNP certification without GPS may be limited to certain RNP levels, or phases of flight. For example, RNP based on DME/DME without other augmentation may not be appropriate for phases of flight outside the certified DME service volume. Operators of aircraft not having specific AFM−RNP certification may be issued operational approval including special conditions and limitations, if any, for specific RNP levels. Aircraft navigation systems eligible for RNP airspace will be indicated on charts, or announced through other FAA media such as NOTAMs and chart bulletins.

20.5 Understanding RNP Operations. Pilots should have a clear understanding of the aircraft requirements for operation in a given RNP environment, and advise ATC if an equipment failure or other malfunction causes the aircraft to lose its ability to continue operating in the designated RNP airspace. When a pilot determines a specified RNP level cannot be achieved, he/she should be prepared to revise the route, or delay the operation until an appropriate RNP level can be ensured. Some airborne systems use terms other than RNP to indicate the current level of performance. Depending on the airborne system implementation, this may be displayed, and referred to, as actual navigation performance (ANP), estimate of position error (EPE), or other.

20.6 Other RNP Applications Outside the U.S. The FAA, in cooperation with ICAO member states has led initiatives in implementing the RNP concept to oceanic operations. For example, RNP−10 routes have been established in the Northern Pacific (NOPAC) which has increased capacity and efficiency by reducing the distance between tracks to 50 NM. Additionally, the FAA has assisted those U.S. air carriers operating in Europe where the routes have been designated as RNP−5. TBL ENR 4.1−7 below, shows examples of current and future RNP levels of airspace.

TBL ENR 4.1−7

RNP Levels Supported for International Operations

RNP Level	Typical Application
4	Projected for oceanic/remote areas where 30 NM horizontal separation is applied
5	European Basic RNAV (B−RNAV)
10	Oceanic/remote areas where 50 NM horizontal separation is applied

20.7 RNAV and RNP Operations

20.7.1 Pilot

20.7.1.1 If unable to comply with the requirements of an RNAV or RNP procedure, pilots must advise air traffic control as soon as possible. For example, "N1234, failure of GPS system, unable RNAV, request amended clearance."

20.7.1.2 Pilots are not authorized to fly a published RNAV or RNP procedure (instrument approach, departure, or arrival procedure) unless it is retrievable by the procedure name from the current aircraft navigation database and conforms to the charted procedure. The system must be able to retrieve the procedure by name from the aircraft navigation database, not just as a manually entered series of waypoints.

20.7.1.3 Whenever possible, RNAV routes (Q− or T−route) should be extracted from the database in their entirety, rather than loading RNAV route waypoints from the database into the flight plan individually. However, selecting and inserting individual, named fixes from the database is permitted, provided all fixes along the published route to be flown are inserted.

20.7.1.4 Pilots must not change any database waypoint type from a fly−by to fly−over, or vice versa. No other modification of database waypoints or the creation of user−defined waypoints on published RNAV or RNP procedures is permitted, except to:

a) Change altitude and/or airspeed waypoint constraints to comply with an ATC clearance/ instruction.

b) Insert a waypoint along the published route to assist in complying with ATC instruction, example, "Descend via the WILMS arrival except cross 30 north of BRUCE at/or below FL 210." This is limited only to systems that allow along−track waypoint construction.

20.7.1.5 Pilots of FMS−equipped aircraft, who are assigned an RNAV DP or STAR procedure and subsequently receive a change of runway, transition or procedure, must verify that the appropriate changes are loaded and available for navigation.

20.7.1.6 For RNAV 1 DPs and STARs, pilots must use a CDI, flight director and/or autopilot, in lateral navigation mode. Other methods providing an equivalent level of performance may also be acceptable.

20.7.1.7 For RNAV 1 DPs and STARs, pilots of aircraft without GPS, using DME/DME/IRU, must ensure the aircraft navigation system position is confirmed, within 1,000 feet, at the start point of take−off roll. The use of an automatic or manual runway update is an acceptable means of compliance with this requirement. Other methods providing an equivalent level of performance may also be acceptable.

20.7.1.8 For procedures or routes requiring the use of GPS, if the navigation system does not automatically alert the flight crew of a loss of GPS, the operator must develop procedures to verify correct GPS operation.

20.7.1.9 RNAV terminal procedures (DP and STAR) may be amended by ATC issuing radar vectors and/or clearances direct to a waypoint. Pilots should avoid premature manual deletion of waypoints from their active "legs" page to allow for rejoining procedures.

20.7.1.10 RAIM Prediction: If TSO−C129 equipment is used to solely satisfy the RNAV and RNP requirement, GPS RAIM availability must be confirmed for the intended route of flight (route and time). If RAIM is not available, pilots need an approved alternate means of navigation.

REFERENCE−
AIP, RNAV and RNP Operations, ENR 1.10 Para 11.3.

20.7.1.11 Definition of "established" for RNAV and RNP operations: An aircraft is considered to be established on-course during RNAV and RNP operations anytime it is within 1 times the required accuracy for the segment being flown. For example, while operating on a Q-Route (RNAV 2), the aircraft is considered to be established on-course when it is within 2 nm of the course centerline.

NOTE−
Pilots must be aware of how their navigation system operates, along with any AFM limitations, and confirm that the aircraft's lateral deviation display (or map display if being used as an allowed alternate means) is suitable for the accuracy of the segment being flown. Automatic scaling and alerting changes are appropriate for some operations. For example, TSO-C129 systems change within 30 miles of destination and within 2 miles of FAF to support approach operations. For some navigation systems and operations, manual selection of scaling will be necessary.
(a) *Pilots flying FMS equipped aircraft with barometric vertical navigation (Baro-VNAV) may descend when the aircraft is established on-course following FMS leg transition to the next segment. Leg transition normally occurs at the turn bisector for a fly-by waypoint (reference paragraph 1-2-1 for more on waypoints). When using full automation, pilots should monitor the aircraft to ensure the aircraft is turning at appropriate lead times and descending once established on-course.*

(b) *Pilots flying TSO-C129 navigation system equipped aircraft without full automation should use normal lead points to begin the turn. Pilots may descend when established on-course on the next segment of the approach.*

21. NAVAID Identifier Removal During Maintenance

21.1 During periods of routine or emergency maintenance, coded identification (or code and voice, where applicable) is removed from certain FAA NAVAIDs. Removal of the identification serves as warning to pilots that the facility is officially off the air for tune−up or repair and may be unreliable even though intermittent or constant signals are received.

NOTE−
During periods of maintenance, VHF ranges may radiate a T−E−S−T code (– ● ●●● –).

NOTE−
DO NOT attempt to fly a procedure that is NOTAMed out of service even if the identification is present. In certain cases, the identification may be transmitted for short periods as part of the testing.

22. User Reports Requested on NAVAID Outages

22.1 Users of the National Airspace System (NAS) can render valuable assistance in the early correction of NAVAID malfunctions or GNSS problems and are encouraged to report their observations of undesirable avionics performance. Although NAVAIDs are monitored by electronic detectors, adverse effects of electronic interference, new obstructions or changes in terrain near the NAVAID can exist without detection by the ground monitors. Some of the characteristics of malfunction or deteriorating performance which should be reported are: erratic course or bearing indications; intermittent, or full, flag alarm; garbled, missing or obviously improper coded identification; poor quality communications reception; or, in the case of frequency interference, an audible hum or tone accompanying radio communications or NAVAID identification. GNSS problems are often characterized by navigation degradation or service loss indications. For instance, pilots conducting operations in areas where there is GNSS interference may be unable to use GPS for navigation, and ADS−B may be unavailable for surveillance. Radio frequency interference may affect both navigation for the pilot and surveillance by the air traffic controller. Depending on the equipment and integration, either an advisory light or message may alert the pilot. Air traffic controllers monitoring ADS−B reports may stop receiving ADS−B position messages and associated aircraft tracks.

22.2 Malfunctioning, faulty, inappropriately installed, operated, or modified GPS re−radiator systems, intended to be used for aircraft maintenance activities, have resulted in unintentional disruption of aviation GPS receivers. This type of disruption could result in unflagged, erroneous position−information output to primary flight displays/indicators and to other aircraft and air traffic control systems. Since Receiver Autonomous Integrity Monitoring (RAIM) is only partially effective against this type of disruption (effectively a "signal spoofing"), the pilot may not be aware of any erroneous navigation indications; ATC may be the only means available to identify these disruptions and detect unexpected aircraft positions while monitoring aircraft for IFR separation.

22.3 Pilots encountering navigation error events should transition to another source of navigation and request amended clearances from ATC as necessary.

22.4 Pilots are encouraged to submit detailed reports of NAVAID or GPS anomaly as soon as practical. Pilot reports of navigation error events should contain the following information:

22.4.1 Date and time the anomaly was observed, and NAVAID ID (or GPS).

22.4.2 Location of the aircraft at the time the anomaly started and ended (e.g., latitude/longitude or bearing/distance from a reference point),

22.4.3 Heading, altitude, type of aircraft (make/model/call sign).

22.4.4 Type of avionics/receivers in use (e.g., make/model/software series or version).

22.4.5 Number of satellites being tracked, if applicable.

22.4.6 Description of the position/navigation/timing condition observed; and duration of the event.

22.4.7 Consequences/operational impact(s) of the NAVAID or GPS loss.

22.4.8 Actions taken to mitigate the anomaly and/or remedy provided by the ATC facility.

22.4.9 Post flight pilot/maintenance actions taken.

22.5 Pilots operating an aircraft in controlled airspace under IFR shall comply with CFR § *91.187* and promptly report as soon as practical to ATC any malfunctions of navigational equipment occurring in−flight; pilots should submit initial reports:

22.5.1 Immediately, by radio to the controlling ATC facility or FSS.

22.5.2 By telephone to the nearest ATC facility controlling the airspace where the disruption was experienced.

22.5.3 Additionally, GPS problems should be reported, post flight, by Internet via the GPS Anomaly Reporting Form at http://www.faa.gov/air_traffic/nas/gps_reports/.

22.6 To minimize ATC workload, GPS interference/outages associated with known testing NOTAMs should NOT be reported in−flight to ATC in detail; EXCEPT when:

22.6.1 GPS degradation is experienced outside the NOTAMed area.

22.6.2 Pilot observes any unexpected consequences (e.g., equipment failure, suspected spoofing, failure of other aircraft systems not identified in AFM, such as TAWS).

23. Radio Communications and Navigation Facilities

23.1 A complete listing of air traffic radio communications facilities and frequencies and radio navigation facilities and frequencies are contained in the Chart Supplement U.S. Similar information for the Pacific and Alaskan areas is contained in the Chart Supplements Pacific and Alaska.

ENR 5.2 Military Exercise and Training Areas

1. Military Operations Area (MOA)

1.1 MOAs consist of airspace of defined vertical and lateral limits established for the purpose of separating certain military training activities from IFR traffic. Whenever a MOA is being used, nonparticipating IFR traffic may be cleared through a MOA if IFR separation can be provided by ATC. Otherwise, ATC will reroute or restrict nonparticipating IFR traffic.

1.2 Examples of activities conducted in MOAs include, but are not limited to: air combat tactics, air intercepts, aerobatics, formation training, and low−altitude tactics. Military pilots flying in an active MOA are exempted from the provisions of 14 CFR Section 91.303(c) and (d) which prohibits aerobatic flight within Class D and Class E surface areas, and within Federal airways. Additionally, the Department of Defense has been issued an authorization to operate aircraft at indicated airspeeds in excess of 250 knots below 10,000 feet MSL within active MOAs.

1.3 Pilots operating under VFR should exercise extreme caution while flying within a MOA when military activity is being conducted. The activity status (active/inactive) of MOAs may change frequently. Therefore, pilots should contact any FSS within 100 miles of the area to obtain accurate real−time information concerning the MOA hours of operation. Prior to entering an active MOA, pilots should contact the controlling agency for traffic advisories.

1.4 Permanent MOAs are charted on Sectional Aeronautical, VFR Terminal Area, and the appropriate En Route Low Altitude charts.

NOTE−
Temporary MOAs are not charted. For temporary restricted areas, pilots should review the Domestic Notices found in the External Links section of the Federal NOTAM System (FNS) NOTAM Search or Air Traffic Plans and Publications website, the FAA SUA website, and/or contact the appropriate overlying ATC facility to determine the effect of non−depicted SUA areas along their routes of flight.

2. Alert Areas

2.1 Alert Areas are depicted on aeronautical charts to inform nonparticipating pilots of areas that may contain a high volume of pilot training or an unusual type of aerial activity. Pilots should be particularly alert when flying in these areas. All activity within an Alert Area must be conducted in accordance with FAA regulations, without waiver, and pilots of participating aircraft as well as pilots transiting the area must be equally responsible for collision avoidance.

3. Controlled Firing Area (CFA)

3.1 CFAs contain activities which, if not conducted in a controlled environment, could be hazardous to nonparticipating aircraft. The distinguishing feature of the CFA, as compared to other special use airspace, is that its activities are suspended immediately when spotter aircraft, radar, or ground lookout positions indicate an aircraft might be approaching the area. There is no need to chart CFAs since they do not cause a nonparticipating aircraft to change its flight path.

4. Military Training Route (MTR)

4.1 National security depends largely on the deterrent effect of our airborne military forces. To be proficient, the military services must train in a wide range of airborne tactics. One phase of this training involves “low level” combat tactics. The required maneuvers and high speeds are such that they may occasionally make the see−and−avoid aspect of VFR flight more difficult without increased vigilance in areas containing such operations. In an effort to ensure the greatest practical level of safety for all flight operations, the MTR program was conceived.

4.2 The MTR program is a joint venture by the FAA and the DOD. MTRs are mutually developed for use by the military for the purpose of conducting low−altitude, high−speed training. The routes above 1,500 feet above ground level (AGL) are developed to be flown, to the maximum extent possible, under IFR. The routes at 1,500 feet AGL and below are generally developed to be flown under VFR.

4.3 Generally, MTRs are established below 10,000 feet MSL for operations at speeds in excess of 250 knots. However, route segments may be defined at higher altitudes for purposes of route continuity. For example, route segments may be defined for descent, climbout, and mountainous terrain. There are IFR and VFR routes as follows:

4.3.1 IFR Military Training Routes−IR. Operations on these routes are conducted in accordance with IFR regardless of weather conditions.

4.3.2 VFR Military Training Routes−VR. Operations on these routes are conducted in accordance with VFR except flight visibility must be 5 miles or more; and flights must not be conducted below a ceiling of less than 3,000 feet AGL.

4.4 MTRs will be identified and charted as follows:

4.4.1 Route Identification

4.4.1.1 MTRs with no segment above 1,500 feet AGL must be identified by four number characters; e.g., IR1206, VR1207.

4.4.1.2 MTRs that include one or more segments above 1,500 feet AGL must be identified by three number characters; e.g., IR206, VR207.

4.4.1.3 Alternate IR/VR routes or route segments are identified by using the basic/principal route designation followed by a letter suffix, e.g., IR008A, VR1007B, etc.

4.4.2 Route Charting

4.4.2.1 IFR Enroute Low Altitude Chart. This chart will depict all IR routes and all VR routes that accommodate operations above 1,500 feet AGL.

4.4.2.2 VFR Sectional Aeronautical Charts. These charts will depict military training activities such as IR and VR information.

4.4.2.3 Area Planning (AP/1B) Chart (DOD Flight Information Publication−FLIP). This chart is published by the National Geospatial−Intelligence Agency (NGA) primarily for military users and contains detailed information on both IR and VR routes.

4.5 The FLIP contains charts and narrative descriptions of these routes. To obtain this publication contact:

Defense Logistics Agency for Aviation
Mapping Customer Operations (DLA AVN/QAM)
8000 Jefferson Davis Highway
Richmond, VA 23297−5339
Toll free phone: 1−800−826−0342
Commercial: 804−279−6500

MTR information from the FLIP is available for pilot briefings through Flight Service. (See subparagraph 4.6.1 below.)

4.6 Availability of MTR information.

4.6.1 Pilots may obtain preflight MTR information through Flight Service. (See paragraph ENR 1.10−1., Preflight Preparation.)

4.6.2 MTR routes are depicted on IFR En Route Low Altitude Charts and VFR Sectional Aeronautical Charts, which are downloaded free and available on the FAA website at https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/.

4.7 Nonparticipating aircraft are not prohibited from flying within an MTR; however, extreme vigilance should be exercised when conducting flight through or near these routes. Pilots, while inflight, should contact the FSS within 100 NM of a particular MTR to obtain current information or route usage in their vicinity. Information available includes times of scheduled activity, altitudes in use on each route segment, and actual route width. Route width varies for each MTR and can extend several miles on either side of the charted MTR centerline. Route width information for IFR Military Training Route (IR) and VFR Military Training Route (VR) MTRs is also available in the FLIP AP/1B along with additional MTR (slow routes/air refueling routes) information. When requesting MTR information, pilots should give the FSS their position, route of flight, and destination in order to reduce frequency congestion and permit the FSS specialist to identify the MTR which could be a factor.

7.1.1 File a Flight Plan. Plan your route to avoid topography which would prevent a safe forced landing. The route should be over populated areas and well known mountain passes. Sufficient altitude should be maintained to permit gliding to a safe landing in the event of engine failure.

7.1.2 Don't fly a light aircraft when the winds aloft, at your proposed altitude, exceed 35 miles per hour. Expect the winds to be of much greater velocity over mountain passes than reported a few miles from them. Approach mountain passes with as much altitude as possible. Downdrafts of from 1,500 to 2,000 feet per minute are not uncommon on the leeward side.

7.1.3 Don't fly near or above abrupt changes in terrain. Severe turbulence can be expected, especially in high wind conditions.

7.1.4 Understand Mountain Obscuration. The term Mountain Obscuration (MTOS) is used to describe a visibility condition that is distinguished from IFR because ceilings, by definition, are described as "above ground level" (AGL). In mountainous terrain clouds can form at altitudes significantly higher than the weather reporting station and at the same time nearby mountaintops may be obscured by low visibility. In these areas the ground level can also vary greatly over a small area. Beware if operating VFR−on−top. You could be operating closer to the terrain than you think because the tops of mountains are hidden in a cloud deck below. MTOS areas are identified daily on The Aviation Weather Center located at: http://www.aviationweather.gov.

7.2 Navigating in confined terrain when flying through mountain passes can be challenging. For high−traffic mountain passes, VFR checkpoints may be provided on VFR navigation charts to increase situational awareness by indicating key landmarks inside confined terrain. A collocated VFR waypoint and checkpoint may be provided to assist with identifying natural entry points for commonly flown mountain passes. Pilots should reference the name of the charted VFR checkpoint, wherever possible, when making position reports on CTAF frequencies to reduce the risk of midair collisions. Pilots should evaluate the terrain along the route they intend to fly with respect to their aircraft type and performance capabilities, local weather, and their experience level to avoid flying into confined areas without adequate room to execute a 180 degree turn, should conditions require. Always fly with a planned escape route in mind.

7.3 VFR flight operations may be conducted at night in mountainous terrain with the application of sound judgment and common sense. Proper pre−flight planning, giving ample consideration to winds and weather, knowledge of the terrain and pilot experience in mountain flying are prerequisites for safety of flight. Continuous visual contact with the surface and obstructions is a major concern and flight operations under an overcast or in the vicinity of clouds should be approached with extreme caution.

7.4 When landing at a high altitude field, the same indicated airspeed should be used as at low elevation fields. Remember: that due to the less dense air at altitude, this same indicated airspeed actually results in a higher true airspeed, a faster landing speed, and more important, a longer landing distance. During gusty wind conditions which often prevail at high altitude fields, a power approach and power landing is recommended. Additionally, due to the faster groundspeed, your takeoff distance will increase considerably over that required at low altitudes.

7.5 Effects of Density Altitude. Performance figures in the aircraft owner's handbook for length of takeoff run, horsepower, rate of climb, etc., are generally based on standard atmosphere conditions (59°F, pressure 29.92 inches of mercury) at sea level. However, inexperienced pilots as well as experienced pilots may run into trouble when they encounter an altogether different set of conditions. This is particularly true in hot weather and at higher elevations. Aircraft operations at altitudes above sea level and at higher than standard temperatures are commonplace in mountainous area. Such operations quite often result in a drastic reduction of aircraft performance capabilities because of the changing air density. Density altitude is a measure of air density. It is not to be confused with pressure altitude − true altitude or absolute altitude. It is not to be used as a height reference, but as a determining criteria in the performance capability of an aircraft. Air density decreases with altitude. As air density decreases, density altitude increases. The further effects of high temperature and high humidity are cumulative, resulting in an increasing high density altitude condition. High density altitude reduces all aircraft performance parameters. To the pilot, this means that the normal horsepower output is reduced, propeller efficiency is reduced and a higher true airspeed is required to sustain the aircraft throughout its operating parameters. It means an increase in runway length requirements for takeoff and landings, and a decreased rate of climb. An average small airplane, for example, requiring 1,000 feet for takeoff at sea level under standard atmospheric conditions will require a takeoff run of approximately 2,000 at an operational altitude of 5,000 feet.

NOTE−
A turbo−charged aircraft engine provides some slight advantage in that it provides sea level horsepower up to a specified altitude above sea level.

7.6 Density Altitude Advisories. At airports with elevations of 2,000 feet and higher, control towers and FSSs will broadcast the advisory "Check Density Altitude" when the temperature reaches a predetermined level. These advisories will be broadcast on appropriate tower frequencies or, where available, ATIS. FSSs will broadcast these advisories as a part of Airport Advisory.

7.6.1 These advisories are provided by air traffic facilities, as a reminder to pilots that high temperatures and high field elevations will cause significant changes in aircraft characteristics. The pilot retains the responsibility to compute density altitude, when appropriate, as a part of preflight duties.

NOTE−
All FSSs will compute the current density altitude upon request.

8. Use of Runway Half−way Signs at Unimproved Airports

8.1 When installed, runway half–way signs provide the pilot with a reference point to judge takeoff acceleration trends. Assuming that the runway length is appropriate for takeoff (considering runway condition and slope, elevation, aircraft weight, wind, and temperature), typical takeoff acceleration should allow the airplane to reach 70 percent of lift–off airspeed by the midpoint of the runway. The "rule of thumb" is that should airplane acceleration not allow the airspeed to reach this value by the midpoint, the takeoff should be aborted, as it may not be possible to liftoff in the remaining runway.

8.2 Several points are important when considering using this "rule of thumb":

8.2.1 Airspeed indicators in small airplanes are not required to be evaluated at speeds below stalling, and may not be usable at 70 percent of liftoff airspeed.

8.2.2 This "rule of thumb" is based on a uniform surface condition. Puddles, soft spots, areas of tall and/or wet grass, loose gravel, etc., may impede acceleration or even cause deceleration. Even if the airplane achieves 70 percent of liftoff airspeed by the midpoint, the condition of the remainder of the runway may not allow further acceleration. The entire length of the runway should be inspected prior to takeoff to ensure a usable surface.

8.2.3 This "rule of thumb" applies only to runway required for actual liftoff. In the event that obstacles affect the takeoff climb path, appropriate distance must be available after liftoff to accelerate to best angle of climb speed and to clear the obstacles. This will, in effect, require the airplane to accelerate to a higher speed by midpoint, particularly if the obstacles are close to the end of the runway. In addition, this technique does not take into account the effects of upslope or tailwinds on takeoff performance. These factors will also require greater acceleration than normal and, under some circumstances, prevent takeoff entirely.

8.2.4 Use of this "rule of thumb" does not alleviate the pilot's responsibility to comply with applicable Federal Aviation Regulations, the limitations and performance data provided in the FAA approved Airplane Flight Manual (AFM), or, in the absence of an FAA approved AFM, other data provided by the aircraft manufacturer.

8.3 In addition to their use during takeoff, runway half–way signs offer the pilot increased awareness of his or her position along the runway during landing operations.

NOTE−
No FAA standard exists for the appearance of the runway half−way sign. FIG ENR 5.7−1 shows a graphical depiction of a typical runway half−way sign.

3.1.1 If the filer sends an FPL to an FAA En Route facility in addition to the air traffic service unit (ATSU) responsible for the departure aerodrome, the filer must ensure that the flight plan filed is the same as the flight plan entered by the ATS unit having authority for the departure aerodrome. Note that per ICAO Doc. 4444, an operator may request that movement messages distributed by the responsible ATS unit be routed to the operator.

3.1.2 Changes to IFR flight plans must be submitted as soon as possible, but no more than 24 hours prior to the flight, to ensure proper processing and distribution before departure.

3.1.3 The FAA expects changes to be transmitted using the DLA and CHG messages as outlined in ICAO Doc. 4444. Transmitting changes to the FAA by canceling (CNL) and refiling an FPL creates the potential for multiple FPLs in the computer system.

3.1.4 If Cancel and Refile is used, it is imperative that the cancellation of the original FPL in the FAA system be verified by computer response or verbal coordination before submitting another FPL.

3.1.5 Changes to an IFR flight plan less than 30 minutes prior to departure must be accomplished via verbal coordination with the ATSU having authority for the departure aerodrome.

NOTE−
These references are contained in ICAO DOC 4444 and FAA Order JO 7210.3, Facility Operation and Administration. Operators should be aware that failure to adhere to these procedures could result in an operational delay or pilot deviation.

3.2 Oakland Oceanic FIR

3.2.1 All flights that will enter the Oakland Oceanic CTA/FIR must address flight plans to KZAKZQZX.

3.3 New York FIR

3.3.1 All flights entering the New York Oceanic CTA/FIR must address flight plans to KZWYZOZX.

3.3.2 All flights entering the New York Oceanic CTA/FIR and a U.S. ARTCC (except Boston) and/or Bermuda airspace must address flight plans to both KZWYZOZX and the appropriate U.S. ARTCC. (See TBL ENR 7.1−1).

TBL ENR 7.1−1

Airspace to be Entered: New York Oceanic CTA/FIR and U.S. ARTCCs	Required AFTN Addresses
New York (NY) Oceanic CTA/FIR	KZWYZOZX
Boston ARTCC & NY Oceanic	KZWYZOZX only
NY domestic and/or Bermuda & NY Oceanic	KZNYZQZX & KZWYZOZX
Washington (KZDC) & NY Oceanic	KZDCZQZX & KZWYZOZX
Jacksonville (KZJX) & NY Oceanic	KZJXZQZX & KZWYZOZX
Miami (KZMA) & NY Oceanic	KZMAZQZX & KZWYZOZX
San Juan & NY Oceanic	TZSUZQZX & KZWYZOZX
Houston (KZHU)	KZHUZRZX

3.4 Anchorage Oceanic FIRs

3.4.1 Anchorage Arctic FIR

3.4.1.1 Flight plans must be filed with PAZAZQZX.

3.4.2 Anchorage Oceanic FIR

3.4.2.1 Flight plans must be filed with both PAZAZQZX and PAZNZQZX.

3.5 San Juan CTA/FIR

3.5.1 All aircraft transitioning through San Juan FIR/CTA from a foreign facility that will operate in North Atlantic (NAT) High Level Airspace (HLA) must forward the full route of flight for flight plan verification.

3.5.2 This must be accomplished prior to exiting the San Juan FIR/CTA by one of the following means:

3.5.2.1 Via Direct pilot−controller communication; or

3.5.2.2 Via New York Radio, when requested by ATC.

NOTE−
This requirement does not apply to aircraft operating outside of NAT HLA.

4. Beacon Code Requirements

4.1 Oakland Oceanic FIR. Upon entering the Oakland Oceanic CTA and after radar service is terminated; all aircraft should adjust their transponder to display code 2000 on their display. Aircraft should maintain code 2000 thereafter until otherwise directed by Air Traffic Control.

4.2 New York Oceanic FIR

4.2.1 New York − East Oceanic CTA. All aircraft should squawk code 2000 30 minutes after entry.

4.2.2 New York – West Oceanic CTA.

4.2.2.1 Aircraft transitioning to New York – East Oceanic CTA should squawk code 2000 30 minutes after entry. Exception: aircraft transiting Bermuda RADAR airspace should remain on the last assigned code until clear of that airspace, then squawk 2000.

4.2.2.2 All others should remain on the last assigned code.

4.3 Anchorage Oceanic FIR. CPDLC aircraft crossing the Anchorage/Oakland FIR boundary westbound between 150W and 160W must contact San Francisco Radio by 140W to receive a discrete beacon code for use in Anchorage airspace.

4.4 Houston Oceanic FIR. All aircraft entering the Houston Oceanic CTA/FIR should remain on the last assigned code.

4.5 Miami CTA/FIR

4.5.1 There is no primary radar or weather returns available from the Grand Turk, Georgetown, and Nassau radar systems. Since radar separation is dependent upon the receipt of transponder returns, all aircraft within antenna coverage of either system are required to squawk transponder codes as assigned by ATC, or, if none assigned, squawk the appropriate stratum code.

4.5.2 Aircraft departing and overflying the Santo Domingo and Port Au Prince FIRs can expect ATC assigned codes from those ATS providers. If a code is not assigned by either Santo Domingo or Port Au Prince, pilots should request a code. The assigned code should be squawked prior to entering the Miami CTA/FIR.

5. Position Reporting in the Oceanic Environment

5.1 Pilots must report over each point used in the flight plan to define the route of flight, even if the point is depicted on aeronautical charts as an "on request" (non−compulsory) reporting point. For aircraft providing

TBL ENR 7.1−2

SATVOICE Short Codes for ARTCCs and RADIO Facilities

<table>
<tr><th rowspan="2">Oceanic Control Area (OCA)</th><th colspan="2">ATC Direct
(only for distress, urgency, other means not available)</th><th colspan="2">ATC via RADIO Facility
(when unable to communicate on HF)</th></tr>
<tr><th>ARTCC</th><th>SATVOICE Short Code</th><th>RADIO Facility</th><th>SATVOICE Short Code</th></tr>
<tr><td>New York East</td><td>New York ARTCC</td><td>436695</td><td rowspan="2">New York RADIO</td><td rowspan="2">436623</td></tr>
<tr><td>New York West</td><td>New York ARTCC</td><td>436696</td></tr>
<tr><td>Oakland</td><td>Oakland ARTCC</td><td>436697</td><td rowspan="2">San Francisco RADIO</td><td rowspan="2">436625</td></tr>
<tr><td>Anchorage</td><td>Anchorage ARTCC</td><td>436602</td></tr>
</table>

7. Air−to−Air Frequency

7.1 Houston, San Juan and Miami FIRs

7.1.1 Frequency 123.45 MHz is the approved air−to−air VHF channel within the above FIRs. This frequency will be used for flights operating over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operational problems.

7.1.2 Frequency 123.45 MHz replaces the previously published frequencies used within the Houston, San Juan, and Miami FIRs. This change is necessary to comply with Amendment 74 to ICAO Annex 10, Volume II, which designated 123.45 as the global standard VHF air−to−air frequency.

8. Strategic Lateral Offset Procedure (SLOP) While Within FAA−Controlled Oceanic Airspace and the Anchorage Flight Information Region (FIR)

8.1 These procedures have been developed in accordance with ICAO Document 4444 Procedures for Air Navigation Services – Air Traffic Management, paragraph 16.5.

8.2 It has been determined that allowing aircraft conducting oceanic flight to fly lateral offsets, in increments of .1 nautical mile (NM) up to a maximum of 2 NM right of centerline, will provide an additional safety margin and mitigate the risk of conflict when non−normal events, such as aircraft navigation errors, altitude deviation errors, and turbulence−induced altitude−keeping errors occur.

8.3 These procedures are authorized in FAA controlled oceanic airspace, Anchorage FIR, and the airspace surrounding the island of Bermuda, the airspace controlled by the Honolulu Control Facility (HCF) and the airspace controlled by the Guam Combined Center Radar Approach Control (CERAP).

8.3.1 Pilots should apply an offset outbound after reaching their cruising flight level and retain the offset until the top of descent, unless local ATC dictates otherwise.

8.3.2 For flights departing Hawaii, pilots should apply SLOP upon reaching their initial cruise flight level and they are within 70 NM of entering the Oakland Oceanic Control Area.

8.3.3 For flights arriving Hawaii, pilots should discontinue SLOP no later than 70 NM after entering HCF airspace, or when receiving radar vectors from HCF, whichever occurs first. Pilots of Hawaiian inter−island flights must not use SLOP.

8.3.4 Aircraft transiting Bermuda airspace, HCF airspace, or Guam CERAP airspace may remain on their established offset.

8.3.5 Aircraft flying in the Anchorage FIR may apply SLOP as follows:

8.3.5.1 Throughout the entire Anchorage Arctic FIR.

8.3.5.2 In those portions of the Anchorage Domestic and Anchorage Oceanic FIRs (including offshore control areas) which are more than twelve miles offshore.

8.3.5.3 Over the land area of the Alaska Peninsula west of 160° West longitude.

8.4 These procedures provide for offsets within the following guidelines: Along a route or track there will be 21 positions that an aircraft may fly: on centerline or at increments of .1 NM (for example, .1, .2, .3, .4 ….. 1.8, 1.9, 2.0) right of centerline out to a maximum offset of 2 NM. Offsets must not exceed 2 NM right of centerline. The intent of this procedure is to reduce risk (add safety margin) by distributing aircraft laterally across the 21 available positions.

8.4.1 Pilots must fly the track centerline if their aircraft does not have automatic offset programming capability. Pilots of aircraft unable to offset at .1 NM increments should fly on the track centerline, or at the 1.0 NM or 2.0 NM positions right of centerline when using SLOP.

8.4.2 Pilots should also fly one of the available offset positions described above to avoid wake turbulence. Pilots should use whatever means available to determine the best offset to fly. An aircraft overtaking a lower altitude aircraft on the same routing should offset within the confines of this procedure, if capable, so as to create the least amount of wake turbulence for the aircraft being overtaken.

8.4.3 Aircraft should not offset to the left of center line nor offset more than 2 NM right of center line. Pilots may contact other aircraft on VHF frequency 123.45, as necessary, to coordinate the best wake turbulence offset option.

NOTE−
It is recognized that pilots will use their judgment to determine the action most appropriate to any given situation and have the final authority and responsibility for the safe operation of the aircraft.

8.4.4 There is no ATC clearance required for this procedure and it is not necessary that ATC be advised.

ENR 7.4 Operational Policy 50 NM Lateral Separation

1. Houston, Miami, and San Juan Oceanic Airspace

1.1 The FAA and the Mexican air traffic services (ATS) providers have implemented 50 NM lateral separation between RNP 10 or RNP 4 aircraft operating in Gulf of Mexico oceanic airspace.

1.2 Fifty (50) NM lateral separation is implemented in the Houston Oceanic CTA/FIR, the Gulf of Mexico portion of the Miami Oceanic CTA/FIR, the Monterrey CTA, and the Merida CTA within the Mexico FIR/UTA.

1.3 RNAV routes within Houston Oceanic airspace are spaced a minimum of 50 NM to support this reduced lateral separation in the Gulf of Mexico.

1.4 Information useful for flight planning and operations within the Gulf of Mexico, under this 50 NM lateral separation initiative can be found in the West Atlantic, Gulf of Mexico and Caribbean Resource Guide for U.S. Operators located at: https://www.faa.gov/headquartersoffices/avs/wat-gomex-and-caribbean-resource-guide. The Guide can also be found through a web search for "WAT, GOMEX, Caribbean Resource Guide."

NOTE−
For information pertaining to the operational policy of 50 NM lateral separation in the Atlantic portion of the Miami Oceanic CTA, or the San Juan CTA/FIR, please review ENR 7.4, paragraph 5., New York Oceanic Airspace.

1.5 The 50 NM lateral separation is applied at all altitudes above the floor of controlled airspace. Lateral separation of 100 NM will continue to be provided in the Houston Oceanic, Monterrey, and Merida CTA/FIRs to aircraft not authorized RNP 10 or RNP 4. Similarly, those aircraft will experience 90 NM lateral separation in Miami Oceanic CTA/FIR.

1.6 Operations on certain routes that fall within the boundaries of affected CTAs are not affected by the application of 50 NM lateral separation. Operation on the following routes is not affected:

1.6.1 Routes that are flown by reference to ICAO standard ground−based navigation aids (VOR, VOR/DME, NDB); and

1.6.2 Special Area Navigation (RNAV) routes Q100, Q102 and Q105 in the Houston, Jacksonville and Miami CTAs.

1.7 Provisions for Accommodation of Non− RNP 10 Aircraft (Not Authorized RNP 10 or RNP 4).

1.7.1 Operators of Non−RNP 10 aircraft must:

1.7.2 Annotate ICAO flight plan Item 18 as follows:

1.7.2.1 "RMK/NON−RNP10" (no space between letters and numbers).

1.7.2.2 Use of flight plan item 18 codes "PBN/A1" or "PBN/L1" are restricted to operators and aircraft specifically authorized for RNP 10 or RNP 4, as applicable.

1.7.3 Pilots of non−RNP 10 aircraft that operate in GoMex CTAs must report the lack of authorization by stating "Negative RNP 10":

1.7.3.1 On initial call to ATC in a Gulf of Mexico CTA; or

1.7.3.2 When approval status is requested by the controller (See paragraph 1.13.1.3).

1.7.4 Non−RNP 10 operators/aircraft may file any route at any altitude in a Gulf of Mexico CTA. They will be cleared to operate on their preferred routes and altitudes as traffic permits. 50 NM lateral separation will not be applied to non−RNP 10 aircraft.

1.7.5 Non−RNP 10 aircraft should plan on completing their climb to or descent from higher FLs within radar coverage, if possible.

1.7.6 In order to maximize operational flexibility provided by 50 NM lateral separation, operators capable of meeting RNP 10 or RNP 4 that operate on oceanic routes or areas in the Gulf of Mexico CTAs should obtain authorization for RNP 10 or RNP 4 and annotate the ICAO flight plan accordingly.

NOTE−
RNP 10 is the minimum Navigation Specification (NavSpec) required for the application of 50 NM lateral separation. RNP 4 is an operator option; operators/aircraft authorized RNP 4 are not required to also obtain RNP 10 authorization.

1.8 RNP 10 or RNP 4 Authorization Policy and Procedures for Aircraft and Operators

1.8.1 The following is ICAO guidance on the state authority responsible for authorizations such as RNP 10, RNP 4, and RVSM:

1.8.1.1 International commercial operators:

The State of Registry makes the determination that the aircraft meets the applicable RNP requirements. The State of Operator issues operating authority (for example, Operations Specifications (OpSpecs)).

1.8.1.2 International general aviation (IGA) operators:

The State of Registry makes the determination that the aircraft meets the applicable RNP requirements and issues operating authority (for example, Letter of Authorization (LOA)).

1.9 Guidance Material.

1.9.1 FAA Advisory Circular (AC) 90−105, Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System and in Oceanic and Remote Continental Airspace, provides operational approval guidance for RNP 4 and 10. It identifies minimum aircraft capabilities and operator procedural and training requirements in order to qualify for RNP 4 and 10. AC 90−105 is consistent with the ICAO PBN Manual discussed below. Pertinent FAA and ICAO documents are posted online in the West Atlantic, Gulf of Mexico, and Caribbean Resource Guide for U.S. Operators described in paragraph 1.4.

1.9.2 ICAO Performance−based Navigation (PBN) Manual (ICAO Doc 9613). Guidance for authorization of RNP 10 and RNP 4 is provided in ICAO Doc 9613. RNP 10 is addressed in Volume II, Part B; Chapter 1. RNP 4 is addressed in Volume II, Part C; Chapter 1.

1.9.3 Operators are encouraged to use the B036/B054 Oceanic and Remote Continental Navigation Application Guide located at: https://www.faa.gov/headquartersoffices/avs/b036b054-application-guide.

1.10 Qualification of Aircraft Equipped With a Single Long−Range Navigation System (LRNS) for RNP 10 Operations in Gulf of Mexico CTAs.

1.10.1 Single LRNS operations in the Gulf of Mexico, the Caribbean Sea and the other designated areas have been conducted for at least 25 years. Provisions allowing aircraft equipage with a single LRNS for operations in specified oceanic and off−shore areas are contained in the following sections of 14 Code of Federal Regulations (CFR): 91.511, 121.351, 125.203 and 135.165.

1.10.2 The FAA worked with State regulators and ATS providers in the Gulf of Mexico and Caribbean areas, and coordinated with the ICAO North American, Central American, and Caribbean office, to implement a policy allowing single LRNS equipped aircraft, which are also qualified for RNP 10, to take advantage of RNP 10 separation criteria in the Gulf of Mexico CTAs identified in paragraph 1.2 above.

1.10.2.1 The factors considered in allowing RNP 10 operations in the Gulf of Mexico CTAs with single LRNS equipped aircraft were: the shortness of the legs outside the range of ground navigation aids, the availability of radar and VHF voice coverage in a large portion of Gulf of Mexico airspace, and the absence of adverse events attributed to single LRNS aircraft in Gulf of Mexico operations.

1.10.2.2 For U.S. operators, operational authorization for both oceanic and RNP 10 operations, when equipped with only a single LRNS, is provided via Operations Specification/Management Specification/Letter of Authorization B054, Oceanic/Remote Continental Airspace Navigation Using a Single Long−Range Navigation System. A U.S. operator must first be issued B054 in order to file a flight plan indicating RNP 10 capability for operations in the Gulf of Mexico CTAs identified in paragraph 1.2 when equipped with only a single LRNS.

5.3 ATC will not apply 50 NM lateral separation on routes that are within ATC radar and VHF voice radio coverage. New York Oceanic airspace contains the following routes or route segments, which, at and above FL 310, are within ATC radar and VHF radio coverage:

5.3.1 M201 between VIRST and VEGAA.

5.3.2 Y485, Y488, Y493, and Y494. Refer also to ENR 7.10 for guidance on Y−routes.

NOTE−
While flying these route segments, pilots communicate directly with ATC using VHF voice radio, and domestic procedures apply. Strategic Lateral Offset Procedure (SLOP) is not to be used. Oceanic data link procedures described in ENR 7.2 (with KZWY log−on) are also not applicable.

5.4 Flight plan filing and addressing requirements are detailed in ENR 7.1, paragraphs 2 and 3.

5.5 Operators of aircraft not authorized RNP 10 or RNP 4 are expected to follow the procedures in ENR 7.4 paragraphs 1.7 and 1.13 for alerting ATC of the RNP status. Those operators are expected to indicate their "non−RNP 10" status in Item 18 of their ATC flight plan. In addition, pilots are expected to inform ATC of their "non−RNP 10" status on initial call to ATC and when reading back a clearance to descend through FL 410.

5.6 Filing a flight plan for, and conducting operations under, RNP 10 or RNP 4 navigation specifications require the aircraft to be equipped with two operable long−range navigation systems (LRNS). Operators who indicate RNP 10 or RNP 4 capability on their ATC flight plans, and subsequently experience an LRNS failure, must alert ATC to this failure. If the pilot believes the aircraft can continue to navigate along the cleared route with the single LRNS, ATC should be informed; as such, ATC may continue the aircraft on the cleared route.

5.7 In the event of LRNS failure, pilots must inform ATC of the failure and ensure ATC is aware the aircraft is no longer qualified for the RNP level indicated on the flight plan. In addition to this notification, pilots should request ATC amend their flight plan to remove the RNP capability indication in Item 18 of the flight plan.

5.8 Information regarding operations in the New York – West Oceanic CTA, the Atlantic portion of the Miami Oceanic CTA, and the San Juan Oceanic CTA can be found in the West Atlantic, Gulf of Mexico, and Caribbean Resource Guide for U.S. Operators, which is available at:
https://www.faa.gov/headquartersoffices/avs/wat-gomex-and-caribbean-resource-guide.

6. Provisions for Accommodation of Non−RNP 10 Aircraft (Not Authorized RNP 10 or RNP 4)

The guidance contained in paragraphs 1.7 and 1.13 of this section is applicable to all operations using Non−RNP 10 aircraft throughout the airspace covered by this document.

7. RNP 10 or RNP 4 Authorization Policy and Procedures for Aircraft and Operators

The guidance contained in paragraphs 1.8 and 1.9 of this section is applicable to operations throughout the airspace covered by this document.

8. Flight Planning Requirements

The guidance contained in paragraphs 1.7 and 1.11 of this section is applicable to operations throughout the airspace covered by this document.

9. Pilot and Dispatcher Basic and In−Flight Contingency Procedures

Information and guidance pertaining to in−flight contingency procedures, applicable in all the oceanic airspace covered by this AIP are provided in ENR 7.4, paragraph 1.12 as well as section ENR 7.3.

ENR 7.8 North Atlantic (NAT) Safety Information

1. Report Leaving, Report Reaching

1.1 The early discovery of altitude deviations is extremely important to the overall safety of NAT operations. Deferring the required reports of leaving and reaching flight levels until the next routine communication may lead to instances where aircraft fly at the incorrect flight level for long durations. This is not acceptable from a system safety standpoint. While the actual number of vertical errors in the NAT Region is relatively small, some of these errors continue undetected (and therefore uncorrected) for long durations.

1.2 In practical terms:

1.2.1 Report leaving a flight level as soon as the aircraft begins climb or descent;

1.2.2 Report reaching a flight level as soon as the aircraft is level; and

1.2.3 In RVSM airspace, provide the reports even if air traffic control has not specifically requested them.

2. Adherence to Oceanic Clearance

2.1 As a key part of ensuring the overall safety in the NAT Region, pilots are reminded of the importance of strict adherence to the oceanic clearance. The NAT oceanic clearance provides separation from all known aircraft from the oceanic entry point to the oceanic exit point. This separation can only be assured if all aircraft enter oceanic airspace in accordance with their oceanic clearance.

2.2 Although it may be desirable to defer climb or descent to the cleared oceanic flight level, delaying the request to domestic air traffic control for a clearance may result in entering oceanic airspace at a less optimum flight level.

2.3 In practical terms:

2.3.1 Flights must enter oceanic airspace level at the cleared oceanic flight level;

2.3.2 Flights must enter oceanic airspace at the cleared oceanic entry point;

2.3.3 Flights must maintain the assigned true Mach number;

2.3.4 If a pilot cannot comply with any part of the oceanic clearance, air traffic control must be informed immediately;

2.3.5 Pilots must ensure that their aircraft performance enables them to maintain the cleared oceanic flight level for the entire oceanic crossing; and

2.3.6 If a pilot discovers that the aircraft is not able to reach or remain at a cleared flight level, air traffic control must be informed immediately.

3. Turbulence Impact Assessment

3.1 To help in assessing whether moderate or severe turbulence might have an impact on operations in the NAT Region when reduced vertical separation minimum of 1,000 feet is applied between FL290 and FL410 inclusive, the frequency and magnitude of altitude deviations from assigned FL caused by moderate to severe turbulence needs to be quantified.

3.2 To this end, air crews operating in the NAT Region, are required to include the magnitude of the deviation, in feet, from assigned FL in all required reports of moderate to severe turbulence.

4. Common Procedures for Radio Communications Failure in the North Atlantic (NAT)

NOTE−
The following procedures are intended to provide general guidance for NAT aircraft experiencing a communications failure.

These procedures are intended to complement and not supersede state procedures/regulations. It is not possible to provide guidance for all situations associated with a communications failure.

4.1 General.

4.1.1 If so equipped, the pilot of an aircraft experiencing a two−way−radio communications failure must operate the secondary radar transponder on identity Mode A (Code 7600) and Mode C.

4.1.2 The pilot must also attempt to contact any ATC facility or another aircraft and inform them of the difficulty and request they relay information to the ATC facility with which communications are intended.

4.2 Communications failure prior to entering NAT oceanic airspace.

4.2.1 If operating with a received and acknowledged oceanic clearance, the pilot must enter oceanic airspace at the cleared oceanic entry point, level and speed and proceed in accordance with the received and acknowledged oceanic clearance. Any level or speed changes required to comply with the oceanic clearance must be completed within the vicinity of the oceanic entry point.

4.2.2 If operating without a received and acknowledged oceanic clearance, the pilot must enter oceanic airspace at the first oceanic entry point, level, and speed, as contained in the filed flight plan and proceed via the filed flight plan route to landfall. That first oceanic level and speed must be maintained to landfall.

4.3 Communications failure prior to exiting NAT oceanic airspace.

4.3.1 If cleared on flight plan route the pilot must proceed in accordance with the last received and acknowledged oceanic clearance to the last specified oceanic route point, normally landfall, then continue on the flight plan route. Maintain the last assigned oceanic level and speed to landfall. After passing the last specified oceanic route point, conform to the relevant State procedures/regulations.

4.3.2 If cleared on other than flight plan route the pilot must proceed in accordance with the last received and acknowledged oceanic clearance to the last specified oceanic route point, normally landfall. After passing this point, rejoin the filed flight plan route by proceeding directly to the next significant point ahead of the track of the aircraft as contained in the filed flight plan. Where possible use published ATS route structures, then continue on the flight plan route. Maintain the last assigned oceanic level and speed to the last specified oceanic route point. After passing this point conform to the relevant State procedures/regulations.

5. When Able Higher (WAH) Reports

5.1 To ensure maximum use of available altitudes, aircraft entering RVSM airspace in the New York FIR should be prepared to advise ATC of the time or position the aircraft can accept the next higher altitude. WAH reports are also used to plan the altitude for aircraft; therefore, it is important that the altitude capability of the aircraft is known by controllers.

5.1.1 If the aircraft is capable of a higher altitude that is not preferred by the pilot, give the altitude in the WAH report and advise that you prefer not to be assigned that altitude.

5.2 ATC acknowledgment of a WAH report is NOT a clearance to change altitude.

5.3 The procedures will differ for eastbound and westbound aircraft since many of the eastbound aircraft will enter New York RVSM airspace from ATC sectors that have direct controller−pilot communications.

5.3.1 Eastbound aircraft entering RVSM airspace in the New York FIR:

5.3.1.1 Pilots may be requested by ATC to provide an estimate for when the flight can accept the next higher altitude(s). If requested, pilots should provide this information as soon as possible.

5.3.2 Westbound aircraft entering RVSM airspace in the New York FIR:

5.3.2.1 Pilots should include in the initial position report the time or location that the next higher altitude can be accepted.

PART 3 − AERODROMES (AD)

AD 0.

AD 0.1 Preface − Not applicable
AD 0.2 Record of AIP Amendments − See GEN 0.2−1
AD 0.3 Record of AIP Supplements − Not applicable

AD 0.4 Checklist of Pages

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AD 0.5 List of Hand Amendments to the AIP − Not applicable

AD 2. AERODROMES

1. The following is a partial list of U.S. airports designated to serve international operations. This list contains U.S. airports with scheduled passenger service in large aircraft and certain airports designated as alternate service airports. Omitted from this list are designated general aviation airports, airports with scheduled cargo but no scheduled passenger service, and certain airports having international service in commuter−type aircraft.

ICAO ID	Location	Airport Name	Designation
		Alaska	
PANC	Anchorage	Ted Stevens Anchorage International	Regular
PAED	Anchorage	Elmendorf AFB	Alternate
PACD	Cold Bay	Cold Bay	Alternate
PAEI	Fairbanks	Eielson AFB	Alternate
PAFA	Fairbanks	Fairbanks International	Regular
PAJN	Juneau	Juneau International	Regular
PAKN	King Salmon	King Salmon	Alternate
		American Samoa	
NSTU	Pago Pago	Pago Pago International	Regular
		Arizona	
KPHX	Phoenix	Phoenix Sky Harbor International	Regular
KTUS	Tucson	Tucson International	Regular
		California	
KFAT	Fresno	Fresno Yosemite International	Alternate
KLAX	Los Angeles	Los Angeles International	Regular
KOAK	Oakland	Metropolitan Oakland International	Regular
KONT	Ontario	Ontario International	Alternate
KPMD	Palmdale	Palmdale Regional/ USAF Plant 42	Alternate
KSMF	Sacramento	Sacramento International	Alternate
KSAN	San Diego	San Diego International	Regular
KSFO	San Francisco	San Francisco International	Regular
KSJC	San Jose	San Jose Norman Y. Mineta International	Regular
KSCK	Stockton	Stockton Metropolitan	Alternate
		Colorado	
KDEN	Denver	Denver International	Regular
KPUB	Pueblo	Pueblo Memorial	Alternate

ICAO ID	Location	Airport Name	Designation
		Connecticut	
KBDL	Windsor Locks	Bradley International	Regular
		District of Columbia	
KIAD	Washington	Washington Dulles International	Regular
		Florida	
KFLL	Fort Lauderdale	Fort Lauderdale−Hollywood International	Regular
KRSW	Fort Myers	Southwest Florida International	Regular
KMIA	Miami	Miami International	Regular
KMCO	Orlando	Orlando International	Regular
KTPA	Tampa	Tampa International	Regular
KPBI	West Palm Beach	Palm Beach International	Regular
		Georgia	
KATL	Atlanta	Hartsfield − Jackson Atlanta International	Regular
		Guam	
PGUM	Agana	Guam International	Regular
PGUA	Guam Island	Andersen AFB	Alternate
		Hawaii	
PHTO	Hilo	Hilo International	Alternate
PHNL	Honolulu	Honolulu International	Regular
PHOG	Kahului	Kahului	Regular
		Illinois	
KORD	Chicago	Chicago−O'Hare International	Regular
		Indiana	
KIND	Indianapolis	Indianapolis International	Regular
		Kansas	
KICT	Wichita	Wichita Mid−Continent	Alternate
		Kentucky	
KCVG	Covington	Cincinnati/Northern Kentucky International	Regular

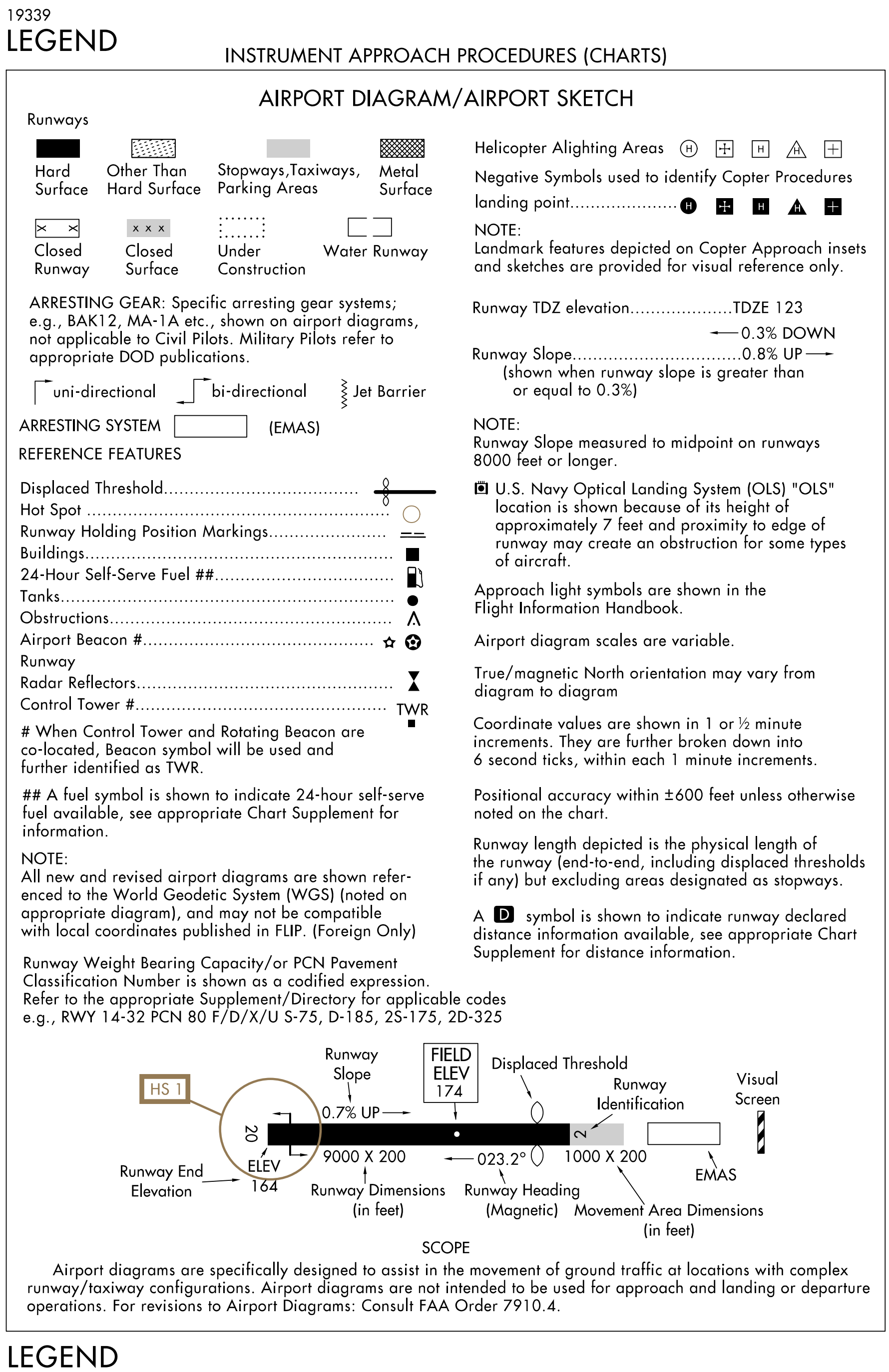
ICAO ID	Location	Airport Name	Designation
		Louisiana	
KMSY	New Orleans	Louis Armstrong New Orleans International	Regular
		Maine	
KBGR	Bangor	Bangor International	Alternate
		Maryland	
KBWI	Baltimore	Baltimore−Washington International Thurgood Marshall	Regular
		Massachusetts	
KBOS	Boston	General Edward Lawrence Logan International	Regular
		Michigan	
KDTW	Detroit	Detroit Metropolitan Wayne County	Regular
		Minnesota	
KMSP	Minneapolis	Minneapolis−St. Paul International (Wold−Chamberlain)	Regular
		Missouri	
KMCI	Kansas City	Kansas City International	Regular
KSTL	St. Louis	Lambert−St. Louis International	Regular
		Nevada	
KLAS	Las Vegas	Harry Reid International	Regular
KRNO	Reno	Reno/Tahoe International	Regular
		New Jersey	
KEWR	Newark	Newark Liberty International	Regular
		New York	
KJFK	New York	John F. Kennedy International	Regular
KIAG	Niagara Falls	Niagara Falls International	Alternate
KSYR	Syracuse	Syracuse Hancock International	Regular
		North Carolina	
KCLT	Charlotte	Charlotte/Douglas International	Regular
KRDU	Raleigh−Durham	Raleigh−Durham International	Regular
		Northern Mariana Islands	
PGSN	Saipan Island	Francisco C. Ada/Saipan International	Regular

ICAO ID	Location	Airport Name	Designation
		Ohio	
KCLE	Cleveland	Cleveland−Hopkins International	Regular
KCMH	Columbus	Port Columbus International	Regular
		Oregon	
KPDX	Portland	Portland International	Regular
		Pennsylvania	
KPHL	Philadelphia	Philadelphia International	Regular
KPIT	Pittsburgh	Pittsburgh International	Regular
		Puerto Rico	
TJMZ	Mayaguez	Eugenio Maria De Hostos	Regular
TJSJ	San Juan	Luis Munoz Marin International	Regular
		Tennessee	
KME M	Memphis	Memphis International	Regular
KBNA	Nashville	Nashville International	Regular
		Texas	
KDFW	Dallas	Dallas−Fort Worth International	Regular
KELP	El Paso	El Paso International	Regular
KIAH	Houston	George Bush Intercontinental/ Houston	Regular
KLRD	Laredo	Laredo International	Regular
KSAT	San Antonio	San Antonio International	Regular
		Utah	
KSLC	Salt Lake City	Salt Lake City International	Regular
		Virgin Islands	
TIST	Charlotte Amalie St. Thomas	Cyril E King	Regular
TISX	Christiansted St. Croix	Henry E Rohlsen	Regular
		Washington	
KPAE	Everett	Snohomish County (Paine Field)	Alternate
KSEA	Seattle	Seattle−Tacoma International	Regular
KGEG	Spokane	Spokane International	Alternate
		Wisconsin	
KMKE	Milwaukee	General Mitchell International	Regular

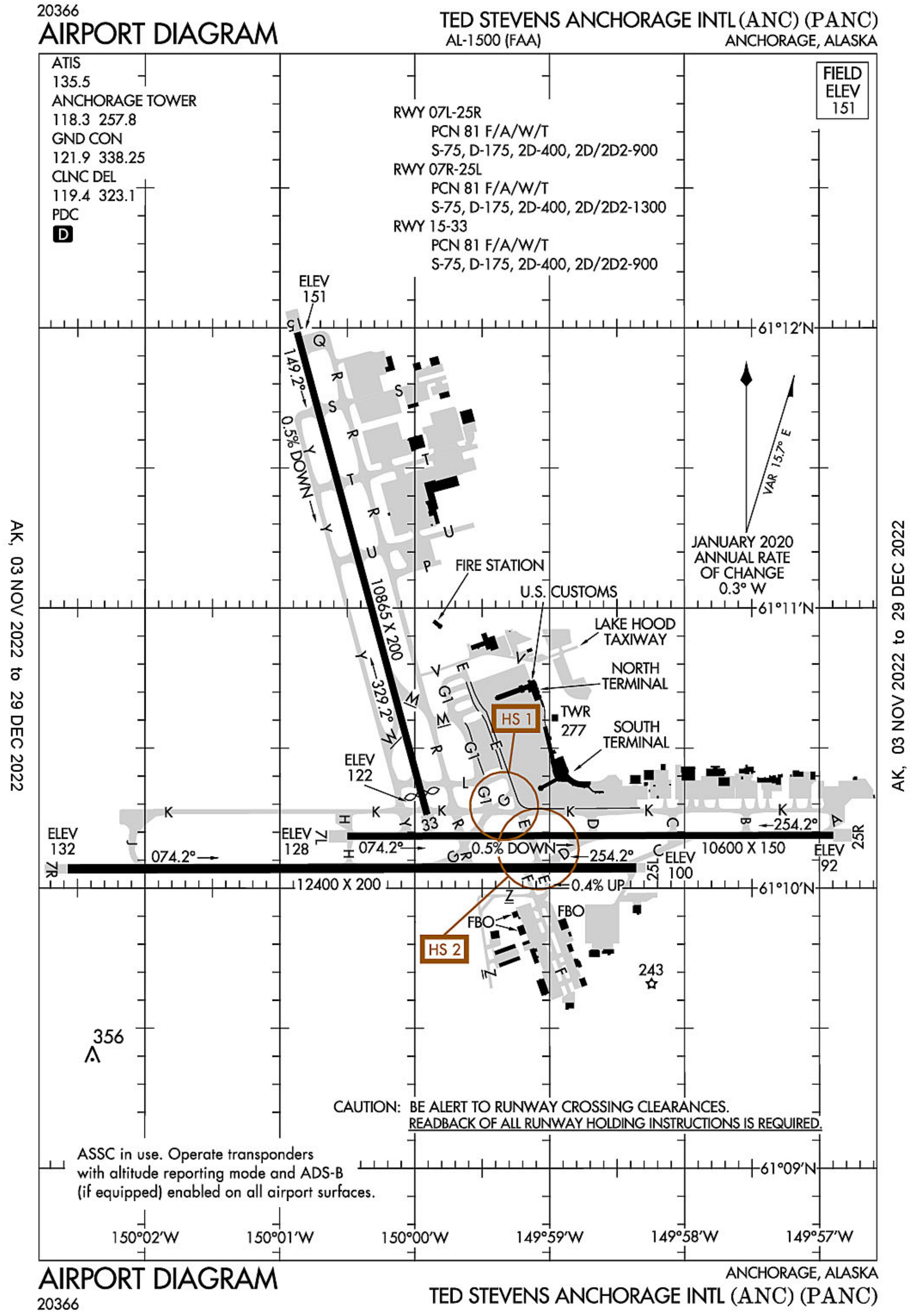
1.1 Diagrams of these airports, arranged alphabetically by state and in the order listed above, are on the pages following. The most up−to−date diagrams of these and other U.S. airports are in the Terminal Procedures Publication (TPP). For additional information on these airports, see the Chart Supplement U.S.

1.2 Public sales of the Chart Supplement U.S. and TPP are available through a network of FAA approved print providers. A listing of products, dates of latest editions, and print providers is available on the AIS website at: http://www.faa.gov/air_traffic/flight_info/aeronav.

Instrument Approach Procedures (Charts) Airport Diagram/Airport Sketch



Anchorage, Alaska
Ted Stevens Anchorage International
ICAO Identifier PANC



Anchorage, AK
Ted Stevens Anchorage Intl
ICAO Identifier PANC

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 61−10−26.705N / 149−59−53.295W

2.2.2 From City: 4 miles SW of ANCHORAGE, AK

2.2.3 Elevation: 151.4 ft

2.2.5 Magnetic Variation: 16E (2020)

2.2.6 Airport Contact: CRAIG CAMPBELL
BOX 196960
ANCHORAGE, AK 99519 (907−266−2600)

2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES

2.4.2 Fuel Types: 100,100LL,A,A1

2.4.5 Hangar Space: YES

2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 4/1/2005

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 07L

2.12.2 True Bearing: 90

2.12.3 Dimensions: 10600 ft x 150 ft

2.12.4 PCN: 81 F/A/W/T

2.12.5 Coordinates: 61−10−11.1539N / 150−0−29.9998W

2.12.6 Threshold Elevation: 127.6 ft

2.12.6 Touchdown Zone Elevation: 128.2 ft

2.12.1 Designation: 25R

2.12.2 True Bearing: 270

2.12.3 Dimensions: 10600 ft x 150 ft

2.12.4 PCN: 81 F/A/W/T

2.12.5 Coordinates: 61−10−11.3202N / 149−56−53.8826W

2.12.6 Threshold Elevation: 91.5 ft

2.12.6 Touchdown Zone Elevation: 91.8 ft

2.12.1 Designation: 07R

2.12.2 True Bearing: 90

2.12.3 Dimensions: 12400 ft x 200 ft
2.12.4 PCN: 81 F/A/W/T
2.12.5 Coordinates: 61−10−4.1216N / 150−2−34.3367W
2.12.6 Threshold Elevation: 131.7 ft
2.12.6 Touchdown Zone Elevation: 131.7 ft

2.12.1 Designation: 25L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 12400 ft x 200 ft
2.12.4 PCN: 81 F/A/W/T
2.12.5 Coordinates: 61−10−4.3722N / 149−58−21.535W
2.12.6 Threshold Elevation: 100.4 ft
2.12.6 Touchdown Zone Elevation: 114.6 ft

2.12.1 Designation: 15
2.12.2 True Bearing: 165
2.12.3 Dimensions: 10865 ft x 200 ft
2.12.4 PCN: 81 F/A/W/T
2.12.5 Coordinates: 61−11−59.03N / 150−0−52.31W
2.12.6 Threshold Elevation: 151.3 ft
2.12.6 Touchdown Zone Elevation: 151.4 ft

2.12.1 Designation: 33
2.12.2 True Bearing: 345
2.12.3 Dimensions: 10865 ft x 200 ft
2.12.4 PCN: 81 F/A/W/T
2.12.5 Coordinates: 61−10−15.75N / 149−59−54.49W
2.12.6 Threshold Elevation: 121.7 ft
2.12.6 Touchdown Zone Elevation: 120.8 ft

AD 2.13 Declared Distances
2.13.1 Designation: 07L
2.13.2 Take−off Run Available: 10600 ft
2.13.3 Take−off Distance Available: 10600 ft
2.13.4 Accelerate−Stop Distance Available: 10600 ft
2.13.5 Landing Distance Available: 10600 ft

2.13.1 Designation: 25R
2.13.2 Take−off Run Available: 10600 ft
2.13.3 Take−off Distance Available: 10600 ft
2.13.4 Accelerate−Stop Distance Available: 10600 ft
2.13.5 Landing Distance Available: 10600 ft

2.13.1 Designation: 07R
2.13.2 Take−off Run Available: 10900 ft
2.13.3 Take−off Distance Available: 10900 ft
2.13.4 Accelerate−Stop Distance Available: 10900 ft
2.13.5 Landing Distance Available: 12400 ft

2.13.1 Designation: 25L
2.13.2 Take−off Run Available: 12400 ft
2.13.3 Take−off Distance Available: 12400 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 15
2.13.2 Take−off Run Available: 10865 ft
2.13.3 Take−off Distance Available: 10865 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 33
2.13.2 Take−off Run Available: 10865 ft
2.13.3 Take−off Distance Available: 11965 ft
2.13.4 Accelerate−Stop Distance Available: 10865 ft
2.13.5 Landing Distance Available: 10400 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 07L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 25R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 07R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 25L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 15
2.14.2 Approach Lighting System: MALSF

2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 33
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 07L. Magnetic variation: 16E
2.19.2 ILS Identification: TGN
2.19.5 Coordinates: 61−10−14.0636N / 149−56−33.0327W
2.19.6 Site Elevation: 105.5 ft

2.19.1 ILS Type: Glide Slope for runway 07L. Magnetic variation: 16E
2.19.2 ILS Identification: TGN
2.19.5 Coordinates: 61−10−13.93N / 150−0−9.62W
2.19.6 Site Elevation: 122.8 ft

2.19.1 ILS Type: Localizer for runway 07L. Magnetic variation: 16E
2.19.2 ILS Identification: TGN
2.19.5 Coordinates: 61−10−11.3329N / 149−56−32.6534W
2.19.6 Site Elevation: 84.7 ft

2.19.1 ILS Type: DME for runway 07R. Magnetic variation: 16E
2.19.2 ILS Identification: ANC
2.19.5 Coordinates: 61−10−2.0211N / 149−57−58.3996W
2.19.6 Site Elevation: 112 ft

2.19.1 ILS Type: Glide Slope for runway 07R. Magnetic variation: 16E
2.19.2 ILS Identification: ANC
2.19.5 Coordinates: 61−10−8.1823N / 150−2−12.4572W
2.19.6 Site Elevation: 124.9 ft

2.19.1 ILS Type: Localizer for runway 07R. Magnetic variation: 16E
2.19.2 ILS Identification: ANC
2.19.5 Coordinates: 61−10−4.3906N / 149−57−55.495W
2.19.6 Site Elevation: 97.7 ft

2.19.1 ILS Type: DME for runway 15. Magnetic variation: 16E
2.19.2 ILS Identification: BSC
2.19.5 Coordinates: 61−10−0.0069N / 149−59−40.3379W
2.19.6 Site Elevation: 134.7 ft

2.19.1 ILS Type: Glide Slope for runway 15. Magnetic variation: 16E
2.19.2 ILS Identification: BSC
2.19.5 Coordinates: 61−11−46.76N / 150−0−54.42W
2.19.6 Site Elevation: 151.3 ft

2.19.1 ILS Type: Localizer for runway 15. Magnetic variation: 16E
2.19.2 ILS Identification: BSC
2.19.5 Coordinates: 61−9−59.9158N / 149−59−45.6352W
2.19.6 Site Elevation: 120.9 ft

General Remarks:

NON−RADIO NIGHT OPS NA; NON−PARROT OPS 1 HR PPR; NON−RADIO OPS PPR; MUST PRVD ETA & REMAIN WI 15 MIN − ATCT 907−271−2700 WKDAYS 0730−1600; AFT HR & HOL − FAA 907−271−5936.

COMPASS CLBR PAD N/A.

BIRDS INVOF ARPT SPRING − FALL.

TWY V, SCTY GATE E OF TWY E − PCL 121.75 5 TIMES; TWY H−2, LAKESHORE TWY GATES − PCL 121.75 3 TIMES; IF INOP ALLOW 30 SEC RESET & NOTIFY LHD OPS − 907−266−2600.

PTNS OF TWY K BTN TWY H & J NOT VIS FM ATCT.

PPR FOR GND TIME GTR THAN 4 HR AT ARPT CTL SPOTS; APVL REQ 48 HR PRIOR TO DEP FOR ANC − GATE MGMT 907 266−2633 OR EMAIL: DOT.AIA.OPS.GATEMANAGEMENT@ALASKA.GOV.

TSNT MIL PPR.

NOISE SENSITIVE AREA IN EFCT; FOR INFO − AMGR

TWY V RSTRD TO 12500 LB OR LESS; SUBJECT TO JET BLAST WEST OF TWY E.

RWY 25L HAS 200 FT BLAST PAD.

ASSC IN USE; OPR PARROT WITH ALT RPRTG MODE & ADS−B IF EQUIPPED ENABLED ON ARPT SFCS.

489 FT UNLGTD TWR 2.5 MI NE.

TBJT/TURBOFAN DEPG RWY 7R/7L DURG RWY 15/33 CLOSURE EMPLOY FAA CLOSE−IN NADP OR ICAO PROC B NADP WHEN SAFETY PMTS.

EXITING PAPA RAMP PARKING SPOTS P1/2/3, USE MIN THRUST REQ DUE TO JET BLAST HAZARD ON PAPA RAMP AND TWY UNIFORM.

ANCHORAGE WX CAMERA AVBL ON INTERNET AT HTTPS://WEATHERCAMS.FAA.GOV.

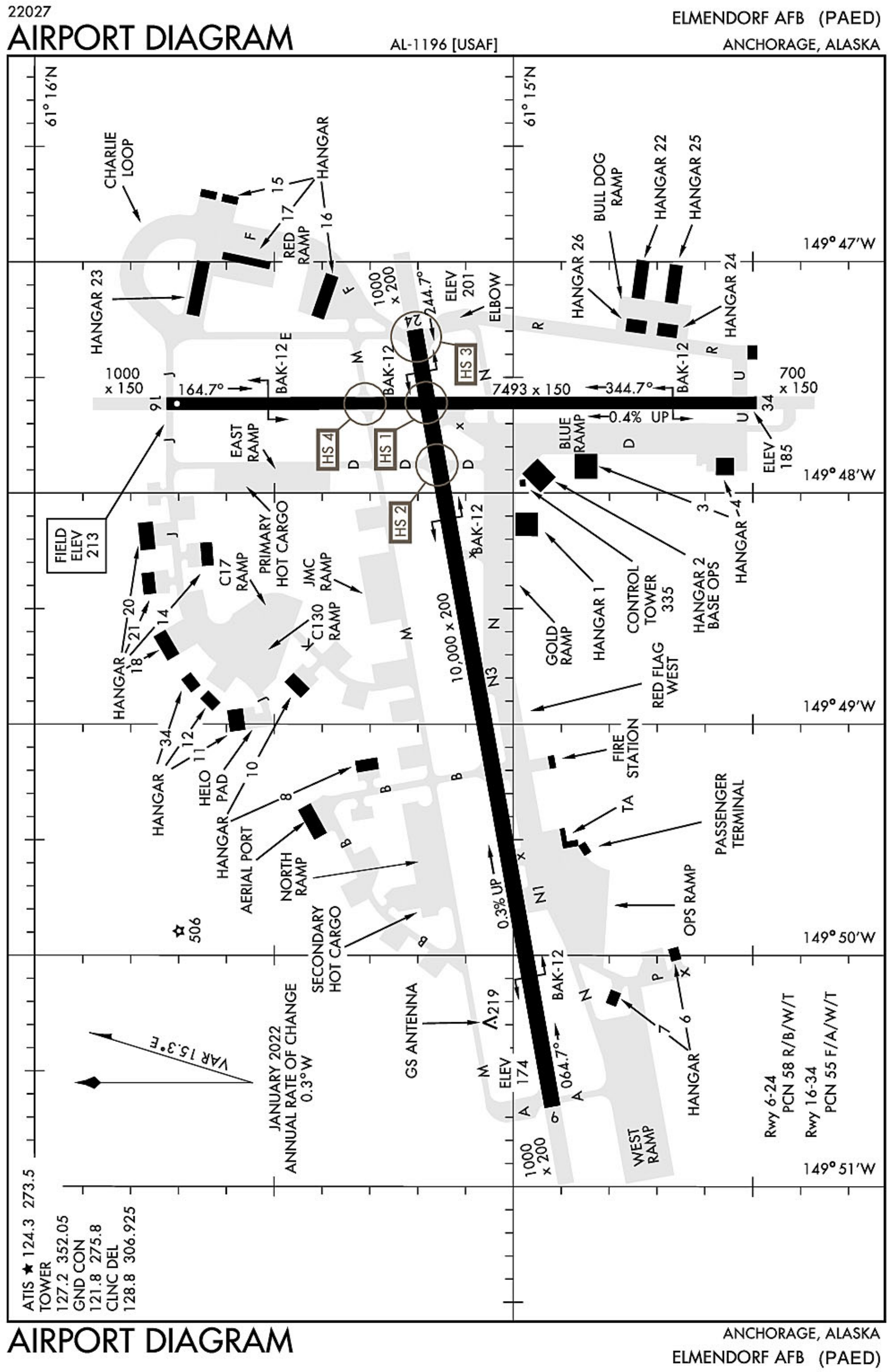
RIGHT TURN OUT OF RAMP PRKG R−2 THRU R−4 NA.

FLT PLANNING IN ANCHORAGE BOWL AREA − RCO 122.55.

FAA RAMP PPR WITH ANC FIFO MON−FRI 0600−1430 − 135.85 OR 907−271−2414 OR AVN 405−954−9780.

WSO − 907−266−5105.

Anchorage, Alaska
Elmendorf AFB
ICAO Identifier PAED



Anchorage, AK
Elmendorf AFB
ICAO Identifier PAED

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 61−15−4.8715N / 149−48−23.4924W
2.2.2 From City: 3 miles NE of ANCHORAGE, AK
2.2.3 Elevation: 213 ft
2.2.5 Magnetic Variation: 18E (2015)
2.2.6 Airport Contact: AIRFIELD MGR
300SS/DOFJ
ELMENDORF AFB, AK 99506 (907−552−2444)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: J8
2.4.5 Hangar Space:
2.4.6 Repair Facilities: None

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: None

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 06
2.12.2 True Bearing: 80
2.12.3 Dimensions: 10000 ft x 200 ft
2.12.4 PCN: 58 R/B/W/T
2.12.5 Coordinates: 61−14−55.08N / 149−50−39.34W
2.12.6 Threshold Elevation: 174.5 ft
2.12.6 Touchdown Zone Elevation: 174.5 ft

2.12.1 Designation: 24
2.12.2 True Bearing: 260
2.12.3 Dimensions: 10000 ft x 200 ft
2.12.4 PCN: 58 R/B/W/T
2.12.5 Coordinates: 61−15−12.16N / 149−47−18.02W
2.12.6 Threshold Elevation: 201.3 ft
2.12.6 Touchdown Zone Elevation: 201.3 ft

2.12.1 Designation: 16
2.12.2 True Bearing: 180
2.12.3 Dimensions: 7493 ft x 150 ft
2.12.4 PCN: 55 F/A/W/T
2.12.5 Coordinates: 61−15−43.43N / 149−47−36.52W
2.12.6 Threshold Elevation: 212.5 ft
2.12.6 Touchdown Zone Elevation: 212.4 ft

2.12.1 Designation: 34
2.12.2 True Bearing: 360
2.12.3 Dimensions: 7493 ft x 150 ft
2.12.4 PCN: 55 F/A/W/T
2.12.5 Coordinates: 61−14−29.64N / 149−47−36.57W
2.12.6 Threshold Elevation: 184.9 ft
2.12.6 Touchdown Zone Elevation: 194.1 ft

AD 2.13 Declared Distances
2.13.1 Designation: 06
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 24
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 16
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 34
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 06
2.14.2 Approach Lighting System: ALSF1
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 24
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 16
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 34
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 06. Magnetic variation: 18E
2.19.2 ILS Identification: EDF
2.19.5 Coordinates: 61−15−1.2N / 149−50−17W
2.19.6 Site Elevation: 169.2 ft

2.19.1 ILS Type: Localizer for runway 06. Magnetic variation: 18E
2.19.2 ILS Identification: EDF
2.19.5 Coordinates: 61−15−14.33N / 149−46−52.29W
2.19.6 Site Elevation: 212.3 ft

2.19.1 Navigation Aid Type: TACAN. Magnetic variation: 18E
2.19.2 Navigation Aid Identification: EDF
2.19.5 Coordinates: 61−15−18.03N / 149−46−9.03W
2.19.6 Site Elevation: 226.2 ft

General Remarks:

DURING VMC DEPS/MISSED APCHS/GO AROUNDS; ACFT SHALL MAINTAIN AT OR BLW 1200 FT MLS UNTIL DEP END OF RWY 06.

RWY 34 HAS A 500 FT DISPLACED THLD ALLOWING 7993 FT USABLE FOR TKFS (RWY 34 TKFS ONLY). ACFT REQG TO USE THE ADDITIONAL 500 FT FOR RWY 34 TKF MUST CTC ATC.

EXTENSIVE SVC DELAY FOR FUEL.

CAUTION: UNLIT TERRAIN 0 FT AGL/341 FT MSL, 1909 FT PRIOR TO THLD, 1914 FT RIGHT OF COURSE.

TRAN ALERT ACFT SVC LTD TO POL SERVICING, INTAKE INSPECTIONS, MAGNETIC CHIP DETECTOR INSPECTIONS AND EOR INSPECTIONS.

QUIET HR 0630−1400Z WKDAYS; 0630−1600Z WKEND & HOLS, AMC ACFT EXEMPT.

PREVENTIVE MAINT: TACAN WED AND FRI 1600−1700Z; ILS TUE AND THR 1500−1700Z; PAR SAT−SUN 1800−2000Z; ASR SAT−SUN 2000−2200.

FREQUENT ACTIVITY IN R2203; WHEN UNABLE TO AVOID, CTC ATCT.

LIMITED MAINTENANCE CAPABILITIES ON WKEND.

JOAP & LOW & HIGH PRESURE NITROGEN SERVICING FURNISHED DURING NORMAL DUTY HOURS, OTR TIMES ON REQUEST.

UNLESS PARTICIPATING IN MAJCOM SPONSORED EXER AT ELMENDORF; DEPLOYED OR STAGED UNITS MUST CTC 3 WG SCHEDULING AT DSN 317−552−2406 OR C907−552−2406 AS EARLY AS POSSIBLE TO COORD LOCAL AREA ORIENTATION BRIEFING, MAINT SPONSORSHIP IF APPLICABLE, AND SUBMIT VISITING UNIT REQUEST FORM FOR 3 OG/CC APVL PRIOR TO LCL AREA OPS.

OIL: O−123, O−128, O−133, O−148, O−156, JOAP.

ACFT UNABLE TO MEET R2203 DEP RSTRNS ADVISE ATC PRIOR TO DEP; CONSIDER DEP RWY 24. SEE ATC

NOTES IN GIANT REPORT.

HGR SPACE & WARM STORAGE EXTREMELY LMTD OCT−MAY.

RCR/RSC RWY 06/24 & 16/34 & FLD RCR CTC ATCT. RWY COND CODE & FICON NOT RPTD.

CHANGE JET AIRCRAFT STARTING UNITS (JASU) TO, (A/M32A−86), MC−1A), (MC−2A), (AM32A−60A). (AM32−95)150 +/−5 LBS/MIN (2055 +/−68CFM) AT 51 +/−02 PSIA. LASS 150 +/−5 LBS/MIN @ 49 +/−2 PSIA.

IF EXP TO USE RWY 16 FOR DEP OR RWY 34 FOR LDG SEE JBER CARTEE AIRSPACE DESCRIPTION IN NOTICES SEC OF THIS SUPPLEMENT.

ACFT REQUIRING CABLES DE−RIGGED MUST CTC BASE OPS 24 HR PRIOR TO ARR OR MAKE REQ PRIOR TO PPR BEING ISSUED.

ALL FTR ACFT ON ARR EXPECT REDUCED SEPARATION; SAME TYPE ACFT AND DAY 3000 FT; DISSIMILAR ACFT AND/OR NIGHT 6000 FT; AHEAD/BEHIND FORMATION LDG−6000 FT.

ALL NON−AMC ACFT RQR 732 AMS MAINT/SVC MAY EXPERIENCE LOGISTICAL DELAYS DUE TO MISSION NECESSITIES.

SPECIAL AIR TRAFFIC RULES FAR PART 93, SEE REGULATORY NOTICES IN THE SUPPLEMENT.

FLUID: PRESAIR, DE−ICE, NITROGEN−LHNIT.

NORMAL BARRIER CONFIGURATION DUR FTR FLY WINDOW LEAVES 5675 FT BTN CABLES ON RWY 06/24, OUTSIDE OF FTR FLY WINDOWS THERE IS 7658 FT BTN CABLES.

RWY 34 DEPARTURES FOR ACFT WITH WINGSPANS GREATER THAN 98 FT RQR PRIOR COORD WITH AMC, ATC TWR, OR ALD MGT.

DV SPOTS 1 AND 3 LTD TO ACFT WITH WINGSPANS OF 136 FT OR LESS.

ALL VIP ACFT CTC BASE OPS 30 MIN PRIOR TO ARR ON PTD 372.2 OR 134.1 OR C907−552−2107.

UNITS DEPLOYING TO, STAGING OUT OF, OR FLYING LCL SORTIES AT ELMENDORF AFB MUST DEPLOY WITH MAINT PERS REQUIRED TO COMPLETE OPS TO INCLUDE DE−ICE QUALIFIED CREWMEMBERS DUR COLD WX OPS.

ANY DEPLOYED OR STAGED ACFT WILL NOT RCV TA SUPPORT BYD INITIAL BLOCK IN.

C17/C130 OVERT LIGHTS AVBL ON RWY 16/34. C17/C130 COVERT LIGHTS AVBL ON RWY 16.

NO SIGNS ACCOMPANYING HOLD SHORT LINES ON INTERSECTING RWYS.

CAUTION: MOOSE ON & INVOF RWY.

LNDG RWY 16 NOT RCMND FOR JET ACFT EXCPT DURG DAY VFR DUE OBSTRN 337 FT MSL LCTD 1950 FT FM THR & 574 FT W OF CNGRLN.

WX OPR H24; DSN 317−552−4903/4397, C907−552−4903/4397. AUGMENTED SFC VIS RSTD E−SW BY BLDG.

IFF SVC AVBL.

CAUTION: NUMEROUS ACFT WILL BE OPR IFR BETWEEN 1500−2000 MSL FROM BGQ 092/10 INTO R2203 TO EDF 320/07 INVOF BIG LAKE, PALMER, BIRCHWOOD, GOOSEBAY AND WASILLA, AK., MON−SAT

0300−0800Z++, AND TUES AND THU 1800−2200Z++.

CAUTION: WHEN RWY 16 VGSI INOP, STR−IN TO RWY 16 ONLY AUTHORIZED AT NIGHT WITH MAJCOM A3 APVL.

RWY 16/34 RWY DIST REMAINING (RDR) SIGNS NOT LCTD IN CORRECT LCTN. AT RWY 16 − 2 RDR 2487 FT OF RWY REMAINING. AT RWY 16 −1 RDR 1487 FT OF RWY REMAINING.

ACFT WITH WINGSPANS OF 145 FT OR GREATER MAY EXPERIENCE REDUCED WINGTIP CLNC DOWN TO 25 FT WHEN FIGHTER ACFT ARE LCTD IN NORTHERNMOST ELBOW EOR SPOT. TWY N FM RWY 16/34 TO TWY R RSTRD TO FIGHTER ACFT ONLY WHEN ACFT ARE STAGED IN ELBOW EOR. TWY N FM RWY 16/34 TO TWY R UNUSABLE WHEN FIGHTER ACFT STAGED IN SOUTHERNMOST ELBOW EOR SPOT.

NOTICE: A RIDGE EXTENDING FROM APPROXIMATELY 260−020 DEGS ONE TO TWO MILES FROM THE TOWER PREVENTS OBSERVATION OF FOG OVER KNIK ARM. VISIBILITY MAY DROP RAPIDLY AS FOG POURS OVER RIDGE.

CAUTION: RWY 16/34, USE EXTREME CAUTION TO AVOID FALLING BLW GP TO RWY 34. DECREASED OBST CLNC ON APCH END OF RWY 34. SEVERAL TREES EXCEED 2.5 DEG, 40:1, OR PAPI CLNC PLANES, OR FALL ONLY 30 FT BLW STD FLT PATH OF LDG ACFT.

AFLD MGMT DOES NOT HAVE COMSEC STORAGE AVBL, FOR COMSEC STORAGE CTC COMMAND POST DSN 317−552−3000.

AMC ACFT ON AN AMC ASGN MSN CAN EXP TO HAVE MAINT SVC ACCOMPLISHED BY 732 AMS.

ALL ACFT MAINTAIN IDLE POWER ON OUTBOARD ENG WHILE TAXIING.

NVD OPS ON RWY 16/34 & RWY 06/24 MON−FRI FROM 0400−1000Z++.

JOAP, JOINT OIL ANALYSIS PROGRAM AVBL. LHNIT, LOW & HIGH PRESSURE NITROGEN SERVICING AVBL. DE−ICE, TYPE 1 DE−ICE LIFTOFF P−88; TYPE 4 ANTI−ICE CLARIANT SAFEWING MP−LAUNCH.

EAST RAMP HOT SPOT 19 LTD; 20K LBS N.E.W. CAT 1.1, AND 10K LBS N.E.W. CAT 1.2. COMPENSATORY MEASURES REQ FOR 1.1 N.E.W. >5K LBS AND 1.2 N.E.W. >8.8K LBS. COORDINATE ACFT PARKING WITH 732 AMS AND AFLD MGR. FOR BLDG EVAC CTC 907−552−2577.

PPRS WILL BE ISSUED NO EARLIER THAN 7 DAYS PRIOR TO ARR.

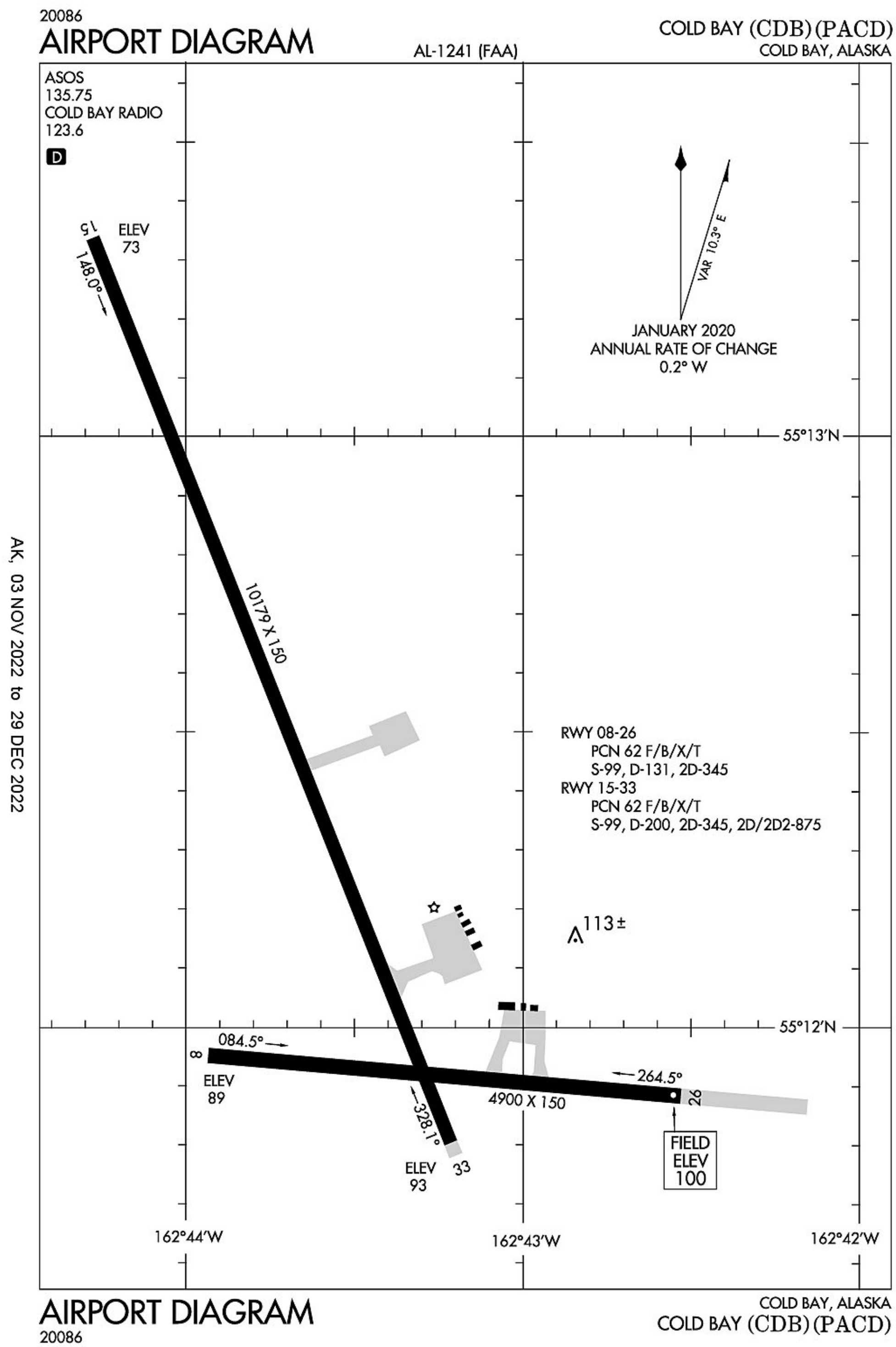
ACFT REQUIRING CUSTOMS AND AG INSPECTIONS ARE RQR TO CTC BASE OPS NO LATER THAN 90 MIN PRIOR TO ARR.

PPR REQUIRED FOR ALL NON JBER ASSIGNED ACFT EXCEPT NON−EXPLOSIVE LADEN AMCC ACFT UNLESS CONDUCTING LCL TRNG.

SUBMIT ALL PPR REQUESTS UTILIZING THE PAED PPR REQUEST FORM LOCATED IN THE PAED GIANT REPORT STIF TO BASEOPS3@US.AF.MIL NO EARLIER THAN 30 DAYS PRIOR AND NO LATER THAN 48 HOURS PRIOR TO ARRIVAL TO BEGIN COORDINATION FOR PPR.

TWYS N2 & N5 PERM CLOSED.

Cold Bay, Alaska
Cold Bay
ICAO Identifier PACD



Cold Bay, AK
Cold Bay
ICAO Identifier PACD

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 55−12−21.3N / 162−43−34.5W
2.2.2 From City: 0 miles N of COLD BAY, AK
2.2.3 Elevation: 99.5 ft
2.2.5 Magnetic Variation: 12E (2015)
2.2.6 Airport Contact: HAROLD KREMER
BOX 97
COLD BAY, AK 99571 (907−532−5000)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, MON − SAT Days, 0700 − 1800 Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: NONE

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I B certified on 4/1/2005

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 08
2.12.2 True Bearing: 95
2.12.3 Dimensions: 4900 ft x 150 ft
2.12.4 PCN: 62 F/B/X/T
2.12.5 Coordinates: 55−11−57.1589N / 162−43−56.7308W
2.12.6 Threshold Elevation: 88.9 ft
2.12.6 Touchdown Zone Elevation: 95.2 ft

2.12.1 Designation: 26
2.12.2 True Bearing: 275
2.12.3 Dimensions: 4900 ft x 150 ft
2.12.4 PCN: 62 F/B/X/T
2.12.5 Coordinates: 55−11−53.1425N / 162−42−32.588W
2.12.6 Threshold Elevation: 99.5 ft
2.12.6 Touchdown Zone Elevation: 99.5 ft

2.12.1 Designation: 15
2.12.2 True Bearing: 158
2.12.3 Dimensions: 10179 ft x 150 ft
2.12.4 PCN: 62 F/B/X/T
2.12.5 Coordinates: 55−13−20.4998N / 162−44−16.4235W
2.12.6 Threshold Elevation: 72.5 ft
2.12.6 Touchdown Zone Elevation: 75 ft

2.12.1 Designation: 33
2.12.2 True Bearing: 338
2.12.3 Dimensions: 10179 ft x 150 ft
2.12.4 PCN: 62 F/B/X/T
2.12.5 Coordinates: 55−11−47.2428N / 162−43−11.707W
2.12.6 Threshold Elevation: 93.3 ft
2.12.6 Touchdown Zone Elevation: 93.4 ft

AD 2.13 Declared Distances
2.13.1 Designation: 08
2.13.2 Take−off Run Available: 4900 ft
2.13.3 Take−off Distance Available: 4900 ft
2.13.4 Accelerate−Stop Distance Available: 4900 ft
2.13.5 Landing Distance Available: 4900 ft

2.13.1 Designation: 26
2.13.2 Take−off Run Available: 4900 ft
2.13.3 Take−off Distance Available: 4900 ft
2.13.4 Accelerate−Stop Distance Available: 4900 ft
2.13.5 Landing Distance Available: 4900 ft

2.13.1 Designation: 15
2.13.2 Take−off Run Available: 10180 ft
2.13.3 Take−off Distance Available: 10180 ft
2.13.4 Accelerate−Stop Distance Available: 10180 ft
2.13.5 Landing Distance Available: 10180 ft

2.13.1 Designation: 33
2.13.2 Take−off Run Available: 10180 ft
2.13.3 Take−off Distance Available: 10180 ft
2.13.4 Accelerate−Stop Distance Available: 10180 ft
2.13.5 Landing Distance Available: 10180 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 08
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 15
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 33
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 15. Magnetic variation: 12E
2.19.2 ILS Identification: CDB
2.19.5 Coordinates: 55−13−12.7692N / 162−44−3.6464W
2.19.6 Site Elevation: 71 ft

2.19.1 ILS Type: Localizer for runway 15. Magnetic variation: 12E
2.19.2 ILS Identification: CDB
2.19.5 Coordinates: 55−11−40.9813N / 162−43−7.3592W
2.19.6 Site Elevation: 95.9 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 10E
2.19.2 Navigation Aid Identification: CDB
2.19.5 Coordinates: 55−16−2.2606N / 162−46−26.3866W
2.19.6 Site Elevation: 98.5 ft

General Remarks:
PERSONNEL & EQUIP ON RWY.

SNOW, ICE REMOVAL & ARPT HAZ RPRTG DURG DUTY HR UNLESS PRIOR ARNGMT IN WRITING − AMGR.

ARPT SAND LRGR GRADE THAN FAA RCMDD/SEE AC150/5200−30.

NWS BALLOON LAUNCH FAC LCTD ON ARPT; SEE INSIDE BACK COVER FOR DETAILS.

WX CAMERA AVBL − HTTPS://WEATHERCAMS.FAA.GOV

NO CUSTOMS AVBL; 24−48 HR WRITTEN PPR FOR FOREIGN ARR RFLG STOPS − FAX 907−271−2684 OR 907−271−2686.

UNLGTD TWR 0.4 NM N; UNLGTD TWR 0.9 NM S; UNLGTD TWR 4.8 NM NW.

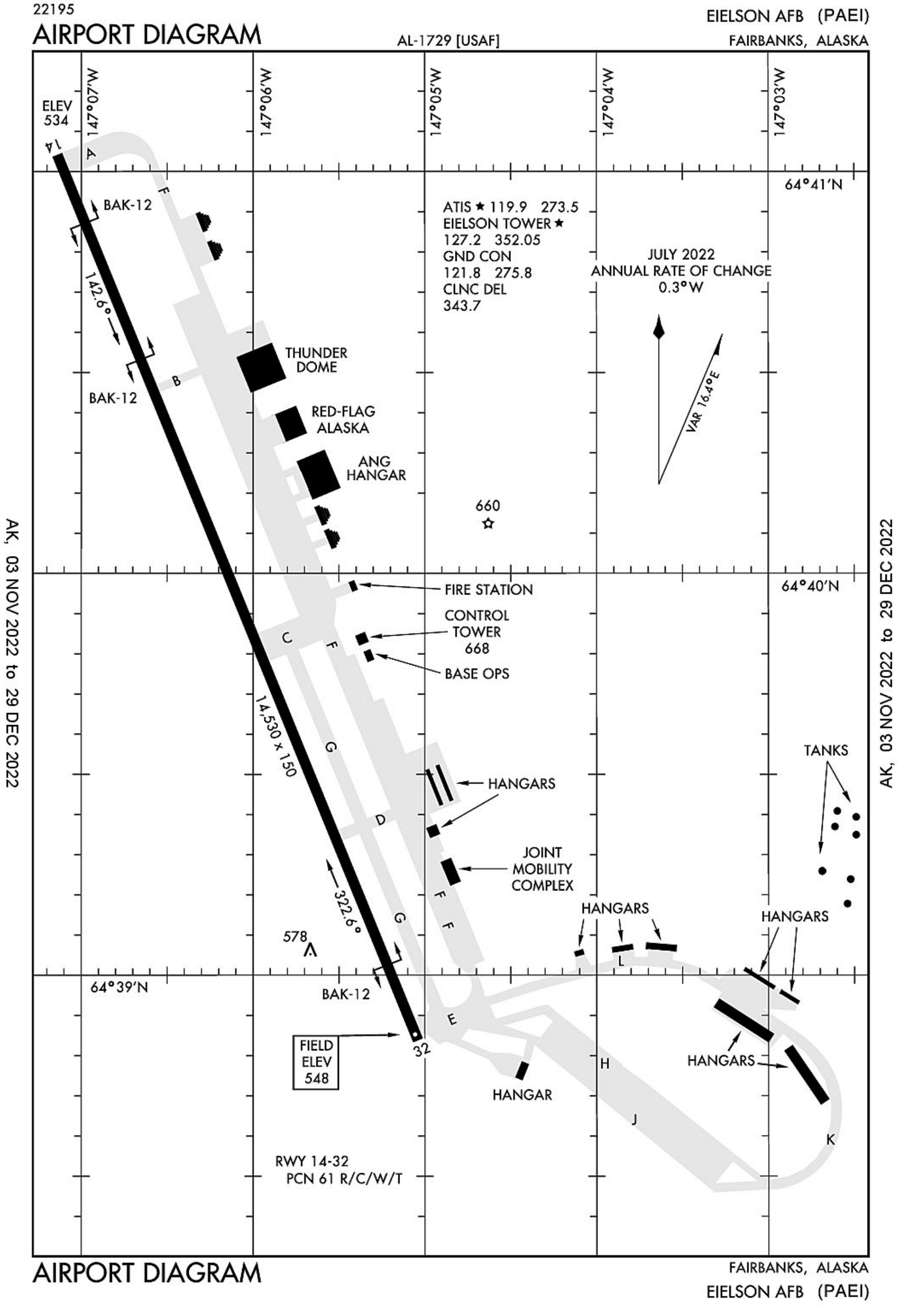
BRAKELOCK TURNS NA.

ROTG BCN UNMON WHEN FSS UNMANNED.

CFR INDEX B; MAY BE REDUCED FOR ACFT LESS THAN 90 FT.

BIRDS INVOF ALL RWY APCH ENDS.

Fairbanks, Alaska
Eielson AFB
ICAO Identifier PAEI



Fairbanks, AK
Eielson AFB
ICAO Identifier PAEI

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 64−39−56.32N / 147−6−5.18W
2.2.2 From City: 17 miles SE of FAIRBANKS, AK
2.2.3 Elevation: 547.5 ft
2.2.5 Magnetic Variation: 19E (2015)
2.2.6 Airport Contact: CHIEF AIRFIELD MANAGEMENT
343 CSG/OTM
EIELSON AFB, AK 99702 (907−377−3201)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, 1600−0800Z++ Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: NO
2.4.2 Fuel Types:
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: None

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: None

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 32
2.12.2 True Bearing: 339
2.12.3 Dimensions: 14530 ft x 150 ft
2.12.4 PCN: 61 R/C/W/T
2.12.5 Coordinates: 64−38−49.48N / 147−5−5.85W
2.12.6 Threshold Elevation: 547.5 ft
2.12.6 Touchdown Zone Elevation: 547.5 ft

2.12.1 Designation: 14
2.12.2 True Bearing: 159
2.12.3 Dimensions: 14530 ft x 150 ft
2.12.4 PCN: 61 R/C/W/T
2.12.5 Coordinates: 64−41−3.14N / 147−7−4.52W
2.12.6 Threshold Elevation: 533.9 ft
2.12.6 Touchdown Zone Elevation: 536.8 ft

AD 2.13 Declared Distances
2.13.1 Designation: 32
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 14
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 32
2.14.2 Approach Lighting System: ALSF1
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 14
2.14.2 Approach Lighting System: ALSF1
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 14. Magnetic variation: 19E
2.19.2 ILS Identification: EIL
2.19.5 Coordinates: 64−40−51.59N / 147−7−6.54W
2.19.6 Site Elevation: 532 ft

2.19.1 ILS Type: Localizer for runway 14. Magnetic variation: 19E
2.19.2 ILS Identification: EIL
2.19.5 Coordinates: 64−38−33.05N / 147−4−51.27W
2.19.6 Site Elevation: 548 ft

2.19.1 ILS Type: Glide Slope for runway 32. Magnetic variation: 19E
2.19.2 ILS Identification: EAF
2.19.5 Coordinates: 64−38−58.93N / 147−5−25.28W
2.19.6 Site Elevation: 540 ft

2.19.1 ILS Type: Localizer for runway 32. Magnetic variation: 19E
2.19.2 ILS Identification: EAF
2.19.5 Coordinates: 64−41−22.13N / 147−7−21.41W
2.19.6 Site Elevation: 528 ft

2.19.1 Navigation Aid Type: TACAN. Magnetic variation: 19E
2.19.2 Navigation Aid Identification: EIL
2.19.5 Coordinates: 64−39−13.67N / 147−5−38.21W
2.19.6 Site Elevation: 542.4 ft

General Remarks:
SEE AP1 SUP RMKS: BASE OPS COMSEC RESPONSIBILITY NA; LTD SECRET & COMSEC STORAGE AVBL. TOP SECRET & COMSEC INFO − COMMAND POST D317−377−1500.

ALASKA ANG 168TH AREFS OPS − D317−377−8800/C907−377−8800. ANG OPS H24 − D317−377−1861/3201.

AIR TERM & GND HANDLING SVC 1630−0030Z++ WKDAY; PPR OR EXP DELAY − AFLD MGMT.

EXTSV FUEL DELAYS DURG RED FLAG ALASKA EXER APR−OCT.

CARGO & ACR CTC COMMAND POST 3 HR PRIOR & 30 MIN PROIR TO LNDG.

MAINT OPS CNTR PPR 48 HR FM ETA − D317−377−1205. DEPLOYED OR STAGED ACFT TA SUPPORT NA BYD INITIAL BLOCK IN/FINAL BLOCK OUT; EXC MAJCOM EXER AT EIELSON. UHF PREF PAT FREQ.

FAIRBANKS FSS − 474−0137. FLT ADZY OR RSTRD & MIL OPRG AREA STATUS − EIELSON RANGE CTL SUAIS RADIO 125.3 OR 1−800−758−8723.

AVOID SMALL ARMS RANGE 2.5 NM E OF RWY 32 END; WKEND 1700−0100Z++; SFC − 3500 FT AGL.

CRYPTO MTRL TSNT CREW NOT AVBL. VIP 30 MIN PPR WITH CHOCK TIME − AFLD MGMT. LTD FLEET SVC. NO POTABLE WATER.

PRIME KNGHT NOT AVBL.

CTN: NSTD LGT; 2000 FT RWY EDGE LGT BTN D − C TWY; 12 FT FM RWY EDGE.

UNMNT WHEN PAEI ATCT CLSD. WX H24 − D317−377−3140/1160 FM 1600−0800Z−; 0800−1600Z− COMD POST D317−377−1500. SVC PRIORITY FOR TO LCL FLYING SKED.

PTNS OF APRON O ROW & S RAMP NOT VIS FROM TWR.

PMSV: METRO BLW 3000 FT RECEPTION FM 300−090 LTD BYD 15 NM; BLW 15000 FT LTD BYD 75 NM; NOT LTD WI 100 NM AT 20000 FT.

FICON & RWY COND CODE NOT RPRTD.

BASH PHASE II APR, MAY, AUG & SEP. GULLS, DUCKS & GEESE POSE HAZARD WHEN STANDING WATER ON FLD. RPT BIRD & ANIMAL STRIKES INVOF ARPT TO AFLD MGMT − D317−377−186, PTD OR 354 FW/SE D317−377−4110.

N & S BARRIER RUNOUT REDUCED TO 950 FT.

EIELSON AFB IS A 1 MOG STATION.

ARFF STATUS CRITICAL LVL OF SVC (CLS) 62% FOR USAF CAT 10; REDUCED LVL OF SVC (RLS) 81% FOR USAF CAT 9.

TSNT BRIEFING AFT OPS HR − 17TH OWS AT JOINT BASE PEARL HARBOR−HICKAM D315−449−8333/7950/C808−449−8333/7950 OR D315−448−3809/C808−448−3809.

BIRD WATCH COND MOD LCL PAT LTD TO MIN RQR WITH OG/CC APVL; TGL, FORMATION TKOF/LNDG NA; LOW APCH LTD TO 300 FT AGL. BIRD WATCH COND SVR; TKOF, PAT & LNDG NA EXC EMERG.

FONE PATCH THRU 354 FW/CP − 907−377−1500/FMQ19 907−377−5846.

AUGMENTATION CAPABLE 1600−0800Z−. DURG WX STN EVAC − WX SQDN AT NR ABV. ALT WX LCTN VSBY LTD.

PPR 5 DAYS − 24 HR PRIOR TO ARR − ARFLD MGMT D317−377−1861/C907−377−1861. PPR GOOD +/− 30 MIN ARR TIME; COORD PPR AFT TIME BY FONE OR PPR CNLD. EXP ARR TIME RSTRN EXC AIR EVAC & DV CODE 7 & UP.

MOOSE ON & INVOF RWY.

CONTINGENCY OPS − AMGR.

NO ENG RUNNING ON LOAD/OFF LOAD. ERO SVC AVBL FOR AMC ACFT.

LOOP TWY E OF CORROSION HANGAR 1348 THRU 4/8 BAY AREA RSTRD TO WINGSPAN 45 FT OR LESS.

TRAN ALERT: TSNT MAINT LTD TO F16 SVCG UPON AIRCREW REQ. F16 THRU FLIGHT/BPO/PREFLIGHT INSP NA.

PACAF FTR ARR EXP RDCD RWY SEP; SIMILAR TYPE/DAY − 3000 FT; DISSIMILAR TYPE, NGT, WET RWY, BHND FRMN OR RCR LESS THAN 17 − 6000 FT; FTR LDG BHND NON FTR − 9000 FT; RCR VALIDATED AS COND WARRANT.

TRANS ALERT SVC 0700−0000 MON−FRI EXP HOL; AFT HR PPR − BASOPS.

QUIET HR 0700−1500Z−; TKOF, LDG, LO APCH, OR TGL NA; EXC OG/ CC APVL. UNCTLD TKOF/LDG NA.

CTN: FIRE HYDRANTS 64 FT NE OF TWY H CNTLN.

RADIO/NAV/WX RMRKS − (F) 1500−0700Z ++ DAILY.

PAEW ON RWY WHEN TWR UNMANNED.

VHF PTD FREQ UNMNT.

MIL FLUID DE−ICE AVBL; ANTI ICE UNAVBL.

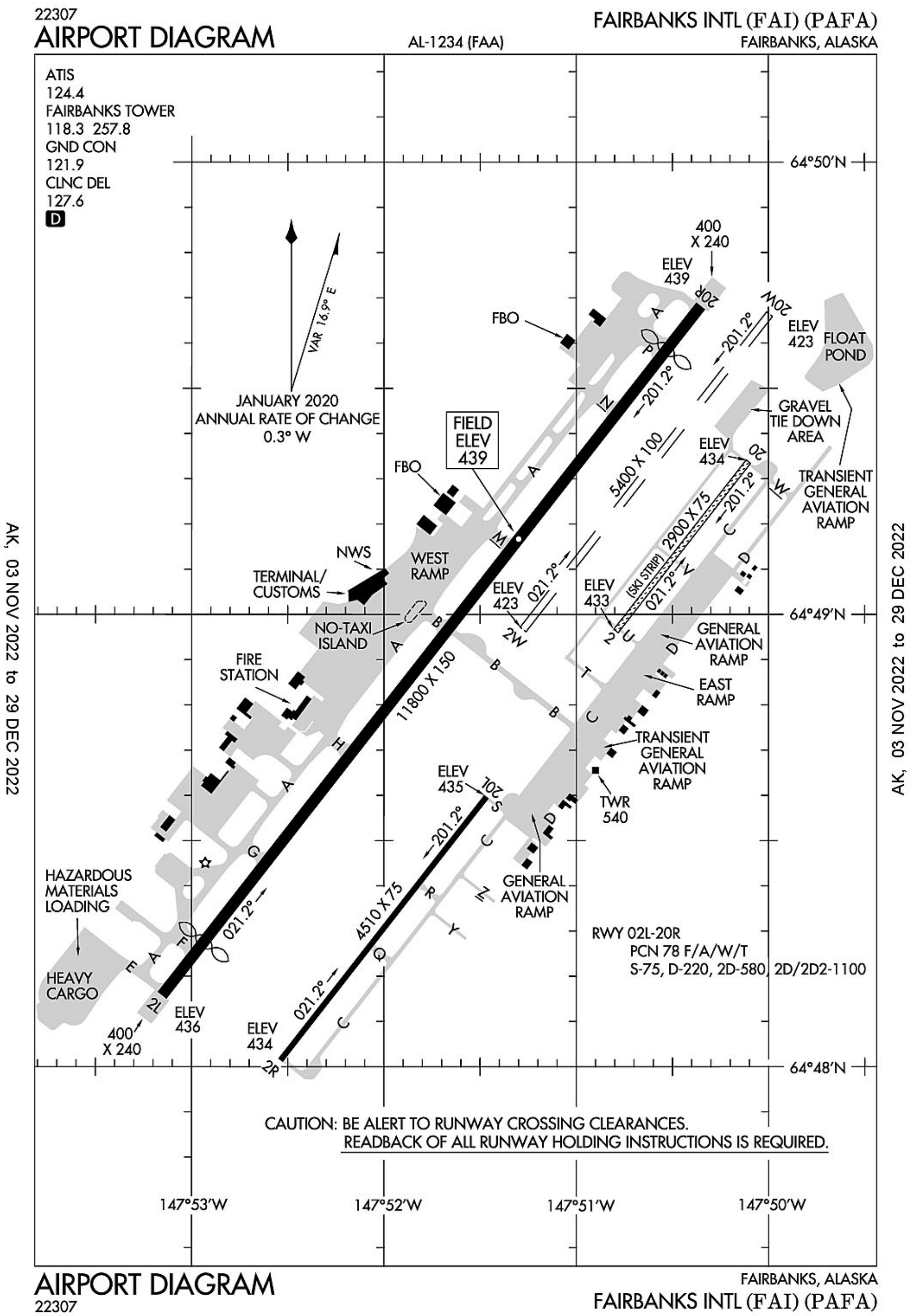
FILE FLT PLAN 2 HR BFR DEP. ARR RQR CUSTOMS 1.5 HR PPR − COMMAND POST. U.S. IMMIGRATION SVC NOT AVBL.

OVHD TFC PAT ALT 2000 FT MSL; RECTANGULAR TFC PAT ALT 1500 FT MSL.

RWY 14/32 BAK−12 DEP END CABLES IN RAISED POSITION; BAK−12 AER 14/32 AVBL WITH 20 MIN PRIOR NOTICE. NORTH BARRIER RUNOUT REDUCED TO 950 FT, HOOK EQUIPPPED ACFT BE ALERT.

ARPT OPR 1600−0800Z++.

Fairbanks, Alaska
Fairbanks International
ICAO Identifier PAFA



Fairbanks, AK
Fairbanks Intl
ICAO Identifier PAFA

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 64−48−55.28N / 147−51−24W
2.2.2 From City: 3 miles SW of FAIRBANKS, AK
2.2.3 Elevation: 439 ft
2.2.5 Magnetic Variation: 15E (2025)
2.2.6 Airport Contact: ANGIE SPEAR
6450 AIRPORT WAY − SUITE 1
FAIRBANKS, AK 99709 (907−474−2500)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A1
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 3/1/2005

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 02
2.12.2 True Bearing: 38
2.12.3 Dimensions: 2900 ft x 75 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 64−48−57.8002N / 147−50−47.5998W
2.12.6 Threshold Elevation: 433 ft
2.12.6 Touchdown Zone Elevation: 434.6 ft

2.12.1 Designation: 20
2.12.2 True Bearing: 218
2.12.3 Dimensions: 2900 ft x 75 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 64−49−20.2644N / 147−50−6.2715W
2.12.6 Threshold Elevation: 433.6 ft
2.12.6 Touchdown Zone Elevation: 434.6 ft

2.12.1 Designation: 02L
2.12.2 True Bearing: 38
2.12.3 Dimensions: 11800 ft x 150 ft
2.12.4 PCN: 78 F/A/W/T
2.12.5 Coordinates: 64−48−9.4756N / 147−53−9.1838W
2.12.6 Threshold Elevation: 435.6 ft
2.12.6 Touchdown Zone Elevation: 438.6 ft

2.12.1 Designation: 20R
2.12.2 True Bearing: 218
2.12.3 Dimensions: 11800 ft x 150 ft
2.12.4 PCN: 78 F/A/W/T
2.12.5 Coordinates: 64−49−40.9108N / 147−50−21.1293W
2.12.6 Threshold Elevation: 438.9 ft
2.12.6 Touchdown Zone Elevation: 439 ft

2.12.1 Designation: 02R
2.12.2 True Bearing: 38
2.12.3 Dimensions: 4510 ft x 75 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 64−48−0.8616N / 147−52−32.2332W
2.12.6 Threshold Elevation: 433.5 ft
2.12.6 Touchdown Zone Elevation: 433.8 ft

2.12.1 Designation: 20L
2.12.2 True Bearing: 218
2.12.3 Dimensions: 4510 ft x 75 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 64−48−35.8092N / 147−51−28.0275W
2.12.6 Threshold Elevation: 434.5 ft
2.12.6 Touchdown Zone Elevation: 434.5 ft

2.12.1 Designation: 20W
2.12.2 True Bearing: 218
2.12.3 Dimensions: 5400 ft x 100 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 64−49−39.8349N / 147−49−59.6293W
2.12.6 Threshold Elevation: 423.4 ft
2.12.6 Touchdown Zone Elevation: 423.4 ft

2.12.1 Designation: 02W
2.12.2 True Bearing: 38
2.12.3 Dimensions: 5400 ft x 100 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 64−48−58.0039N / 147−51−16.5892W
2.12.6 Threshold Elevation: 423.4 ft
2.12.6 Touchdown Zone Elevation: 423.4 ft

AD 2.13 Declared Distances

2.13.1 Designation: 02
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 20
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft

2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 02L
2.13.2 Take−off Run Available: 11800 ft
2.13.3 Take−off Distance Available: 12800 ft
2.13.4 Accelerate−Stop Distance Available: 11800 ft
2.13.5 Landing Distance Available: 11050 ft

2.13.1 Designation: 20R
2.13.2 Take−off Run Available: 11800 ft
2.13.3 Take−off Distance Available: 12800 ft
2.13.4 Accelerate−Stop Distance Available: 11800 ft
2.13.5 Landing Distance Available: 11050 ft

2.13.1 Designation: 02R
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 20L
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 20W
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 02W
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 02
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 20
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 02L
2.14.2 Approach Lighting System: ALSF2

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 20R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 02R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 20L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 20W
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 02W
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P DEP/P (360−179)
2.14.3 Channel: 127.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (360−179)
2.14.3 Channel: 251.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (180−359)
2.14.3 Channel: 125.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (180−359)
2.14.3 Channel: 363.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S
2.14.3 Channel: 119.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ATIS
2.14.3 Channel: 124.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 127.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/S
2.14.3 Channel: 327.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 118.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TRSA (180−359)
2.14.3 Channel: 125.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TRSA (360−179)
2.14.3 Channel: 127.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TRSA (360−179)
2.14.3 Channel: 251.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TRSA (180−359)
2.14.3 Channel: 363.2
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 02L. Magnetic variation: 15E
2.19.2 ILS Identification: CNA
2.19.5 Coordinates: 64−49−50.7376N / 147−50−15.0194W
2.19.6 Site Elevation: 434.8 ft

2.19.1 ILS Type: Glide Slope for runway 02L. Magnetic variation: 15E
2.19.2 ILS Identification: CNA
2.19.5 Coordinates: 64−48−21.0041N / 147−52−36.2974W

2.19.6 Site Elevation: 431.4 ft

2.19.1 ILS Type: Inner Marker for runway 02L. Magnetic variation: 15E
2.19.2 ILS Identification: CNA
2.19.5 Coordinates: 64−48−7.6611N / 147−53−12.5267W
2.19.6 Site Elevation: 429.8 ft

2.19.1 ILS Type: Localizer for runway 02L. Magnetic variation: 15E
2.19.2 ILS Identification: CNA
2.19.5 Coordinates: 64−49−49.8419N / 147−50−4.688W
2.19.6 Site Elevation: 438.1 ft

2.19.1 ILS Type: DME for runway 20R. Magnetic variation: 15E
2.19.2 ILS Identification: FAI
2.19.5 Coordinates: 64−48−2.289N / 147−53−30.754W
2.19.6 Site Elevation: 430 ft

2.19.1 ILS Type: Glide Slope for runway 20R. Magnetic variation: 15E
2.19.2 ILS Identification: FAI
2.19.5 Coordinates: 64−49−24.4215N / 147−50−39.7123W
2.19.6 Site Elevation: 434.3 ft

2.19.1 ILS Type: Localizer for runway 20R. Magnetic variation: 15E
2.19.2 ILS Identification: FAI
2.19.5 Coordinates: 64−48−1.4733N / 147−53−23.8771W
2.19.6 Site Elevation: 429.1 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 21E
2.19.2 Navigation Aid Identification: FAI
2.19.5 Coordinates: 64−48−0.2537N / 148−0−43.1132W
2.19.6 Site Elevation: 1526.4 ft

General Remarks:
WATERLANE IS CONTROLLED; CTC ATCT ON FREQ 118.3 FOR APPROVAL. WATERLANE THRESHOLD BUOYS ARE 500 FROM N AND S SHORES AND MARK WATERLANE. STEP TAXI PROHIBITED OUTSIDE OF WATERLANE. EAST OF WATERLANE IS UNCONTROLLED; AIRCRAFT MAY TAXI IN THIS AREA AT PILOT DISCRETION. RECOMMEND CTC CLNC DEL AS SOON AS PRACTICAL AFTER ENG START. SFC FROZEN IN WINTER, NOT MONITORED. LIMITED TRANSIENT FLOAT PLANE PARKING AVBL CTC 907–455–4571. MIGRATORY BIRDS IN THE VICINITY OF ARPT DURING SPRING THRU FALL.

ALL RWY HOLD LINES OBSCURED OCTOBER 1 THRU APRIL 1.

WX CAMERA AVBL ON INTERNET AT HTTPS://WEATHERCAMS.FAA.GOV.

NWS WEATHER BALLOON LAUNCH SITE 2000 FEET WEST OF MIDFIELD RUNWAY 02L/20R. LAUNCHES ARE TWICE DAILY AT 1100 AND 2300 HOURS UTC.

MILITARY CONTRACT FUEL AVBL.

COLD TEMPERATURE AIRPORT. ALTITUDE CORRECTION REQUIRED AT OR BELOW −32C.

FOR AVBLTY OF SUMMER GRAVEL STRIP RWY 02/20 AND WINTER SKI STRIP RWY 02/20 CONSULT LOCAL NOTAMS AND CTC TWR PRIOR TO ARRIVAL /DEPARTURE.

TWY B SECURITY GATE BETWEEN RWY 02L/20R AND TWY CHARLIE KEY 121.75 5 TIMES TO ACTIVATE. IF TWY B GATE INOPERATIVE, WAIT 30 SECONDS TO RESET AND TRY AGAIN. IF UNSUCCESSFUL, NOTIFY FAI OPS, 907−451−2300

COMPASS ROSE NOT CALIBRATED.

FOR TRANSIENT HELICOPTER PARKING CALL ARPT OPS 907−451−2300.

RWY 02R/20L & RWY GRVL/SKI 02/20 NOT AVBL FOR SCHEDULED OR UNSCHEDULED ACR OPNS WITH MORE THAN 30 PSGR SEATS.

FOR FLIGHTS IN MOAS EAST OF FAIRBANKS RECOMMEND CONTACTING EIELSON RANGR CONTROL ON 125.3/126.3 OR CALL 1−800−758−8723 FOR INFORMATION ON MILITARY ACTIVITES.

ATCT LOCATED AT 64−48−39.438N 147−50−55.722W, ELEVATION 538 FT MSL.

BE ALERT FOR SNOW REMOVAL EQUIPMENT OPNS FM 1 OCT TO 15 MAY.

TRANSIENT PARKING EAST RAMP FOR ACFT WITH WINGSPAN LESS THAN 79 FT. NO TRANSIENT ACFT PARKING ON WEST RAMP, CTC APT OPS 907−451−2300 FOR INFO & MEDIVAC PARKING.

PPR FOR MIL ACFT UTILIZING HEAVY CARGO OR TRML APN, CTC APRT OPS

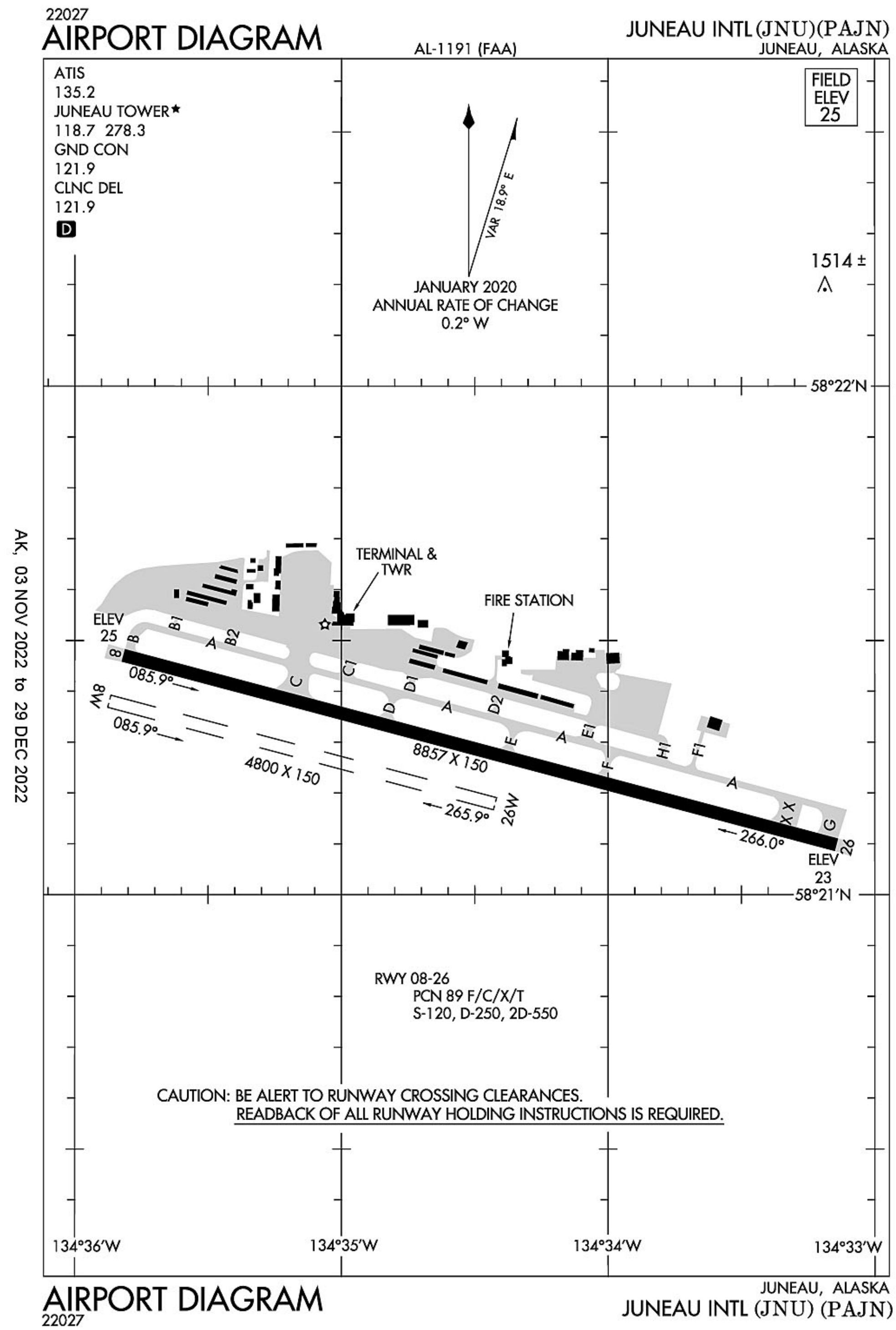
NOISE ABATEMENT PROCEDURES IN EFECT FM 2200−0800 ALL LARGE ACFT, TURBINE ENGINE, AND HEAVY ACFT UTILIZE RWY 02L FOR ARRS AND RWY 20R FOR DEPS WHEN WIND IS NOT AN OPERATIOINAL FACTOR. CTC APRT OPNS FOR ENGINE RUN−UP LOCATIONS.

N/S TAXIWAY (TWY A) IS WEST AND PARALLEL TO RWY 02L/20R. BE ALERT TO AVOID LANDING ON TAXIWAY.

SEE ADDITIONAL PAGES UNDER NOTICES FOR TRSA AND FAIRBANKS AREA INFORMATION.

RWY 02R/20L IS LIMITED FOR USE BY ACFT DESIGN GROUP B II, ACFT OR SMALLER.

Juneau, Alaska
Juneau International
ICAO Identifier PAJN



Juneau, AK
Juneau Intl
ICAO Identifier PAJN

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 58−21−16.9625N / 134−34−42.4939W
2.2.2 From City: 7 miles NW of JUNEAU, AK
2.2.3 Elevation: 25.3 ft
2.2.5 Magnetic Variation: 20E (2015)
2.2.6 Airport Contact: PATTY WAHTO
1873 SHELL SIMMONS DR, SUITE 200
JUNEAU, AK 99801 (907−789−7821)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A1+
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 4/1/2005

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 08
2.12.2 True Bearing: 105
2.12.3 Dimensions: 8857 ft x 150 ft
2.12.4 PCN: 89 F/C/X/T
2.12.5 Coordinates: 58−21−28.25N / 134−35−49.09W
2.12.6 Threshold Elevation: 25 ft
2.12.6 Touchdown Zone Elevation: 25 ft

2.12.1 Designation: 26
2.12.2 True Bearing: 285
2.12.3 Dimensions: 8857 ft x 150 ft
2.12.4 PCN: 89 F/C/X/T
2.12.5 Coordinates: 58−21−5.88N / 134−33−8.63W
2.12.6 Threshold Elevation: 23.4 ft
2.12.6 Touchdown Zone Elevation: 23.4 ft

2.12.1 Designation: 08W
2.12.2 True Bearing:
2.12.3 Dimensions: 4800 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 58−21−22.82N / 134−35−52.23W
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

2.12.1 Designation: 26W
2.12.2 True Bearing:
2.12.3 Dimensions: 4800 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 58−21−10.71N / 134−34−25.26W
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

AD 2.13 Declared Distances
2.13.1 Designation: 08
2.13.2 Take−off Run Available: 8857 ft
2.13.3 Take−off Distance Available: 8857 ft
2.13.4 Accelerate−Stop Distance Available: 8457 ft
2.13.5 Landing Distance Available: 8457 ft

2.13.1 Designation: 26
2.13.2 Take−off Run Available: 8857 ft
2.13.3 Take−off Distance Available: 8857 ft
2.13.4 Accelerate−Stop Distance Available: 8457 ft
2.13.5 Landing Distance Available: 8457 ft

2.13.1 Designation: 08W
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 26W
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 08
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: V2L

2.14.1 Designation: 26
2.14.2 Approach Lighting System: MALS
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08W
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 26W
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 08. Magnetic variation: 20E
2.19.2 ILS Identification: JDL
2.19.5 Coordinates: 58−21−31.0221N / 134−38−10.216W
2.19.6 Site Elevation: 179.8 ft

2.19.1 ILS Type: Localizer for runway 08. Magnetic variation: 20E
2.19.2 ILS Identification: JDL
2.19.5 Coordinates: 58−21−32.035N / 134−38−10.3944W
2.19.6 Site Elevation: 165 ft

2.19.1 ILS Type: Outer Marker for runway 08. Magnetic variation: 20E
2.19.2 ILS Identification: JDL
2.19.5 Coordinates: 58−21−33.5717N / 134−41−58.0236W
2.19.6 Site Elevation: 57.9 ft

General Remarks:
FOR LCL CALL TO JUNEAU FSS CALL 907−789−7380.

TRANSIENT DOCK AVBL FOR PUBLIC USE FOR UP TO SIX ACFT, SW CORNER.

RY 08/26 SAND USED TO ENHANCE RY FRICTION MAY NOT MEET FAA SPECS.

TPA 1500 AGL FOR LARGE TURBINE ACFT; 1000 FT AGL FOR FIXED WING ACFT; 500 FT AGL FOR HELICOPTERS.

APRON TERMINAL RAMP CLSD TO ROTORCRAFT. APRON US CUSTOMS RAMP CLSD TO ACFT WITH WINGSPAN MORE THAN 79 FT INTL ACFT WITH WINGSPAN MORE THAN 79 FT AND ALL INTL ROTORCRAFT USE E−1 RAMP (NTL GUARD RAMP).

WILDLIFE & BIRDS ON & INVOF ARPT.

BATTLESHIP ISLAND RLLS GROUPING; CENTER LIGHT 582132.88N 1344012.22W. IJDL−LOCALIZER RLLS GROUPING; CENTER LIGHT 582132.02N 1343810.39W.

COLD TEMPERATURE AIRPORT. ALTITUDE CORRECTION REQUIRED AT OR BELOW −0C.

LENA POINT, PEDERSON HILL AND SISTERS ISLAND WX CAMERAS AVBL ON INTERNET AT HTTPS://WEATHERCAMS.FAA.GOV

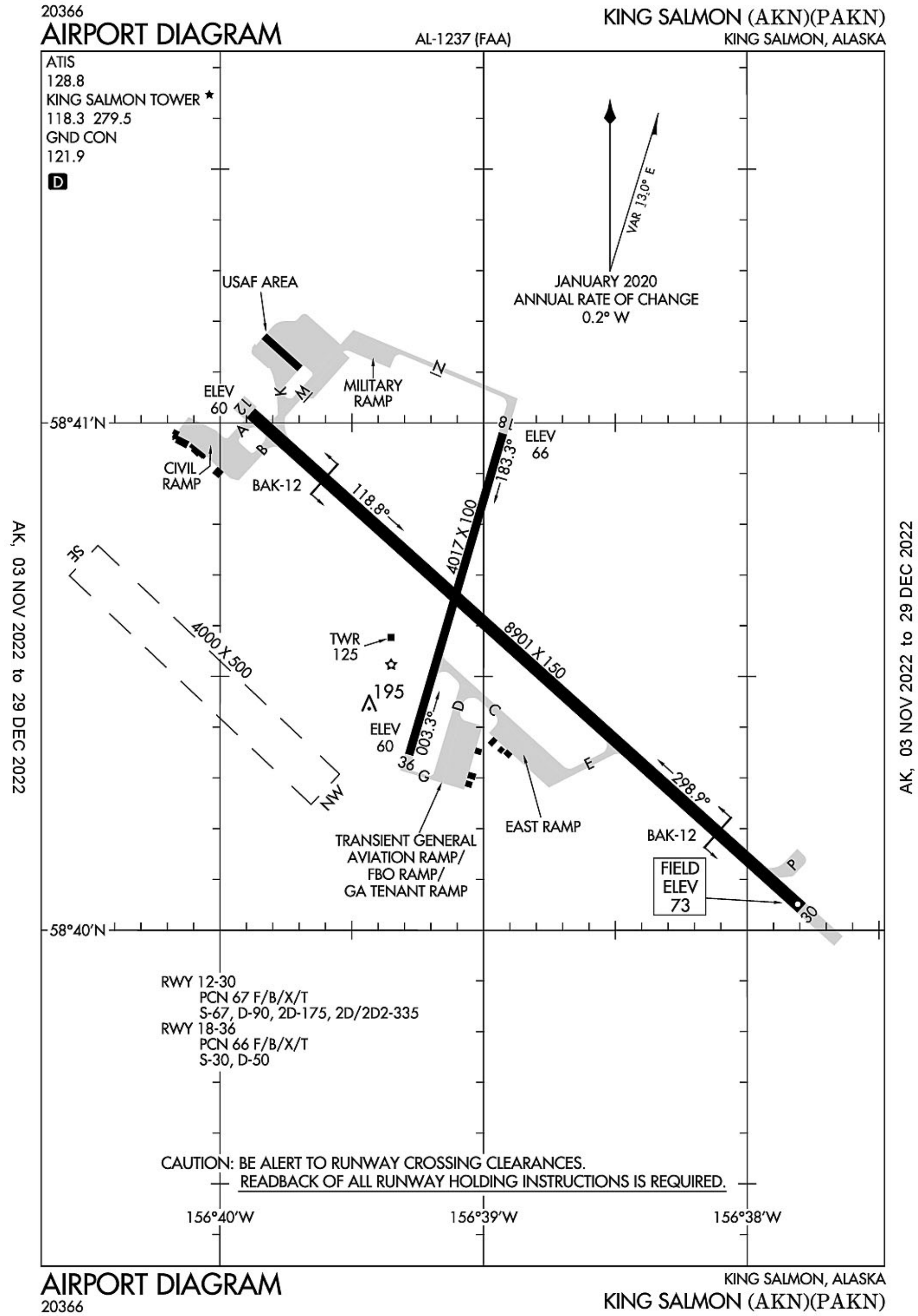
PARAGLIDING ACTIVITY 3 MILES N OF ARPT INVOF THUNDER MOUNTAIN & OVER GASTINEAU CHANNEL NEARS DOWNTOWN APR 15−OCT 1 6000 FT & BLO.

INCREASED HELICOPTER/LIGH ACFT ACTIVITY APR 15−OCT 1 ENTIRE LENGTH ON GASTINEAU CHANNEL & WITHIN 5 MILES OF ARPT.

NATIONAL GUARD 24 HR PPR DUE TO LIMITED PARKING C907−789−3366. 0730−1600 WEEKDAYS CONTACT GUARD OPS 10 MIN PRIOR TO LANDING ON 124.65.

SEE SPECIAL NOTICES AND GENERAL NOTICES FOR ADDITIONAL INFORMATION ON OPNS IN JUNEAU AREA.

King Salmon, Alaska
King Salmon
ICAO Identifier PAKN



King Salmon, AK
King Salmon
ICAO Identifier PAKN

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 58−40−35.3765N / 156−38−55.2876W
2.2.2 From City: 0 miles SE of KING SALMON, AK
2.2.3 Elevation: 73.4 ft
2.2.5 Magnetic Variation: 11E (2025)
2.2.6 Airport Contact: FLOYD WILSON
PO BOX 65
KING SALMON, AK 99613 (907−246−3325)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, 0700−1700 Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I B certified on 3/21/2005

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 12
2.12.2 True Bearing: 132
2.12.3 Dimensions: 8901 ft x 150 ft
2.12.4 PCN: 67 F/B/X/T
2.12.5 Coordinates: 58−41−2.184N / 156−39−53.0154W
2.12.6 Threshold Elevation: 59.9 ft
2.12.6 Touchdown Zone Elevation: 61.8 ft

2.12.1 Designation: 30
2.12.2 True Bearing: 312
2.12.3 Dimensions: 8901 ft x 150 ft
2.12.4 PCN: 67 F/B/X/T
2.12.5 Coordinates: 58−40−3.68N / 156−37−47.63W
2.12.6 Threshold Elevation: 73.4 ft
2.12.6 Touchdown Zone Elevation: 73.4 ft

2.12.1 Designation: 18
2.12.2 True Bearing: 196
2.12.3 Dimensions: 4017 ft x 100 ft
2.12.4 PCN: 66 F/B/X/T
2.12.5 Coordinates: 58−40−59.7835N / 156−38−55.6139W
2.12.6 Threshold Elevation: 66.1 ft
2.12.6 Touchdown Zone Elevation: 66.1 ft

2.12.1 Designation: 36
2.12.2 True Bearing: 16
2.12.3 Dimensions: 4017 ft x 100 ft
2.12.4 PCN: 66 F/B/X/T
2.12.5 Coordinates: 58−40−21.7997N / 156−39−16.9583W
2.12.6 Threshold Elevation: 59.9 ft
2.12.6 Touchdown Zone Elevation: 65.2 ft

2.12.1 Designation: NW
2.12.2 True Bearing:
2.12.3 Dimensions: 4000 ft x 500 ft
2.12.4 PCN: ///
2.12.5 Coordinates: −− / −−
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

2.12.1 Designation: SE
2.12.2 True Bearing:
2.12.3 Dimensions: 4000 ft x 500 ft
2.12.4 PCN: ///
2.12.5 Coordinates: −− / −−
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

AD 2.13 Declared Distances
2.13.1 Designation: 12
2.13.2 Take−off Run Available: 8901 ft
2.13.3 Take−off Distance Available: 8901 ft
2.13.4 Accelerate−Stop Distance Available: 8501 ft
2.13.5 Landing Distance Available: 8501 ft

2.13.1 Designation: 30
2.13.2 Take−off Run Available: 8901 ft
2.13.3 Take−off Distance Available: 8901 ft
2.13.4 Accelerate−Stop Distance Available: 8501 ft
2.13.5 Landing Distance Available: 8501 ft

2.13.1 Designation: 18
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 36
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: NW

2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: SE
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 12
2.14.2 Approach Lighting System: SSALR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 30
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 18
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 36
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: NW
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: SE
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 12. Magnetic variation: 11E
2.19.2 ILS Identification: AKN
2.19.5 Coordinates: 58−39−59.6N / 156−37−31.7W
2.19.6 Site Elevation: 78 ft

2.19.1 ILS Type: Glide Slope for runway 12. Magnetic variation: 11E
2.19.2 ILS Identification: AKN
2.19.5 Coordinates: 58−40−57.3435N / 156−39−29.887W
2.19.6 Site Elevation: 63.5 ft

2.19.1 ILS Type: Localizer for runway 12. Magnetic variation: 11E
2.19.2 ILS Identification: AKN
2.19.5 Coordinates: 58−39−56.5549N / 156−37−32.3734W
2.19.6 Site Elevation: 77.7 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 16E
2.19.2 Navigation Aid Identification: AKN
2.19.5 Coordinates: 58−43−28.9653N / 156−45−8.4483W
2.19.6 Site Elevation: 94.6 ft

General Remarks:
USAF FAC CIV OPRD WITH LTD SUPPORT; CALL 24 HR PRIOR TO ARR FOR OPS HR; MIL CONFIRM FUEL RQMNTS 24−48 HR PRIOR.

FIGHTER ARR EXP RDCD SEPN; SIMILAR APCH CHARCS & DALGT 3000 FT; DISSIMILAR APCH CHARCS & NGT 6000 FT; AHD/BHND FRMN LNDG 6000 FT.

FLOCKS OF LRG BIRDS INVOF DURG SEASON.

TWY P CLSD. APRON SPOTS 4 − 7 N OF MIL HANGAR CLSD EXC PROP ACFT.

RCR DURG 11TH AF FIGHTER FLYING WINDOW; COORD RCR WITH KING SALMON OPS 907−439−3001/907−439−6000. OPS RSTRD TO LOW APCH/FSL ONLY.

600 FT SAFETY AREA AER 12.

BUSINESS JET PRKG GTR THAN 1 HR 48 HR PPR.

FLIGHT ORIG OUTSIDE AK REFER TO USAF FCG; CSTMS NOT AVBL.

CIV TSNT PRKG ON SE RAMP ONLY; OTR PRKG GTR THAN 48 HR RQRS PERMIT.

LOCKED WHEEL TURN NA ALL SFCS.

MIL FIGHTER/EMERG DVRSN CTC WARRIOR/ELMENDORF SOF 395.15; NON FIGHTER/EMERG CTC KING SALMON OPS. 24 HR POINT MNTS CTAF DURG OPS HR.

GA APRON PAVEMENT CRUMBLING; PSBL FOD HAZ. JET ACFT BE ALERT DURG RUN UP TO AVOID JET WASH DMG.

SNOW/ICE REMOVAL & ARPT HAZ COND RPRTD DURG ATND HR.

OFF PAVEMENT OPS BY ACFT & HEL NA AT ACR APRON. LNDG, TKOF OR PRKG FM DIRT OR GRASS NA.

TSA REG ARPT; SEE 49 CFR 1542. ALL GATES & DOORS RMN SECURE ALL TIMES. TSNT OR UNFAMILIAR PILOTS − AMGR FOR INFO.

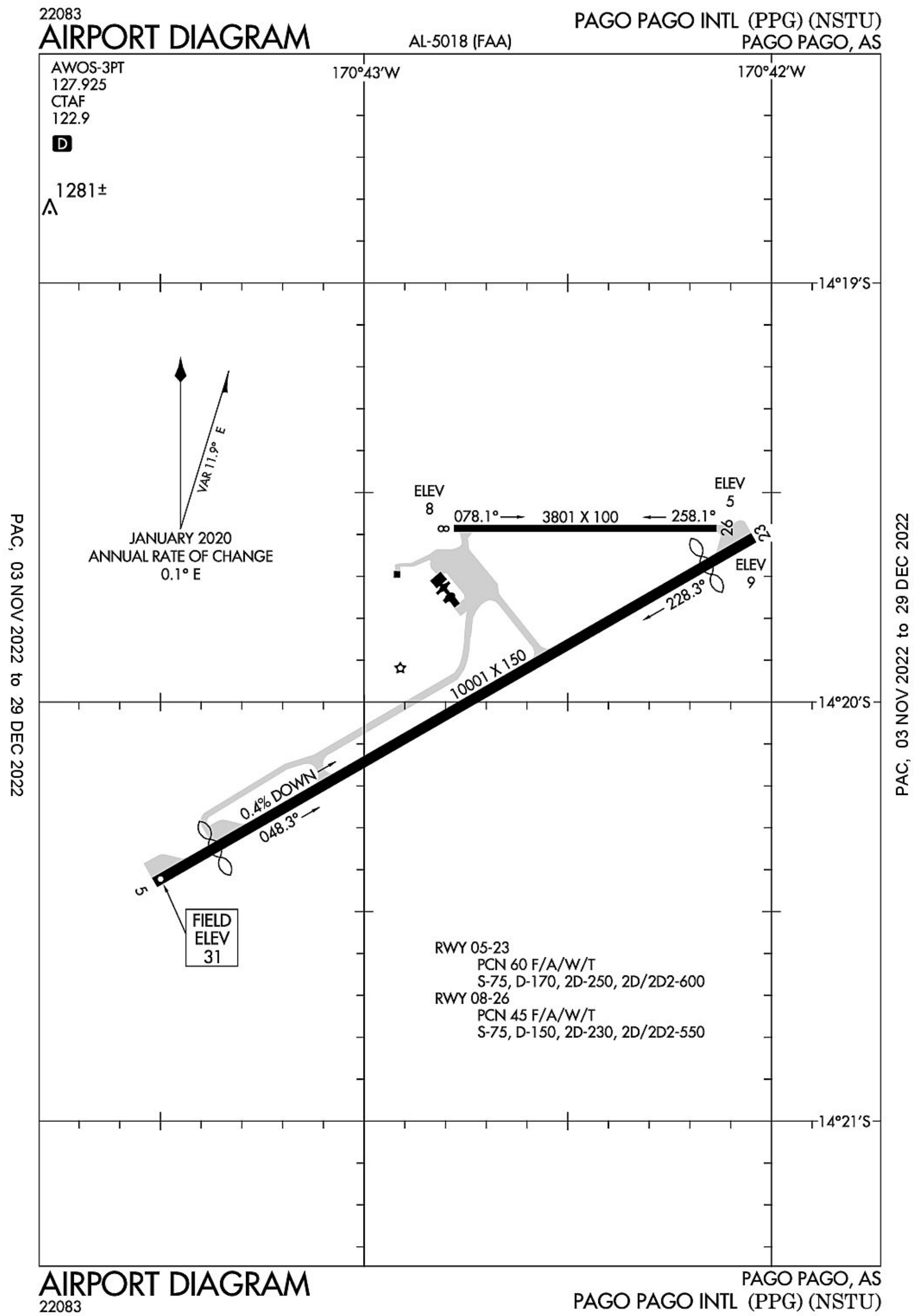
PVT JET PRKG SE SECTION OF E RAMP − AMGR FOR INFO.

WX CAMERA AVBL ON INTERNET AT HTTPS://WEATHERCAMS.FAA.GOV

ARFF AVBL FOR PART 121 ACR INVOLVED IN ETOPS WITH 30 MIN NOTICE.

NWS BLN LAUNCH FAC ON ARPT; SEE INSIDE BACK COVER FOR OPS DETAIL.

Pago Pago, American Samoa
Pago Pago/International
ICAO Identifier NSTU



Pago Pago, AS
Pago Pago Intl
ICAO Identifier NSTU

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 14−19−53.984S / 170−42−41.411W
2.2.2 From City: 3 miles SW of PAGO PAGO, AS
2.2.3 Elevation: 31.2 ft
2.2.5 Magnetic Variation: 12E (1990)
2.2.6 Airport Contact: CHRIS KING
1539 AIRPORT WAY P.O. BOX 1539
PAGO PAGO, AS 96799 (684−733−5464)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100,A1+
2.4.5 Hangar Space:
2.4.6 Repair Facilities: NONE

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 05
2.12.2 True Bearing: 60
2.12.3 Dimensions: 10001 ft x 150 ft
2.12.4 PCN: 60 F/A/W/T
2.12.5 Coordinates: 14−20−25.8311S / 170−43−30.8448W
2.12.6 Threshold Elevation: 31.2 ft
2.12.6 Touchdown Zone Elevation: 29.3 ft

2.12.1 Designation: 23
2.12.2 True Bearing: 240
2.12.3 Dimensions: 10001 ft x 150 ft
2.12.4 PCN: 60 F/A/W/T
2.12.5 Coordinates: 14−19−36.4755S / 170−42−2.6116W
2.12.6 Threshold Elevation: 8.7 ft
2.12.6 Touchdown Zone Elevation: 8.7 ft

2.12.1 Designation: 08
2.12.2 True Bearing: 90
2.12.3 Dimensions: 3801 ft x 100 ft
2.12.4 PCN: 45 F/A/W/T
2.12.5 Coordinates: 14−19−35.126S / 170−42−46.7563W
2.12.6 Threshold Elevation: 8.1 ft
2.12.6 Touchdown Zone Elevation: 8.1 ft

2.12.1 Designation: 26
2.12.2 True Bearing: 270
2.12.3 Dimensions: 3801 ft x 100 ft
2.12.4 PCN: 45 F/A/W/T
2.12.5 Coordinates: 14−19−35.1106S / 170−42−8.096W
2.12.6 Threshold Elevation: 4.8 ft
2.12.6 Touchdown Zone Elevation: 5.7 ft

AD 2.13 Declared Distances
2.13.1 Designation: 05
2.13.2 Take−off Run Available: 9200 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 9200 ft
2.13.5 Landing Distance Available: 8200 ft

2.13.1 Designation: 23
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 9200 ft

2.13.1 Designation: 08
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 26
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 05
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 23
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 26
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids

2.19.1 ILS Type: DME for runway 05. Magnetic variation: 12E
2.19.2 ILS Identification: TUT
2.19.5 Coordinates: 14−19−37.6403S / 170−42−14.7077W
2.19.6 Site Elevation: 19.1 ft

2.19.1 ILS Type: Glide Slope for runway 05. Magnetic variation: 12E
2.19.2 ILS Identification: TUT
2.19.5 Coordinates: 14−20−13.069S / 170−43−15.1842W
2.19.6 Site Elevation: 24.5 ft

2.19.1 ILS Type: Localizer for runway 05. Magnetic variation: 12E
2.19.2 ILS Identification: TUT
2.19.5 Coordinates: 14−19−38.7728S / 170−42−12.8837W
2.19.6 Site Elevation: 5.1 ft

General Remarks:

OLOTELE MT 1617 FT MSL 3.5 MILES WEST OF THLD RY 08.

ALL ACFT EXCDG 100000 GWT UPON TD TAXI TO THR TURN− ARND BFR TXG TO APRON. ACFT UNDER 100000 MAKE TURN−ARND WHERE FEASIBLE.

ALL ACFT TRANSITING PAGO PAGO (EXCP COMMERCIAL CARRIERS) MUST MAKE FUEL ARRANGEMENTS WITH PPG AT 684−733−3158.

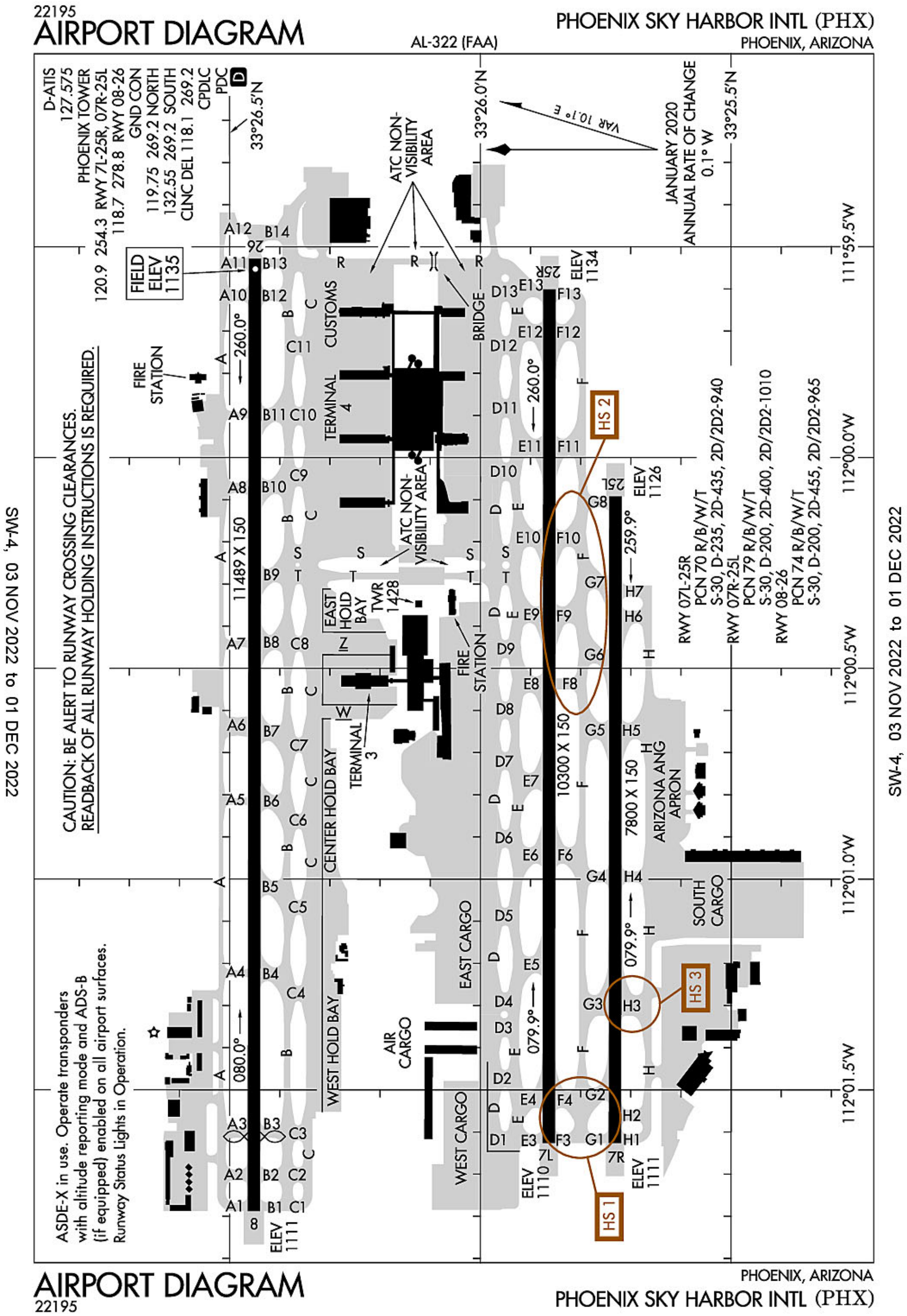
<ALL FLTS (EXCP SKED) PRIOR PMSN FROM AMGR WITH 24 HRS PRIOR NOTICE.

FOR NOTAM CONTACT NEW ZEALAND (643) 358−1688FSS: NEW ZEALAND

SEA SPRAY FM SURF & BLOW HOLES MAY DRIFT ACRS RWY 05/23 UNDER ROUGH SEA CONDS.

PERMLY LGTD & MKD 226’ TWR ATOP MT ALAVA 4.3SM NNE ARPT.

Phoenix, Arizona
Phoenix Sky Harbor International
ICAO Identifier KPHX



Phoenix, AZ
Phoenix Sky Harbor Intl
ICAO Identifier KPHX

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 33−26−3.4N / 112−0−41.7W
2.2.2 From City: 3 miles E of PHOENIX, AZ
2.2.3 Elevation: 1134.8 ft
2.2.5 Magnetic Variation: 12E (2000)
2.2.6 Airport Contact: CHAD R. MAKOVSKY
2485 E BUCKEYE RD
PHOENIX, AZ 85034 (602−273−3302)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 07L
2.12.2 True Bearing: 90
2.12.3 Dimensions: 10300 ft x 150 ft
2.12.4 PCN: 70 R/B/W/T
2.12.5 Coordinates: 33−25−51.8081N / 112−1−37.5659W
2.12.6 Threshold Elevation: 1110.2 ft
2.12.6 Touchdown Zone Elevation: 1116.5 ft

2.12.1 Designation: 25R
2.12.2 True Bearing: 270
2.12.3 Dimensions: 10300 ft x 150 ft
2.12.4 PCN: 70 R/B/W/T
2.12.5 Coordinates: 33−25−51.7284N / 111−59−36.0429W
2.12.6 Threshold Elevation: 1134 ft
2.12.6 Touchdown Zone Elevation: 1134.1 ft

2.12.1 Designation: 25L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 7800 ft x 150 ft
2.12.4 PCN: 79 R/B/W/T
2.12.5 Coordinates: 33−25−43.8354N / 112−0−5.5412W
2.12.6 Threshold Elevation: 1126.3 ft
2.12.6 Touchdown Zone Elevation: 1126.4 ft

2.12.1 Designation: 07R
2.12.2 True Bearing: 90
2.12.3 Dimensions: 7800 ft x 150 ft
2.12.4 PCN: 79 R/B/W/T
2.12.5 Coordinates: 33−25−43.8923N / 112−1−37.5686W
2.12.6 Threshold Elevation: 1111 ft
2.12.6 Touchdown Zone Elevation: 1115.9 ft

2.12.1 Designation: 26
2.12.2 True Bearing: 270
2.12.3 Dimensions: 11489 ft x 150 ft
2.12.4 PCN: 74 R/B/W/T
2.12.5 Coordinates: 33−26−26.9643N / 111−59−31.6884W
2.12.6 Threshold Elevation: 1134.7 ft
2.12.6 Touchdown Zone Elevation: 1134.8 ft

2.12.1 Designation: 08
2.12.2 True Bearing: 90
2.12.3 Dimensions: 11489 ft x 150 ft
2.12.4 PCN: 74 R/B/W/T
2.12.5 Coordinates: 33−26−27.0993N / 112−1−47.257W
2.12.6 Threshold Elevation: 1111.1 ft
2.12.6 Touchdown Zone Elevation: 1118 ft

AD 2.13 Declared Distances
2.13.1 Designation: 07L
2.13.2 Take−off Run Available: 10300 ft
2.13.3 Take−off Distance Available: 10300 ft
2.13.4 Accelerate−Stop Distance Available: 10300 ft
2.13.5 Landing Distance Available: 10300 ft

2.13.1 Designation: 25R
2.13.2 Take−off Run Available: 10300 ft
2.13.3 Take−off Distance Available: 10300 ft
2.13.4 Accelerate−Stop Distance Available: 10300 ft
2.13.5 Landing Distance Available: 10300 ft

2.13.1 Designation: 25L
2.13.2 Take−off Run Available: 7800 ft
2.13.3 Take−off Distance Available: 7800 ft
2.13.4 Accelerate−Stop Distance Available: 7800 ft
2.13.5 Landing Distance Available: 7800 ft

2.13.1 Designation: 07R
2.13.2 Take−off Run Available: 7800 ft
2.13.3 Take−off Distance Available: 7800 ft
2.13.4 Accelerate−Stop Distance Available: 7800 ft
2.13.5 Landing Distance Available: 7800 ft

2.13.1 Designation: 26

2.13.2 Take−off Run Available: 11489 ft
2.13.3 Take−off Distance Available: 11489 ft
2.13.4 Accelerate−Stop Distance Available: 11489 ft
2.13.5 Landing Distance Available: 11489 ft

2.13.1 Designation: 08
2.13.2 Take−off Run Available: 11489 ft
2.13.3 Take−off Distance Available: 11489 ft
2.13.4 Accelerate−Stop Distance Available: 11489 ft
2.13.5 Landing Distance Available: 10591 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 07L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 25R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 25L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 07R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 07L. Magnetic variation: 12E
2.19.2 ILS Identification: PHX
2.19.5 Coordinates: 33−25−54.0771N / 111−59−19.1054W
2.19.6 Site Elevation: 1143 ft

2.19.1 ILS Type: Glide Slope for runway 07L. Magnetic variation: 12E
2.19.2 ILS Identification: PHX
2.19.5 Coordinates: 33−25−49.0529N / 112−1−25.2134W
2.19.6 Site Elevation: 1106.5 ft

2.19.1 ILS Type: Localizer for runway 07L. Magnetic variation: 12E
2.19.2 ILS Identification: PHX
2.19.5 Coordinates: 33−25−51.7152N / 111−59−20.367W
2.19.6 Site Elevation: 1133.5 ft

2.19.1 ILS Type: DME for runway 07R. Magnetic variation: 12E
2.19.2 ILS Identification: AHA
2.19.5 Coordinates: 33−25−41.1847N / 111−59−52.1833W
2.19.6 Site Elevation: 1135.8 ft

2.19.1 ILS Type: Glide Slope for runway 07R. Magnetic variation: 12E
2.19.2 ILS Identification: AHA
2.19.5 Coordinates: 33−25−46.628N / 112−1−25.0931W
2.19.6 Site Elevation: 1107.4 ft

2.19.1 ILS Type: Localizer for runway 07R. Magnetic variation: 12E
2.19.2 ILS Identification: AHA
2.19.5 Coordinates: 33−25−43.8252N / 111−59−52.2902W
2.19.6 Site Elevation: 1124.2 ft

2.19.1 ILS Type: DME for runway 25L. Magnetic variation: 12E
2.19.2 ILS Identification: RJG
2.19.5 Coordinates: 33−25−41.1847N / 111−59−52.1833W
2.19.6 Site Elevation: 1117.1 ft

2.19.1 ILS Type: Glide Slope for runway 25L. Magnetic variation: 12E
2.19.2 ILS Identification: RJG
2.19.5 Coordinates: 33−25−40.9318N / 112−0−16.8722W
2.19.6 Site Elevation: 1120.3 ft

2.19.1 ILS Type: Localizer for runway 25L. Magnetic variation: 12E
2.19.2 ILS Identification: RJG
2.19.5 Coordinates: 33−25−43.8995N / 112−1−49.6368W
2.19.6 Site Elevation: 1103.2 ft

2.19.1 ILS Type: DME for runway 08. Magnetic variation: 12E
2.19.2 ILS Identification: SYQ
2.19.5 Coordinates: 33−26−24.3207N / 111−59−19.7057W
2.19.6 Site Elevation: 1149.2 ft

2.19.1 ILS Type: Glide Slope for runway 08. Magnetic variation: 12E
2.19.2 ILS Identification: SYQ
2.19.5 Coordinates: 33−26−29.6544N / 112−1−24.6276W
2.19.6 Site Elevation: 1111.7 ft

2.19.1 ILS Type: Localizer for runway 08. Magnetic variation: 12E
2.19.2 ILS Identification: SYQ
2.19.5 Coordinates: 33−26−26.9483N / 111−59−19.7443W
2.19.6 Site Elevation: 1134.1 ft

2.19.1 ILS Type: DME for runway 26. Magnetic variation: 12E

2.19.2 ILS Identification: CWJ
2.19.5 Coordinates: 33−26−24.3207N / 111−59−19.7057W
2.19.6 Site Elevation: 1149.2 ft

2.19.1 ILS Type: Glide Slope for runway 26. Magnetic variation: 12E
2.19.2 ILS Identification: CWJ
2.19.5 Coordinates: 33−26−29.603N / 111−59−44.4331W
2.19.6 Site Elevation: 1129.1 ft

2.19.1 ILS Type: Localizer for runway 26. Magnetic variation: 12E
2.19.2 ILS Identification: CWJ
2.19.5 Coordinates: 33−26−27.1078N / 112−1−59.2267W
2.19.6 Site Elevation: 1105.1 ft

General Remarks:
TWYS A, A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A11, A12, F BTN G2 AND G3, D BTN D8 AND T, D BTN S AND R, RESTRICTED TO A WINGSPAN OF LESS THAN 135 FT.

NO EXPERIMENTAL FLT OR GND DMSTRN ON ARPT WO PRIOR WRITTEN CONSENT FM THE AIRSIDE OPS.

NO ENG RUNS ON ARPT WO PRIOR COORDN WITH AIRSIDE OPS. NO ENG RUNS ON ARPT BETWEEN 2300L − 0500L.

RWY STATUS LGTS ARE IN OPN.

FOR GENERAL QUESTIONS CALL AIRPORT COMMUNICATIONS CENTER (602) 273−3302

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

TWY R OVERHEAD TRAIN BRIDGE AT MIDPOINT PROVIDES 82FT−4 IN. CLEARANCE.

TWY H5, H6, H7, TWY H BTN TWY H4 AND TWY H7 CLSD TO ACFT WINGSPAN MORE THAN 171 FT.

TWY F BTW TWY INT G2 AND G3 CLSD TO ACFT WITH WINGSPAN GREATER THAN 135 FT DUE TO FAA NAV EQUIPMENT.

PPR ACFT WITH WINGSPAN 215 FT OR GREATER (GROUP VI) CALL ARPT OPNS 602−272−2008 FOR FOLLOW−ME SERVICES WHILE TAXIING TO AND FROM RAMP AND RWYS.

REVIEW HOT SPOT INFO ON AIRPORT DIAGRAM. ADDITIONAL SAFETY VIDEO @ HTTP://SKYHARBOR.-COM/BUSINESS/FORPILOTS/SAFETYVIDEOFORPILOTS

FEE FOR ALL CHARTERS; TRAVEL CLUBS AND CERTAIN REVENUE PRODUCING ACFT.

PRACTICE INSTRUMENT APPROACHES, STOP & TAXI BACK LANDINGS, STOP & GO LANDINGS, TOUCH & GO LANDINGS ARE PROHIBITED. ALL OTHER FLIGHT TRAINING OPERATIONS PROHIBITED WO PRIOR WRITTEN APPROVAL (AIRSIDE OPS 602−272−2008).

TWYS C BTN S AND R, D BTN D2 AND D7, D3, D6, H BTN H4 AND H7, H7 RESTRICTED TO WINGSPAN OF LESS THAN 171 FT.

TWY R AND PORTIONS OF TWYS S AND T DIRECTLY BELOW THE ATCT ARE NON VISIBLE AREAS FROM THE ATCT.

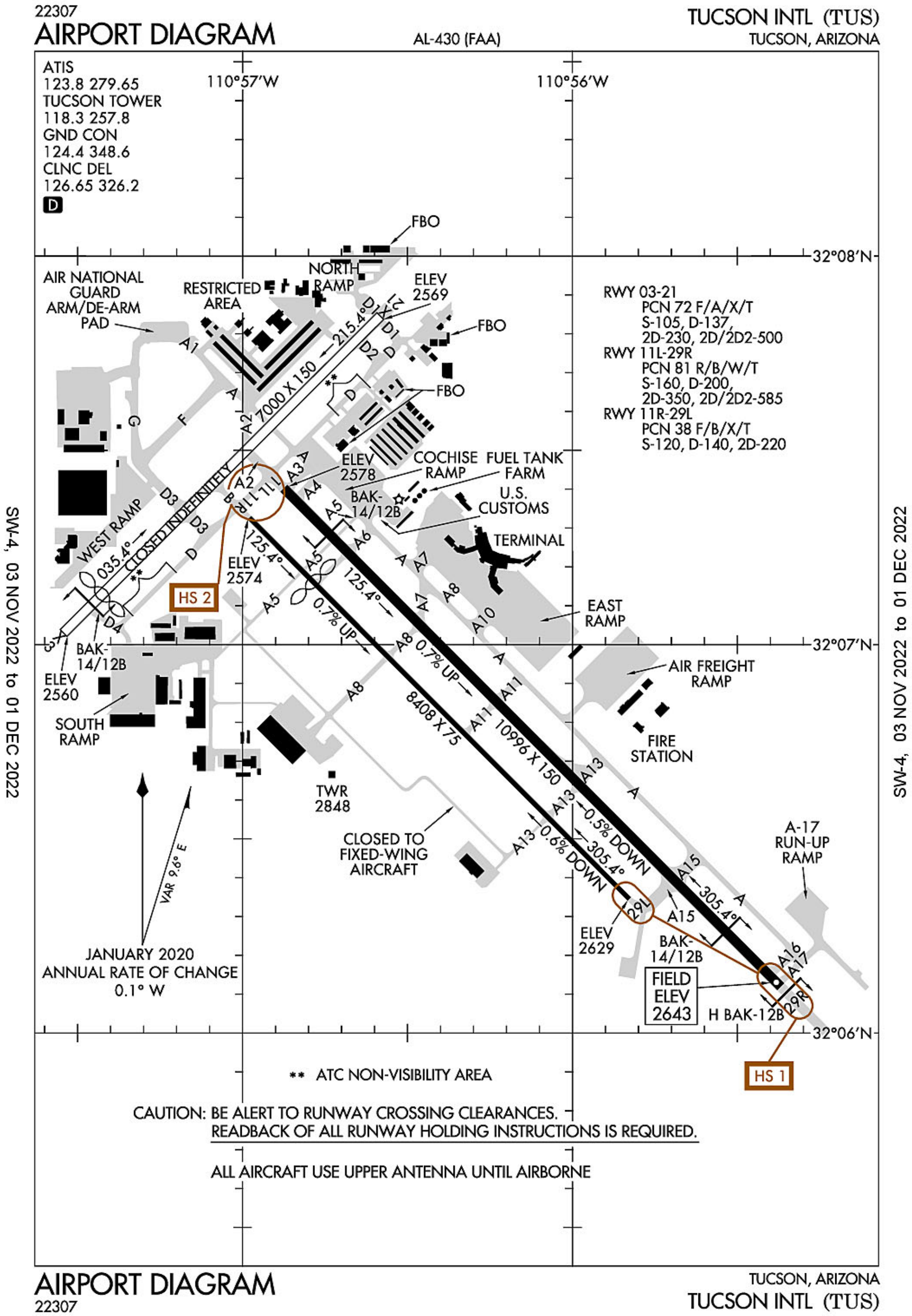
NATL GUARD HAS LMTD TSNT MAINTENANCE AND PARKING RON BY PPR (602)302−9119.

INTERNATIONAL GATE USE RQS COORDN WITH ARPT OPS 48 HOURS PRIOR TO ARRIVAL.

NOISE ABATEMENT PROCEDURES ARE IN AFFECT AT ALL TIMES.

INTERNATIONAL LANDING RIGHTS RQRS US CUSTOMS AND BORDER PROTECTION NOTIFICATION 48 HOURS PRIOR TO LANDING.

Tucson, Arizona
Tucson International
ICAO Identifier KTUS



Tucson, AZ
Tucson Intl
ICAO Identifier KTUS

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 32−6−57.849N / 110−56−27.65W
2.2.2 From City: 6 miles S of TUCSON, AZ
2.2.3 Elevation: 2643 ft
2.2.5 Magnetic Variation: 12E (1995)
2.2.6 Airport Contact: DANETTE BEWLEY
TUCSON APT AUTH 7250 S TUCSON BLVD
TUCSON, AZ 85756 (520−573−8100)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A,A++
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 03
2.12.2 True Bearing: 45
2.12.3 Dimensions: 7000 ft x 150 ft
2.12.4 PCN: 72 F/A/X/T
2.12.5 Coordinates: 32−7−1.7975N / 110−57−32.5438W
2.12.6 Threshold Elevation: 2560.2 ft
2.12.6 Touchdown Zone Elevation: 2572.1 ft

2.12.1 Designation: 21
2.12.2 True Bearing: 225
2.12.3 Dimensions: 7000 ft x 150 ft
2.12.4 PCN: 72 F/A/X/T
2.12.5 Coordinates: 32−7−50.7361N / 110−56−34.9535W
2.12.6 Threshold Elevation: 2568.8 ft
2.12.6 Touchdown Zone Elevation: 2572.4 ft

2.12.1 Designation: 11L
2.12.2 True Bearing: 135
2.12.3 Dimensions: 10996 ft x 150 ft
2.12.4 PCN: 81 R/B/W/T
2.12.5 Coordinates: 32−7−24.1289N / 110−56−52.4852W
2.12.6 Threshold Elevation: 2577.7 ft
2.12.6 Touchdown Zone Elevation: 2598.5 ft

2.12.1 Designation: 29R
2.12.2 True Bearing: 315
2.12.3 Dimensions: 10996 ft x 150 ft
2.12.4 PCN: 81 R/B/W/T
2.12.5 Coordinates: 32−6−7.1598N / 110−55−22.1441W
2.12.6 Threshold Elevation: 2643 ft
2.12.6 Touchdown Zone Elevation: 2643 ft

2.12.1 Designation: 11R
2.12.2 True Bearing: 135
2.12.3 Dimensions: 8408 ft x 75 ft
2.12.4 PCN: 38 F/B/X/T
2.12.5 Coordinates: 32−7−19.5659N / 110−56−58.741W
2.12.6 Threshold Elevation: 2573.5 ft
2.12.6 Touchdown Zone Elevation: 2605 ft

2.12.1 Designation: 29L
2.12.2 True Bearing: 315
2.12.3 Dimensions: 8408 ft x 75 ft
2.12.4 PCN: 38 F/B/X/T
2.12.5 Coordinates: 32−6−20.7186N / 110−55−49.6599W
2.12.6 Threshold Elevation: 2628.6 ft
2.12.6 Touchdown Zone Elevation: 2628.7 ft

AD 2.13 Declared Distances
2.13.1 Designation: 03
2.13.2 Take−off Run Available: 7000 ft
2.13.3 Take−off Distance Available: 7000 ft
2.13.4 Accelerate−Stop Distance Available: 7000 ft
2.13.5 Landing Distance Available: 6150 ft

2.13.1 Designation: 21
2.13.2 Take−off Run Available: 6000 ft
2.13.3 Take−off Distance Available: 7000 ft
2.13.4 Accelerate−Stop Distance Available: 6000 ft
2.13.5 Landing Distance Available: 6000 ft

2.13.1 Designation: 11L
2.13.2 Take−off Run Available: 10996 ft
2.13.3 Take−off Distance Available: 10996 ft
2.13.4 Accelerate−Stop Distance Available: 10996 ft
2.13.5 Landing Distance Available: 10996 ft

2.13.1 Designation: 29R
2.13.2 Take−off Run Available: 10996 ft
2.13.3 Take−off Distance Available: 10996 ft
2.13.4 Accelerate−Stop Distance Available: 10996 ft
2.13.5 Landing Distance Available: 10996 ft

2.13.1 Designation: 11R

2.13.2 Take−off Run Available: 6998 ft
2.13.3 Take−off Distance Available: 6998 ft
2.13.4 Accelerate−Stop Distance Available: 6998 ft
2.13.5 Landing Distance Available: 6998 ft

2.13.1 Designation: 29L
2.13.2 Take−off Run Available: 6998 ft
2.13.3 Take−off Distance Available: 6998 ft
2.13.4 Accelerate−Stop Distance Available: 6998 ft
2.13.5 Landing Distance Available: 6998 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 03
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 21
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 11L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 29R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 11R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 29L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 11L. Magnetic variation: 12E
2.19.2 ILS Identification: TUS
2.19.5 Coordinates: 32−5−54.9712N / 110−55−3.2284W
2.19.6 Site Elevation: 2676.1 ft

2.19.1 ILS Type: Glide Slope for runway 11L. Magnetic variation: 12E
2.19.2 ILS Identification: TUS
2.19.5 Coordinates: 32−7−14.7604N / 110−56−48.0571W
2.19.6 Site Elevation: 2580.1 ft

2.19.1 ILS Type: Localizer for runway 11L. Magnetic variation: 12E
2.19.2 ILS Identification: TUS
2.19.5 Coordinates: 32−5−53.5044N / 110−55−6.1189W
2.19.6 Site Elevation: 2659.9 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 12E
2.19.2 Navigation Aid Identification: TUS
2.19.5 Coordinates: 32−5−42.7296N / 110−54−53.4781W
2.19.6 Site Elevation: 2670.5 ft

General Remarks:
CTN: REVIEW ARPT DIAGRAM HOT SPOT INFO.

ACR USE RWY 03/21 & 11L/29R.

SERVICE−A−GEAR: BAK−14/BAK−12B APCH END RWY 11L AND BAK−14/BAK−12B APCH END RWY 29R, ENGAGEMENTS AVBL ONLY DUR ANG DUTY HR AND 15 MIN PN RQR.

TWY A5 LTD 70000 LB OR LESS.

FLT TRNG 2200−0600 NA EXC PPR − 520−573−8190.

MIL/COMM/BASE OPS ARR CTC TITAN OR PUMA − ANG BASE OPS/COMD POST FREQ.

PTNS TWY D NOT VIS FM ATCT.

MIL: ANG OFFL BUS ONLY; 72 HR PPR − D844−6731/C520−295−6731; FAX EXTN 6732. BASE OPS 1300−2200Z++ MON−FRI EXC HOL. TRAN ALERT MAINT NA. TSNT SI FSL ONLY. CONTR FUEL NA.

USE UPPER ANT UNTIL AIRBORNE.

CHARTER, SPORTS TEAM, CARGO & MIL PPR − AIRSIDE OPS 520−573−8190. LNDG & PRKG FEES 12500 LB OR MORE.

CTN: RWY 29L SHORTER NARROW RWY S OF RWY 29R. NW ARR & DEP DO NOT MISTAKE TWY A FOR LNDG SFC; TWY A IS N & PARL TO RWY 29R.

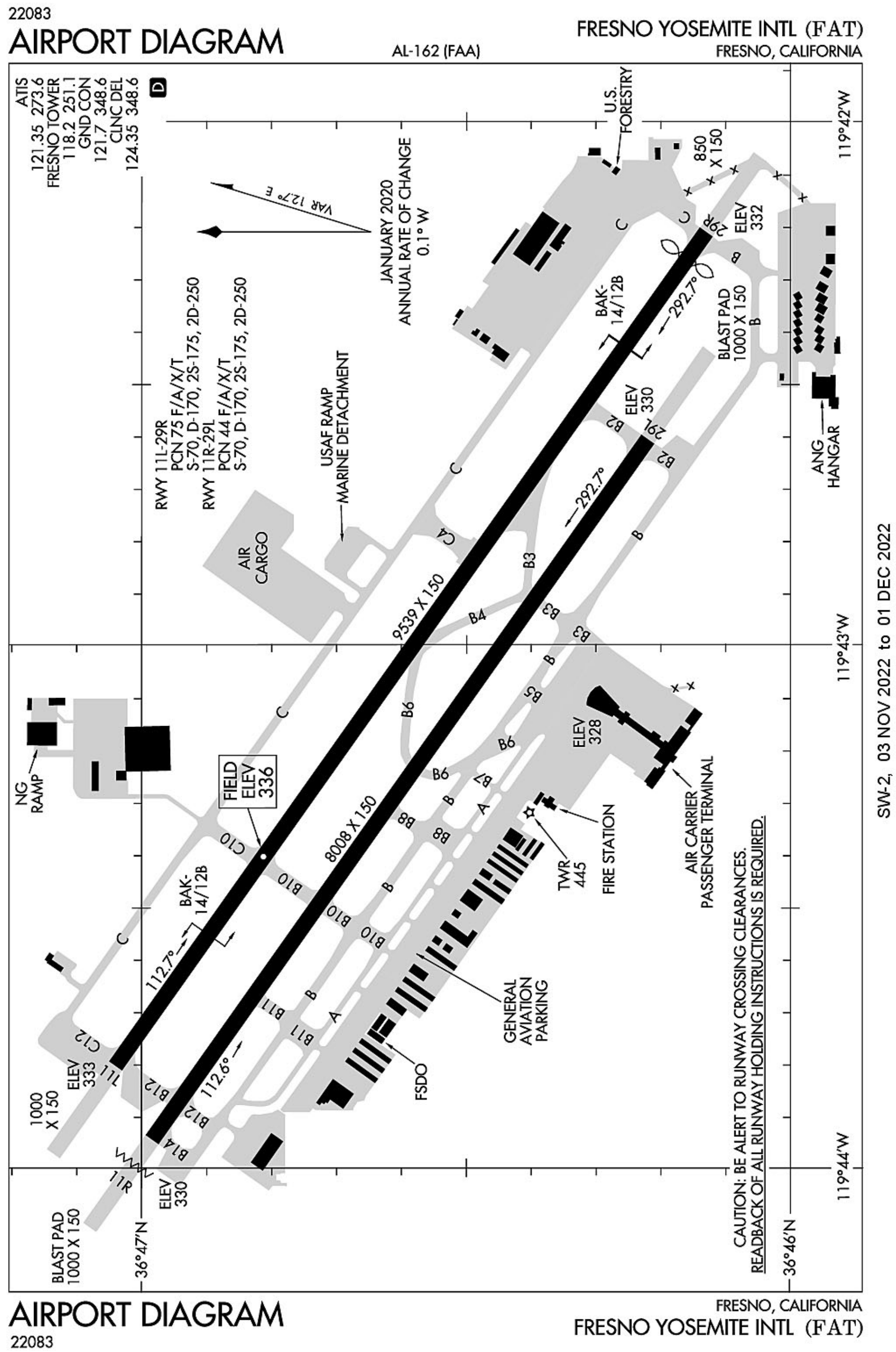
GEN ARPT INFO − 520−573−8182.

GROUP V TAX WITH INBOARD ENG ONLY.

MIL: BIRD ACT PHASE II IN EFCT 1 JUL−31 AUG.

USCBP INSP RAMP RFLG NA EXC MED EMERG.

Fresno, California
Fresno Yosemite International
ICAO Identifier KFAT



Fresno, CA
Fresno Yosemite Intl
ICAO Identifier KFAT

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 36−46−35.6N / 119−43−7.8W
2.2.2 From City: 5 miles NE of FRESNO, CA
2.2.3 Elevation: 335.5 ft
2.2.5 Magnetic Variation: 13E (2020)
2.2.6 Airport Contact: HENRY L. THOMPSON
4995 E CLINTON WAY
FRESNO, CA 93722 (559−621−4600)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100,A,A++
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 11L
2.12.2 True Bearing: 125
2.12.3 Dimensions: 9539 ft x 150 ft
2.12.4 PCN: 75 F/A/X/T
2.12.5 Coordinates: 36−47−2.406N / 119−43−48.3081W
2.12.6 Threshold Elevation: 333 ft
2.12.6 Touchdown Zone Elevation: 335.5 ft

2.12.1 Designation: 29R
2.12.2 True Bearing: 305
2.12.3 Dimensions: 9539 ft x 150 ft
2.12.4 PCN: 75 F/A/X/T
2.12.5 Coordinates: 36−46−7.8228N / 119−42−12.6898W
2.12.6 Threshold Elevation: 332 ft
2.12.6 Touchdown Zone Elevation: 332.6 ft

2.12.1 Designation: 29L
2.12.2 True Bearing: 305
2.12.3 Dimensions: 8008 ft x 150 ft
2.12.4 PCN: 44 F/A/X/T
2.12.5 Coordinates: 36−46−13.2042N / 119−42−36.4402W
2.12.6 Threshold Elevation: 329.9 ft
2.12.6 Touchdown Zone Elevation: 330.7 ft

2.12.1 Designation: 11R
2.12.2 True Bearing: 125
2.12.3 Dimensions: 8008 ft x 150 ft
2.12.4 PCN: 44 F/A/X/T
2.12.5 Coordinates: 36−46−59.0217N / 119−43−56.7171W
2.12.6 Threshold Elevation: 330 ft
2.12.6 Touchdown Zone Elevation: 332.9 ft

AD 2.13 Declared Distances
2.13.1 Designation: 11L
2.13.2 Take−off Run Available: 9539 ft
2.13.3 Take−off Distance Available: 9539 ft
2.13.4 Accelerate−Stop Distance Available: 9279 ft
2.13.5 Landing Distance Available: 9279 ft

2.13.1 Designation: 29R
2.13.2 Take−off Run Available: 9539 ft
2.13.3 Take−off Distance Available: 9539 ft
2.13.4 Accelerate−Stop Distance Available: 9539 ft
2.13.5 Landing Distance Available: 9227 ft

2.13.1 Designation: 29L
2.13.2 Take−off Run Available: 8008 ft
2.13.3 Take−off Distance Available: 8008 ft
2.13.4 Accelerate−Stop Distance Available: 8008 ft
2.13.5 Landing Distance Available: 8008 ft

2.13.1 Designation: 11R
2.13.2 Take−off Run Available: 8008 ft
2.13.3 Take−off Distance Available: 8008 ft
2.13.4 Accelerate−Stop Distance Available: 8008 ft
2.13.5 Landing Distance Available: 8008 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 11L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 29R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 29L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 11R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: ANG OPS
2.14.3 Channel: 140
2.14.5 Hours of Operation:

2.14.1 Service Designation: ANG OPS
2.14.3 Channel: 298.3
2.14.5 Hours of Operation:

2.14.1 Service Designation: APCH/P DEP/P (091−239)
2.14.3 Channel: 132.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (091−239)
2.14.3 Channel: 323.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (240−090)
2.14.3 Channel: 119.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (240−090)
2.14.3 Channel: 351.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S DEP/S (S/SE VISALIA AREA)
2.14.3 Channel: 118.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S DEP/S (S/SE VISALIA AREA)
2.14.3 Channel: 268.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ATIS
2.14.3 Channel: 121.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ATIS
2.14.3 Channel: 273.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 124.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (240−090)
2.14.3 Channel: 119.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (091−239)
2.14.3 Channel: 132.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (091−239)
2.14.3 Channel: 323.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (240−090)
2.14.3 Channel: 351.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 118.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 251.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: NG OPS
2.14.3 Channel: 40.95
2.14.5 Hours of Operation:

2.14.1 Service Designation: NG OPS
2.14.3 Channel: 132
2.14.5 Hours of Operation:

2.14.1 Service Designation: NG OPS
2.14.3 Channel: 255.8
2.14.5 Hours of Operation:

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 11L. Magnetic variation: 13E
2.19.2 ILS Identification: RPW
2.19.5 Coordinates: 36−47−10.81N / 119−43−56.63W
2.19.6 Site Elevation: 347.1 ft

2.19.1 ILS Type: Localizer for runway 11L. Magnetic variation: 13E
2.19.2 ILS Identification: RPW
2.19.5 Coordinates: 36−46−2.54N / 119−42−3.44W
2.19.6 Site Elevation: 331.3 ft

2.19.1 ILS Type: DME for runway 29R. Magnetic variation: 13E
2.19.2 ILS Identification: FAT
2.19.5 Coordinates: 36−47−10.81N / 119−43−56.63W
2.19.6 Site Elevation: 347.1 ft

2.19.1 ILS Type: Glide Slope for runway 29R. Magnetic variation: 13E
2.19.2 ILS Identification: FAT
2.19.5 Coordinates: 36−46−18.84N / 119−42−23.4799W
2.19.6 Site Elevation: 332 ft

2.19.1 ILS Type: Localizer for runway 29R. Magnetic variation: 13E
2.19.2 ILS Identification: FAT
2.19.5 Coordinates: 36−47−8.2801N / 119−43−58.6W
2.19.6 Site Elevation: 333.7 ft

General Remarks:
MILITARY: SVC: RWY 29R AND 11L A−GEAR CABLE AVBL UPON REQ ONLY; DEFAULT POSN DOWN.

MILITARY: ANG: CTC ANG OPS FOR LCL BIRD WATCH COND (BWC).

SERVICE− JET AIR START UNIT (JASU): (AM32A−60) 2(AGPU)

FRESNO YOSEMITE INTL IS NOISE SENSITIVE; NOISE ABATEMENT PROCEDURES IN EFFECT.

SERVICE − FUEL: ROSS AVIATION, C559−251−1555

RETRACTABLE BAK−12/14 AVBL ON RY 11L AND RY 29R ARE KEPT IN RECESSED POSITION UNTIL REQ FOR USE; TWR MUST BE NOTIFIED AT LEAST 5 SECONDS PRIOR TO ENGAGEMENT SO THAT THE AG CABLE MAY BE RAISED.

POSSIBLE WAKE TURBULENCE OR WIND SHEAR ARR TO RY 29L OR DEP FM RY 11R. JET TESTING CONDUCTED AT AIR NATIONAL GUARD RAMP LCTD AT SE CORNER OF ARPT.

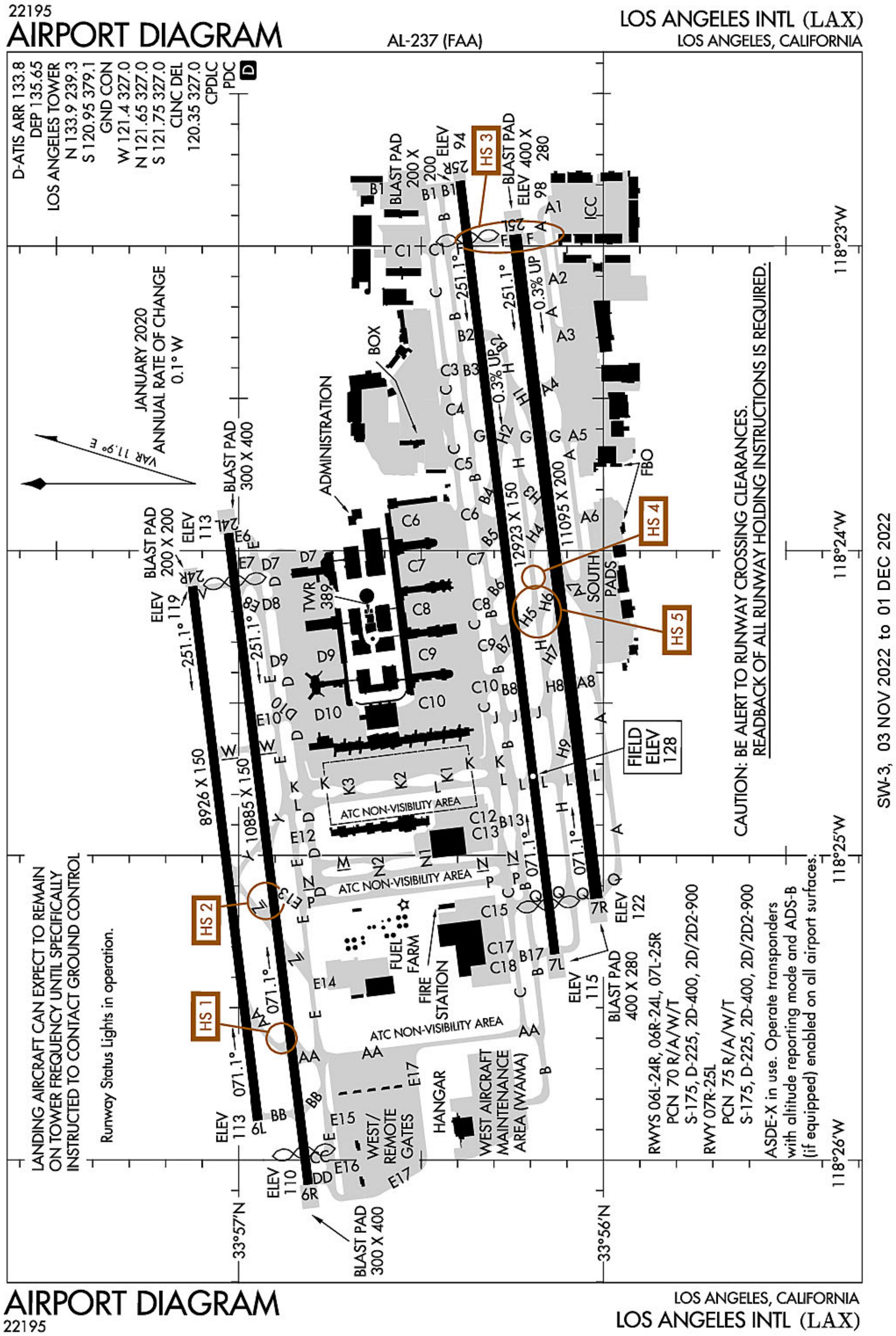
SERVICE−FUEL: SIGNATURE FLIGHT SUPPORT, C559−981−2490

NO MULT APCHS AND LNDGS MON−SAT 2200−0700 AND SUN 1800−1000.

LGTD RY DISTANCE REMAINING MARKERS ON SOUTH SIDE OF RY 11R/29L; LGTD RY DISTANCE REMAINING MARKERS BOTH SIDES OF RY 11L/29R− 11L DRM ON NORTH SIDE; 29R DRM ON SOUTH SIDE.

NUMEROUS BIRDS INVOF ARPT.

Los Angeles, California
Los Angeles International
ICAO Identifier KLAX



Los Angeles, CA
Los Angeles Intl
ICAO Identifier KLAX

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 33−56−32.987N / 118−24−28.975W
2.2.2 From City: 9 miles SW of LOS ANGELES, CA
2.2.3 Elevation: 127.8 ft
2.2.5 Magnetic Variation: 12E (2020)
2.2.6 Airport Contact: VIJI PRASAD
ONE WORLD WAY
LOS ANGELES, CA 90009 (424−646−8251)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 06L
2.12.2 True Bearing: 83
2.12.3 Dimensions: 8926 ft x 150 ft
2.12.4 PCN: 70 R/A/W/T
2.12.5 Coordinates: 33−56−56.8049N / 118−25−52.1755W
2.12.6 Threshold Elevation: 113.1 ft
2.12.6 Touchdown Zone Elevation: 118.8 ft

2.12.1 Designation: 24R
2.12.2 True Bearing: 263
2.12.3 Dimensions: 8926 ft x 150 ft
2.12.4 PCN: 70 R/A/W/T
2.12.5 Coordinates: 33−57−7.5741N / 118−24−7.0161W
2.12.6 Threshold Elevation: 118.9 ft
2.12.6 Touchdown Zone Elevation: 122.4 ft

2.12.1 Designation: 06R
2.12.2 True Bearing: 83
2.12.3 Dimensions: 10885 ft x 150 ft
2.12.4 PCN: 70 R/A/W/T
2.12.5 Coordinates: 33−56−48.5368N / 118−26−4.8042W
2.12.6 Threshold Elevation: 109.9 ft
2.12.6 Touchdown Zone Elevation: 116.2 ft

2.12.1 Designation: 24L
2.12.2 True Bearing: 263
2.12.3 Dimensions: 10885 ft x 150 ft
2.12.4 PCN: 70 R/A/W/T
2.12.5 Coordinates: 33−57−1.6678N / 118−23−56.5656W
2.12.6 Threshold Elevation: 112.9 ft
2.12.6 Touchdown Zone Elevation: 122.5 ft

2.12.1 Designation: 25R
2.12.2 True Bearing: 263
2.12.3 Dimensions: 12923 ft x 150 ft
2.12.4 PCN: 70 R/A/W/T
2.12.5 Coordinates: 33−56−23.5604N / 118−22−47.2005W
2.12.6 Threshold Elevation: 94.3 ft
2.12.6 Touchdown Zone Elevation: 103.8 ft

2.12.1 Designation: 07L
2.12.2 True Bearing: 83
2.12.3 Dimensions: 12923 ft x 150 ft
2.12.4 PCN: 70 R/A/W/T
2.12.5 Coordinates: 33−56−7.9864N / 118−25−19.4335W
2.12.6 Threshold Elevation: 114.8 ft
2.12.6 Touchdown Zone Elevation: 127.8 ft

2.12.1 Designation: 07R
2.12.2 True Bearing: 83
2.12.3 Dimensions: 11095 ft x 200 ft
2.12.4 PCN: 75 R/A/W/T
2.12.5 Coordinates: 33−56−1.1378N / 118−25−8.466W
2.12.6 Threshold Elevation: 121.7 ft
2.12.6 Touchdown Zone Elevation: 127.6 ft

2.12.1 Designation: 25L
2.12.2 True Bearing: 263
2.12.3 Dimensions: 11095 ft x 200 ft
2.12.4 PCN: 75 R/A/W/T
2.12.5 Coordinates: 33−56−14.5069N / 118−22−57.7701W
2.12.6 Threshold Elevation: 97.8 ft
2.12.6 Touchdown Zone Elevation: 103.7 ft

AD 2.13 Declared Distances
2.13.1 Designation: 06L
2.13.2 Take−off Run Available: 8926 ft
2.13.3 Take−off Distance Available: 8926 ft
2.13.4 Accelerate−Stop Distance Available: 8566 ft
2.13.5 Landing Distance Available: 8566 ft

2.13.1 Designation: 24R
2.13.2 Take−off Run Available: 8926 ft
2.13.3 Take−off Distance Available: 8926 ft

2.13.4 Accelerate−Stop Distance Available: 8926 ft
2.13.5 Landing Distance Available: 8926 ft

2.13.1 Designation: 06R
2.13.2 Take−off Run Available: 10285 ft
2.13.3 Take−off Distance Available: 10285 ft
2.13.4 Accelerate−Stop Distance Available: 10285 ft
2.13.5 Landing Distance Available: 9748 ft

2.13.1 Designation: 24L
2.13.2 Take−off Run Available: 10285 ft
2.13.3 Take−off Distance Available: 10285 ft
2.13.4 Accelerate−Stop Distance Available: 10285 ft
2.13.5 Landing Distance Available: 9483 ft

2.13.1 Designation: 25R
2.13.2 Take−off Run Available: 12091 ft
2.13.3 Take−off Distance Available: 12091 ft
2.13.4 Accelerate−Stop Distance Available: 12091 ft
2.13.5 Landing Distance Available: 11134 ft

2.13.1 Designation: 07L
2.13.2 Take−off Run Available: 12091 ft
2.13.3 Take−off Distance Available: 12091 ft
2.13.4 Accelerate−Stop Distance Available: 12091 ft
2.13.5 Landing Distance Available: 11259 ft

2.13.1 Designation: 07R
2.13.2 Take−off Run Available: 11095 ft
2.13.3 Take−off Distance Available: 11095 ft
2.13.4 Accelerate−Stop Distance Available: 11095 ft
2.13.5 Landing Distance Available: 11095 ft

2.13.1 Designation: 25L
2.13.2 Take−off Run Available: 11095 ft
2.13.3 Take−off Distance Available: 11095 ft
2.13.4 Accelerate−Stop Distance Available: 11095 ft
2.13.5 Landing Distance Available: 11095 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 06L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 24R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 06R
2.14.2 Approach Lighting System: MALSR

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 24L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 25R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 07L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 07R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 25L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 06L. Magnetic variation: 12E
2.19.2 ILS Identification: UWU
2.19.5 Coordinates: 33−56−50.7522N / 118−26−26.6221W
2.19.6 Site Elevation: 139.3 ft

2.19.1 ILS Type: Glide Slope for runway 06L. Magnetic variation: 12E
2.19.2 ILS Identification: UWU
2.19.5 Coordinates: 33−56−54.5859N / 118−25−39.8249W
2.19.6 Site Elevation: 110.5 ft

2.19.1 ILS Type: Localizer for runway 06L. Magnetic variation: 12E
2.19.2 ILS Identification: UWU
2.19.5 Coordinates: 33−57−8.5767N / 118−23−57.1965W
2.19.6 Site Elevation: 108.5 ft

2.19.1 ILS Type: DME for runway 24R. Magnetic variation: 12E
2.19.2 ILS Identification: OSS
2.19.5 Coordinates: 33−56−50.7522N / 118−26−26.6221W
2.19.6 Site Elevation: 139.3 ft

2.19.1 ILS Type: Glide Slope for runway 24R. Magnetic variation: 12E
2.19.2 ILS Identification: OSS
2.19.5 Coordinates: 33−57−2.4082N / 118−24−18.522W
2.19.6 Site Elevation: 116.7 ft

2.19.1 ILS Type: Localizer for runway 24R. Magnetic variation: 12E
2.19.2 ILS Identification: OSS
2.19.5 Coordinates: 33−56−53.1648N / 118−26−27.6839W
2.19.6 Site Elevation: 125.5 ft

2.19.1 ILS Type: DME for runway 06R. Magnetic variation: 12E
2.19.2 ILS Identification: GPE
2.19.5 Coordinates: 33−56−49.9191N / 118−26−22.7714W
2.19.6 Site Elevation: 134.3 ft

2.19.1 ILS Type: Glide Slope for runway 06R. Magnetic variation: 12E
2.19.2 ILS Identification: GPE
2.19.5 Coordinates: 33−56−53.3646N / 118−25−47.3623W
2.19.6 Site Elevation: 108 ft

2.19.1 ILS Type: Localizer for runway 06R. Magnetic variation: 12E
2.19.2 ILS Identification: GPE
2.19.5 Coordinates: 33−57−2.4125N / 118−23−49.2874W
2.19.6 Site Elevation: 106.3 ft

2.19.1 ILS Type: DME for runway 24L. Magnetic variation: 12E
2.19.2 ILS Identification: HQB
2.19.5 Coordinates: 33−56−49.9191N / 118−26−22.7714W
2.19.6 Site Elevation: 134.3 ft

2.19.1 ILS Type: Glide Slope for runway 24L. Magnetic variation: 12E
2.19.2 ILS Identification: HQB
2.19.5 Coordinates: 33−57−2.31N / 118−24−18.51W
2.19.6 Site Elevation: 116.7 ft

2.19.1 ILS Type: Localizer for runway 24L. Magnetic variation: 12E
2.19.2 ILS Identification: HQB
2.19.5 Coordinates: 33−56−46.746N / 118−26−22.2482W
2.19.6 Site Elevation: 123.4 ft

2.19.1 ILS Type: DME for runway 07L. Magnetic variation: 12E
2.19.2 ILS Identification: IAS
2.19.5 Coordinates: 33−56−4.8698N / 118−25−24.8206W
2.19.6 Site Elevation: 104.3 ft

2.19.1 ILS Type: Glide Slope for runway 07L. Magnetic variation: 12E
2.19.2 ILS Identification: IAS
2.19.5 Coordinates: 33−56−7.743N / 118−24−56.7237W
2.19.6 Site Elevation: 119.8 ft

2.19.1 ILS Type: Localizer for runway 07L. Magnetic variation: 12E
2.19.2 ILS Identification: IAS
2.19.5 Coordinates: 33−56−24.7529N / 118−22−35.5432W
2.19.6 Site Elevation: 90 ft

2.19.1 ILS Type: DME for runway 25R. Magnetic variation: 12E

2.19.2 ILS Identification: CFN
2.19.5 Coordinates: 33−56−4.8698N / 118−25−24.8206W
2.19.6 Site Elevation: 104.3 ft

2.19.1 ILS Type: Glide Slope for runway 25R. Magnetic variation: 12E
2.19.2 ILS Identification: CFN
2.19.5 Coordinates: 33−56−17.8773N / 118−23−10.1796W
2.19.6 Site Elevation: 97.5 ft

2.19.1 ILS Type: Localizer for runway 25R. Magnetic variation: 12E
2.19.2 ILS Identification: CFN
2.19.5 Coordinates: 33−56−7.2503N / 118−25−26.6262W
2.19.6 Site Elevation: 119.3 ft

2.19.1 ILS Type: DME for runway 07R. Magnetic variation: 12E
2.19.2 ILS Identification: MKZ
2.19.5 Coordinates: 33−56−3.1899N / 118−25−20.7882W
2.19.6 Site Elevation: 126 ft

2.19.1 ILS Type: Glide Slope for runway 07R. Magnetic variation: 12E
2.19.2 ILS Identification: MKZ
2.19.5 Coordinates: 33−55−59.9253N / 118−24−55.0492W
2.19.6 Site Elevation: 118.2 ft

2.19.1 ILS Type: Localizer for runway 07R. Magnetic variation: 12E
2.19.2 ILS Identification: MKZ
2.19.5 Coordinates: 33−56−15.7853N / 118−22−45.2443W
2.19.6 Site Elevation: 92.5 ft

2.19.1 ILS Type: DME for runway 25L. Magnetic variation: 12E
2.19.2 ILS Identification: LAX
2.19.5 Coordinates: 33−56−3.1899N / 118−25−20.7882W
2.19.6 Site Elevation: 126 ft

2.19.1 ILS Type: Glide Slope for runway 25L. Magnetic variation: 12E
2.19.2 ILS Identification: LAX
2.19.5 Coordinates: 33−56−17.7739N / 118−23−10.2139W
2.19.6 Site Elevation: 97.3 ft

2.19.1 ILS Type: Localizer for runway 25L. Magnetic variation: 12E
2.19.2 ILS Identification: LAX
2.19.5 Coordinates: 33−55−59.8649N / 118−25−20.8676W
2.19.6 Site Elevation: 118.4 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 15E
2.19.2 Navigation Aid Identification: LAX
2.19.5 Coordinates: 33−55−59.3368N / 118−25−55.246W
2.19.6 Site Elevation: 185 ft

General Remarks:
TWY D BTN TWY D7 AND D8 (N OF TRML ONE) CLSD TO ACFT WITH WINGSPAN GTR THAN 157 FT.

SIMUL ACFT OPNS PROHIBITED ON TWYS L AND H9 BTWN RWYS 07L/25R AND 07R/25L.

SBND TURN NOT AVBL FROM WEST REMOTE GATE 408 AND WEST REMOTE GATE 409

RWY STATUS LGTS IN OPN.

RWY 7R/25L PREFERRED EMERG RWY.

AMERICAN EAGLE TRML SOUTHBOUND TAXING ACFT USE MNM PWR DUE TO BLAST HAZ.

ANY ACFT THAT COMES TO A STOP OR HAS ITS MOMENTUM INTRPD WHILE TURNING AND TAXING INTO ITS PRKG PSN, MUST STOP AND BE TOWED.

LAX SVC TXL M LAWA RAMP TWR OPN CTC LAWA RAMP TWR 131.975.

TURB MAY BE DEFLECTED UPWARD FM THE BLAST FENCE 180 FT E OF RWY 25R.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

PRACTICE INSTRUMENT APPROACHES & TOUCH AND GO LANDINGS ARE PROHIBITED.

NMRS BIRDS ON AND IN VCNTY OF ARPT.

WEST REMOTE GATES: ACFT USE OF OPEN GATES AS TAXI PATH IS PROHIBITED (GATES 406, 407, 408, 409).

NOISE SENS ARPT ON WESTERLY TAKEOFFS NO TURNS BEFORE CROSSING SHORELINE OVER−OCEAN APCHS UTILIZED 0000−0630.

ACFT USE MINIMAL PWR WHEN TXG VCNTY TRMLS DUE BLAST HAZ.

PILOTS SHOULD USE CTN FOR POSS LASER ACT IN THE LAX AREA.

MILITARY RSTD: ALL MIL ACFT OFFL BUS ONLY, MIN 24 HR PPR, CTC 61 ABW/CP FLT OPS DSN 633−3779/4014,C310−653−3779/4014.

ACFT WITH LEN GTR THAN 240 FT ARE PROHIBITED ON TXLS C7, C8 AND C9 BTN TXL C AND TWY B.

ACFT WITH WINGSPAN GTR THAN 198 FT OBND FM TXL D8 MAY NOT TURN WBND ONTO TXL D.

MILITARY AF: ALL MIL AIRCREWS MUST CTC 61 ABW/CP FLT OPS FOR PRKG LCTN/INSTRNS. NO GOVT TRNSPN, QTRS OR SECURITY AVBL. VIP NOTIFICATION PROCS APPLY. USER FEES ASSESSED USING AVCARD CREDIT. CTC SIGNATURE FLIGHT SUPPORT FBO 130.6 INBD. INBD RELAY ETA, VIP CODE, SVC REQ 30 MIN PRIOR TO ARR.

ACFT WITH WINGSPAN GTR THAN 155 FT WB ON TXL C ARE NOT AUTHD TO MAKE LEFT TURN ON TWY C10 UNDER PWR.

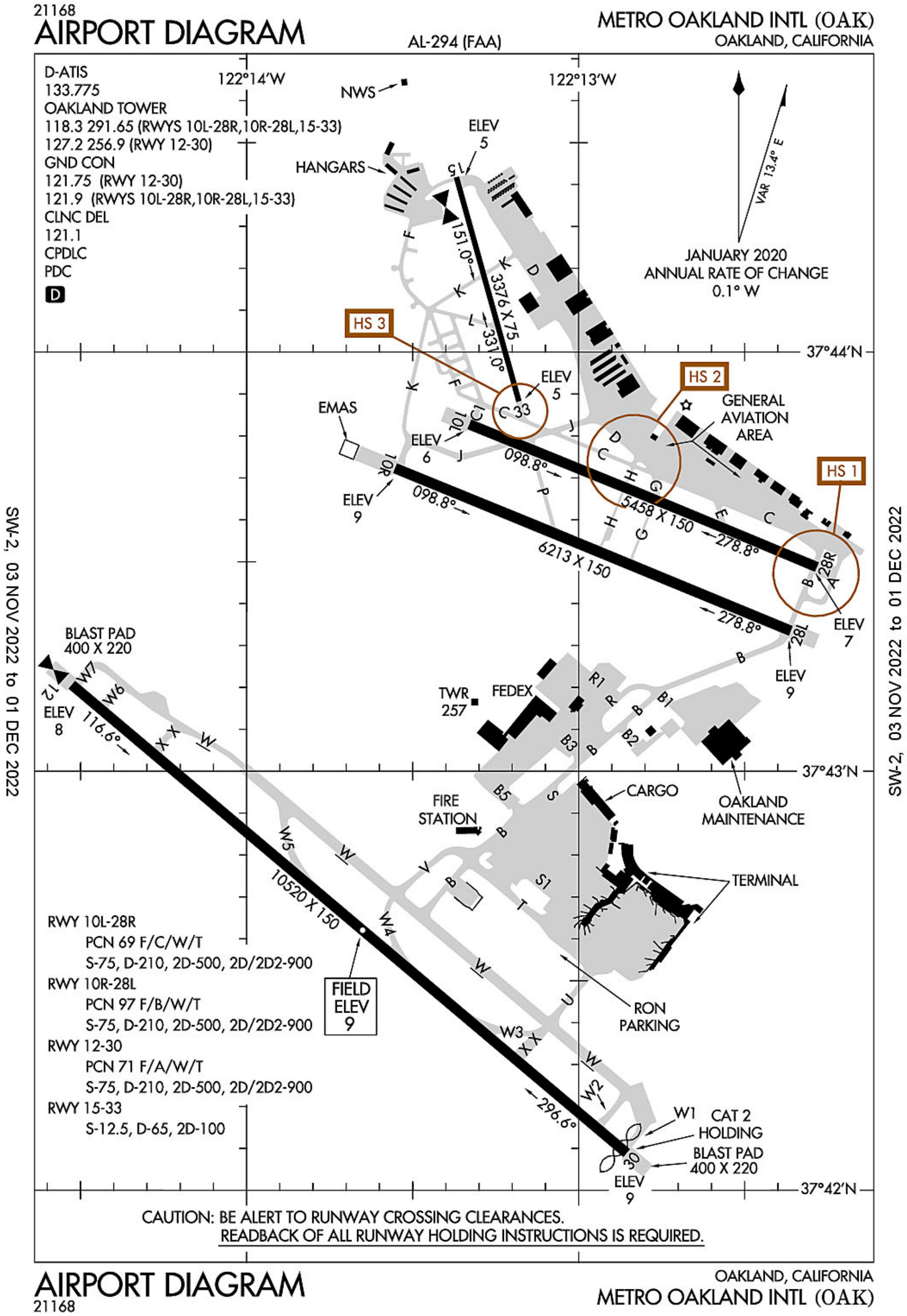
FOR ACFT WITH WINGSPAN GTR THAN 214 FT CTC LAX AIRSIDE OPS (424)−646−5292 FOR ARPT RESTRICTIONS.

MAJOR CONSTRUCTION ON AIRPORT, DAILY.

LAX SVC TXL K AND TXL L LAWA RAMP TWR OPN CTC LAWA RAMP TWR 131.075.

SIMUL ACFT OPNS PROHIBITED ON TWY H2 AND G BTN RWYS 07L/25R AND 07R/25L.

Oakland, California
Metropolitan Oakland International
ICAO Identifier KOAK



Oakland, CA
Metropolitan Oakland Intl
ICAO Identifier KOAK

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 37−43−16.5N / 122−13−16.1W
2.2.2 From City: 4 miles S of OAKLAND, CA
2.2.3 Elevation: 9 ft
2.2.5 Magnetic Variation: 14E (2015)
2.2.6 Airport Contact: MATT DAVIS
METROPOLITAN OAKLAND INTL ARPT
OAKLAND, CA 94621 (510−563−6436)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 28R
2.12.2 True Bearing: 292
2.12.3 Dimensions: 5458 ft x 150 ft
2.12.4 PCN: 69 F/C/W/T
2.12.5 Coordinates: 37−43−29.3247N / 122−12−16.9329W
2.12.6 Threshold Elevation: 5.8 ft
2.12.6 Touchdown Zone Elevation: 6.8 ft

2.12.1 Designation: 10L
2.12.2 True Bearing: 112
2.12.3 Dimensions: 5458 ft x 150 ft
2.12.4 PCN: 69 F/C/W/T
2.12.5 Coordinates: 37−43−49.6865N / 122−13−19.8481W
2.12.6 Threshold Elevation: 5.5 ft
2.12.6 Touchdown Zone Elevation: 6.3 ft

2.12.1 Designation: 28L
2.12.2 True Bearing: 292
2.12.3 Dimensions: 6213 ft x 150 ft
2.12.4 PCN: 97 F/B/W/T
2.12.5 Coordinates: 37−43−20.178N / 122−12−21.6341W
2.12.6 Threshold Elevation: 8.2 ft
2.12.6 Touchdown Zone Elevation: 8.7 ft

2.12.1 Designation: 10R
2.12.2 True Bearing: 112
2.12.3 Dimensions: 6213 ft x 150 ft
2.12.4 PCN: 97 F/B/W/T
2.12.5 Coordinates: 37−43−43.345N / 122−13−33.2509W
2.12.6 Threshold Elevation: 8.1 ft
2.12.6 Touchdown Zone Elevation: 9 ft

2.12.1 Designation: 30
2.12.2 True Bearing: 310
2.12.3 Dimensions: 10520 ft x 150 ft
2.12.4 PCN: 71 F/A/W/T
2.12.5 Coordinates: 37−42−5.3735N / 122−12−51.3251W
2.12.6 Threshold Elevation: 9 ft
2.12.6 Touchdown Zone Elevation: 9 ft

2.12.1 Designation: 12
2.12.2 True Bearing: 130
2.12.3 Dimensions: 10520 ft x 150 ft
2.12.4 PCN: 71 F/A/W/T
2.12.5 Coordinates: 37−43−12.2256N / 122−14−31.6133W
2.12.6 Threshold Elevation: 8.3 ft
2.12.6 Touchdown Zone Elevation: 8.6 ft

2.12.1 Designation: 15
2.12.2 True Bearing: 164
2.12.3 Dimensions: 3376 ft x 75 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 37−44−25.0497N / 122−13−22.1076W
2.12.6 Threshold Elevation: 1.5 ft
2.12.6 Touchdown Zone Elevation: 4.6 ft

2.12.1 Designation: 33
2.12.2 True Bearing: 344
2.12.3 Dimensions: 3376 ft x 75 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 37−43−52.9005N / 122−13−10.826W
2.12.6 Threshold Elevation: 3.9 ft
2.12.6 Touchdown Zone Elevation: 4.6 ft

AD 2.13 Declared Distances
2.13.1 Designation: 28R
2.13.2 Take−off Run Available: 5458 ft
2.13.3 Take−off Distance Available: 5458 ft
2.13.4 Accelerate−Stop Distance Available: 5458 ft
2.13.5 Landing Distance Available: 5458 ft

2.13.1 Designation: 10L
2.13.2 Take−off Run Available: 5458 ft
2.13.3 Take−off Distance Available: 5458 ft

2.13.4 Accelerate−Stop Distance Available: 5336 ft
2.13.5 Landing Distance Available: 5336 ft

2.13.1 Designation: 28L
2.13.2 Take−off Run Available: 6213 ft
2.13.3 Take−off Distance Available: 6213 ft
2.13.4 Accelerate−Stop Distance Available: 6213 ft
2.13.5 Landing Distance Available: 6213 ft

2.13.1 Designation: 10R
2.13.2 Take−off Run Available: 6213 ft
2.13.3 Take−off Distance Available: 6213 ft
2.13.4 Accelerate−Stop Distance Available: 6213 ft
2.13.5 Landing Distance Available: 6213 ft

2.13.1 Designation: 30
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 12
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 15
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 33
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 28R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 28L
2.14.2 Approach Lighting System:

2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 10R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 30
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 12
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 15
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 33
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 28R. Magnetic variation: 14E
2.19.2 ILS Identification: OAK
2.19.5 Coordinates: 37−43−28.5955N / 122−12−30.6206W
2.19.6 Site Elevation: 3.3 ft

2.19.1 ILS Type: Localizer for runway 28R. Magnetic variation: 14E
2.19.2 ILS Identification: OAK
2.19.5 Coordinates: 37−43−54.55N / 122−13−34.86W
2.19.6 Site Elevation: 5.2 ft

2.19.1 ILS Type: Glide Slope for runway 12. Magnetic variation: 14E
2.19.2 ILS Identification: AAZ
2.19.5 Coordinates: 37−43−2.9276N / 122−14−22.8383W
2.19.6 Site Elevation: 3.3 ft

2.19.1 ILS Type: Localizer for runway 12. Magnetic variation: 14E
2.19.2 ILS Identification: AAZ
2.19.5 Coordinates: 37−42−2.2539N / 122−12−46.6503W
2.19.6 Site Elevation: 7.2 ft

2.19.1 ILS Type: DME for runway 30. Magnetic variation: 14E
2.19.2 ILS Identification: INB
2.19.5 Coordinates: 37−43−29.85N / 122−14−58.1W
2.19.6 Site Elevation: 18 ft

2.19.1 ILS Type: Glide Slope for runway 30. Magnetic variation: 14E
2.19.2 ILS Identification: INB
2.19.5 Coordinates: 37−42−9.7514N / 122−13−5.6277W
2.19.6 Site Elevation: 4.3 ft

2.19.1 ILS Type: Localizer for runway 30. Magnetic variation: 14E
2.19.2 ILS Identification: INB
2.19.5 Coordinates: 37−43−29.8732N / 122−14−58.1043W
2.19.6 Site Elevation: 9.3 ft

2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 17E
2.19.2 Navigation Aid Identification: OAK
2.19.5 Coordinates: 37−43−33.3223N / 122−13−24.9086W
2.19.6 Site Elevation: 13.4 ft

General Remarks:
100 FT LGTD MICROWAVE ANT TWR LCTD 1320 FT WSW OF OAK VORTAC; S OF UPWIND END OF RWY 28L.

TWY A, E, G, H BTN RWY 28R AND TWY C MAX ACFT WT 150,000 LBS.

PREFERENTIAL RWY USE PROGRAM IN EFFECT 2200−0600. NORTH FLD PREF ARR RWY 28L, NORTH FLD PREF DEP RWYS 10R OR 28R. IF THESE RWYS UNACCEPTABLE FOR SAFETY OR ATC INSTRN THEN RWY 12/30 MUST BE USED.

TWY C BTN TWY G & J MAX ACFT WEIGHT 90,000 LBS SINGLE; 144,000 LBS DUAL; 257,000 LBS TANDEM.

400 FT BY 220 FT BLAST PAD RWY 12 AND RWY 30.

TWY P MAX ACFT WT 116,000 LBS SINGLE; 190,000 LBS DUAL; 305,000 LBS DUAL TANDEM; 735,000 LBS DOUBLE DUAL TANDEM.

NOISE ABATEMENT PROCS N/A IN EMERGS OR WHENEVER RWY 12/30 IS CLSD DUE TO MAINT, SAFETY, WINDS OR WX.

RWY 15/33 CLSD TO ACR ACFT.

FOR NOISE ABATEMENT INFO CTC NOISE ABATEMENT OFC AT (510) 563−6463.

TWY C BTN RWY 28R & TWY G AND TWYS B, J, AND D MAX ACFT WT 861,000 LBS.

TWY K BTN TWY J AND INT TWYS F, L, K MAX ACFT WT 33000 LBS SINGLE; 45000 LBS DUAL; TANDEM NA.

24 HR NOISE ABATEMENT PROCEDURE − TBJT AND TURBOFAN PWRD ACFT, TURBOROPS OVER 17,000 LBS, FOUR−ENGINE RECIPROCATING PWRD ACFT, AND SURPLUS MIL ACFT OVER 12,500 POUNDS SHOULD NOT DEP RWYS 28L & 28R OR LAND ON RWYS 10R & 10L.

TWY C BTN TWY J & F MAX ACFT WEIGHT 76,000 LBS SINGLE; 115,000 LBS DUAL; 257,000 LBS TANDEM (DUAL TANDEM NA).

RWYS 30, 28R AND RWY 28L DIST RMNG SIGNS L SIDE.

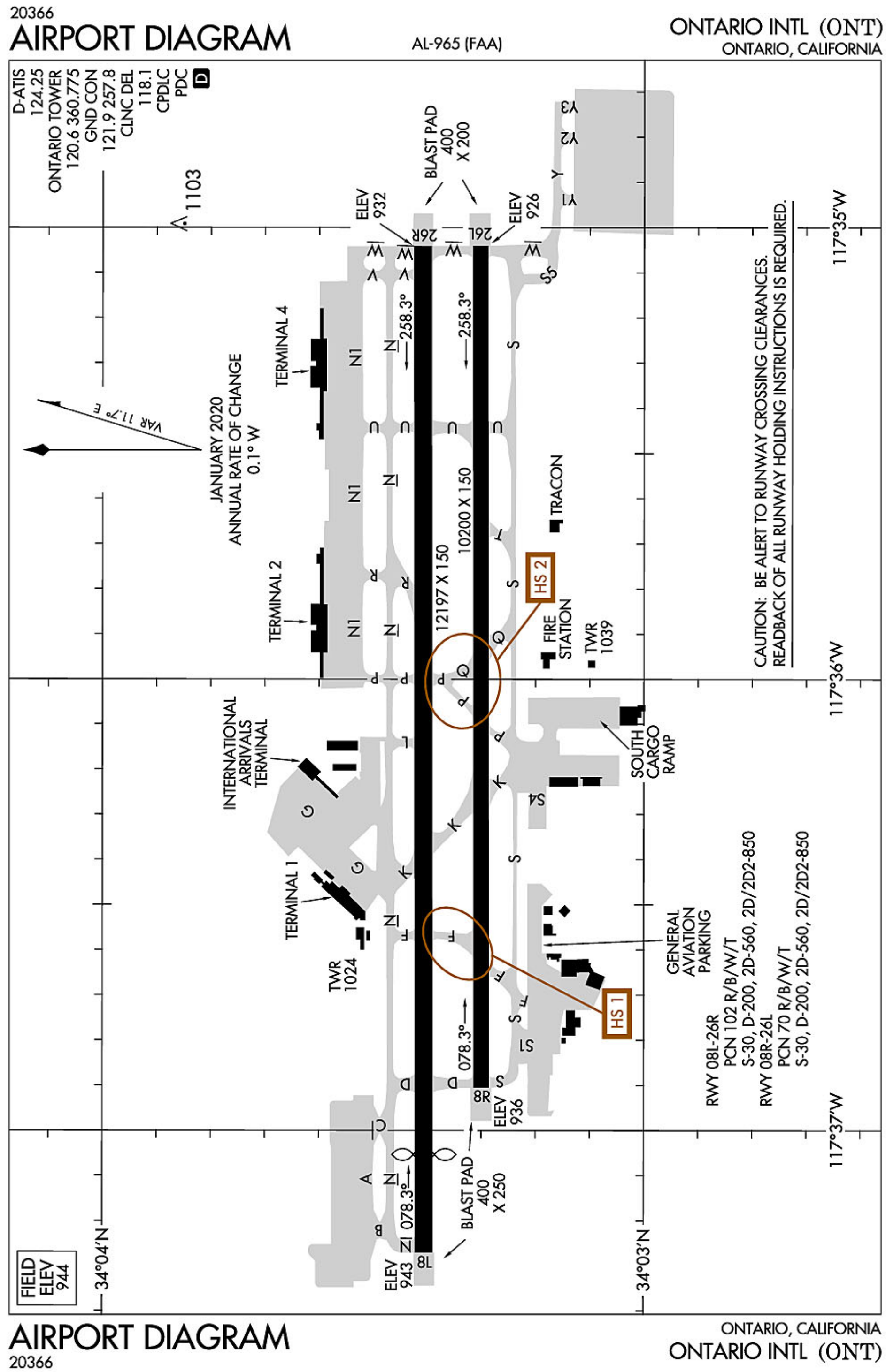
ACFT WITH EXPERIMENTAL OR LTD CERTIF HAVING OVER 1000 HORSEPOWER OR 4000 LBS ARE RSTRD TO RWY 12/30.

BIRDS ON & INVOF ARPT.

TWY G & H BTN RWY 28L & 28R: MAX ACFT WT 12,500 LBS.

TWY K BTN TWY D & INT TWYS F, L, K MAX ACFT WEIGHT 56,000 LBS SINGLE; 70,000 LBS DUAL; 130,000 LBS TANDEM.

Ontario, California
Ontario International
ICAO Identifier KONT



Ontario, CA
Ontario Intl
ICAO Identifier KONT

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 34−3−21.651N / 117−36−4.275W
2.2.2 From City: 2 miles E of ONTARIO, CA
2.2.3 Elevation: 944.1 ft
2.2.5 Magnetic Variation: 12E (2020)
2.2.6 Airport Contact: ATIF ELKADI
1923 EAST AVION STREET
ONTARIO, CA 91761 (909−544−5432)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 08L
2.12.2 True Bearing: 90
2.12.3 Dimensions: 12197 ft x 150 ft
2.12.4 PCN: 102 R/B/W/T
2.12.5 Coordinates: 34−3−24.7651N / 117−37−22.1586W
2.12.6 Threshold Elevation: 943.2 ft
2.12.6 Touchdown Zone Elevation: 944.1 ft

2.12.1 Designation: 26R
2.12.2 True Bearing: 270
2.12.3 Dimensions: 12197 ft x 150 ft
2.12.4 PCN: 102 R/B/W/T
2.12.5 Coordinates: 34−3−24.8259N / 117−34−57.2057W
2.12.6 Threshold Elevation: 931.8 ft
2.12.6 Touchdown Zone Elevation: 931.8 ft

2.12.1 Designation: 08R
2.12.2 True Bearing: 90
2.12.3 Dimensions: 10200 ft x 150 ft
2.12.4 PCN: 70 R/B/W/T
2.12.5 Coordinates: 34−3−17.8579N / 117−36−58.4219W
2.12.6 Threshold Elevation: 936 ft
2.12.6 Touchdown Zone Elevation: 936 ft

2.12.1 Designation: 26L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 10200 ft x 150 ft
2.12.4 PCN: 70 R/B/W/T
2.12.5 Coordinates: 34−3−17.9013N / 117−34−57.1985W
2.12.6 Threshold Elevation: 926.2 ft
2.12.6 Touchdown Zone Elevation: 926.2 ft

AD 2.13 Declared Distances
2.13.1 Designation: 08L
2.13.2 Take−off Run Available: 12197 ft
2.13.3 Take−off Distance Available: 12197 ft
2.13.4 Accelerate−Stop Distance Available: 12197 ft
2.13.5 Landing Distance Available: 11200 ft

2.13.1 Designation: 26R
2.13.2 Take−off Run Available: 12197 ft
2.13.3 Take−off Distance Available: 12197 ft
2.13.4 Accelerate−Stop Distance Available: 12197 ft
2.13.5 Landing Distance Available: 12197 ft

2.13.1 Designation: 08R
2.13.2 Take−off Run Available: 10200 ft
2.13.3 Take−off Distance Available: 10200 ft
2.13.4 Accelerate−Stop Distance Available: 10200 ft
2.13.5 Landing Distance Available: 10200 ft

2.13.1 Designation: 26L
2.13.2 Take−off Run Available: 10200 ft
2.13.3 Take−off Distance Available: 10200 ft
2.13.4 Accelerate−Stop Distance Available: 10200 ft
2.13.5 Landing Distance Available: 10200 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 08L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 08L. Magnetic variation: 12E
2.19.2 ILS Identification: AOD
2.19.5 Coordinates: 34−3−21.2425N / 117−36−59.9428W
2.19.6 Site Elevation: 935.9 ft

2.19.1 ILS Type: Localizer for runway 08L. Magnetic variation: 12E
2.19.2 ILS Identification: AOD
2.19.5 Coordinates: 34−3−24.8274N / 117−34−45.0837W
2.19.6 Site Elevation: 929.1 ft

2.19.1 ILS Type: DME for runway 26R. Magnetic variation: 12E
2.19.2 ILS Identification: ONT
2.19.5 Coordinates: 34−3−22.0428N / 117−37−33.7049W
2.19.6 Site Elevation: 955 ft

2.19.1 ILS Type: Glide Slope for runway 26R. Magnetic variation: 12E
2.19.2 ILS Identification: ONT
2.19.5 Coordinates: 34−3−22.0256N / 117−35−11.0293W
2.19.6 Site Elevation: 925.2 ft

2.19.1 ILS Type: Localizer for runway 26R. Magnetic variation: 12E
2.19.2 ILS Identification: ONT
2.19.5 Coordinates: 34−3−24.7616N / 117−37−34.6764W
2.19.6 Site Elevation: 946.2 ft

2.19.1 ILS Type: DME for runway 26L. Magnetic variation: 12E
2.19.2 ILS Identification: TWO
2.19.5 Coordinates: 34−3−20.4777N / 117−37−8.8646W
2.19.6 Site Elevation: 947.7 ft

2.19.1 ILS Type: Glide Slope for runway 26L. Magnetic variation: 12E
2.19.2 ILS Identification: TWO
2.19.5 Coordinates: 34−3−21.9048N / 117−35−11.0216W
2.19.6 Site Elevation: 925.2 ft

2.19.1 ILS Type: Inner Marker for runway 26L. Magnetic variation: 12E
2.19.2 ILS Identification: TWO
2.19.5 Coordinates: 34−3−17.924N / 117−34−47.8618W
2.19.6 Site Elevation: 923.6 ft

2.19.1 ILS Type: Localizer for runway 26L. Magnetic variation: 12E
2.19.2 ILS Identification: TWO
2.19.5 Coordinates: 34−3−17.8524N / 117−37−10.2711W
2.19.6 Site Elevation: 931.1 ft

General Remarks:
ALL MILITARY AND GENERAL AVIATION (FIXED OR ROTOR WING) ACFT OPS ARE RESTRICTED TO FBO FACILITIES WITH ADVANCE COORDINATION; OVERNIGHT TIEDOWN AND PARKING FEE.

PILOTS SHOULD USE JUDGEMENTAL OVERSTEER ON TWY S−4.

ACFT PRKG AND CONTR GND SVCS ARE LTD FOR UNSKED OPS. FOR SKED INFO CALL AIRFIELD OPS (909) 214−7682/7683.

EASTBOUND B747, B777, A330, A340 OR LARGER ACFT ON TWY S PROHIBITED FROM NORTHBOUND TURNS ONTO TWY K.

TWY S−4 RSTD TO ACFT WITH WINGSPAN 117 FT OR SMALLER.

FBO ON FREQ 130.75.

B747, B777, A330, A340 OR LARGER ACFT ON TWY S PROHIBITED FROM NORTHBOUND TURNS ONTO TWY P.

NOISE ABATEMENT PROCEDURES IN EFFECT; FULL−LENGTH TURBOJET DEP ENCOURAGED, NIGHTLY PREFERENTIAL RWY USAGE, 2200−0700.

TWY Y EAST OF TWY W IS A NON−MOVEMENT AREA; ALL ACFT CTC RAMP CTL 131.325 FOR ACCESS.

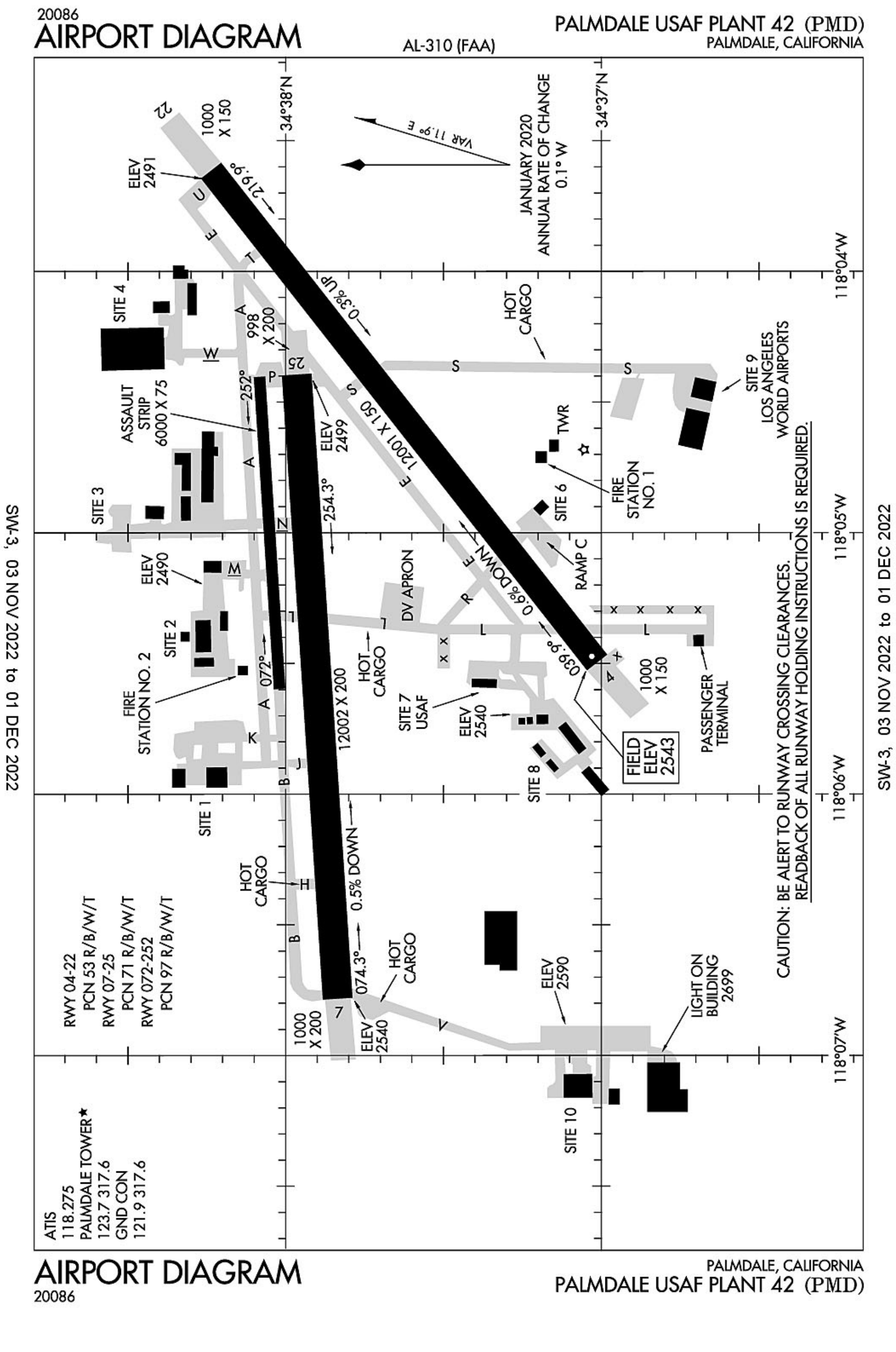
PTNS OF TWY S IN THE VCY OF TWY F ARE NOT VSB FM ATCT; PILOTS USE CTN ENTERING TWY F SOUTH OF TWY S.

WILDLIFE HAZARD MGT PLAN IN EFFECT; POTENTIAL BIRD HAZARDS MAY EXIST ON AND INVOF ARPT; BE ALERT TO LARGE NUMBERS OF STARLINGS AND CROWS POSSIBLE ON APCH TO RY 26L AND RY 26R, HAWKS, EAGLES, FALCONS AND OWLS SPOTTED ON OCCASION.

ACFT ACCESS TO TWY R FROM RWY 26R PROHIBITED

TWY F SOUTH OF TWY S RSTRD TO ACFT WITH 117 FT WINGSPAN AND SMALLER. TWY F SOUTH OF RWY 26L RSTRD TO ACFT WITH 180 FT WINGSPAN.

Palmdale, California
Palmdale Regional/USAF Plant 42
ICAO Identifier KPMD



Palmdale, CA
Palmdale Rgnl/USAF Plant 42
ICAO Identifier KPMD

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 34−37−45.8N / 118−5−4.39W
2.2.2 From City: 3 miles NE of PALMDALE, CA
2.2.3 Elevation: 2542.5 ft
2.2.5 Magnetic Variation: 12E (2020)
2.2.6 Airport Contact: MATT FISHER
2503 E AVE P
PALMDALE, CA 93550 (661−275−9342)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, 1330−0600Z++ Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: NO
2.4.2 Fuel Types:
2.4.5 Hangar Space:
2.4.6 Repair Facilities: None

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: None

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 04
2.12.2 True Bearing: 52
2.12.3 Dimensions: 12001 ft x 150 ft
2.12.4 PCN: 53 R/B/W/T
2.12.5 Coordinates: 34−37−0.842N / 118−5−29.802W
2.12.6 Threshold Elevation: 2542.5 ft
2.12.6 Touchdown Zone Elevation: 2542.5 ft

2.12.1 Designation: 22
2.12.2 True Bearing: 232
2.12.3 Dimensions: 12001 ft x 150 ft
2.12.4 PCN: 53 R/B/W/T
2.12.5 Coordinates: 34−38−14.236N / 118−3−36.966W
2.12.6 Threshold Elevation: 2491.1 ft
2.12.6 Touchdown Zone Elevation: 2497.9 ft

2.12.1 Designation: 25
2.12.2 True Bearing: 266
2.12.3 Dimensions: 12002 ft x 200 ft
2.12.4 PCN: 71 R/B/W/T
2.12.5 Coordinates: 34−37−57.991N / 118−4−23.743W
2.12.6 Threshold Elevation: 2498.7 ft
2.12.6 Touchdown Zone Elevation: 2503.4 ft

2.12.1 Designation: 07
2.12.2 True Bearing: 86
2.12.3 Dimensions: 12002 ft x 200 ft
2.12.4 PCN: 71 R/B/W/T
2.12.5 Coordinates: 34−37−50.106N / 118−6−47.029W
2.12.6 Threshold Elevation: 2540.2 ft
2.12.6 Touchdown Zone Elevation: 2540.2 ft

2.12.1 Designation: 252
2.12.2 True Bearing:
2.12.3 Dimensions: 6000 ft x 75 ft
2.12.4 PCN: 97 R/B/W/T
2.12.5 Coordinates: −− / −−
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

2.12.1 Designation: 072
2.12.2 True Bearing:
2.12.3 Dimensions: 6000 ft x 75 ft
2.12.4 PCN: 97 R/B/W/T
2.12.5 Coordinates: −− / −−
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

AD 2.13 Declared Distances
2.13.1 Designation: 04
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 22
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 25
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 07
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 252

2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 072
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 04
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 25
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 07
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 252
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 072
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 25. Magnetic variation: 12E
2.19.2 ILS Identification: PMD
2.19.5 Coordinates: 34−38−1.256N / 118−4−40.078W
2.19.6 Site Elevation: 2491.8 ft

2.19.1 ILS Type: Localizer for runway 25. Magnetic variation: 12E
2.19.2 ILS Identification: PMD
2.19.5 Coordinates: 34−37−48.786N / 118−7−10.911W
2.19.6 Site Elevation: 2552.2 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 15E
2.19.2 Navigation Aid Identification: PMD
2.19.5 Coordinates: 34−37−53.0341N / 118−3−49.7607W
2.19.6 Site Elevation: 2498 ft

General Remarks:
PRKG RAMP LCTD S OF RWY 22 & TWY V NOT VSB FM ATCT.

MISC: COMSEC STORAGE UNAVBL.

MISC: WINDS ARE EST DUE TO FMQ−13 WIND SENSORS BEING ACCURATE TO WITHIN ONLY +/− 2 KT. ATC/WX WILL NOT INCL/RELAY WIND CORR INTO FCST/PHRASEOLOGY. THEREFORE, AIRCREWS WILL INCORPORATE A +/− 2 KT ACCURACY INTO THEIR DECISION MAKING PROCESS FOR FLYING OPR.

CAUTION: RWY 25 NSTD MRK: SPOT LDG ZONE MRK LCTD AT 6000 FT REMAINING MRK. RWY 07−25 DECEPTIVE SFC MRK EXCEED STANDARD BY APPROX 50 FT.

ALL DEPT ACFT MUST FILE FPL WITH P42 AFLD MGMT OPS.

MISC: BASE OPS OPR 1330−0600Z++, CLSD FEDERAL HOL.

CAUTION: USE EXTREME CAUTION FOR UNMANNED AERIAL SYSTEMS (UAS) OPS IN VCNTY.

MILITARY USE: ASSAULT LDG ZONE LCTD 1ST 6,000 EAST END OF TWY B. RWY 252 MRK ONLY FOR C−130 ASSAULT OPR; ONE−WAY LDG ONLY.

RSTD: OVERNIGHT PRK UNAUTHD ON C−RAMP.

TRAN ALERT (2 OF 2): UNABLE TO SVC ACFT WITH ORDNANCE. LTD GRD SUPPORT EQUIPMENT AVBL. NO POTABLE WATER SVC. NO TRAN MAINT AVBL. GND SVC UNAVBL WHEN LIGHTNING WITHIN 5 NM.

CAUTION: CONTRACTOR LEASED SITES ARE INTENDED FOR ACFT BASED THEREIN; ENTRY GATES AND APRONS MAY NOT MEET AF OBST STDS.

BIRD HAZ POTENTIAL EXISTS. MIGRATORY SEASON PHASE II 1 OCT − 31 MAR. DURG BWC MODERATE, TKOF AND LNDG PERMITTED. DURG BWC SEVERE, TKOF AND LNDG PROHIBITED.

FUEL: A++ AVBL. NO TRANS ACFT FUEL SVC AVBL. LTD FUELING AVBL; GOVT ACFT ONLY 1600−2300Z++ MON−FRI. 24 HR PN WITH AFLD MGR RQR; NO SAME DAY REQ; GAS AND GO UNAVBL. EXPECT 2+ HR DELAY FOR FUEL.

RSTD − OFFL BUS ONLY. MIL ARPT. CIVIL USE RQR USAF APVL AND DD FORM 2400/01/02. PPR RQR FOR FULL STOP LDG ONLY. CALL C661−275−9342.

SERVICE−JASU: POWER CARS UNAVBL.

DRAINAGE DITCHES PARL RWY 22 FM TWY S TO TWY U.

MISC: FLT PLANS MUST BE FILED AND ACTIVATED WITH P42 AFLD MGMT. USE FLT SVC WHEN P42 AFLD MGMT CLSD.

CAUTION: VARIOUS ACFT TEST OPS MARKINGS PAINTED IN WHITE ON TAXIWAY UNIFORM.

CAUTION: CIV ACFT MAY NOT BE GRANTED ACCESS TO KPMD CLASS D FOR PRACTICE APCH OR TRSN OVER ARPT BDRYS.

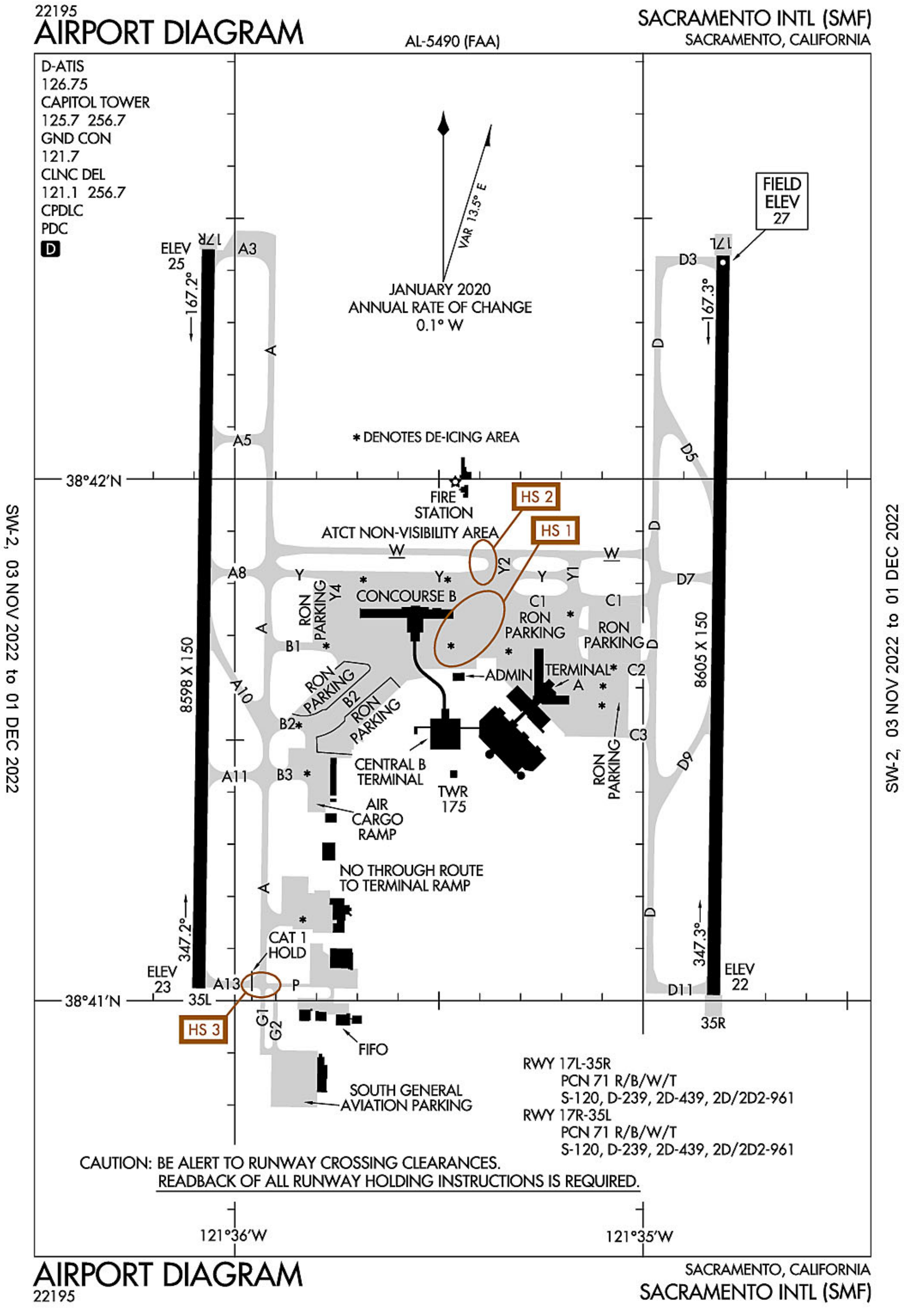
TRAN ALERT (1 OF 2): NO FLEET SVC AVBL. NO FLW ME SVC AVBL. EXP PROGRESSIVE TAXI TO PRK. AIRCREW RESPONSIBLE FOR ACFT PINNING/SAFING.

UNLGT OBSTN SURROUND AFLD.

MISC: INDUS INSTLN − NO TRNSPN, LODGING OR NML SVC AVBL ON SITE.

RSTD: TWY L BTN RWY 04/22 AND PAX TRML UNLGTD AND USABLE FOR DAYLT VFR ONLY.

Sacramento, California
Sacramento International
ICAO Identifier KSMF



Sacramento, CA
Sacramento Intl
ICAO Identifier KSMF

AD 2.2 Aerodrome geographical and administrative data

2.2.1 Reference Point: 38−41−43.6N / 121−35−26.8W
2.2.2 From City: 10 miles NW of SACRAMENTO, CA
2.2.3 Elevation: 26.9 ft
2.2.5 Magnetic Variation: 13E (2020)
2.2.6 Airport Contact: SHERI THOMPSON−DUARTE
6900 AIRPORT BLVD
SACRAMENTO, CA 95837 ((916) 874−0560)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule

2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities

2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MINOR

AD 2.6 Rescue and Firefighting Services

2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics

2.12.1 Designation: 17L
2.12.2 True Bearing: 181
2.12.3 Dimensions: 8605 ft x 150 ft
2.12.4 PCN: 71 R/B/W/T
2.12.5 Coordinates: 38−42−25.6973N / 121−34−48.2125W
2.12.6 Threshold Elevation: 26.9 ft
2.12.6 Touchdown Zone Elevation: 26.9 ft

2.12.1 Designation: 35R
2.12.2 True Bearing: 1
2.12.3 Dimensions: 8605 ft x 150 ft
2.12.4 PCN: 71 R/B/W/T
2.12.5 Coordinates: 38−41−0.6506N / 121−34−49.642W
2.12.6 Threshold Elevation: 22.1 ft
2.12.6 Touchdown Zone Elevation: 23.8 ft

2.12.1 Designation: 17R
2.12.2 True Bearing: 181
2.12.3 Dimensions: 8598 ft x 150 ft
2.12.4 PCN: 71 R/B/W/T
2.12.5 Coordinates: 38−42−26.4236N / 121−36−3.8961W
2.12.6 Threshold Elevation: 24.8 ft
2.12.6 Touchdown Zone Elevation: 25.3 ft

2.12.1 Designation: 35L
2.12.2 True Bearing: 1
2.12.3 Dimensions: 8598 ft x 150 ft
2.12.4 PCN: 71 R/B/W/T
2.12.5 Coordinates: 38−41−1.439N / 121−36−5.3075W
2.12.6 Threshold Elevation: 22.5 ft
2.12.6 Touchdown Zone Elevation: 23.9 ft

AD 2.13 Declared Distances
2.13.1 Designation: 17L
2.13.2 Take−off Run Available: 8605 ft
2.13.3 Take−off Distance Available: 8605 ft
2.13.4 Accelerate−Stop Distance Available: 8605 ft
2.13.5 Landing Distance Available: 8605 ft

2.13.1 Designation: 35R
2.13.2 Take−off Run Available: 8605 ft
2.13.3 Take−off Distance Available: 8605 ft
2.13.4 Accelerate−Stop Distance Available: 8605 ft
2.13.5 Landing Distance Available: 8605 ft

2.13.1 Designation: 17R
2.13.2 Take−off Run Available: 8598 ft
2.13.3 Take−off Distance Available: 8598 ft
2.13.4 Accelerate−Stop Distance Available: 8598 ft
2.13.5 Landing Distance Available: 8598 ft

2.13.1 Designation: 35L
2.13.2 Take−off Run Available: 8598 ft
2.13.3 Take−off Distance Available: 8598 ft
2.13.4 Accelerate−Stop Distance Available: 8598 ft
2.13.5 Landing Distance Available: 8598 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 17L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 17R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 35L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 17L. Magnetic variation: 13E
2.19.2 ILS Identification: MDK
2.19.5 Coordinates: 38−40−50.2189N / 121−34−46.3009W
2.19.6 Site Elevation: 30.9 ft

2.19.1 ILS Type: Glide Slope for runway 17L. Magnetic variation: 13E
2.19.2 ILS Identification: MDK
2.19.5 Coordinates: 38−42−15.18N / 121−34−43.22W
2.19.6 Site Elevation: 21.7 ft

2.19.1 ILS Type: Localizer for runway 17L. Magnetic variation: 13E
2.19.2 ILS Identification: MDK
2.19.5 Coordinates: 38−40−50.67N / 121−34−49.81W
2.19.6 Site Elevation: 17.4 ft

2.19.1 ILS Type: DME for runway 17R. Magnetic variation: 13E
2.19.2 ILS Identification: SMF
2.19.5 Coordinates: 38−40−34.7038N / 121−36−3.046W
2.19.6 Site Elevation: 34 ft

2.19.1 ILS Type: Glide Slope for runway 17R. Magnetic variation: 13E
2.19.2 ILS Identification: SMF
2.19.5 Coordinates: 38−42−15.8608N / 121−36−9.106W
2.19.6 Site Elevation: 22.9 ft

2.19.1 ILS Type: Inner Marker for runway 17R. Magnetic variation: 13E
2.19.2 ILS Identification: SMF
2.19.5 Coordinates: 38−42−34.0974N / 121−36−3.7746W
2.19.6 Site Elevation: 23 ft

2.19.1 ILS Type: Localizer for runway 17R. Magnetic variation: 13E
2.19.2 ILS Identification: SMF
2.19.5 Coordinates: 38−40−35.7492N / 121−36−5.7322W
2.19.6 Site Elevation: 19.6 ft

2.19.1 ILS Type: DME for runway 35L. Magnetic variation: 13E
2.19.2 ILS Identification: HUX
2.19.5 Coordinates: 38−40−34.7038N / 121−36−3.046W
2.19.6 Site Elevation: 34 ft

2.19.1 ILS Type: Glide Slope for runway 35L. Magnetic variation: 13E
2.19.2 ILS Identification: HUX
2.19.5 Coordinates: 38−41−12.5012N / 121−36−0.0807W
2.19.6 Site Elevation: 21.7 ft

2.19.1 ILS Type: Localizer for runway 35L. Magnetic variation: 13E

2.19.2 ILS Identification: HUX
2.19.5 Coordinates: 38−42−36.65N / 121−36−3.72W
2.19.6 Site Elevation: 22 ft

General Remarks:
WEST RAMP SPOTS 56−60 & F1 RSTRD TO TOW IN AND TOW OUT ONLY FROM TXL B2. WHEN PUSHING BACK FOR DEP FROM WEST RAMP SPOTS 56−60 & F1 EACH ACFT IS TO PUSH BACK ON TO TXL B2 AND PULL FWD TO THE "ENGINE START LINE" PRIOR TO STARTING ENGS.

CROP DUSTERS OPER INVOF ARPT AT OR BELOW 200 FT AGL.

MILITARY AIRCRAFT PARKING LIMITED. CONTACT ARPT OPNS IF PARKING IS REQUIRED (916) 806−5309.

NOISE SENSITIVE AREAS W OF ARPT ON SAC RIVER. LCL TURN DISCOURAGED FOR JET ACFT. WHEN CONDUCTING IFR APCH IN VFR CONDITIONS EXECUTE MISSED APCH AT DEP END OF RYS. PLAN VFR PATTERNS TO E. USE MIN POWER SETTINGS.

UNPAVED SFC NORTH OF TWY P AND EAST OF TWY A AND SOUTH OF CARGO 1 RAMP CLSD TO HEL.

TWY B1 CLSD TO CARGO ACFT.

PORTION OF TWY W 500 FT EAST OF TWY A TO 2100 FT EAST OF TWY A IS NOT VISIBLE FROM ATCT.

TWY Y4 RESTRICTED TO AIRCRAFT WITH A WINGSPAN OF LESS THAN 118 FT (GROUP III).

ALL ACFT CTC ATC GND CTL PRIOR TO MOVEMENT ON RAMP.

TWY RMK #2: THE MAXIMUM ALLOWABLE GROSS AIRCRAFT LOAD FOR TWYS G1, G2, AND THE GENERAL AVIATION PARKING APRON IS: 70,000 LBS FOR SINGLE GEAR AIRCRAFT; 170,000 LBS FOR DUAL GEAR AIRCRAFT; AND 250,000 LBS FOR DUAL TANDEM GEAR AIRCRAFT.

FAA GWT STRENGTH EVALUATION MD−11 = 590,000 LBS.

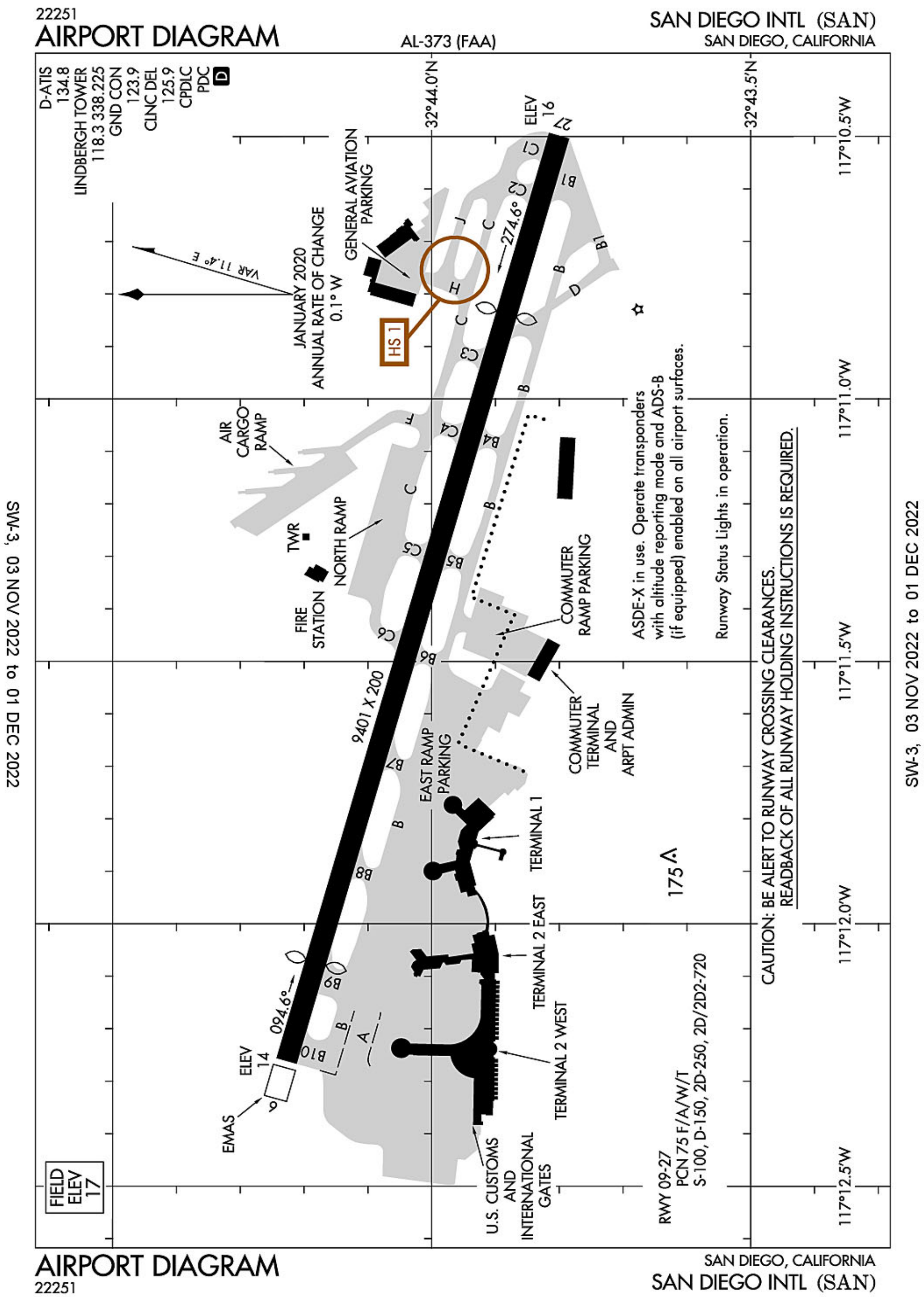
ACFT MUST PUSH BACK TAIL TO THE NORTH FROM TRML GATES A1, A3 AND A5.

GND VEHICLE SURVEILLANCE SYS IN USE. OPR TRANSPONDERS WITH ALT RPRTG MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AP SFCS.

BIRDS ON AND IN VICINITY OF ARPT.

TWY RMK #2 CONT'D: AN AIRCRAFT CANNOT EXCEED THE AIRPLANE DESIGN GROUP III CRITERIA AND MUST HAVE A WHEEL BASE OF LESS THAN 60 FT.

San Diego, California
San Diego International
ICAO Identifier KSAN



San Diego, CA
San Diego Intl
ICAO Identifier KSAN

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 32−44−0.826N / 117−11−22.788W
2.2.2 From City: 2 miles W of SAN DIEGO, CA
2.2.3 Elevation: 16.8 ft
2.2.5 Magnetic Variation: 11E (2020)
2.2.6 Airport Contact: DEAN ROBBINS
3225 N HARBOR DRIVE
SAN DIEGO, CA 92101 (619−400−2718)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MINOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 27
2.12.2 True Bearing: 286
2.12.3 Dimensions: 9401 ft x 200 ft
2.12.4 PCN: 75 F/A/W/T
2.12.5 Coordinates: 32−43−48.0054N / 117−10−29.8979W
2.12.6 Threshold Elevation: 16.4 ft
2.12.6 Touchdown Zone Elevation: 16.8 ft

2.12.1 Designation: 09
2.12.2 True Bearing: 106
2.12.3 Dimensions: 9401 ft x 200 ft
2.12.4 PCN: 75 F/A/W/T
2.12.5 Coordinates: 32−44−13.6407N / 117−12−15.6832W
2.12.6 Threshold Elevation: 13.9 ft
2.12.6 Touchdown Zone Elevation: 16.7 ft

AD 2.13 Declared Distances
2.13.1 Designation: 27
2.13.2 Take−off Run Available: 9401 ft
2.13.3 Take−off Distance Available: 9401 ft
2.13.4 Accelerate−Stop Distance Available: 9401 ft
2.13.5 Landing Distance Available: 7591 ft

2.13.1 Designation: 09
2.13.2 Take−off Run Available: 8280 ft
2.13.3 Take−off Distance Available: 9401 ft
2.13.4 Accelerate−Stop Distance Available: 8280 ft
2.13.5 Landing Distance Available: 7280 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 27
2.14.2 Approach Lighting System: MALS
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 09
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 09. Magnetic variation: 11E
2.19.2 ILS Identification: SAN
2.19.5 Coordinates: 32−43−46.8256N / 117−10−28.5519W
2.19.6 Site Elevation: 34 ft

2.19.1 ILS Type: Glide Slope for runway 09. Magnetic variation: 11E
2.19.2 ILS Identification: SAN
2.19.5 Coordinates: 32−44−10.7741N / 117−11−52.1594W
2.19.6 Site Elevation: 13.1 ft

2.19.1 ILS Type: Localizer for runway 09. Magnetic variation: 11E
2.19.2 ILS Identification: SAN
2.19.5 Coordinates: 32−43−47.605N / 117−10−28.2382W
2.19.6 Site Elevation: 26.4 ft

2.19.1 ILS Type: DME for runway 27. Magnetic variation: 11E
2.19.2 ILS Identification: UBR
2.19.5 Coordinates: 32−44−11.4186N / 117−12−19.9319W
2.19.6 Site Elevation: 25.9 ft

2.19.1 ILS Type: Localizer for runway 27. Magnetic variation: 11E
2.19.2 ILS Identification: UBR
2.19.5 Coordinates: 32−44−14.7918N / 117−12−20.4335W
2.19.6 Site Elevation: 10.9 ft

General Remarks:
CROSS−BLEED ENGINE STARTS PERMITTED ONLY ON PARALLEL TWY WITH ACFT ALIGNED ON TWY CNTRLN.

RWY STATUS LGTS IN OPN.

747 AND LARGER ACFT ARE PROHIBITED FM MAKING INTERSECTION TKOFS.

INTERMITTENT PRESENCE OF BIRDS ON AND INVOF OF ARPT.

ACFT WITH WINGSPANS GTR THAN 171 FT (52M) RSTD FROM USING TWY D SOUTH OF TWY B, AND WHEN EXITING RWY 09 WB ON TWY B.

DUE TO PAEW ON RY 09−27, 30 MINUTE PPR 0830−1230Z FOR ALL LANDINGS AND DEPARTURES CALL 619−400−2710.

IN THE EVENT OF A DIVERSION OR IRREGULAR OPERATIONS EVENTS, ACFT OPERATORS CONTACT THE APT DUTY MGR (619) 400−2710 FOR PPR DUE TO LIMITATIONS ASSOCIATED WITH HANDLING DIVERTED FLTS. LIMITATIONS INCLUDE RESTRICTED GATE SPACE, CUSTOMS SERVICES AS WELL AS ACFT SERVICING & PARKING.

MILITARY ACFT ON OFFICIAL BUSINESS ONLY CONTACT ARPT OPS AT 619−400−2710 FOR PPR.

TERRAIN & BLDGS TO 500' MSL N & E WITHIN 1 1/2 MI.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

PILOTS REQUIRED TO CTC ATCT GROUND CONTROLLER PRIOR TO PUSHBACK, TOW OUT AND TAXI FOR TRAFFIC ADVISORIES.

30 MIN PPR (619−400−2710) FOR ACFT WITH OVER 171 FT WINGSPAN.

ACFT CROSSING RY 09/27 ON TWY C6, HOLD SHORT OF TWY C6 FACING WEST ON TWY C, PARALLEL TO RY.

ULTRALIGHT ACFT PROHIBITED ON AP.

TAXIING ACFT ARE PROHIBITED FROM PASSING TO THE SOUTH OF ACFT LCTD ON TWY B INTO ALLEY LCTD BTWN GATES 7 AND 14.

TAXILANE A RSTRD TO ACFT WITH WINGSPANS OF 135 FT OR LESS.

TWY C EDGE LGTS OTS INDEFLY.

OUTBOARD ENGINES OF FOUR−ENGINE ACFT ARE TO BE KEPT AT IDLE POWER FOR ALL GND MANEUVERING.

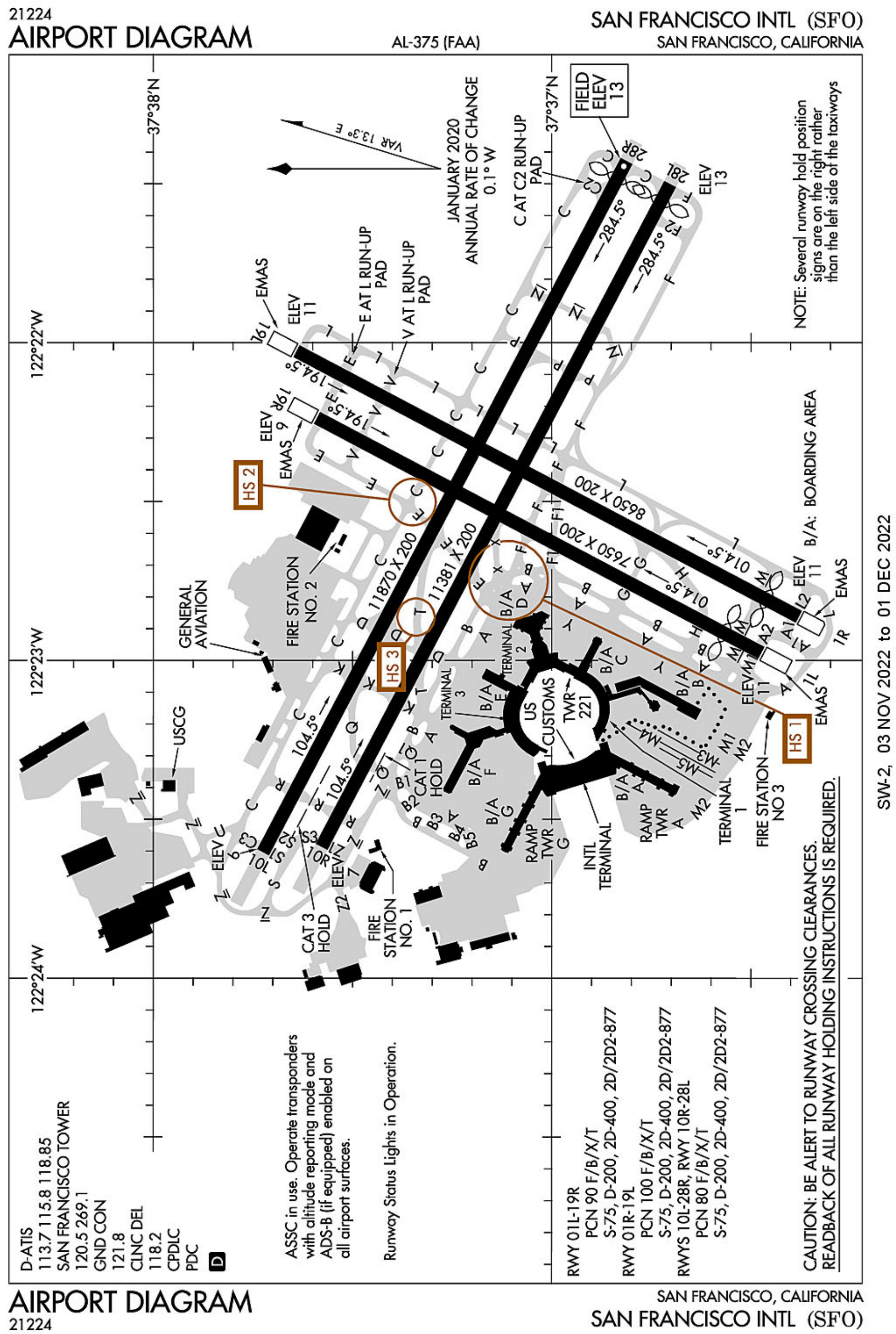
TAXIING ACFT SHALL FOLLOW LEAD−IN LINES UNTIL THE NOSE WHEEL OF THE ACFT HAS ENTERED THE NON−MOVEMENT AREA OF THE ALLEY.

TO REDUCE JET BLAST IMPACT AT N END OF TWY F ACFT WILL NOT START ENG UNTIL 800 FT FM N END OF TWY F; ABEAM THE SECOND PARKING PAD.

PRACTICE APPROACHES AND TGL PROHIBITED.

FOR ACCESS TO/FR TERMINAL 2: GATES 23, 25, 27, 29, 31, 33−51 AND THE ISLAND AND WEST RON PRKG RAMPS, CTC RAMP CTL ON 129.775 SRY 131.975 FR 0600−2400. FR 0000−0600 CTC GROUND CTL ON 123.9.

San Francisco, California
San Francisco International
ICAO Identifier KSFO



San Francisco, CA
San Francisco Intl
ICAO Identifier KSFO

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 37−37−7.7N / 122−22−31.5W
2.2.2 From City: 8 miles SE of SAN FRANCISCO, CA
2.2.3 Elevation: 13.1 ft
2.2.5 Magnetic Variation: 14E (2015)
2.2.6 Airport Contact: IVAR SATERO
PO BOX 8097
SAN FRANCISCO, CA 94128 ((650) 821−3355)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A,A++
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: NONE

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 01L
2.12.2 True Bearing: 28
2.12.3 Dimensions: 7650 ft x 200 ft
2.12.4 PCN: 90 F/B/X/T
2.12.5 Coordinates: 37−36−28.4323N / 122−22−58.5426W
2.12.6 Threshold Elevation: 10.7 ft
2.12.6 Touchdown Zone Elevation: 10.9 ft

2.12.1 Designation: 19R
2.12.2 True Bearing: 208
2.12.3 Dimensions: 7650 ft x 200 ft
2.12.4 PCN: 90 F/B/X/T
2.12.5 Coordinates: 37−37−35.3329N / 122−22−14.1939W
2.12.6 Threshold Elevation: 9.2 ft
2.12.6 Touchdown Zone Elevation: 11.2 ft

2.12.1 Designation: 01R
2.12.2 True Bearing: 28
2.12.3 Dimensions: 8650 ft x 200 ft
2.12.4 PCN: 100 F/B/X/T
2.12.5 Coordinates: 37−36−22.7876N / 122−22−51.7467W
2.12.6 Threshold Elevation: 11.4 ft
2.12.6 Touchdown Zone Elevation: 11.2 ft

2.12.1 Designation: 19L
2.12.2 True Bearing: 208
2.12.3 Dimensions: 8650 ft x 200 ft
2.12.4 PCN: 100 F/B/X/T
2.12.5 Coordinates: 37−37−38.4319N / 122−22−1.599W
2.12.6 Threshold Elevation: 10.5 ft
2.12.6 Touchdown Zone Elevation: 11 ft

2.12.1 Designation: 10L
2.12.2 True Bearing: 118
2.12.3 Dimensions: 11870 ft x 200 ft
2.12.4 PCN: 80 F/B/X/T
2.12.5 Coordinates: 37−37−43.4594N / 122−23−36.2107W
2.12.6 Threshold Elevation: 5.5 ft
2.12.6 Touchdown Zone Elevation: 7 ft

2.12.1 Designation: 28R
2.12.2 True Bearing: 298
2.12.3 Dimensions: 11870 ft x 200 ft
2.12.4 PCN: 80 F/B/X/T
2.12.5 Coordinates: 37−36−48.721N / 122−21−25.708W
2.12.6 Threshold Elevation: 13 ft
2.12.6 Touchdown Zone Elevation: 12.9 ft

2.12.1 Designation: 10R
2.12.2 True Bearing: 118
2.12.3 Dimensions: 11381 ft x 200 ft
2.12.4 PCN: 80 F/B/X/T
2.12.5 Coordinates: 37−37−34.648N / 122−23−35.1796W
2.12.6 Threshold Elevation: 7.1 ft
2.12.6 Touchdown Zone Elevation: 8 ft

2.12.1 Designation: 28L
2.12.2 True Bearing: 298
2.12.3 Dimensions: 11381 ft x 200 ft
2.12.4 PCN: 80 F/B/X/T
2.12.5 Coordinates: 37−36−42.163N / 122−21−30.057W
2.12.6 Threshold Elevation: 12.6 ft
2.12.6 Touchdown Zone Elevation: 12.6 ft

AD 2.13 Declared Distances

2.13.1 Designation: 01L
2.13.2 Take−off Run Available: 7650 ft
2.13.3 Take−off Distance Available: 7650 ft
2.13.4 Accelerate−Stop Distance Available: 7650 ft
2.13.5 Landing Distance Available: 7010 ft

2.13.1 Designation: 19R
2.13.2 Take−off Run Available: 7650 ft
2.13.3 Take−off Distance Available: 7650 ft

2.13.4 Accelerate−Stop Distance Available: 7650 ft
2.13.5 Landing Distance Available: 7650 ft

2.13.1 Designation: 01R
2.13.2 Take−off Run Available: 8650 ft
2.13.3 Take−off Distance Available: 8650 ft
2.13.4 Accelerate−Stop Distance Available: 8650 ft
2.13.5 Landing Distance Available: 8090 ft

2.13.1 Designation: 19L
2.13.2 Take−off Run Available: 8650 ft
2.13.3 Take−off Distance Available: 8650 ft
2.13.4 Accelerate−Stop Distance Available: 8650 ft
2.13.5 Landing Distance Available: 8650 ft

2.13.1 Designation: 10L
2.13.2 Take−off Run Available: 11870 ft
2.13.3 Take−off Distance Available: 11870 ft
2.13.4 Accelerate−Stop Distance Available: 11193 ft
2.13.5 Landing Distance Available: 11193 ft

2.13.1 Designation: 28R
2.13.2 Take−off Run Available: 11870 ft
2.13.3 Take−off Distance Available: 11870 ft
2.13.4 Accelerate−Stop Distance Available: 11870 ft
2.13.5 Landing Distance Available: 11236 ft

2.13.1 Designation: 10R
2.13.2 Take−off Run Available: 11381 ft
2.13.3 Take−off Distance Available: 11381 ft
2.13.4 Accelerate−Stop Distance Available: 10704 ft
2.13.5 Landing Distance Available: 10704 ft

2.13.1 Designation: 28L
2.13.2 Take−off Run Available: 11381 ft
2.13.3 Take−off Distance Available: 11381 ft
2.13.4 Accelerate−Stop Distance Available: 10981 ft
2.13.5 Landing Distance Available: 10275 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 01L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 19R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 01R
2.14.2 Approach Lighting System:

2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 19L
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 19L. Magnetic variation: 14E
2.19.2 ILS Identification: SIA
2.19.5 Coordinates: 37−36−18.7188N / 122−22−59.4082W
2.19.6 Site Elevation: 20.6 ft

2.19.1 ILS Type: Glide Slope for runway 19L. Magnetic variation: 14E
2.19.2 ILS Identification: SIA
2.19.5 Coordinates: 37−37−30.7381N / 122−22−11.0577W
2.19.6 Site Elevation: 6.3 ft

2.19.1 ILS Type: Localizer for runway 19L. Magnetic variation: 14E
2.19.2 ILS Identification: SIA
2.19.5 Coordinates: 37−36−16.2796N / 122−22−56.0614W
2.19.6 Site Elevation: 19 ft

2.19.1 ILS Type: DME for runway 28R. Magnetic variation: 14E
2.19.2 ILS Identification: GWQ
2.19.5 Coordinates: 37−37−48.1978N / 122−23−40.6085W
2.19.6 Site Elevation: 17.7 ft

2.19.1 ILS Type: Glide Slope for runway 28R. Magnetic variation: 14E
2.19.2 ILS Identification: GWQ
2.19.5 Coordinates: 37−36−51.3989N / 122−21−43.1171W
2.19.6 Site Elevation: 8.2 ft

2.19.1 ILS Type: Localizer for runway 28R. Magnetic variation: 14E
2.19.2 ILS Identification: GWQ
2.19.5 Coordinates: 37−37−46.3566N / 122−23−43.1194W
2.19.6 Site Elevation: 5.3 ft

2.19.1 ILS Type: DME for runway 28L. Magnetic variation: 14E
2.19.2 ILS Identification: SFO
2.19.5 Coordinates: 37−37−39.5363N / 122−23−41.4575W
2.19.6 Site Elevation: 20.3 ft

2.19.1 ILS Type: Glide Slope for runway 28L. Magnetic variation: 14E
2.19.2 ILS Identification: SFO
2.19.5 Coordinates: 37−36−51.2769N / 122−21−43.1999W
2.19.6 Site Elevation: 8.2 ft

2.19.1 ILS Type: Localizer for runway 28L. Magnetic variation: 14E
2.19.2 ILS Identification: SFO
2.19.5 Coordinates: 37−37−37.471N / 122−23−41.9198W
2.19.6 Site Elevation: 9.3 ft

2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 17E
2.19.2 Navigation Aid Identification: SFO
2.19.5 Coordinates: 37−37−10.1465N / 122−22−26.0165W
2.19.6 Site Elevation: 6 ft

General Remarks:
SEVERAL RY HOLD POSITION SIGNS ARE ON THE RIGHT RATHER THAN THE LEFT SIDE OF THE TWYS.

NOISE SENSITIVE ARPT; FOR NOISE ABATEMENT PROCEDURES CTC ARPT NOISE OFFICE MON−FRI 0800−1700 BY CALLING 650−821−5100.

RWY STATUS LGTS IN OPN.

PAEW APCH END RYS 28L, 28R, 19L INDEFLY.

TWY S BTN TWY Z AND TWY S2 CLSD TO ACFT WITH WINGSPAN OVER 215 FT.

ALL OUBD TWY ZULU 2 HVY ACFT WITH A WINGSPAN OF 171 FT OR GTR UNDER PWR PROHIBITED FROM ENTERING WB TWY ZULU.

RWY 1L CLSD TO DEPARTING TRIJET ACFT WITH WINGSPAN GREATER THAN 155 FT.

AIRLINE PILOTS SHALL STRICTLY FOLLOW THE PAINTED NOSE GEAR LINES AND NO OVERSTEERING ADJUSTMENT IS PERMITTED.

ASSC IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

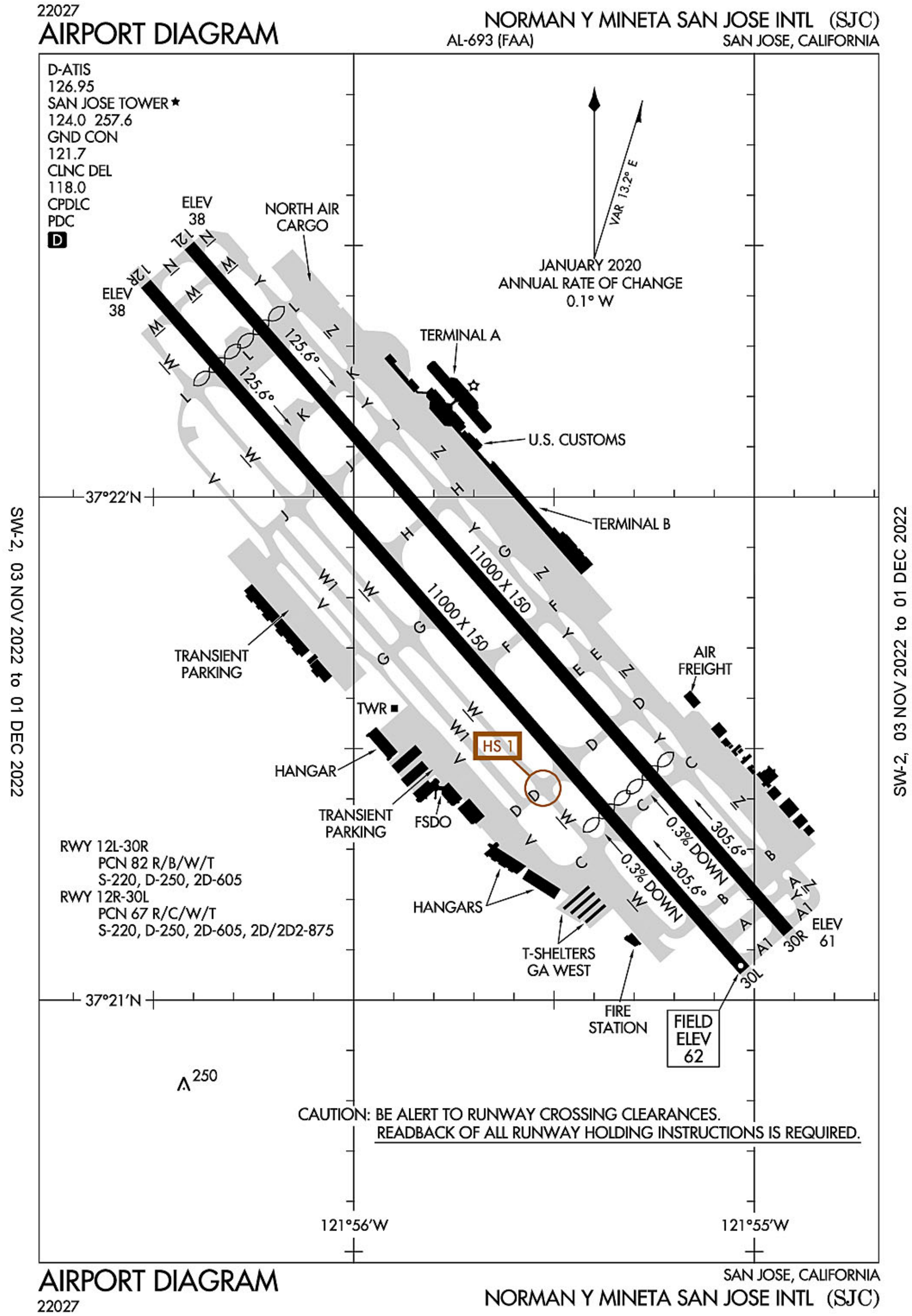
FLOCKS OF BIRDS FEEDING ALONG SHORELINE ADJ TO ARPT; ON OCCASIONS FLY ACROSS VARIOUS PARTS OF THE ARPT.

HIGH SPEED TWY (T) GRVD FULL WIDTH BTN RWY 28R AND 28L.

RY 10 PREFERRED RY BTWN 0100−0600 WEATHER AND FLIGHT CONDITIONS PERMITTING.

SIMULTANEOUS OPERATIONS IN EFFECT ALL RYS.

San Jose, California
Norman Y. Mineta San Jose International
ICAO Identifier KSJC



San Jose, CA
Norman Y. Mineta San Jose Intl
ICAO Identifier KSJC

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 37−21−46.781N / 121−55−43.034W
2.2.2 From City: 2 miles NW of SAN JOSE, CA
2.2.3 Elevation: 62.2 ft
2.2.5 Magnetic Variation: 13E (2020)
2.2.6 Airport Contact: JOHN AITKEN
1701 AIRPORT BLVD., SUITE B−1130
SAN JOSE, CA 95110 ((408) 277−5100)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 12L
2.12.2 True Bearing: 139
2.12.3 Dimensions: 11000 ft x 150 ft
2.12.4 PCN: 82 R/B/W/T
2.12.5 Coordinates: 37−22−29.9801N / 121−56−24.6377W
2.12.6 Threshold Elevation: 37.7 ft
2.12.6 Touchdown Zone Elevation: 43.8 ft

2.12.1 Designation: 30R
2.12.2 True Bearing: 319
2.12.3 Dimensions: 11000 ft x 150 ft
2.12.4 PCN: 82 R/B/W/T
2.12.5 Coordinates: 37−21−8.1324N / 121−54−54.9212W
2.12.6 Threshold Elevation: 61.1 ft
2.12.6 Touchdown Zone Elevation: 55.2 ft

2.12.1 Designation: 12R
2.12.2 True Bearing: 139
2.12.3 Dimensions: 11000 ft x 150 ft
2.12.4 PCN: 67 R/C/W/T
2.12.5 Coordinates: 37−22−25.4266N / 121−56−31.1597W
2.12.6 Threshold Elevation: 38.2 ft
2.12.6 Touchdown Zone Elevation: 45.6 ft

2.12.1 Designation: 30L
2.12.2 True Bearing: 319
2.12.3 Dimensions: 11000 ft x 150 ft
2.12.4 PCN: 67 R/C/W/T
2.12.5 Coordinates: 37−21−3.5766N / 121−55−1.4432W
2.12.6 Threshold Elevation: 62.1 ft
2.12.6 Touchdown Zone Elevation: 57 ft

AD 2.13 Declared Distances
2.13.1 Designation: 12L
2.13.2 Take−off Run Available: 10139 ft
2.13.3 Take−off Distance Available: 11000 ft
2.13.4 Accelerate−Stop Distance Available: 10139 ft
2.13.5 Landing Distance Available: 8831 ft

2.13.1 Designation: 30R
2.13.2 Take−off Run Available: 10134 ft
2.13.3 Take−off Distance Available: 11000 ft
2.13.4 Accelerate−Stop Distance Available: 10134 ft
2.13.5 Landing Distance Available: 7597 ft

2.13.1 Designation: 12R
2.13.2 Take−off Run Available: 9883 ft
2.13.3 Take−off Distance Available: 11000 ft
2.13.4 Accelerate−Stop Distance Available: 9883 ft
2.13.5 Landing Distance Available: 8587 ft

2.13.1 Designation: 30L
2.13.2 Take−off Run Available: 10152 ft
2.13.3 Take−off Distance Available: 11000 ft
2.13.4 Accelerate−Stop Distance Available: 10152 ft
2.13.5 Landing Distance Available: 7614 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 12L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 30R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 12R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 30L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 12R. Magnetic variation: 13E
2.19.2 ILS Identification: SLV
2.19.5 Coordinates: 37−21−2.6639N / 121−55−1.3459W
2.19.6 Site Elevation: 81.4 ft

2.19.1 ILS Type: Glide Slope for runway 12R. Magnetic variation: 13E
2.19.2 ILS Identification: SLV
2.19.5 Coordinates: 37−22−6.0334N / 121−56−14.5901W
2.19.6 Site Elevation: 36.8 ft

2.19.1 ILS Type: Localizer for runway 12R. Magnetic variation: 13E
2.19.2 ILS Identification: SLV
2.19.5 Coordinates: 37−21−3.0434N / 121−55−0.8585W
2.19.6 Site Elevation: 75.1 ft

2.19.1 ILS Type: DME for runway 30L. Magnetic variation: 13E
2.19.2 ILS Identification: SJC
2.19.5 Coordinates: 37−22−27.575N / 121−56−32.6145W
2.19.6 Site Elevation: 56 ft

2.19.1 ILS Type: Glide Slope for runway 30L. Magnetic variation: 13E
2.19.2 ILS Identification: SJC
2.19.5 Coordinates: 37−21−33.0094N / 121−55−27.8798W
2.19.6 Site Elevation: 48.6 ft

2.19.1 ILS Type: Localizer for runway 30L. Magnetic variation: 13E
2.19.2 ILS Identification: SJC
2.19.5 Coordinates: 37−22−27.1917N / 121−56−33.1047W
2.19.6 Site Elevation: 49.6 ft

2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 16E
2.19.2 Navigation Aid Identification: SJC
2.19.5 Coordinates: 37−22−28.9638N / 121−56−40.8069W
2.19.6 Site Elevation: 34.5 ft

General Remarks:
UNSCHEDULED OPNS BY GROUP 5 ACFT (B747) AND LARGER NOT AUTH EXCEPT WITH PRIOR ARPT APPROVAL CTC AMGR (408) 392−3500.

CURFEW HRS 2300−0700 FAR 36 STAGE II, 2330−0630 FAR 36 STAGE III ACFT LISTED ON THE SCHEDULE OF AUTHORIZED AIRCRAFT ISSUED BY THE DIRECTOR OF AVIATION. DELAYED SCHEDULED FLIGHTS, AND ALTERNATE/EMERGENCY OPERATIONS MAY BE EXEMPT FROM CURFEW HOUR RESTRICTIONS.

PRIOR AIRPORT NOTIFICATION IS REQUIRED FOR ALL LATE/EARLY ARRIVALS. CONTACT MANAGER ON DUTY AT (408) 392−3500.

FIRST 400 FT RY 30R & RY 30L CLSD FOR TKOF DC10, MD11, L1011.

TWY V LTD TO ACFT WITH WINGSPAN OF LESS THAN 118 FT (B−737−900 OR SMALLER).

TWY W BETWEEN TWY J AND TWY L CAN SUPPORT GROUP IV ACFT.

RRP RQRD FM FBO FOR TSNT HEL OPS.

FOR CD WHEN ATCT IS CLSD CTC NORCAL APCH AT 916−361−3748.

TWY Y WILL BE PERIODICALLY RSTRD TO ACFT WITH A WINGSPAN OF LESS THAN 171 FT (MD−11 OR SMALLER) DRG B−787 AND B−747 OPNS ON RWY 12L/30R.

TWY D BETWEEN TWY W AND TWY V LIMITED TO ACFT WITH A WINGSPAN OF LESS THAN 118 FT (B−737−900 OR SMALLER).

TWY Z WILL BE PERIODICALLY RSTRD TO ACFT WITH A WINGSPAN OF LESS THAN 118 FT (B−737−900 OR SMALLER) DRG B−787 AND B−747 OPNS. TWY Z BTN 200 FT NW OF TWY H AND 200 FT NW OF TWY K LTD TO ACFT WITH WINGSPAN OF LESS THAN 135 FT (B−757−300 OR SMALLER).

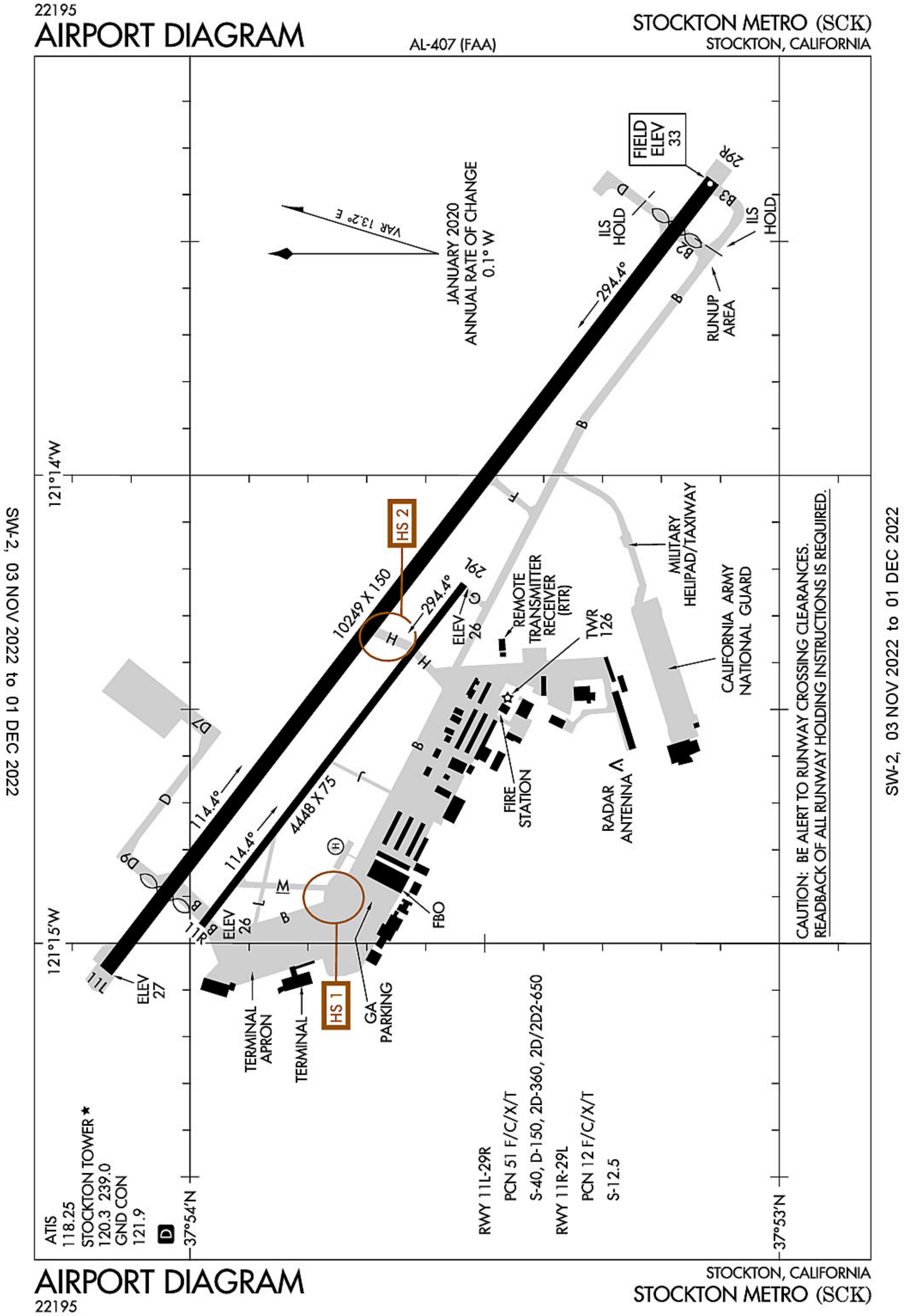
HIGH INTENSITY LIGHT ACTIVITY: HIGH INTENSITY LIGHTS (LASERS AND LARGE MEDIA SCREENS) MAY BE VISIBLE TO ARR AND DEP ACFT TO SAN JOSE INTERNATIONAL AIRPORT DURING EVENTS AT THE LEVI STADIUM COMPLEX (37−24−15N/121−58−14W, SJC VORTAC R−303/2.1 DME). FLIGHT CREWS SHOULD USE CAUTION WHEN OPERATING IN THIS AREA DURING STADIUM EVENTS. COCKPIT ILLUMINATION AND GLARE EFFECT REDUCING VIS MAY BE INTENSIFIED DURING ARR AND DEP OPS ESPECIALLY AT NIGHT.

BIRDS FREQUENTLY ON OR IN VICINITY OF AIRPORT.

ALL TURBINE ENGINE RUN−UPS REQUIRE PRIOR AIRPORT APPROVAL, CONTACT MGR ON DUTY (408) 392−3500.

NOISE ABATEMENT PROCEDURE: RY 30L/12R IS PREFERRED ARRIVAL RY FOR JET ACFT AND RY 12L/30R IS THE PREFERRED DEP RY FOR JET ACFT. ALL JET ACFT TKOFS ARE TO BE INITIATED FM EOR UNLESS DIRECTED OTHERWISE BY ATCT.

Stockton, California
Stockton Metropolitan
ICAO Identifier KSCK



Stockton, CA
Stockton Metropolitan
ICAO Identifier KSCK

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 37−53−39.877N / 121−14−19.464W
2.2.2 From City: 3 miles SE of STOCKTON, CA
2.2.3 Elevation: 33.2 ft
2.2.5 Magnetic Variation: 14E (2010)
2.2.6 Airport Contact: RUSSELL STARK
5000 S. AIRPORT WAY ROOM 202
STOCKTON, CA 95206 (209−468−4700)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: NO
2.4.2 Fuel Types: 100,100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I B certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 29R
2.12.2 True Bearing: 308
2.12.3 Dimensions: 10249 ft x 150 ft
2.12.4 PCN: 51 F/C/X/T
2.12.5 Coordinates: 37−53−6.64N / 121−13−21.88W
2.12.6 Threshold Elevation: 33.2 ft
2.12.6 Touchdown Zone Elevation: 32.3 ft

2.12.1 Designation: 11L
2.12.2 True Bearing: 128
2.12.3 Dimensions: 10249 ft x 150 ft
2.12.4 PCN: 51 F/C/X/T
2.12.5 Coordinates: 37−54−8.4321N / 121−15−3.2005W
2.12.6 Threshold Elevation: 26.5 ft
2.12.6 Touchdown Zone Elevation: 29.1 ft

2.12.1 Designation: 29L
2.12.2 True Bearing: 308
2.12.3 Dimensions: 4448 ft x 75 ft
2.12.4 PCN: 12 F/C/X/T
2.12.5 Coordinates: 37−53−31.8561N / 121−14−13.4466W
2.12.6 Threshold Elevation: 25.9 ft
2.12.6 Touchdown Zone Elevation: 26.6 ft

2.12.1 Designation: 11R
2.12.2 True Bearing: 128
2.12.3 Dimensions: 4448 ft x 75 ft
2.12.4 PCN: 12 F/C/X/T
2.12.5 Coordinates: 37−53−58.6715N / 121−14−57.4211W
2.12.6 Threshold Elevation: 26.2 ft
2.12.6 Touchdown Zone Elevation: 26.4 ft

2.12.1 Designation: H1
2.12.2 True Bearing:
2.12.3 Dimensions: 70 ft x 70 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 37−53−45.27N / 121−14−47.57W
2.12.6 Threshold Elevation: 26 ft
2.12.6 Touchdown Zone Elevation: ft

AD 2.13 Declared Distances
2.13.1 Designation: 29R
2.13.2 Take−off Run Available: 8856 ft
2.13.3 Take−off Distance Available: 9856 ft
2.13.4 Accelerate−Stop Distance Available: 9210 ft
2.13.5 Landing Distance Available: 8650 ft

2.13.1 Designation: 11L
2.13.2 Take−off Run Available: 8474 ft
2.13.3 Take−off Distance Available: 9474 ft
2.13.4 Accelerate−Stop Distance Available: 8604 ft
2.13.5 Landing Distance Available: 8650 ft

2.13.1 Designation: 29L
2.13.2 Take−off Run Available: 4448 ft
2.13.3 Take−off Distance Available: 4448 ft
2.13.4 Accelerate−Stop Distance Available: 4448 ft
2.13.5 Landing Distance Available: 3386 ft

2.13.1 Designation: 11R
2.13.2 Take−off Run Available: 4448 ft
2.13.3 Take−off Distance Available: 4448 ft
2.13.4 Accelerate−Stop Distance Available: 4448 ft
2.13.5 Landing Distance Available: 4448 ft

2.13.1 Designation: H1
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 29R

2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 11L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 29L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 11R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: H1
2.14.2 Approach Lighting System: ODALS
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 29R. Magnetic variation: 14E
2.19.2 ILS Identification: SCK
2.19.5 Coordinates: 37−54−12.58N / 121−15−15.2W
2.19.6 Site Elevation: 22 ft

2.19.1 ILS Type: Glide Slope for runway 29R. Magnetic variation: 14E
2.19.2 ILS Identification: SCK
2.19.5 Coordinates: 37−53−19.8816N / 121−13−35.2049W
2.19.6 Site Elevation: 29.3 ft

2.19.1 ILS Type: Localizer for runway 29R. Magnetic variation: 14E
2.19.2 ILS Identification: SCK
2.19.5 Coordinates: 37−54−14.48N / 121−15−13.13W
2.19.6 Site Elevation: 23.5 ft

General Remarks:
PRACTICE CIRCLING APPROACHES TO RWYS 11L/11R NA FOR ANY TURBINE POWERED ACFT/PROP DRIVEN ACFT EXCEEDING 12500 LBS EXCP BY PPR FM AMGR.

TSNT PILOTS USE CTN; DO NOT ENTER THE TSA RSTRD AREA ADJ TO THE TSNT PRKG AREA.

BE ALERT TO ELEVD MALSR APCH END RWY 29R LCTD ON BLAST PAD.

PAVEMENT PRIOR TO THLD OF RWY 11L NOT AVBL FOR TAXI BACK OPS.

ARPT CLSD TO TGL & PLANNED LOW APCHS FOR TURBOJET ACFT 2200−0700 EXCEPT BY PPR FM AMGR PART 36 STAGE 3 ACFT.

TRANSIENT PARKING AVBL AT FBO.

THE FLWG AREAS NOT VISIBLE FM ATCT: TWY B FM TRML APN TO INT AT TWY M; TWY B FM 300 FT W OF TWY J TO 375 FT E OF TWY J; NON MOVEMENT AREA S OF TWY B FROM TRML APN TO 200 FT W OF TWY H; SE HALF OF TRML APN; TSNT PRKG APN.

AVOID OVERFLYING SAN JOAQUIN GENERAL HOSPITAL & THE CITY OF MANTECA.

TWY F RSTRD TO ACFT WINGSPAN LESS THAN 118 FT.

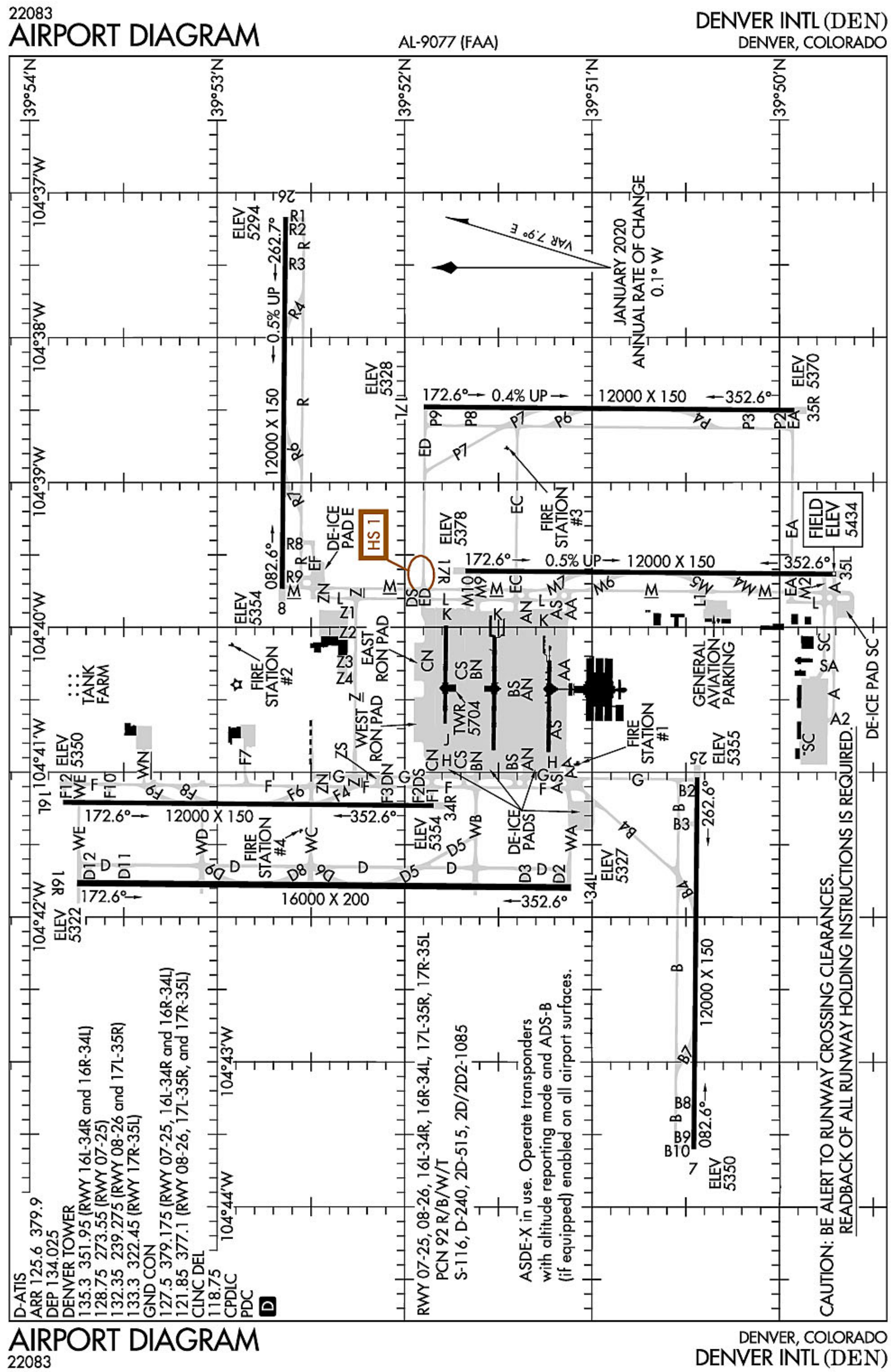
FOR CD WHEN ATCT CLSD CTC NORCAL APCH AT 916−361−0516.

MILITARY USE: ARNG OPR 1500−2330Z++ MON−FRI. DSN 466−5319, C209−983−5319, FAX 5391. PPR REQUIRED. LDTD TRAN SVC AND MAINT AVBL FOR CH47.

SEAGULLS ON AND IN VCNTY OF ARPT MOSTLY DURING RAINY WEATHER.

TRML APN, CARGO APN, TWYS B, B2, B3, F, D, D7, D9, AND H FOR ACFT OVER 12500 LBS. ALL OTR TWYS RSTRD TO ACFT LESS THAN 12500 LBS.

Denver, Colorado
Denver International
ICAO Identifier KDEN



Denver, CO
Denver Intl
ICAO Identifier KDEN

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 39−51−42N / 104−40−23.4W
2.2.2 From City: 16 miles NE of DENVER, CO
2.2.3 Elevation: 5433.8 ft
2.2.5 Magnetic Variation: 8E (2015)
2.2.6 Airport Contact: PHIL WASHINGTON
ADMIN BLDG, 8500 PENA BLVD
DENVER, CO 80249 ((303) 342−2206)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: NO
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 2/1/1995

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 25
2.12.2 True Bearing: 271
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−50−26.3667N / 104−41−2.1712W
2.12.6 Threshold Elevation: 5355 ft
2.12.6 Touchdown Zone Elevation: 5355 ft

2.12.1 Designation: 07
2.12.2 True Bearing: 90
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−50−27.4022N / 104−43−35.963W
2.12.6 Threshold Elevation: 5350.2 ft
2.12.6 Touchdown Zone Elevation: 5351.6 ft

2.12.1 Designation: 26
2.12.2 True Bearing: 271
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−52−38.0769N / 104−37−10.1479W
2.12.6 Threshold Elevation: 5294.4 ft
2.12.6 Touchdown Zone Elevation: 5309.4 ft

2.12.1 Designation: 08
2.12.2 True Bearing: 91
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−52−39.2009N / 104−39−44.0267W
2.12.6 Threshold Elevation: 5354.3 ft
2.12.6 Touchdown Zone Elevation: 5354.3 ft

2.12.1 Designation: 16L
2.12.2 True Bearing: 181
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−53−49.3301N / 104−41−12.4998W
2.12.6 Threshold Elevation: 5349.9 ft
2.12.6 Touchdown Zone Elevation: 5357.1 ft

2.12.1 Designation: 34R
2.12.2 True Bearing: 1
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−51−50.7743N / 104−41−13.8782W
2.12.6 Threshold Elevation: 5353.7 ft
2.12.6 Touchdown Zone Elevation: 5353.7 ft

2.12.1 Designation: 16R
2.12.2 True Bearing: 181
2.12.3 Dimensions: 16000 ft x 200 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−53−44.869N / 104−41−45.9006W
2.12.6 Threshold Elevation: 5321.8 ft
2.12.6 Touchdown Zone Elevation: 5326.3 ft

2.12.1 Designation: 34L
2.12.2 True Bearing: 1
2.12.3 Dimensions: 16000 ft x 200 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−51−6.7926N / 104−41−47.7166W
2.12.6 Threshold Elevation: 5327 ft
2.12.6 Touchdown Zone Elevation: 5327 ft

2.12.1 Designation: 17L
2.12.2 True Bearing: 181
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−51−53.8287N / 104−38−28.6959W
2.12.6 Threshold Elevation: 5328.1 ft
2.12.6 Touchdown Zone Elevation: 5338.5 ft

2.12.1 Designation: 35R
2.12.2 True Bearing: 1
2.12.3 Dimensions: 12000 ft x 150 ft

2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−49−55.2707N / 104−38−30.1554W
2.12.6 Threshold Elevation: 5370 ft
2.12.6 Touchdown Zone Elevation: 5370 ft

2.12.1 Designation: 17R
2.12.2 True Bearing: 181
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−51−40.4821N / 104−39−36.5561W
2.12.6 Threshold Elevation: 5377.9 ft
2.12.6 Touchdown Zone Elevation: 5391.9 ft

2.12.1 Designation: 35L
2.12.2 True Bearing: 1
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 39−49−41.9262N / 104−39−37.9841W
2.12.6 Threshold Elevation: 5433.8 ft
2.12.6 Touchdown Zone Elevation: 5433.8 ft

AD 2.13 Declared Distances
2.13.1 Designation: 25
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 13000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 07
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 26
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 08
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 13000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 16L
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft

2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 34R
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 13000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 16R
2.13.2 Take−off Run Available: 16000 ft
2.13.3 Take−off Distance Available: 16000 ft
2.13.4 Accelerate−Stop Distance Available: 16000 ft
2.13.5 Landing Distance Available: 16000 ft

2.13.1 Designation: 34L
2.13.2 Take−off Run Available: 16000 ft
2.13.3 Take−off Distance Available: 16000 ft
2.13.4 Accelerate−Stop Distance Available: 16000 ft
2.13.5 Landing Distance Available: 16000 ft

2.13.1 Designation: 17L
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 35R
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 17R
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 35L
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 25
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 07

2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 26
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 16L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 34R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 16R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 34L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 17L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 17R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 07. Magnetic variation: 8E
2.19.2 ILS Identification: DZG
2.19.5 Coordinates: 39−50−23.6632N / 104−40−48.6232W
2.19.6 Site Elevation: 5359.1 ft

2.19.1 ILS Type: Glide Slope for runway 07. Magnetic variation: 8E
2.19.2 ILS Identification: DZG
2.19.5 Coordinates: 39−50−23.2656N / 104−43−22.6558W
2.19.6 Site Elevation: 5340.5 ft

2.19.1 ILS Type: Localizer for runway 07. Magnetic variation: 8E
2.19.2 ILS Identification: DZG
2.19.5 Coordinates: 39−50−26.2755N / 104−40−49.0613W
2.19.6 Site Elevation: 5354.9 ft

2.19.1 ILS Type: DME for runway 25. Magnetic variation: 8E
2.19.2 ILS Identification: ERP
2.19.5 Coordinates: 39−50−23.6632N / 104−40−48.6232W
2.19.6 Site Elevation: 5359.1 ft

2.19.1 ILS Type: Glide Slope for runway 25. Magnetic variation: 8E
2.19.2 ILS Identification: ERP
2.19.5 Coordinates: 39−50−22.4098N / 104−41−15.7881W
2.19.6 Site Elevation: 5344.2 ft

2.19.1 ILS Type: Localizer for runway 25. Magnetic variation: 8E
2.19.2 ILS Identification: ERP
2.19.5 Coordinates: 39−50−27.4883N / 104−43−49.0723W
2.19.6 Site Elevation: 5348.9 ft

2.19.1 ILS Type: DME for runway 08. Magnetic variation: 8E
2.19.2 ILS Identification: FUI
2.19.5 Coordinates: 39−52−41.8784N / 104−39−57.5078W
2.19.6 Site Elevation: 5360.2 ft

2.19.1 ILS Type: Glide Slope for runway 08. Magnetic variation: 8E
2.19.2 ILS Identification: FUI
2.19.5 Coordinates: 39−52−43.1529N / 104−39−29.8599W
2.19.6 Site Elevation: 5342.2 ft

2.19.1 ILS Type: Localizer for runway 08. Magnetic variation: 8E
2.19.2 ILS Identification: FUI
2.19.5 Coordinates: 39−52−37.9791N / 104−36−57.0352W
2.19.6 Site Elevation: 5283.1 ft

2.19.1 ILS Type: DME for runway 26. Magnetic variation: 8E
2.19.2 ILS Identification: JOY
2.19.5 Coordinates: 39−52−41.8784N / 104−39−57.5078W
2.19.6 Site Elevation: 5360.2 ft

2.19.1 ILS Type: Glide Slope for runway 26. Magnetic variation: 8E
2.19.2 ILS Identification: JOY
2.19.5 Coordinates: 39−52−42.2239N / 104−37−22.3854W
2.19.6 Site Elevation: 5293.2 ft

2.19.1 ILS Type: Localizer for runway 26. Magnetic variation: 8E
2.19.2 ILS Identification: JOY
2.19.5 Coordinates: 39−52−39.2968N / 104−39−57.142W
2.19.6 Site Elevation: 5347.6 ft

2.19.1 ILS Type: DME for runway 16L. Magnetic variation: 8E
2.19.2 ILS Identification: LTT
2.19.5 Coordinates: 39−53−59.6091N / 104−41−15.7719W
2.19.6 Site Elevation: 5357 ft

2.19.1 ILS Type: Glide Slope for runway 16L. Magnetic variation: 8E
2.19.2 ILS Identification: LTT
2.19.5 Coordinates: 39−53−39.5473N / 104−41−17.8695W
2.19.6 Site Elevation: 5346.5 ft

2.19.1 ILS Type: Localizer for runway 16L. Magnetic variation: 8E
2.19.2 ILS Identification: LTT
2.19.5 Coordinates: 39−51−40.6701N / 104−41−13.996W
2.19.6 Site Elevation: 5343.2 ft

2.19.1 ILS Type: DME for runway 34R. Magnetic variation: 8E
2.19.2 ILS Identification: OUF
2.19.5 Coordinates: 39−53−59.6091N / 104−41−15.7719W
2.19.6 Site Elevation: 5357 ft

2.19.1 ILS Type: Glide Slope for runway 34R. Magnetic variation: 8E
2.19.2 ILS Identification: OUF
2.19.5 Coordinates: 39−52−1.3925N / 104−41−19.0115W
2.19.6 Site Elevation: 5346.4 ft

2.19.1 ILS Type: Inner Marker for runway 34R. Magnetic variation: 8E
2.19.2 ILS Identification: OUF
2.19.5 Coordinates: 39−51−42.2879N / 104−41−13.9788W
2.19.6 Site Elevation: 5345 ft

2.19.1 ILS Type: Localizer for runway 34R. Magnetic variation: 8E
2.19.2 ILS Identification: OUF
2.19.5 Coordinates: 39−53−59.4426N / 104−41−12.3812W
2.19.6 Site Elevation: 5349.7 ft

2.19.1 ILS Type: DME for runway 16R. Magnetic variation: 8E
2.19.2 ILS Identification: DQQ
2.19.5 Coordinates: 39−53−55.7414N / 104−41−50.8967W
2.19.6 Site Elevation: 5323.5 ft

2.19.1 ILS Type: Glide Slope for runway 16R. Magnetic variation: 8E
2.19.2 ILS Identification: DQQ
2.19.5 Coordinates: 39−53−34.8236N / 104−41−51.2764W
2.19.6 Site Elevation: 5316.8 ft

2.19.1 ILS Type: Localizer for runway 16R. Magnetic variation: 8E

2.19.2 ILS Identification: DQQ
2.19.5 Coordinates: 39−50−56.7831N / 104−41−47.8336W
2.19.6 Site Elevation: 5320.8 ft

2.19.1 ILS Type: DME for runway 34L. Magnetic variation: 8E
2.19.2 ILS Identification: DXU
2.19.5 Coordinates: 39−53−55.7414N / 104−41−50.8967W
2.19.6 Site Elevation: 5323.5 ft

2.19.1 ILS Type: Glide Slope for runway 34L. Magnetic variation: 8E
2.19.2 ILS Identification: DXU
2.19.5 Coordinates: 39−51−17.5994N / 104−41−52.8493W
2.19.6 Site Elevation: 5317.6 ft

2.19.1 ILS Type: Inner Marker for runway 34L. Magnetic variation: 8E
2.19.2 ILS Identification: DXU
2.19.5 Coordinates: 39−50−58.2971N / 104−41−47.8092W
2.19.6 Site Elevation: 5321.4 ft

2.19.1 ILS Type: Localizer for runway 34L. Magnetic variation: 8E
2.19.2 ILS Identification: DXU
2.19.5 Coordinates: 39−53−54.875N / 104−41−45.7848W
2.19.6 Site Elevation: 5320.1 ft

2.19.1 ILS Type: DME for runway 17L. Magnetic variation: 8E
2.19.2 ILS Identification: BXP
2.19.5 Coordinates: 39−52−4.266N / 104−38−25.1893W
2.19.6 Site Elevation: 5345.1 ft

2.19.1 ILS Type: Glide Slope for runway 17L. Magnetic variation: 8E
2.19.2 ILS Identification: BXP
2.19.5 Coordinates: 39−51−44.0596N / 104−38−23.5605W
2.19.6 Site Elevation: 5326 ft

2.19.1 ILS Type: Localizer for runway 17L. Magnetic variation: 8E
2.19.2 ILS Identification: BXP
2.19.5 Coordinates: 39−49−45.1652N / 104−38−30.282W
2.19.6 Site Elevation: 5362.9 ft

2.19.1 ILS Type: DME for runway 35R. Magnetic variation: 8E
2.19.2 ILS Identification: DPP
2.19.5 Coordinates: 39−52−4.266N / 104−38−25.1893W
2.19.6 Site Elevation: 5345.1 ft

2.19.1 ILS Type: Glide Slope for runway 35R. Magnetic variation: 8E
2.19.2 ILS Identification: DPP
2.19.5 Coordinates: 39−50−6.3585N / 104−38−24.7651W
2.19.6 Site Elevation: 5359.9 ft

2.19.1 ILS Type: Inner Marker for runway 35R. Magnetic variation: 8E
2.19.2 ILS Identification: DPP

2.19.5 Coordinates: 39−49−46.7811N / 104−38−30.2697W
2.19.6 Site Elevation: 5364.5 ft

2.19.1 ILS Type: Localizer for runway 35R. Magnetic variation: 8E
2.19.2 ILS Identification: DPP
2.19.5 Coordinates: 39−52−3.9404N / 104−38−28.572W
2.19.6 Site Elevation: 5335.5 ft

2.19.1 ILS Type: DME for runway 17R. Magnetic variation: 8E
2.19.2 ILS Identification: ACX
2.19.5 Coordinates: 39−51−50.9244N / 104−39−33.0513W
2.19.6 Site Elevation: 5388 ft

2.19.1 ILS Type: Glide Slope for runway 17R. Magnetic variation: 8E
2.19.2 ILS Identification: ACX
2.19.5 Coordinates: 39−51−30.9128N / 104−39−31.4164W
2.19.6 Site Elevation: 5378 ft

2.19.1 ILS Type: Localizer for runway 17R. Magnetic variation: 8E
2.19.2 ILS Identification: ACX
2.19.5 Coordinates: 39−49−31.8218N / 104−39−38.1041W
2.19.6 Site Elevation: 5427.6 ft

2.19.1 ILS Type: DME for runway 35L. Magnetic variation: 8E
2.19.2 ILS Identification: AQD
2.19.5 Coordinates: 39−51−50.9244N / 104−39−33.0513W
2.19.6 Site Elevation: 5388 ft

2.19.1 ILS Type: Glide Slope for runway 35L. Magnetic variation: 8E
2.19.2 ILS Identification: AQD
2.19.5 Coordinates: 39−49−52.7648N / 104−39−32.5991W
2.19.6 Site Elevation: 5422.6 ft

2.19.1 ILS Type: Localizer for runway 35L. Magnetic variation: 8E
2.19.2 ILS Identification: AQD
2.19.5 Coordinates: 39−51−50.5996N / 104−39−36.4352W
2.19.6 Site Elevation: 5377.3 ft

2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 8E
2.19.2 Navigation Aid Identification: DEN
2.19.5 Coordinates: 39−48−45.0506N / 104−39−38.6643W
2.19.6 Site Elevation: 5452.1 ft

General Remarks:
TWY F7 CLSD TO ACFT WINGSPAN MORE THAN 118 FT.

INFORMAL RWY USE PROGRAM IN EFCT H24; NOISE ABATEMENT INFO − ARPT MGMT 303−342−4200.

OVHD PAX BRIDGE S SIDE OF CONCOURSE−A PRVDS 42 FT TAIL & 118 FT WINGSPAN CLNC WHEN ON TWY CNTRLN.

ASDE−X IN USE; OPR TRANSPONDERS WITH ALT RPRTG MODE & ADS−B IF EQUIPPED ENABLED ON ALL

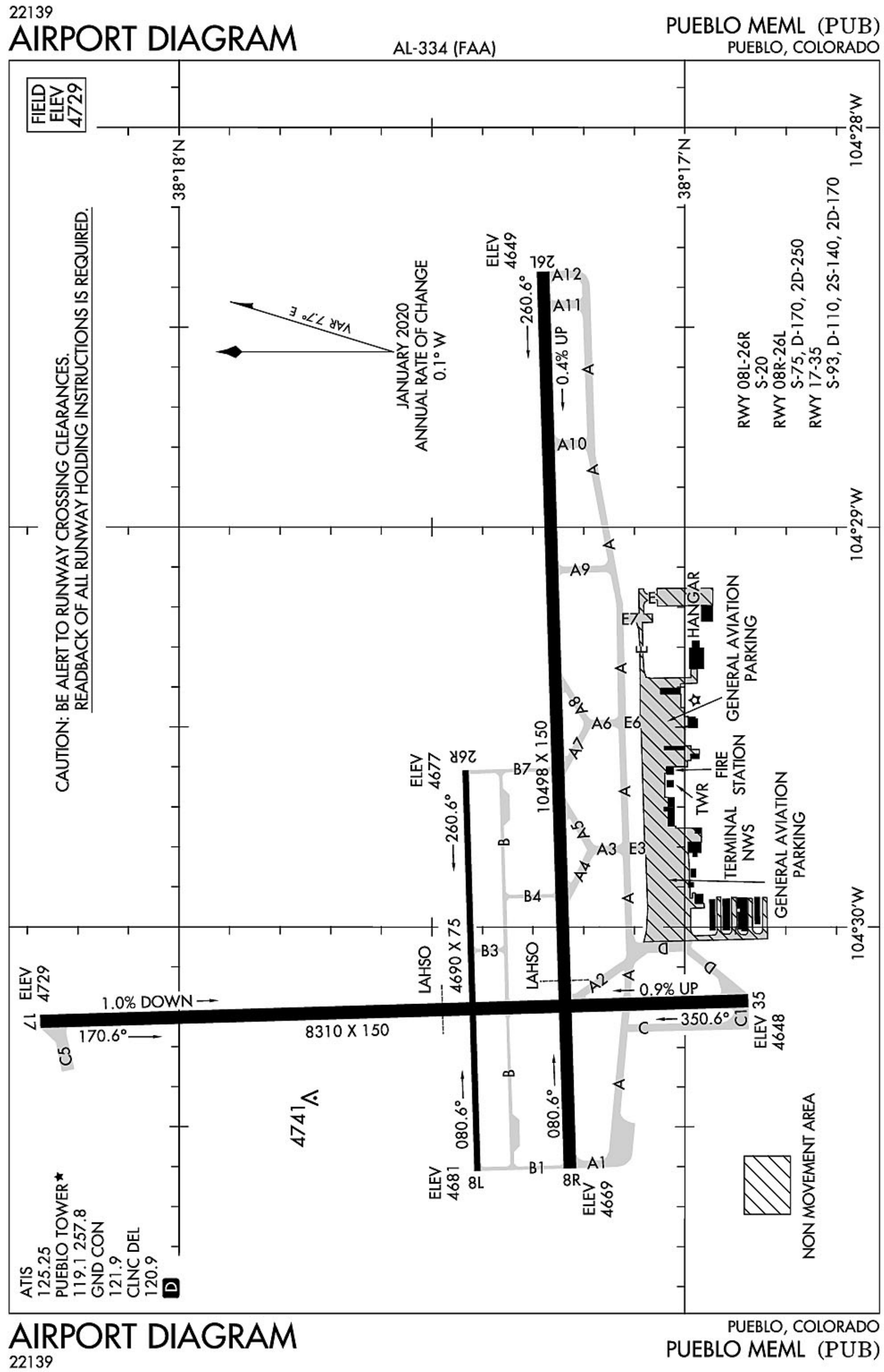
ARPT SFCS.

WATERFOWL & BIRDS INVOF ARPT.

CUSTOMS AVBL PPR.

DEP RWY 08, 25 & 34R HAS MNTND CWY 500 X 1000 FT 1.25 SLOPE.

Pueblo, Colorado
Pueblo Memorial
ICAO Identifier KPUB



Pueblo, CO
Pueblo Memorial
ICAO Identifier KPUB

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 38−17−23.811N / 104−29−52.901W
2.2.2 From City: 5 miles E of PUEBLO, CO
2.2.3 Elevation: 4729.3 ft
2.2.5 Magnetic Variation: 8E (2015)
2.2.6 Airport Contact: GREG PEDROZA
31201 BRYAN CIRCLE
PUEBLO, CO 81001 (719−553−2744)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, 0500−2200 Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: NO
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I A certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 08L
2.12.2 True Bearing: 88
2.12.3 Dimensions: 4690 ft x 75 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 38−17−24.3081N / 104−30−36.6451W
2.12.6 Threshold Elevation: 4681.2 ft
2.12.6 Touchdown Zone Elevation: 4681.2 ft

2.12.1 Designation: 26R
2.12.2 True Bearing: 268
2.12.3 Dimensions: 4690 ft x 75 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 38−17−25.7014N / 104−29−37.865W
2.12.6 Threshold Elevation: 4677 ft
2.12.6 Touchdown Zone Elevation: 4678.1 ft

2.12.1 Designation: 08R
2.12.2 True Bearing: 88
2.12.3 Dimensions: 10498 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 38−17−13.6348N / 104−30−36.2409W
2.12.6 Threshold Elevation: 4669.4 ft
2.12.6 Touchdown Zone Elevation: 4671.4 ft

2.12.1 Designation: 26L
2.12.2 True Bearing: 268
2.12.3 Dimensions: 10498 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 38−17−16.7526N / 104−28−24.6616W
2.12.6 Threshold Elevation: 4648.8 ft
2.12.6 Touchdown Zone Elevation: 4658.9 ft

2.12.1 Designation: 17
2.12.2 True Bearing: 178
2.12.3 Dimensions: 8310 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 38−18−15.0609N / 104−30−14.6942W
2.12.6 Threshold Elevation: 4729.3 ft
2.12.6 Touchdown Zone Elevation: 4729.3 ft

2.12.1 Designation: 35
2.12.2 True Bearing: 358
2.12.3 Dimensions: 8310 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 38−16−52.9717N / 104−30−11.6348W
2.12.6 Threshold Elevation: 4648.1 ft
2.12.6 Touchdown Zone Elevation: 4676.9 ft

AD 2.13 Declared Distances
2.13.1 Designation: 08L
2.13.2 Take−off Run Available: 4690 ft
2.13.3 Take−off Distance Available: 4690 ft
2.13.4 Accelerate−Stop Distance Available: 4690 ft
2.13.5 Landing Distance Available: 4690 ft

2.13.1 Designation: 26R
2.13.2 Take−off Run Available: 4690 ft
2.13.3 Take−off Distance Available: 4690 ft
2.13.4 Accelerate−Stop Distance Available: 4690 ft
2.13.5 Landing Distance Available: 4690 ft

2.13.1 Designation: 08R
2.13.2 Take−off Run Available: 10496 ft
2.13.3 Take−off Distance Available: 10496 ft
2.13.4 Accelerate−Stop Distance Available: 10496 ft
2.13.5 Landing Distance Available: 10496 ft

2.13.1 Designation: 26L
2.13.2 Take−off Run Available: 10496 ft
2.13.3 Take−off Distance Available: 10496 ft
2.13.4 Accelerate−Stop Distance Available: 10496 ft
2.13.5 Landing Distance Available: 10496 ft

2.13.1 Designation: 17

2.13.2 Take−off Run Available: 8308 ft
2.13.3 Take−off Distance Available: 8308 ft
2.13.4 Accelerate−Stop Distance Available: 8308 ft
2.13.5 Landing Distance Available: 8308 ft

2.13.1 Designation: 35
2.13.2 Take−off Run Available: 8308 ft
2.13.3 Take−off Distance Available: 8308 ft
2.13.4 Accelerate−Stop Distance Available: 8308 ft
2.13.5 Landing Distance Available: 8308 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 08L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 17
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 08R. Magnetic variation: 8E
2.19.2 ILS Identification: PUB
2.19.5 Coordinates: 38−17−18.9334N / 104−30−21.5794W
2.19.6 Site Elevation: 4672.8 ft

2.19.1 ILS Type: Localizer for runway 08R. Magnetic variation: 8E
2.19.2 ILS Identification: PUB
2.19.5 Coordinates: 38−17−17.2016N / 104−28−6.1097W
2.19.6 Site Elevation: 4653.1 ft

2.19.1 ILS Type: Glide Slope for runway 26L. Magnetic variation: 8E
2.19.2 ILS Identification: TFR
2.19.5 Coordinates: 38−17−21.3596N / 104−28−39.1966W
2.19.6 Site Elevation: 4649.4 ft

2.19.1 ILS Type: Localizer for runway 26L. Magnetic variation: 8E
2.19.2 ILS Identification: TFR
2.19.5 Coordinates: 38−17−13.2497N / 104−30−52.5582W
2.19.6 Site Elevation: 4668 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 8E
2.19.2 Navigation Aid Identification: PUB
2.19.5 Coordinates: 38−17−39.3132N / 104−25−46.0107W
2.19.6 Site Elevation: 4755.5 ft

General Remarks:
HIGH VOLUME TRNG DA−20 ACFT SR−SS MON−FRI. OVERHEAD PATTERN DURG TRNG. EXTENSIVE USE OF TRNG AREA 12−28 DME N−SW OF ARPT 500 FT AGL−8500 FT MSL.

BE ALERT; INTENSIVE USAF STUDENT TRAINING IN VICINITY OF COLORADO SPRINGS & PUEBLO COLORADO.

CONDITIONS NOT MONITORED 2200L−0500L.

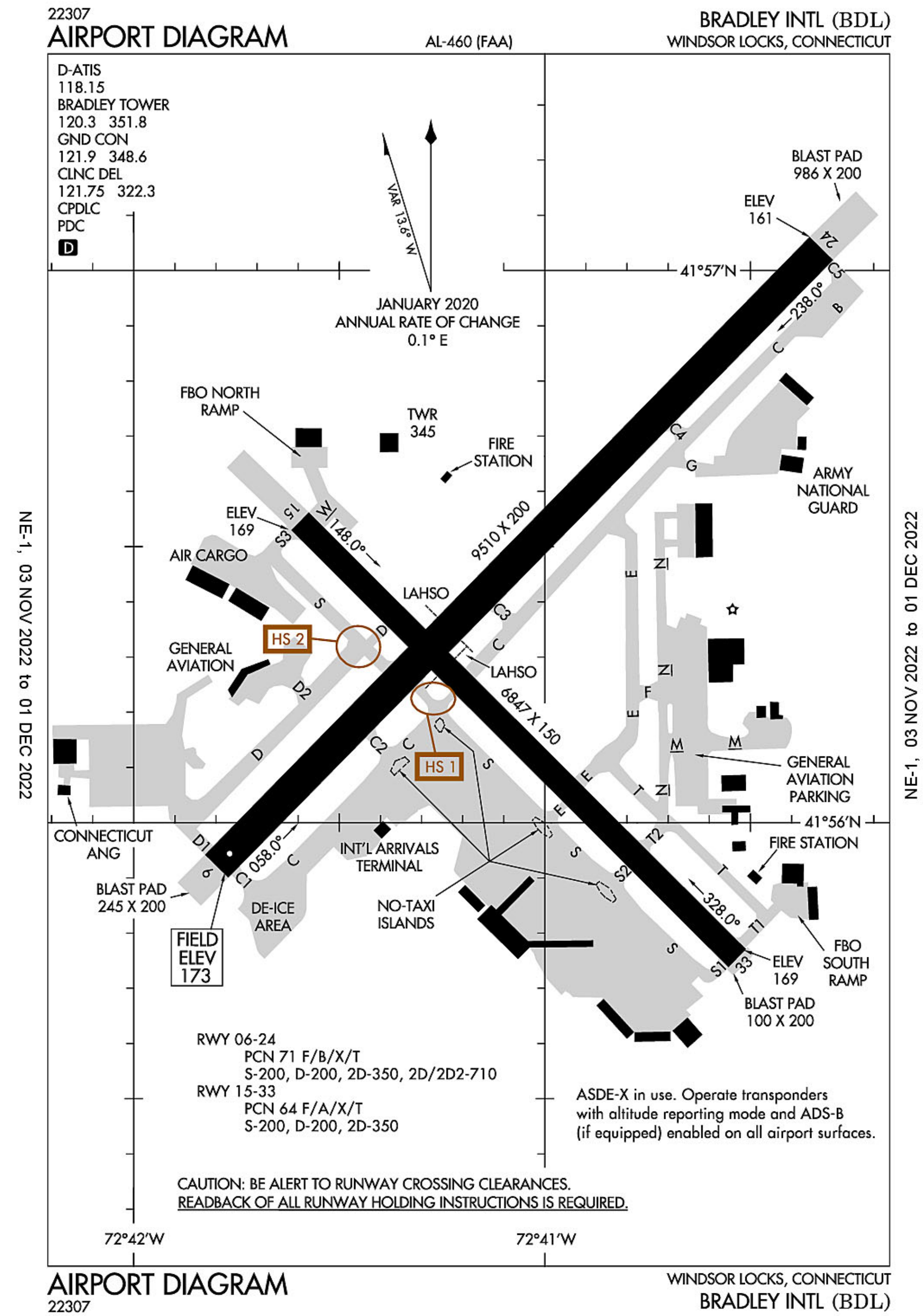
SEE FLIP AP/1 SUPPLEMENTARY ARPT INFO.

RAMP−TAXI LANE E EXTD 30 FT WIDE FM EAST RAMP TO TWY E7.

TWY A BTN TWY A2 AND A6 50 FT WID.

FOR CD CTC PUEBLO APCH AT 303−342−1916, WHEN APCH CLSD CTC DENVER ARTCC AT 303−651−4257.

Windsor Locks, Connecticut
Bradley International
ICAO Identifier KBDL



Windsor Locks, CT
Bradley Intl
ICAO Identifier KBDL

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 41−56−20.516N / 72−41−3.537W
2.2.2 From City: 3 miles W of WINDSOR LOCKS, CT
2.2.3 Elevation: 173.3 ft
2.2.5 Magnetic Variation: 14W (1980)
2.2.6 Airport Contact: KEVIN DILLON, AAE
BRADLEY INTL AIRPORT
WINDSOR LOCKS, CT 6096 (860−292−2003)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 06
2.12.2 True Bearing: 44
2.12.3 Dimensions: 9510 ft x 200 ft
2.12.4 PCN: 71 F/B/X/T
2.12.5 Coordinates: 41−55−55.25N / 72−41−47.6885W
2.12.6 Threshold Elevation: 173 ft
2.12.6 Touchdown Zone Elevation: 173.3 ft

2.12.1 Designation: 24
2.12.2 True Bearing: 224
2.12.3 Dimensions: 9510 ft x 200 ft
2.12.4 PCN: 71 F/B/X/T
2.12.5 Coordinates: 41−57−2.3952N / 72−40−19.6697W
2.12.6 Threshold Elevation: 160.9 ft
2.12.6 Touchdown Zone Elevation: 170 ft

2.12.1 Designation: 15
2.12.2 True Bearing: 134
2.12.3 Dimensions: 6847 ft x 150 ft
2.12.4 PCN: 64 F/A/X/T
2.12.5 Coordinates: 41−56−32.6254N / 72−41−35.7104W
2.12.6 Threshold Elevation: 168.8 ft
2.12.6 Touchdown Zone Elevation: 170.8 ft

2.12.1 Designation: 33
2.12.2 True Bearing: 314
2.12.3 Dimensions: 6847 ft x 150 ft
2.12.4 PCN: 64 F/A/X/T
2.12.5 Coordinates: 41−55−45.3238N / 72−40−30.9557W
2.12.6 Threshold Elevation: 168.5 ft
2.12.6 Touchdown Zone Elevation: 171.4 ft

AD 2.13 Declared Distances
2.13.1 Designation: 06
2.13.2 Take−off Run Available: 9509 ft
2.13.3 Take−off Distance Available: 9509 ft
2.13.4 Accelerate−Stop Distance Available: 9509 ft
2.13.5 Landing Distance Available: 9509 ft

2.13.1 Designation: 24
2.13.2 Take−off Run Available: 9509 ft
2.13.3 Take−off Distance Available: 9509 ft
2.13.4 Accelerate−Stop Distance Available: 9509 ft
2.13.5 Landing Distance Available: 9509 ft

2.13.1 Designation: 15
2.13.2 Take−off Run Available: 6847 ft
2.13.3 Take−off Distance Available: 6847 ft
2.13.4 Accelerate−Stop Distance Available: 6847 ft
2.13.5 Landing Distance Available: 6847 ft

2.13.1 Designation: 33
2.13.2 Take−off Run Available: 6847 ft
2.13.3 Take−off Distance Available: 6847 ft
2.13.4 Accelerate−Stop Distance Available: 6847 ft
2.13.5 Landing Distance Available: 6847 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 06
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 24
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 15
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 33
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 06. Magnetic variation: 14W
2.19.2 ILS Identification: BDL
2.19.5 Coordinates: 41−57−17.2894N / 72−39−56.5118W
2.19.6 Site Elevation: 163.8 ft

2.19.1 ILS Type: Glide Slope for runway 06. Magnetic variation: 14W
2.19.2 ILS Identification: BDL
2.19.5 Coordinates: 41−56−5.5448N / 72−41−41.8869W
2.19.6 Site Elevation: 169.3 ft

2.19.1 ILS Type: Localizer for runway 06. Magnetic variation: 14W
2.19.2 ILS Identification: BDL
2.19.5 Coordinates: 41−57−17.8499N / 72−39−59.4045W
2.19.6 Site Elevation: 149.5 ft

2.19.1 ILS Type: DME for runway 24. Magnetic variation: 14W
2.19.2 ILS Identification: MYQ
2.19.5 Coordinates: 41−57−17.2894N / 72−39−56.5118W
2.19.6 Site Elevation: 163.8 ft

2.19.1 ILS Type: Glide Slope for runway 24. Magnetic variation: 14W
2.19.2 ILS Identification: MYQ
2.19.5 Coordinates: 41−56−53.5757N / 72−40−25.9626W
2.19.6 Site Elevation: 156.7 ft

2.19.1 ILS Type: Localizer for runway 24. Magnetic variation: 14W
2.19.2 ILS Identification: MYQ
2.19.5 Coordinates: 41−55−47.661N / 72−41−57.6296W
2.19.6 Site Elevation: 170.3 ft

2.19.1 ILS Type: DME for runway 33. Magnetic variation: 14W
2.19.2 ILS Identification: IKX
2.19.5 Coordinates: 41−56−37.9724N / 72−41−47.432W
2.19.6 Site Elevation: 181.8 ft

2.19.1 ILS Type: Glide Slope for runway 33. Magnetic variation: 14W
2.19.2 ILS Identification: IKX
2.19.5 Coordinates: 41−55−54.7672N / 72−40−38.5896W
2.19.6 Site Elevation: 167.6 ft

2.19.1 ILS Type: Localizer for runway 33. Magnetic variation: 14W
2.19.2 ILS Identification: IKX
2.19.5 Coordinates: 41−56−40.2961N / 72−41−46.2065W
2.19.6 Site Elevation: 168.3 ft

General Remarks:
ASDE−X IN USE. OPR TRANSPONDERS WITH ALT RPRTG MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL ARPT SFCS.

CAUTION: ANG RAMP MRK MAY NOT BE APPROPRIATE FOR LARGE ACFT: FLW MARSHALLERS INSTR.

OPS CTC AUTOVON 636−8385; COML 860−627−3001.

NMRS BIRDS FQTLY ON OR INVOF ARPT.

MILITARY: ANG: WHEN CKG ATIS, BIRDS IN VCY MAY INDC HEIGHTENED BIRD WATCH CONDITION (BWC). USAF ACFT CTC ANG AIRFIELD OPS ON UHF FOR CURRENT BWC & ANY ASSOCD RSTRNS.

MILITARY: ARNG − DSN 636−7519/7520. C860−292−4519/4520.

MILITARY: ANG: AFLD MGR DOES NOT ISSUE OR STORE COMSEC FOR TRAN CREWS.

MILITARY: ANG: PPR V220−2356.

LGTD OBST ANT 36 FT AGL/205 FT MSL (RWY 24 ILS/GS ANT) 162 FT NW OF TWY C CNTRLN MARKING BTN TWY B & TWY H.

FUEL: A++ (MIL).

NON−BASED DVRSN ACRS CTC ARPT OPS 860−627−3001 PRIOR TO DIVG & PRVD CO FLT OPS CTC INFO, ACFT TYPE, POB, INTL OR DOM FLT & GND OPS AGRMTS. ONLY 1 INTL ACR JETBRIDGE AVBL FOR PAX.

MILITARY: ARNG: OPR 1200−2030Z++ MON, TUE, FRI; 1200−0400++ WED, THU. 41.9 149.825 335.775 (HAVOC OPS).

NO DE−ICING AVBL AT ANG.

MILITARY: ANG: NSTD YELLOW AEROSPACE GND EQPT AND FIRE BOTTLE BOXES PAINTED ON ANG RAMP.

RWY 6 DE−ICE PAD CLSD TO ACFT WITH WINGSPAN 171 FT OR GTR EXC WITH FOLLOW−ME ESCORT BY ARPT OPS.

NO TRNG FLTS, NO PLAS, NO TGLS BTN: 2300 − 0700 MON THRU SAT & 2300 − 1200 SUN.

MILITARY: ANG: OPR 1200−2030Z++ MON−FRI (SAT, SUN UTA).

TWY J CLSD BTN S & R TO ACFT WITH WING SPANS IN EXCESS OF 170 FT.

TWY S HOLD PAD AT RWY 33 CLSD.

FIXED WING ACFT USE LOW IDLE FOR TAXI, NO ENGINE CHECKS OR POWER RUNS ALLOWED ON THE ARNG RAMP DUE TO POSSIBLE FOD HAZARD.

TWY C BTN TWY B & TWY H ACFT TAX SPD RSTRN OF 8 KTS/10 MPH MAX FOR ACFT WITH WINGSPAN

214 FT OR GTR.

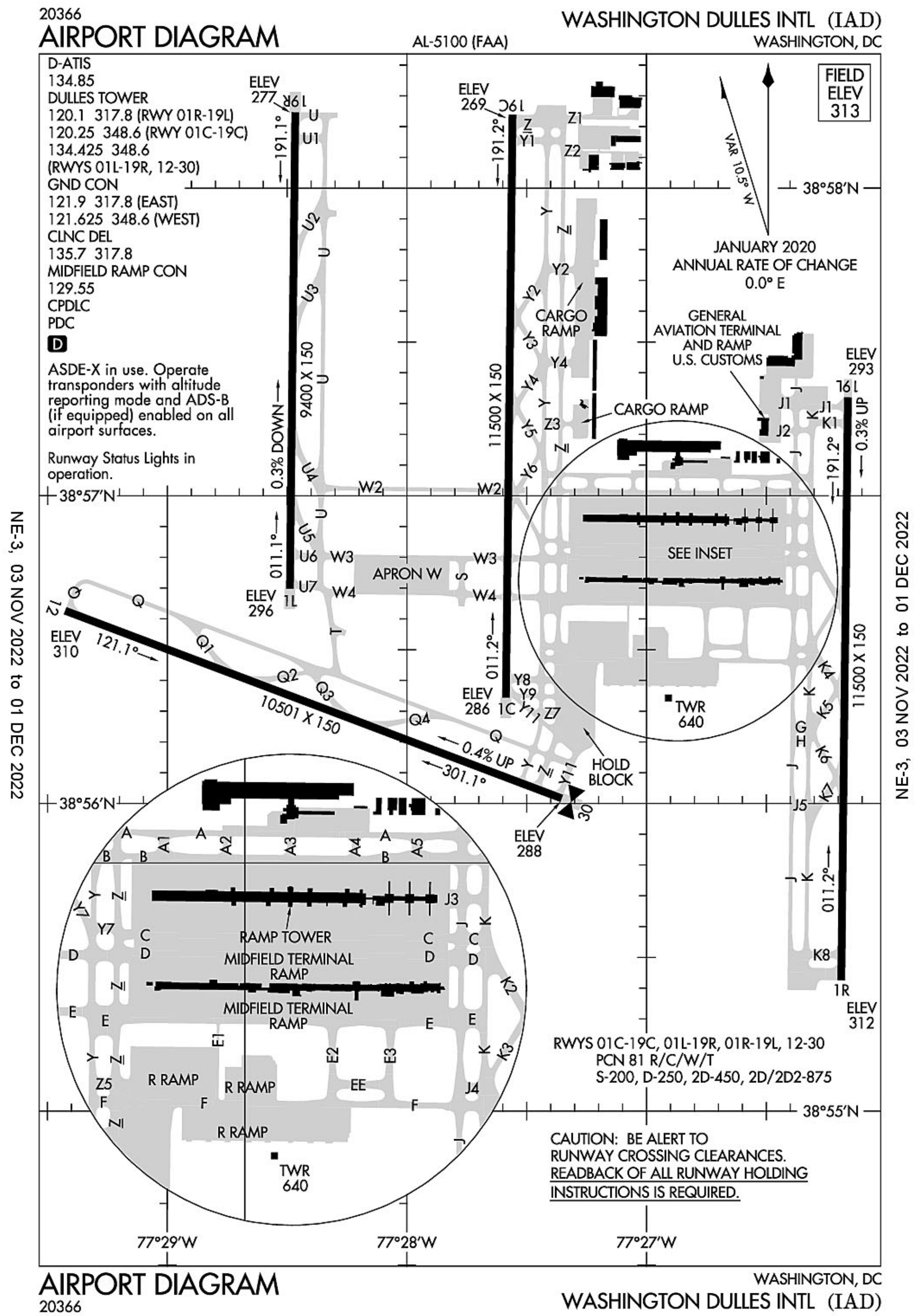
BASH PHASE II INCRD BIRD ACTVTY SEP−OCT AND MAR−APR.

PARL TWY OPS ON TWY C & TWY B RSTRD TO ACFT WITH WINGSPANS OF 171 FT OR LESS.

(E117) CT ANG AND U.S. ARMY NG.

ACFT REQG US CUST SVCS MUST PARK ON THE CUST SPOT W/ THE NOSE OF THE ACFT FACING SW. CTC CUST AT 860−292−1314 WHEN PARKED.

Washington, District of Columbia
Washington Dulles International
ICAO Identifier KIAD



Washington, DC
Washington Dulles Intl
ICAO Identifier KIAD

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 38−56−50.8N / 77−27−35.8W
2.2.2 From City: 20 miles W of WASHINGTON, VA
2.2.3 Elevation: 313 ft
2.2.5 Magnetic Variation: 10W (2000)
2.2.6 Airport Contact: RICHARD GOLINOWSKI
1 SAARINEN CIRCLE
DULLES, VA 20166 (703−572−2730)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 19C
2.12.2 True Bearing: 181
2.12.3 Dimensions: 11500 ft x 150 ft
2.12.4 PCN: 81 R/C/W/T
2.12.5 Coordinates: 38−58−14.3066N / 77−27−33.5452W
2.12.6 Threshold Elevation: 268.5 ft
2.12.6 Touchdown Zone Elevation: 271.3 ft

2.12.1 Designation: 01C
2.12.2 True Bearing: 1
2.12.3 Dimensions: 11500 ft x 150 ft
2.12.4 PCN: 81 R/C/W/T
2.12.5 Coordinates: 38−56−20.6392N / 77−27−35.1991W
2.12.6 Threshold Elevation: 286.1 ft
2.12.6 Touchdown Zone Elevation: 286.3 ft

2.12.1 Designation: 01L
2.12.2 True Bearing: 1
2.12.3 Dimensions: 9400 ft x 150 ft
2.12.4 PCN: 81 R/C/W/T
2.12.5 Coordinates: 38−56−41.88N / 77−28−29.3151W
2.12.6 Threshold Elevation: 296 ft
2.12.6 Touchdown Zone Elevation: 296.1 ft

2.12.1 Designation: 19R
2.12.2 True Bearing: 181
2.12.3 Dimensions: 9400 ft x 150 ft
2.12.4 PCN: 81 R/C/W/T
2.12.5 Coordinates: 38−58−14.7845N / 77−28−27.9825W
2.12.6 Threshold Elevation: 276.9 ft
2.12.6 Touchdown Zone Elevation: 278.4 ft

2.12.1 Designation: 01R
2.12.2 True Bearing: 1
2.12.3 Dimensions: 11500 ft x 150 ft
2.12.4 PCN: 81 R/C/W/T
2.12.5 Coordinates: 38−55−25.526N / 77−26−11.222W
2.12.6 Threshold Elevation: 311.7 ft
2.12.6 Touchdown Zone Elevation: 312.4 ft

2.12.1 Designation: 19L
2.12.2 True Bearing: 181
2.12.3 Dimensions: 11500 ft x 150 ft
2.12.4 PCN: 81 R/C/W/T
2.12.5 Coordinates: 38−57−19.185N / 77−26−9.526W
2.12.6 Threshold Elevation: 293.2 ft
2.12.6 Touchdown Zone Elevation: 302.2 ft

2.12.1 Designation: 30
2.12.2 True Bearing: 291
2.12.3 Dimensions: 10501 ft x 150 ft
2.12.4 PCN: 81 R/C/W/T
2.12.5 Coordinates: 38−56−0.997N / 77−27−21.233W
2.12.6 Threshold Elevation: 287.8 ft
2.12.6 Touchdown Zone Elevation: 287.8 ft

2.12.1 Designation: 12
2.12.2 True Bearing: 111
2.12.3 Dimensions: 10501 ft x 150 ft
2.12.4 PCN: 81 R/C/W/T
2.12.5 Coordinates: 38−56−37.58N / 77−29−25.599W
2.12.6 Threshold Elevation: 309.8 ft
2.12.6 Touchdown Zone Elevation: 309.8 ft

AD 2.13 Declared Distances
2.13.1 Designation: 19C
2.13.2 Take−off Run Available: 11500 ft
2.13.3 Take−off Distance Available: 11500 ft
2.13.4 Accelerate−Stop Distance Available: 11500 ft
2.13.5 Landing Distance Available: 11089 ft

2.13.1 Designation: 01C
2.13.2 Take−off Run Available: 11500 ft
2.13.3 Take−off Distance Available: 11500 ft

2.13.4 Accelerate−Stop Distance Available: 11500 ft
2.13.5 Landing Distance Available: 11500 ft

2.13.1 Designation: 01L
2.13.2 Take−off Run Available: 9400 ft
2.13.3 Take−off Distance Available: 9400 ft
2.13.4 Accelerate−Stop Distance Available: 9400 ft
2.13.5 Landing Distance Available: 9400 ft

2.13.1 Designation: 19R
2.13.2 Take−off Run Available: 9400 ft
2.13.3 Take−off Distance Available: 9400 ft
2.13.4 Accelerate−Stop Distance Available: 9400 ft
2.13.5 Landing Distance Available: 9400 ft

2.13.1 Designation: 01R
2.13.2 Take−off Run Available: 11500 ft
2.13.3 Take−off Distance Available: 11500 ft
2.13.4 Accelerate−Stop Distance Available: 11500 ft
2.13.5 Landing Distance Available: 11500 ft

2.13.1 Designation: 19L
2.13.2 Take−off Run Available: 11500 ft
2.13.3 Take−off Distance Available: 11500 ft
2.13.4 Accelerate−Stop Distance Available: 11500 ft
2.13.5 Landing Distance Available: 11500 ft

2.13.1 Designation: 30
2.13.2 Take−off Run Available: 10501 ft
2.13.3 Take−off Distance Available: 10501 ft
2.13.4 Accelerate−Stop Distance Available: 10501 ft
2.13.5 Landing Distance Available: 10501 ft

2.13.1 Designation: 12
2.13.2 Take−off Run Available: 10501 ft
2.13.3 Take−off Distance Available: 10501 ft
2.13.4 Accelerate−Stop Distance Available: 10501 ft
2.13.5 Landing Distance Available: 10501 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 19C
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 01C
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 01L
2.14.2 Approach Lighting System: ALSF2

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 19R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 01R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 19L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 30
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 12
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 01C. Magnetic variation: 10W
2.19.2 ILS Identification: OSZ
2.19.5 Coordinates: 38−56−31.0615N / 77−27−40.7425W
2.19.6 Site Elevation: 283.3 ft

2.19.1 ILS Type: Localizer for runway 01C. Magnetic variation: 10W
2.19.2 ILS Identification: OSZ
2.19.5 Coordinates: 38−58−24.6686N / 77−27−33.3933W
2.19.6 Site Elevation: 263.2 ft

2.19.1 ILS Type: Glide Slope for runway 19C. Magnetic variation: 10W
2.19.2 ILS Identification: DLX
2.19.5 Coordinates: 38−58−4.1832N / 77−27−37.9999W
2.19.6 Site Elevation: 266.3 ft

2.19.1 ILS Type: Inner Marker for runway 19C. Magnetic variation: 10W
2.19.2 ILS Identification: DLX
2.19.5 Coordinates: 38−58−22.9443N / 77−27−33.4218W
2.19.6 Site Elevation: 263.4 ft

2.19.1 ILS Type: Localizer for runway 19C. Magnetic variation: 10W
2.19.2 ILS Identification: DLX
2.19.5 Coordinates: 38−56−14.614N / 77−27−35.2866W
2.19.6 Site Elevation: 283.9 ft

2.19.1 ILS Type: DME for runway 01L. Magnetic variation: 10W
2.19.2 ILS Identification: OIU
2.19.5 Coordinates: 38−58−25.0778N / 77−28−31.1627W
2.19.6 Site Elevation: 279.3 ft

2.19.1 ILS Type: Glide Slope for runway 01L. Magnetic variation: 10W
2.19.2 ILS Identification: OIU
2.19.5 Coordinates: 38−56−52.8723N / 77−28−34.3495W
2.19.6 Site Elevation: 287.9 ft

2.19.1 ILS Type: Inner Marker for runway 01L. Magnetic variation: 10W
2.19.2 ILS Identification: OIU
2.19.5 Coordinates: 38−56−33.3915N / 77−28−29.4465W
2.19.6 Site Elevation: 275 ft

2.19.1 ILS Type: Localizer for runway 01L. Magnetic variation: 10W
2.19.2 ILS Identification: OIU
2.19.5 Coordinates: 38−58−24.7673N / 77−28−27.8426W
2.19.6 Site Elevation: 276.9 ft

2.19.1 ILS Type: DME for runway 19R. Magnetic variation: 10W
2.19.2 ILS Identification: ISU
2.19.5 Coordinates: 38−58−25.0778N / 77−28−31.1627W
2.19.6 Site Elevation: 279.3 ft

2.19.1 ILS Type: Glide Slope for runway 19R. Magnetic variation: 10W
2.19.2 ILS Identification: ISU
2.19.5 Coordinates: 38−58−4.4568N / 77−28−33.3233W
2.19.6 Site Elevation: 272 ft

2.19.1 ILS Type: Inner Marker for runway 19R. Magnetic variation: 10W
2.19.2 ILS Identification: ISU
2.19.5 Coordinates: 38−58−23.5142N / 77−28−27.8585W
2.19.6 Site Elevation: 276 ft

2.19.1 ILS Type: Localizer for runway 19R. Magnetic variation: 10W
2.19.2 ILS Identification: ISU
2.19.5 Coordinates: 38−56−31.8979N / 77−28−29.4605W
2.19.6 Site Elevation: 298.2 ft

2.19.1 ILS Type: DME for runway 01R. Magnetic variation: 10W
2.19.2 ILS Identification: IAD
2.19.5 Coordinates: 38−55−11.0826N / 77−26−8.8302W
2.19.6 Site Elevation: 313.9 ft

2.19.1 ILS Type: Glide Slope for runway 01R. Magnetic variation: 10W
2.19.2 ILS Identification: IAD
2.19.5 Coordinates: 38−55−35.845N / 77−26−4.749W
2.19.6 Site Elevation: 306.5 ft

2.19.1 ILS Type: Localizer for runway 01R. Magnetic variation: 10W

2.19.2 ILS Identification: IAD
2.19.5 Coordinates: 38−57−30.868N / 77−26−9.357W
2.19.6 Site Elevation: 301.8 ft

2.19.1 ILS Type: DME for runway 19L. Magnetic variation: 10W
2.19.2 ILS Identification: SGC
2.19.5 Coordinates: 38−55−11.0826N / 77−26−8.8302W
2.19.6 Site Elevation: 313.9 ft

2.19.1 ILS Type: Glide Slope for runway 19L. Magnetic variation: 10W
2.19.2 ILS Identification: SGC
2.19.5 Coordinates: 38−57−9.268N / 77−26−4.613W
2.19.6 Site Elevation: 291.1 ft

2.19.1 ILS Type: Localizer for runway 19L. Magnetic variation: 10W
2.19.2 ILS Identification: SGC
2.19.5 Coordinates: 38−55−11.807N / 77−26−11.427W
2.19.6 Site Elevation: 315.3 ft

2.19.1 ILS Type: Glide Slope for runway 12. Magnetic variation: 10W
2.19.2 ILS Identification: AJU
2.19.5 Coordinates: 38−56−30.399N / 77−29−15.535W
2.19.6 Site Elevation: 303.5 ft

2.19.1 ILS Type: Localizer for runway 12. Magnetic variation: 10W
2.19.2 ILS Identification: AJU
2.19.5 Coordinates: 38−55−57.27N / 77−27−8.47W
2.19.6 Site Elevation: 279.8 ft

General Remarks:
TAXILANE 'C' ACTIVE; PUSHBACK CLNCS ON NORTH SIDE OF MIDFIELD TERMINAL ARE ONTO TAXILANE 'D' ONLY UNLESS OTHERWISE AUTH.

RWY STATUS LGTS ARE IN OPN.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

ENGINE RUN−UPS BTW 2200L & 0700L REQUIRE PRIOR APPROVAL FM ARPT OPS.

LARGE FLOCKS OF BIRDS ON & INVOF ARPT/DEER INVOF ARPT.

B747−8 RESTRICTED TO MAXIMUM TAXI SPEED 17 KTS (20 MPH) ON TWY J.

RUNUP BLX FOR RWY 30 DSGND AS NON−MOVEMENT AREA.

RWY 30 DEPARTURES USE UPPER ANTENNA FOR ATC COMMUNICATIONS.

ACR PUSH BACKS & PWR FM ALL APRON PSNS REQUIRE CLNC FM MWAA RAMP TWR.

ALL AIRCRAFT WITH WINGSPAN EXCEEDING 118 FT ARE RESTRICTED FROM USING TAXILANE A BTN A1 & A5.

ALL 180 DEG TURNS OUT OF APRON POSITIONS SHALL BE MADE USING MINIMUM POWER.

TWY E1 RESTRICTED TO ACFT WITH A WINGSPAN LESS THAN 79 FT.

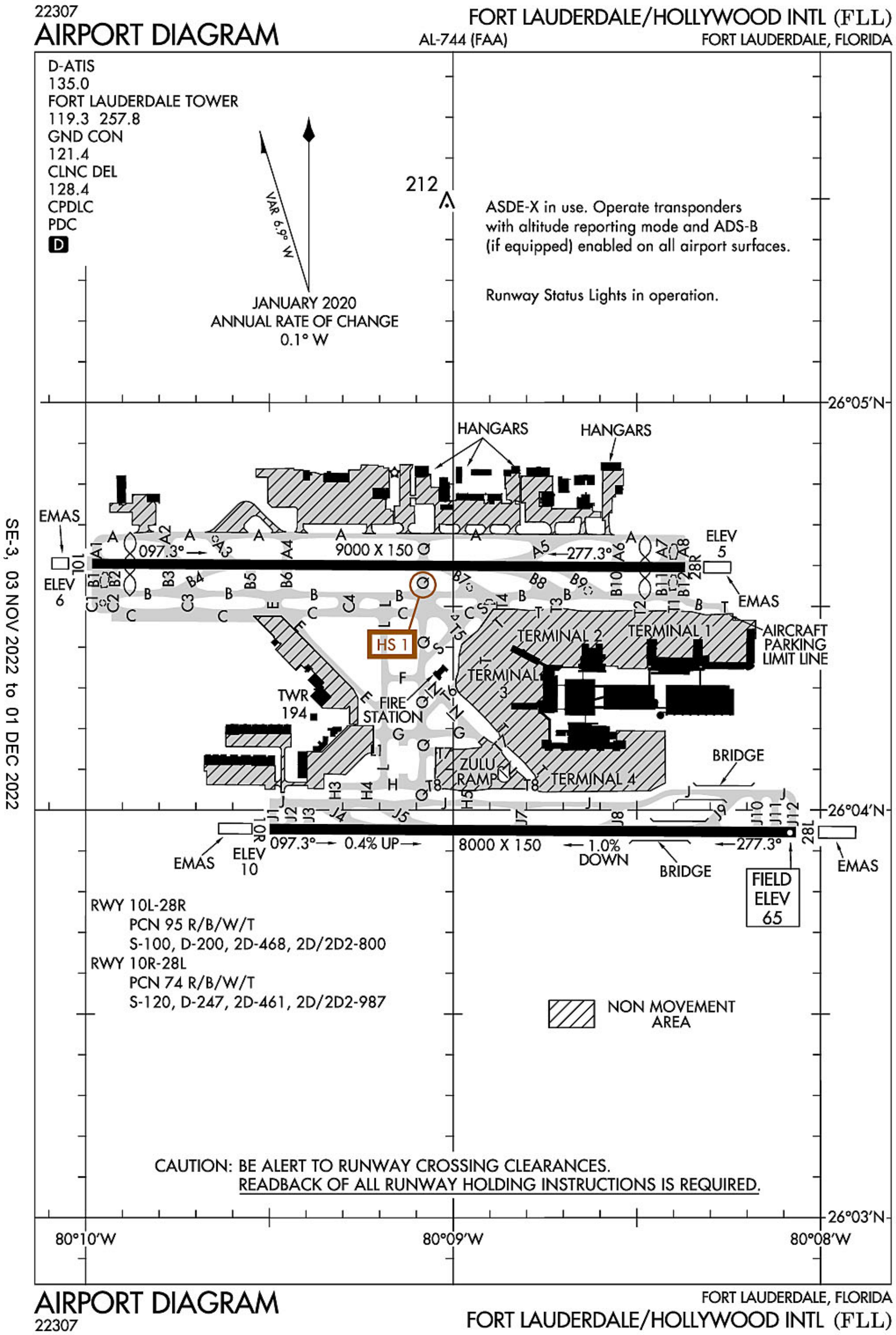
FLIGHT TRAINING BETWEEN 2200−0700 IS PROHIBITED.

DURING PERIODS OF ACFT SATURATION LONG TERM PARKING MAY NOT BE AVAILABLE. SERVICES FOR FUEL AND GO ONLY WILL BE AVAILABLE.

ITNRNT ACFT CTC FBO ON 122.95 OR 129.77 FOR SVCS.

LDG FEE. FLIGHT NOTIFICATION SERVICE (ADCUS) AVBL. NOTE: SEE SPECIAL NOTICES −−CONTINUOUS POWER FACILITIES.

Fort Lauderdale, Florida
Fort Lauderdale−Hollywood International
ICAO Identifier KFLL



Fort Lauderdale, FL
Fort Lauderdale/Hollywood Intl
ICAO Identifier KFLL

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 26−4−18N / 80−8−58.9W
2.2.2 From City: 3 miles SW of FORT LAUDERDALE, FL
2.2.3 Elevation: 65 ft
2.2.5 Magnetic Variation: 6W (2015)
2.2.6 Airport Contact: MARK GALE
320 TERMINAL DRIVE SUITE 200
FORT LAUDERDALE, FL 33315 (954−359−6100)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/21/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 10L
2.12.2 True Bearing: 90
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 95 R/B/W/T
2.12.5 Coordinates: 26−4−37.0166N / 80−9−59.5381W
2.12.6 Threshold Elevation: 5.6 ft
2.12.6 Touchdown Zone Elevation: 7.1 ft

2.12.1 Designation: 28R
2.12.2 True Bearing: 270
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 95 R/B/W/T
2.12.5 Coordinates: 26−4−36.4507N / 80−8−20.835W
2.12.6 Threshold Elevation: 5.3 ft
2.12.6 Touchdown Zone Elevation: 6.7 ft

2.12.1 Designation: 10R
2.12.2 True Bearing: 90
2.12.3 Dimensions: 8000 ft x 150 ft
2.12.4 PCN: 74 R/B/W/T
2.12.5 Coordinates: 26−3−57.1919N / 80−9−30.056W
2.12.6 Threshold Elevation: 10.1 ft
2.12.6 Touchdown Zone Elevation: 14.3 ft

2.12.1 Designation: 28L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 8000 ft x 150 ft
2.12.4 PCN: 74 R/B/W/T
2.12.5 Coordinates: 26−3−56.6718N / 80−8−2.3388W
2.12.6 Threshold Elevation: 65 ft
2.12.6 Touchdown Zone Elevation: 65 ft

AD 2.13 Declared Distances
2.13.1 Designation: 10L
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 8424 ft

2.13.1 Designation: 28R
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 8394 ft

2.13.1 Designation: 10R
2.13.2 Take−off Run Available: 8000 ft
2.13.3 Take−off Distance Available: 8000 ft
2.13.4 Accelerate−Stop Distance Available: 8000 ft
2.13.5 Landing Distance Available: 8000 ft

2.13.1 Designation: 28L
2.13.2 Take−off Run Available: 8000 ft
2.13.3 Take−off Distance Available: 8000 ft
2.13.4 Accelerate−Stop Distance Available: 8000 ft
2.13.5 Landing Distance Available: 8000 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 10L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10R
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 28L
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids

2.19.1 ILS Type: DME for runway 10L. Magnetic variation: 6W
2.19.2 ILS Identification: LHI
2.19.5 Coordinates: 26−4−40.1757N / 80−8−15.6721W
2.19.6 Site Elevation: 11.3 ft

2.19.1 ILS Type: Glide Slope for runway 10L. Magnetic variation: 6W
2.19.2 ILS Identification: LHI
2.19.5 Coordinates: 26−4−39.6411N / 80−9−42.3329W
2.19.6 Site Elevation: 2.9 ft

2.19.1 ILS Type: Localizer for runway 10L. Magnetic variation: 6W
2.19.2 ILS Identification: LHI
2.19.5 Coordinates: 26−4−36.4066N / 80−8−13.1434W
2.19.6 Site Elevation: 4.3 ft

2.19.1 ILS Type: DME for runway 28R. Magnetic variation: 6W
2.19.2 ILS Identification: UDL
2.19.5 Coordinates: 26−4−34.5346N / 80−10−2.4136W
2.19.6 Site Elevation: 10.4 ft

2.19.1 ILS Type: Glide Slope for runway 28R. Magnetic variation: 6W
2.19.2 ILS Identification: UDL
2.19.5 Coordinates: 26−4−39.627N / 80−8−39.0644W
2.19.6 Site Elevation: 5 ft

2.19.1 ILS Type: Localizer for runway 28R. Magnetic variation: 6W
2.19.2 ILS Identification: UDL
2.19.5 Coordinates: 26−4−37.0351N / 80−10−2.8297W
2.19.6 Site Elevation: 4.6 ft

2.19.1 ILS Type: DME for runway 10R. Magnetic variation: 6W
2.19.2 ILS Identification: FLL
2.19.5 Coordinates: 26−3−58.8348N / 80−7−55.7162W
2.19.6 Site Elevation: 68.3 ft

2.19.1 ILS Type: Glide Slope for runway 10R. Magnetic variation: 6W
2.19.2 ILS Identification: FLL
2.19.5 Coordinates: 26−3−53.1134N / 80−9−18.5896W
2.19.6 Site Elevation: 5.7 ft

2.19.1 ILS Type: Localizer for runway 10R. Magnetic variation: 6W
2.19.2 ILS Identification: FLL
2.19.5 Coordinates: 26−3−56.6314N / 80−7−55.5666W
2.19.6 Site Elevation: 64.4 ft

2.19.1 ILS Type: DME for runway 28L. Magnetic variation: 6W

2.19.2 ILS Identification: ADI
2.19.5 Coordinates: 26−3−59.4802N / 80−9−40.4489W
2.19.6 Site Elevation: 14.7 ft

2.19.1 ILS Type: Glide Slope for runway 28L. Magnetic variation: 6W
2.19.2 ILS Identification: ADI
2.19.5 Coordinates: 26−3−52.7404N / 80−8−15.5298W
2.19.6 Site Elevation: 45 ft

2.19.1 ILS Type: Localizer for runway 28L. Magnetic variation: 6W
2.19.2 ILS Identification: ADI
2.19.5 Coordinates: 26−3−57.2361N / 80−9−37.7655W
2.19.6 Site Elevation: 7.5 ft

2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 6W
2.19.2 Navigation Aid Identification: FLL
2.19.5 Coordinates: 26−4−26.1833N / 80−9−59.1921W
2.19.6 Site Elevation: 5.6 ft

General Remarks:
PPR FOR ACFT WITH EXPLOSIVES.

ASDE−X IN USE; OPR PARROT WITH ALT RPRTG MODE & ADS−B (IF EQUIPPED) ENABLED ON ARPT SFCS.

ARR FM N & W MNTN 6000 FT UNTIL ABM RWY 28R ON DOWNWIND; ARR FM N MNTN 6000 FT UNTIL ABM RWY 10L ON DOWNWIND.

EAST SIDE OF CONCOURSE B AVBL TO ACFT WITH WINGSPAN LESS THAN 124.9 FT.

ALL RWYS NOISE SENSITIVE; NOISE ABATEMENT IN EFCT − 954−359−6181.

RWY STATUS LIGHTS IN OPRN.

NO VFR APCHS OR BASE LEGS UNTIL OFFSHORE.

TURB BLW 1000 FT OVR LANDFILL LCTD 2 NM W.

PPR FOR ACFT WITH WINGSPANS GTR THAN 118 FT ON TWY E BTN TWY C & TWY L.

JET RUNUPS NA 2300−0700.

ACFT OPRG FROM TRML 1, 2, 3, 4 MUST CTC RAMP CTL. RAMP CTL EFF − CTC ARPT OPS FOR HRS.

IR CARRIER ACFT USE RAMP PUSH BACK PROCS PRESCRIBED BY ARPT OPS.

TWY J BGN TO ELEV 900 FT EAST OF TWY Q. DUE TO ELEV ALL ACFT REMAIN ON CNTRLN; TWY T8 & TAXILANE T NOT ACCESSIBLE FM TWY J.

ACFT LDG RWY 10R & EXITING J9 FOLLOW TWY LEAD OFF LINE ONTO J9.

NMRS TREES SW QUADRANT OF ARPT.

BIRDS ON & INVOF ARPT; CONCENTRATION OF BIRDS BLW 500 FT 2.0 NM W OF 10L & 10R AER.

TWY B EAST OF TWY B12 & TAXILANE T EAST OF TWY T1 CLSD TO ACFT WITH WINGSPAN GTR THAN 126 FT & TAIL HGT GTR THAN 46 FT. TWY A BTN TWY A2 & TWY A3 CLSD TO ACFT WINGSPAN MORE THAN 170 FT & TAIL HGT MORE THAN 59 FT EXC 10 MIN PPR 954−816−3179.

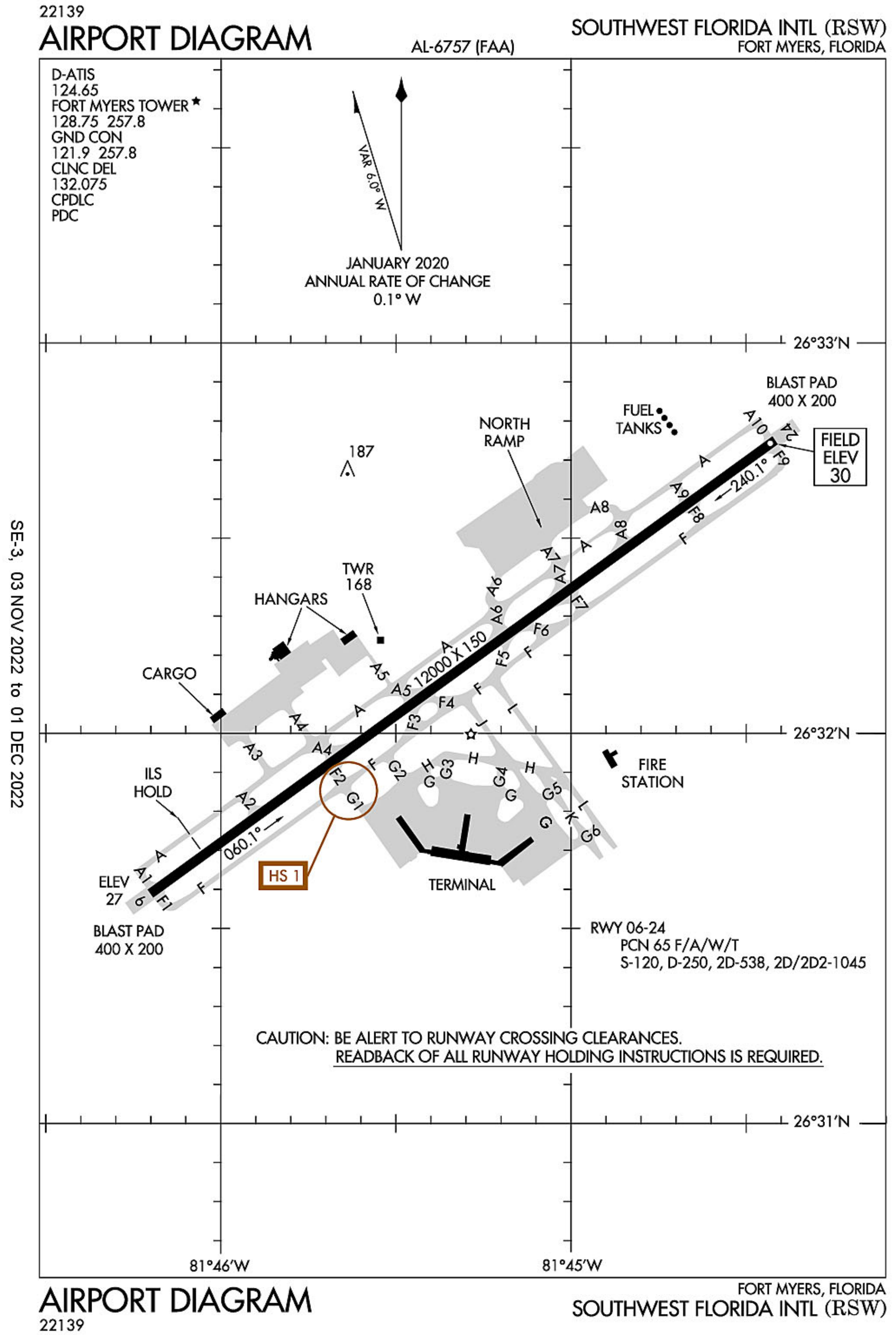
CLSD TO ACR TRAINING; LRG ACFT TRNG OVER 58000 LBS MAX CERTD GROSS TKOF WEIGHT; ALL TRNG 2300−0700.

PREFERENTIAL RWY USE PROGRAM IN EFCT; CTC NOISE ABATEMENT OFFICE.

PPR FOR ACFT WITH WINGSPAN GTR THAN 171 FT & TAIL HGT GTR THAN 60 FT ON TWY N BTWN TWY Q & TWY T6

HIGH LIGHT MASTS WNW APCH END RWY 28L.

Fort Myers, Florida
Southwest Florida International
ICAO Identifier KRSW



Fort Myers, FL
Southwest Florida Intl
ICAO Identifier KRSW

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 26−32−10.19N / 81−45−18.558W
2.2.2 From City: 10 miles SE of FORT MYERS, FL
2.2.3 Elevation: 29.9 ft
2.2.5 Magnetic Variation: 4W (2000)
2.2.6 Airport Contact: BEN SIEGEL
11000 TERMINAL ACCESS RD.
FORT MYERS, FL 33913 (239−590−4400)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, 0700−0100 Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A,A+
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1983

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 24
2.12.2 True Bearing: 234
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: 65 F/A/W/T
2.12.5 Coordinates: 26−32−45.0262N / 81−44−25.0374W
2.12.6 Threshold Elevation: 29.8 ft
2.12.6 Touchdown Zone Elevation: 29.9 ft

2.12.1 Designation: 06
2.12.2 True Bearing: 54
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: 65 F/A/W/T
2.12.5 Coordinates: 26−31−35.3489N / 81−46−12.0692W
2.12.6 Threshold Elevation: 26.6 ft
2.12.6 Touchdown Zone Elevation: 27 ft

AD 2.13 Declared Distances
2.13.1 Designation: 24
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 06
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 24
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 06
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: ALICO DP (RWY 06)
2.14.3 Channel: 126.8
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: ALICO DP (RWY 24)
2.14.3 Channel: 134.425
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: ALICO DP (RWY 06/24)
2.14.3 Channel: 306.2
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: APCH/P DEP/P (121−240)
2.14.3 Channel: 124.125
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: APCH/P DEP/P (001−120)
2.14.3 Channel: 126.8
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: APCH/P DEP/P (301−360)
2.14.3 Channel: 127.05
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: APCH/P DEP/P (241−300)
2.14.3 Channel: 134.425
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: APCH/P DEP/P (241−120)
2.14.3 Channel: 306.2
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: APCH/P DEP/P (121−240)

2.14.3 Channel: 371.85
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: APCH/P DEP/P IC
2.14.3 Channel: 306.2
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: APCH/P IC (RWY 06)
2.14.3 Channel: 125.15
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: APCH/P IC (RWY 24)
2.14.3 Channel: 126.8
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: CD/P
2.14.3 Channel: 132.075
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: CLASS C (121−240)
2.14.3 Channel: 124.125
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: CLASS C (001−120)
2.14.3 Channel: 126.8
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: CLASS C (301−360)
2.14.3 Channel: 127.05
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: CLASS C (241−300)
2.14.3 Channel: 134.425
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: CLASS C (241−120)
2.14.3 Channel: 306.2
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: CLASS C (121−240)
2.14.3 Channel: 371.85
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: CSHEL DP (RWY 06)
2.14.3 Channel: 126.8
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: CSHEL DP (RWY 24)
2.14.3 Channel: 134.425
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: CSHEL DP (RWY 06/24)
2.14.3 Channel: 306.2
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 124.65
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: GND/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: JOSFF STAR
2.14.3 Channel: 134.425
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: JOSFF STAR
2.14.3 Channel: 306.2
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 128.75
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: MOOKY DP (RWY 06)
2.14.3 Channel: 124.125
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: MOOKY DP (RWY 24)
2.14.3 Channel: 134.425
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: MOOKY DP (RWY 24)
2.14.3 Channel: 306.2
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: MOOKY DP (RWY 06)
2.14.3 Channel: 371.85
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: SCUBY DP
2.14.3 Channel: 124.125
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: SCUBY DP
2.14.3 Channel: 371.85
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: TYNEE STAR
2.14.3 Channel: 134.425
2.14.5 Hours of Operation: 0600−0000

2.14.1 Service Designation: TYNEE STAR
2.14.3 Channel: 306.2
2.14.5 Hours of Operation: 0600−0000

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 06. Magnetic variation: 4W
2.19.2 ILS Identification: RSW
2.19.5 Coordinates: 26−32−53.339N / 81−44−17.5144W
2.19.6 Site Elevation: 38 ft

2.19.1 ILS Type: Glide Slope for runway 06. Magnetic variation: 4W
2.19.2 ILS Identification: RSW
2.19.5 Coordinates: 26−31−43.5444N / 81−46−4.4222W
2.19.6 Site Elevation: 25.2 ft

2.19.1 ILS Type: Localizer for runway 06. Magnetic variation: 4W
2.19.2 ILS Identification: RSW
2.19.5 Coordinates: 26−32−51.1355N / 81−44−15.6428W
2.19.6 Site Elevation: 27.6 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 2W
2.19.2 Navigation Aid Identification: RSW
2.19.5 Coordinates: 26−31−47.5921N / 81−46−32.7666W
2.19.6 Site Elevation: 24.8 ft

General Remarks:
ACR USE RAMP PROC PRESCRIBED BY ARPT OPS.

CAUTION: OPEN BAGGAGE BAYS & CONST WITHIN TERMINAL RAMP AREA. AIRCREWS USE MINIMUM THRUST SETTINGS IN THESE AREAS, SPCLY DURG SINGLE ENG TAXI. CROSS−BLEED STARTS ONLY ALLOWED AFT REACHING THE TUG RELEASE POINT.

TWY A5 BTN FBO RAMP AND TWY A CLSD TO ACFT WINGSPAN MORE THAN 118 FT.

FOR CD IFUN TO CTC ON MIAMI CTR FREQ, CTC MIAMI ARTCC AT 305−716−1731 (0100−0700).

GND CLNC RQRD PRIOR TO ENTERING TWY G.

OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

DEP ACFT OBTAIN APVL FM GND CTL PRIOR TO PUSHBACK FM GATES B7, B9, C8, C9 & D10A. PILOTS ADVISE TUG OPR OF OBTAINED CLNC FM GND CTL PRIOR TO ENTERING TWY G. DEP CTC GND CTL PRIOR

TO LEAVING THE COMMUTER RAMP FROM GATES D9A & D9B.

GATES B7 & B9 EXP CALL SPOT #7. GATES C8 & C9 EXP CALL SPOT #4. GATE D10A EXP CALL SPOT #2.

LGTS ON PARALLEL ROAD & PARKING LOT NW OF RWY 06/24 CAN BE MISTAKEN FOR RWY & APCH ENVIRONMENT.

ALL ACFT ON RAMP EXP CLOCKWISE FLOW. OUTBOUND TRAFFIC FROM GATES D2, D4, D6, D8 & D10 PROCEED TO CALL SPOT 1; OUTBOUND TRAFFIC FROM GATES C2, C4, C6, D1, D3, D5 & D7 PROCEED TO CALL SPOT 3; OUTBOUND TRAFFIC FROM GATES B2, B4, B6, B8, C1, C3, C5 & C7 PROCEED TO CALL SPOT 5; OUTBOUND TRAFFIC FROM GATES B1, B3 & B5 PROCEED TO CALL SPOT 9; ALL OUTBOUND TRAFFIC REQUEST TAXI INSTRUCTIONS.

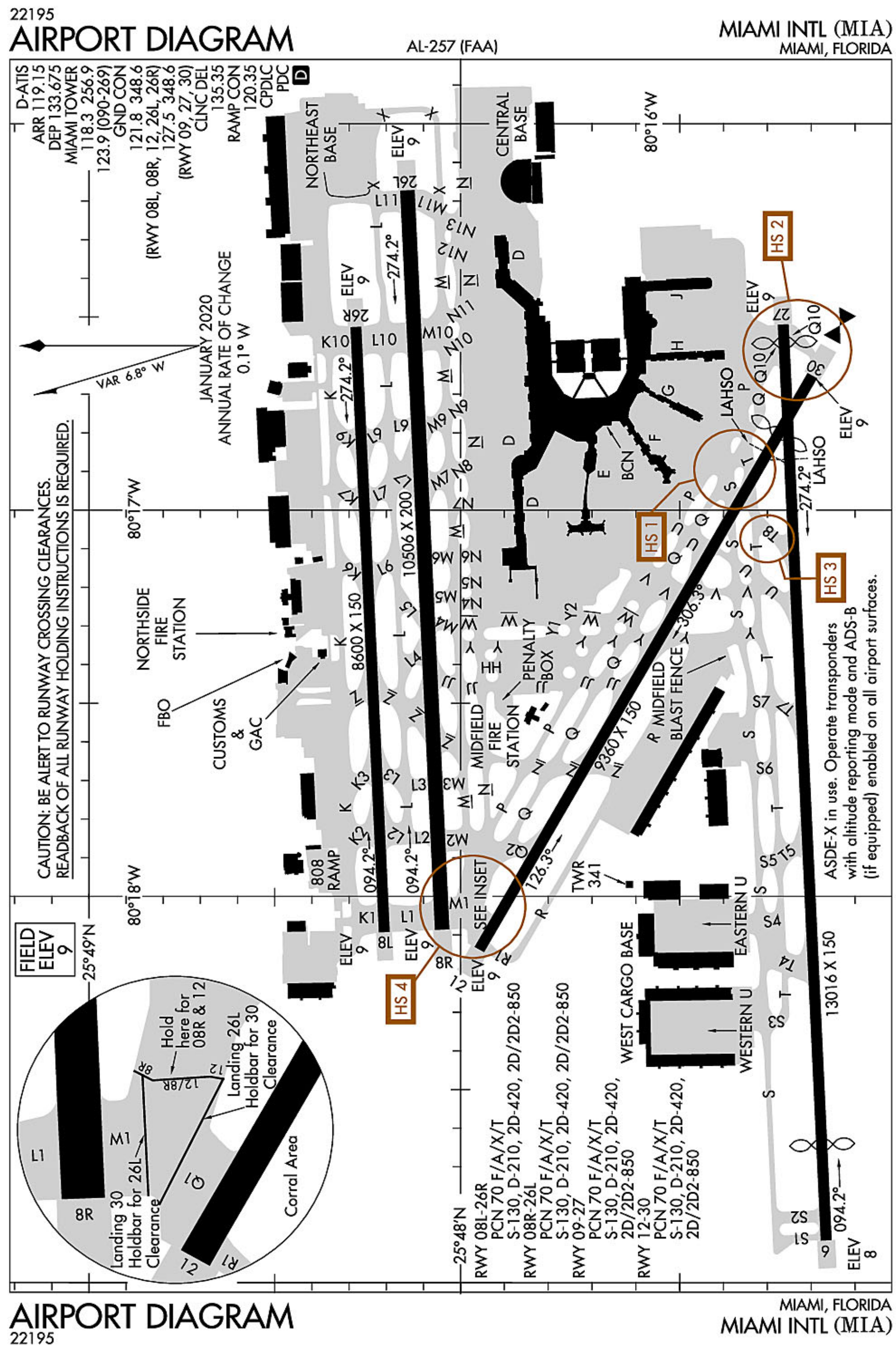
NO HELI OPS PERMITTED ON TRML APRON.

TFC PROCD DRCTLY TO GATE UNLESS DRCTD BY ATC; ADVISE ATC IF GATE IS NOT AVBL.

CAUTION: GS ANT 130 FT SW OF TWY A CNTRLN BTN TWY A1 & TWY A2.

RWY USE PROGRAM IN EFFECT; USE DISTANT NOISE ABATEMENT DEP PROFILE. VISUAL APCH TO RWY 06 W OF FORT MYERS BEACH MAINTAIN 3000 FT UNTIL CROSSING SHORELINE 12 NM SW OF ARPT. RWY 24 PREFERRED BTN 2200−0600. FOR NOISE ABATEMENT PROC CTC AMGR.

Miami, Florida
Miami International
ICAO Identifier KMIA



Miami, FL
Miami Intl
ICAO Identifier KMIA

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 25−47−43.3N / 80−17−24.417W
2.2.2 From City: 8 miles NW of MIAMI, FL
2.2.3 Elevation: 9.3 ft
2.2.5 Magnetic Variation: 5W (2000)
2.2.6 Airport Contact: RALPH CUTIE
MIAMI−DADE AVIATION DEPARTMENT
MIAMI, FL 33102 (305−876−7077)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 26R
2.12.2 True Bearing: 267
2.12.3 Dimensions: 8600 ft x 150 ft
2.12.4 PCN: 70 F/A/X/T
2.12.5 Coordinates: 25−48−14.3204N / 80−16−31.5499W
2.12.6 Threshold Elevation: 8.8 ft
2.12.6 Touchdown Zone Elevation: 9 ft

2.12.1 Designation: 08L
2.12.2 True Bearing: 87
2.12.3 Dimensions: 8600 ft x 150 ft
2.12.4 PCN: 70 F/A/X/T
2.12.5 Coordinates: 25−48−10.432N / 80−18−5.5508W
2.12.6 Threshold Elevation: 8.9 ft
2.12.6 Touchdown Zone Elevation: 9.1 ft

2.12.1 Designation: 08R
2.12.2 True Bearing: 87
2.12.3 Dimensions: 10506 ft x 200 ft
2.12.4 PCN: 70 F/A/X/T
2.12.5 Coordinates: 25−48−2.5177N / 80−18−5.1588W
2.12.6 Threshold Elevation: 8.5 ft
2.12.6 Touchdown Zone Elevation: 9.1 ft

2.12.1 Designation: 26L
2.12.2 True Bearing: 267
2.12.3 Dimensions: 10506 ft x 200 ft
2.12.4 PCN: 70 F/A/X/T
2.12.5 Coordinates: 25−48−7.2652N / 80−16−10.3282W
2.12.6 Threshold Elevation: 8.9 ft
2.12.6 Touchdown Zone Elevation: 9 ft

2.12.1 Designation: 09
2.12.2 True Bearing: 87
2.12.3 Dimensions: 13016 ft x 150 ft
2.12.4 PCN: 70 F/A/X/T
2.12.5 Coordinates: 25−47−9.9421N / 80−18−53.4173W
2.12.6 Threshold Elevation: 8.1 ft
2.12.6 Touchdown Zone Elevation: 8.2 ft

2.12.1 Designation: 27
2.12.2 True Bearing: 267
2.12.3 Dimensions: 13016 ft x 150 ft
2.12.4 PCN: 70 F/A/X/T
2.12.5 Coordinates: 25−47−15.8328N / 80−16−31.1711W
2.12.6 Threshold Elevation: 9 ft
2.12.6 Touchdown Zone Elevation: 9.1 ft

2.12.1 Designation: 30
2.12.2 True Bearing: 299
2.12.3 Dimensions: 9360 ft x 150 ft
2.12.4 PCN: 70 F/A/X/T
2.12.5 Coordinates: 25−47−11.8224N / 80−16−39.0805W
2.12.6 Threshold Elevation: 8.7 ft
2.12.6 Touchdown Zone Elevation: 9.3 ft

2.12.1 Designation: 12
2.12.2 True Bearing: 119
2.12.3 Dimensions: 9360 ft x 150 ft
2.12.4 PCN: 70 F/A/X/T
2.12.5 Coordinates: 25−47−57.4262N / 80−18−8.2439W
2.12.6 Threshold Elevation: 9.1 ft
2.12.6 Touchdown Zone Elevation: 9.2 ft

AD 2.13 Declared Distances
2.13.1 Designation: 26R
2.13.2 Take−off Run Available: 8600 ft
2.13.3 Take−off Distance Available: 8600 ft
2.13.4 Accelerate−Stop Distance Available: 8600 ft
2.13.5 Landing Distance Available: 8600 ft

2.13.1 Designation: 08L
2.13.2 Take−off Run Available: 8600 ft
2.13.3 Take−off Distance Available: 8600 ft

2.13.4 Accelerate−Stop Distance Available: 8600 ft
2.13.5 Landing Distance Available: 8600 ft

2.13.1 Designation: 08R
2.13.2 Take−off Run Available: 10506 ft
2.13.3 Take−off Distance Available: 10506 ft
2.13.4 Accelerate−Stop Distance Available: 10506 ft
2.13.5 Landing Distance Available: 10506 ft

2.13.1 Designation: 26L
2.13.2 Take−off Run Available: 10506 ft
2.13.3 Take−off Distance Available: 10506 ft
2.13.4 Accelerate−Stop Distance Available: 10220 ft
2.13.5 Landing Distance Available: 10220 ft

2.13.1 Designation: 09
2.13.2 Take−off Run Available: 13016 ft
2.13.3 Take−off Distance Available: 13016 ft
2.13.4 Accelerate−Stop Distance Available: 12755 ft
2.13.5 Landing Distance Available: 11397 ft

2.13.1 Designation: 27
2.13.2 Take−off Run Available: 13016 ft
2.13.3 Take−off Distance Available: 13016 ft
2.13.4 Accelerate−Stop Distance Available: 13016 ft
2.13.5 Landing Distance Available: 12755 ft

2.13.1 Designation: 30
2.13.2 Take−off Run Available: 9355 ft
2.13.3 Take−off Distance Available: 9355 ft
2.13.4 Accelerate−Stop Distance Available: 8853 ft
2.13.5 Landing Distance Available: 7913 ft

2.13.1 Designation: 12
2.13.2 Take−off Run Available: 9355 ft
2.13.3 Take−off Distance Available: 9355 ft
2.13.4 Accelerate−Stop Distance Available: 8579 ft
2.13.5 Landing Distance Available: 8579 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 26R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08R
2.14.2 Approach Lighting System: MALSR

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26L
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 09
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 27
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 30
2.14.2 Approach Lighting System: MALS
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 12
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: ALTNN DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ALTNN DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ALTNN DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ALTNN DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ANNEY STAR
2.14.3 Channel: 125.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ANNEY STAR
2.14.3 Channel: 125.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ANNEY STAR
2.14.3 Channel: 322.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ANNEY STAR
2.14.3 Channel: 322.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (090−269)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (090−269)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (270−089)
2.14.3 Channel: 125.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (270−089)
2.14.3 Channel: 125.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (090−269)
2.14.3 Channel: 379.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (090−269)
2.14.3 Channel: 379.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (270−089)
2.14.3 Channel: 124.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (270−089)
2.14.3 Channel: 124.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (270−089)
2.14.3 Channel: 322.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (270−089)
2.14.3 Channel: 322.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S
2.14.3 Channel: 125.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S
2.14.3 Channel: 125.75

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S (270−089)
2.14.3 Channel: 263.025
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S (270−089)
2.14.3 Channel: 263.025
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BLUFI STAR
2.14.3 Channel: 125.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BLUFI STAR
2.14.3 Channel: 125.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BLUFI STAR
2.14.3 Channel: 322.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BLUFI STAR
2.14.3 Channel: 322.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BNFSH STAR
2.14.3 Channel: 124.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BNFSH STAR
2.14.3 Channel: 124.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BNFSH STAR
2.14.3 Channel: 263.025
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BNFSH STAR
2.14.3 Channel: 263.025
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BNGOS DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BNGOS DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BNGOS DP

2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BNGOS DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 135.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 135.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (090−269)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (090−269)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (270−089)
2.14.3 Channel: 125.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (270−089)
2.14.3 Channel: 125.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (270−089)
2.14.3 Channel: 322.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (270−089)
2.14.3 Channel: 322.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (090−269)
2.14.3 Channel: 379.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (090−269)
2.14.3 Channel: 379.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CSTAL STAR
2.14.3 Channel: 124.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CSTAL STAR
2.14.3 Channel: 124.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CSTAL STAR
2.14.3 Channel: 263.025
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CSTAL STAR
2.14.3 Channel: 263.025
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (ARRIVAL)
2.14.3 Channel: 119.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (ARRIVAL)
2.14.3 Channel: 119.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (DEPART)
2.14.3 Channel: 133.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (DEPART)
2.14.3 Channel: 133.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (090−269)
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (090−269)
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (270−089)
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (270−089)
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (090−269)
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (090−269)
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P IC (270−089)
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P IC (270−089)
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DORRL DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DORRL DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DORRL DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DORRL DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DVALL STAR
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DVALL STAR
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DVALL STAR
2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DVALL STAR
2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: FLMGO DP
2.14.3 Channel: 119.45

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FLMGO DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FLMGO DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FLMGO DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FOLZZ DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FOLZZ DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FOLZZ DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FOLZZ DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FOWEE STAR
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FOWEE STAR
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FOWEE STAR
2.14.3 Channel: 124.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FOWEE STAR
2.14.3 Channel: 124.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FOWEE STAR
2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FOWEE STAR

2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FROGZ STAR
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FROGZ STAR
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FROGZ STAR
2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FROGZ STAR
2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GLADZ DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GLADZ DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GLADZ DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GLADZ DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P IC (RWY 08L/26R, 08R/26L, 12)
2.14.3 Channel: 121.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P IC (RWY 08L/26R, 08R/26L, 12)
2.14.3 Channel: 121.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P IC (RWY 09/27, 30)
2.14.3 Channel: 127.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P IC (RWY 09/27, 30)
2.14.3 Channel: 127.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P IC
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P IC
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GWAVA DP
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GWAVA DP
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GWAVA DP
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GWAVA DP
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HILEY STAR
2.14.3 Channel: 124.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HILEY STAR
2.14.3 Channel: 124.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HILEY STAR
2.14.3 Channel: 322.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HILEY STAR
2.14.3 Channel: 322.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HURCN DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HURCN DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HURCN DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HURCN DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HUSIL DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HUSIL DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HUSIL DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HUSIL DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KLADA DP
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KLADA DP
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KLADA DP
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KLADA DP
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (090−269)
2.14.3 Channel: 123.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (090−269)
2.14.3 Channel: 123.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P IC (270−089)
2.14.3 Channel: 118.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P IC (270−089)
2.14.3 Channel: 118.3

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P IC
2.14.3 Channel: 256.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P IC
2.14.3 Channel: 256.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LIFRR DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LIFRR DP
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LIFRR DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LIFRR DP
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LUUCE STAR (9000 FT)
2.14.3 Channel: 126.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LUUCE STAR (9000 FT)
2.14.3 Channel: 126.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LUUCE STAR (7000 FT)
2.14.3 Channel: 133.775
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LUUCE STAR (7000 FT)
2.14.3 Channel: 133.775
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LUUCE STAR (9000 FT)
2.14.3 Channel: 251.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LUUCE STAR (9000 FT)
2.14.3 Channel: 251.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LUUCE STAR (7000 FT)

2.14.3 Channel: 371.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LUUCE STAR (7000 FT)
2.14.3 Channel: 371.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MAYNR DP
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MAYNR DP
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MAYNR DP
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MAYNR DP
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIAMI DP (ALTNN,BEECH,BNGOS,DORRL,FLMGO,HURCN,FOLZZ,ZFP)
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIAMI DP (ALTNN,BEECH,BNGOS,DORRL,FLMGO,HURCN,FOLZZ,ZFP)
2.14.3 Channel: 119.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIAMI DP (GWAVA, KETLL, MAYNR TRANSITIONS)
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIAMI DP (GWAVA, KETLL, MAYNR TRANSITIONS)
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIAMI DP (ALTNN,BEECH,BNGOS,DORRL,FLMGO,HURCN,FOLZZ,ZFP)
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIAMI DP (ALTNN,BEECH,BNGOS,DORRL,FLMGO,HURCN,FOLZZ,ZFP)
2.14.3 Channel: 290.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIAMI DP (GWAVA, KETLL, MAYNR TRANSITIONS)
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIAMI DP (GWAVA, KETLL, MAYNR TRANSITIONS)
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: NNOCE DP
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: NNOCE DP
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: NNOCE DP
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: NNOCE DP
2.14.3 Channel: 354.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PALMZ STAR
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PALMZ STAR
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PALMZ STAR
2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PALMZ STAR
2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RAMP CTL
2.14.3 Channel: 120.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RAMP CTL
2.14.3 Channel: 120.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RTIS (120−300 WITHIN 25 NM)
2.14.3 Channel: 125.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RTIS (120−300 WITHIN 25 NM)
2.14.3 Channel: 125.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: SNDBR STAR
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: SNDBR STAR
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: SNDBR STAR
2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: SNDBR STAR
2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TARPN STAR (9000 FT)
2.14.3 Channel: 126.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TARPN STAR (9000 FT)
2.14.3 Channel: 126.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TARPN STAR (7000 FT)
2.14.3 Channel: 133.775
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TARPN STAR (7000 FT)
2.14.3 Channel: 133.775
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TARPN STAR (9000 FT)
2.14.3 Channel: 251.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TARPN STAR (9000 FT)
2.14.3 Channel: 251.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TARPN STAR (7000 FT)
2.14.3 Channel: 371.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TARPN STAR (7000 FT)
2.14.3 Channel: 371.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: VIICE STAR
2.14.3 Channel: 120.5

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: VIICE STAR
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: VIICE STAR
2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: VIICE STAR
2.14.3 Channel: 350.225
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 08L. Magnetic variation: 5W
2.19.2 ILS Identification: ROY
2.19.5 Coordinates: 25−48−16.3597N / 80−16−18.3104W
2.19.6 Site Elevation: 20.1 ft

2.19.1 ILS Type: Localizer for runway 08L. Magnetic variation: 5W
2.19.2 ILS Identification: ROY
2.19.5 Coordinates: 25−48−14.865N / 80−16−18.3941W
2.19.6 Site Elevation: 6.8 ft

2.19.1 ILS Type: DME for runway 26R. Magnetic variation: 5W
2.19.2 ILS Identification: CNV
2.19.5 Coordinates: 25−48−7.1241N / 80−18−16.4684W
2.19.6 Site Elevation: 20.3 ft

2.19.1 ILS Type: Localizer for runway 26R. Magnetic variation: 5W
2.19.2 ILS Identification: CNV
2.19.5 Coordinates: 25−48−9.969N / 80−18−16.6983W
2.19.6 Site Elevation: 7.4 ft

2.19.1 ILS Type: DME for runway 08R. Magnetic variation: 5W
2.19.2 ILS Identification: MFA
2.19.5 Coordinates: 25−48−5.0878N / 80−16−0.575W
2.19.6 Site Elevation: 15.6 ft

2.19.1 ILS Type: Glide Slope for runway 08R. Magnetic variation: 5W
2.19.2 ILS Identification: MFA
2.19.5 Coordinates: 25−48−6.1715N / 80−17−54.807W
2.19.6 Site Elevation: 5 ft

2.19.1 ILS Type: Localizer for runway 08R. Magnetic variation: 5W
2.19.2 ILS Identification: MFA
2.19.5 Coordinates: 25−48−7.688N / 80−16−0.0426W
2.19.6 Site Elevation: 6.3 ft

2.19.1 ILS Type: DME for runway 26L. Magnetic variation: 5W
2.19.2 ILS Identification: VIN
2.19.5 Coordinates: 25−48−5.8074N / 80−18−14.9415W
2.19.6 Site Elevation: 14.3 ft

2.19.1 ILS Type: Glide Slope for runway 26L. Magnetic variation: 5W
2.19.2 ILS Identification: VIN
2.19.5 Coordinates: 25−48−9.7347N / 80−16−22.5043W
2.19.6 Site Elevation: 5.9 ft

2.19.1 ILS Type: Localizer for runway 26L. Magnetic variation: 5W
2.19.2 ILS Identification: VIN
2.19.5 Coordinates: 25−48−2.1576N / 80−18−13.7966W
2.19.6 Site Elevation: 7.6 ft

2.19.1 ILS Type: DME for runway 09. Magnetic variation: 5W
2.19.2 ILS Identification: BUL
2.19.5 Coordinates: 25−47−15.8249N / 80−16−17.2451W
2.19.6 Site Elevation: 20.1 ft

2.19.1 ILS Type: Glide Slope for runway 09. Magnetic variation: 5W
2.19.2 ILS Identification: BUL
2.19.5 Coordinates: 25−47−7.8388N / 80−18−26.7053W
2.19.6 Site Elevation: 7.5 ft

2.19.1 ILS Type: Localizer for runway 09. Magnetic variation: 5W
2.19.2 ILS Identification: BUL
2.19.5 Coordinates: 25−47−16.4165N / 80−16−17.1006W
2.19.6 Site Elevation: 18.4 ft

2.19.1 ILS Type: Glide Slope for runway 27. Magnetic variation: 5W
2.19.2 ILS Identification: MIA
2.19.5 Coordinates: 25−47−11.7269N / 80−16−45.3981W
2.19.6 Site Elevation: 4.7 ft

2.19.1 ILS Type: Localizer for runway 27. Magnetic variation: 5W
2.19.2 ILS Identification: MIA
2.19.5 Coordinates: 25−47−9.3891N / 80−19−6.6406W
2.19.6 Site Elevation: 7.1 ft

2.19.1 ILS Type: DME for runway 12. Magnetic variation: 5W
2.19.2 ILS Identification: GEM
2.19.5 Coordinates: 25−47−11.2767N / 80−16−32.4152W
2.19.6 Site Elevation: 15.9 ft

2.19.1 ILS Type: Glide Slope for runway 12. Magnetic variation: 5W
2.19.2 ILS Identification: GEM
2.19.5 Coordinates: 25−47−50.78N / 80−17−58.58W
2.19.6 Site Elevation: 7 ft

2.19.1 ILS Type: Localizer for runway 12. Magnetic variation: 5W

2.19.2 ILS Identification: GEM
2.19.5 Coordinates: 25−47−9.6403N / 80−16−34.8108W
2.19.6 Site Elevation: 8.3 ft

2.19.1 ILS Type: DME for runway 30. Magnetic variation: 5W
2.19.2 ILS Identification: DCX
2.19.5 Coordinates: 25−47−57.7789N / 80−18−14.5127W
2.19.6 Site Elevation: 14.7 ft

2.19.1 ILS Type: Glide Slope for runway 30. Magnetic variation: 5W
2.19.2 ILS Identification: DCX
2.19.5 Coordinates: 25−47−17.643N / 80−16−59.572W
2.19.6 Site Elevation: 7.1 ft

2.19.1 ILS Type: Localizer for runway 30. Magnetic variation: 5W
2.19.2 ILS Identification: DCX
2.19.5 Coordinates: 25−47−59.8764N / 80−18−13.0372W
2.19.6 Site Elevation: 8.9 ft

General Remarks:
ACFT WITH A WINGSPAN GTR THAN 171 FT ARE PROHIBITED FM TXG ON TWY P EAST OF TWY U.

ALL MEDICAL EMERGENCIES ARRIVALS, WITH THE EXCEPTION OF AIR AMBULANCE FLIGHTS, MUST SECURE DOORS UNTIL ARFF IS ON SCENE.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

ALL DIVERSION CTC FREQ 130.5 UPON ARR.

ALL TURBOJET ACFT USE DSNT NOISE ABATEMENT DEP PROFILE FROM ALL RYS EXC A320, B727, B737−800, B767−400, AND DC9 WHICH SHOULD USE CLOSE−IN NOISE ABATEMENT ABATEMENT PROFILE.

B757, HEAVY AND SUPER ACFT ARE NOT AUTH INT DEP FOR ANY RWY UNLESS A PTN IS CLSD OR UNUNSL.

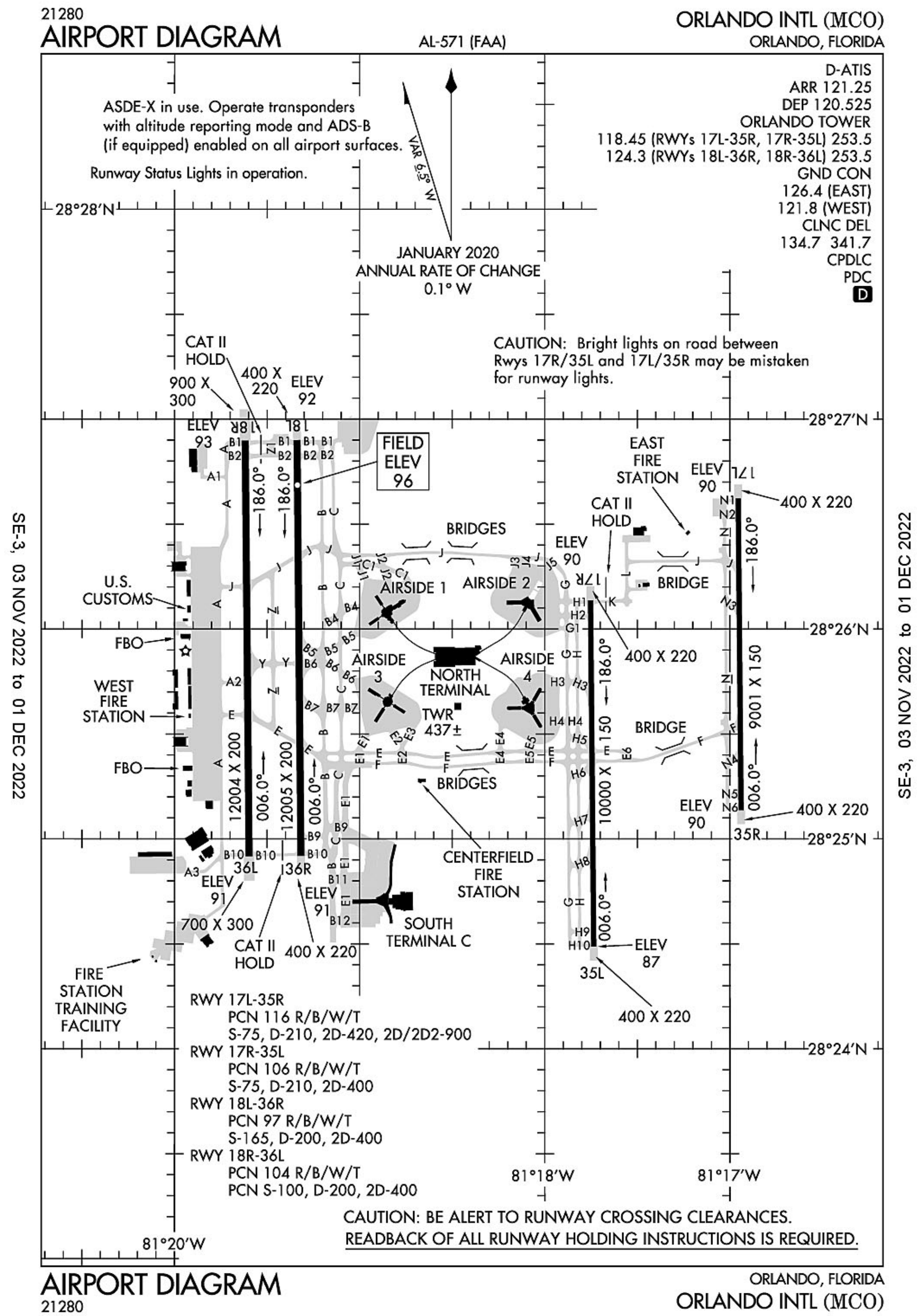
PPR 3 HRS PRIOR TO ALL ARRIVALS ON THE GENERAL AVIATION CENTER (GAC) RAMP 305−876−7550 CTC RAMP CONTROL UPON ARRIVAL ON FREQUENCY 131.600. ACFT WITH WINGSPAN GREATER THAN 78 FT ARE PROHIBITED FROM ENTERING THE GAC RAMP.

CLSD NON ENG ACFT.

BIRDS ON & INVOF ARPT.

PPR FOR INBOUND MILITARY FLIGHTS 100 NM ON FREQ 130.5.

Orlando, Florida
Orlando International
ICAO Identifier KMCO



Orlando, FL
Orlando Intl
ICAO Identifier KMCO

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 28−25−45.8N / 81−18−32.4W
2.2.2 From City: 6 miles SE of ORLANDO, FL
2.2.3 Elevation: 96.4 ft
2.2.5 Magnetic Variation: 6W (2015)
2.2.6 Airport Contact: KEVIN J. THIBAULT, P.E.
1 JEFF FUQUA BLVD
ORLANDO, FL 32827 (407−825−7445)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MINOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/21/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 17L
2.12.2 True Bearing: 179
2.12.3 Dimensions: 9001 ft x 150 ft
2.12.4 PCN: 116 R/B/W/T
2.12.5 Coordinates: 28−26−37.308N / 81−16−57.2924W
2.12.6 Threshold Elevation: 89.7 ft
2.12.6 Touchdown Zone Elevation: 89.9 ft

2.12.1 Designation: 35R
2.12.2 True Bearing: 359
2.12.3 Dimensions: 9001 ft x 150 ft
2.12.4 PCN: 116 R/B/W/T
2.12.5 Coordinates: 28−25−8.1974N / 81−16−56.3802W
2.12.6 Threshold Elevation: 89.7 ft
2.12.6 Touchdown Zone Elevation: 89.8 ft

2.12.1 Designation: 17R
2.12.2 True Bearing: 179
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 106 R/B/W/T
2.12.5 Coordinates: 28−26−8.2029N / 81−17−45.1656W
2.12.6 Threshold Elevation: 90.1 ft
2.12.6 Touchdown Zone Elevation: 90.2 ft

2.12.1 Designation: 35L
2.12.2 True Bearing: 359
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 106 R/B/W/T
2.12.5 Coordinates: 28−24−29.1952N / 81−17−44.1335W
2.12.6 Threshold Elevation: 86.7 ft
2.12.6 Touchdown Zone Elevation: 88.3 ft

2.12.1 Designation: 36R
2.12.2 True Bearing: 359
2.12.3 Dimensions: 12005 ft x 200 ft
2.12.4 PCN: 97 R/B/W/T
2.12.5 Coordinates: 28−24−55.1469N / 81−19−19.0358W
2.12.6 Threshold Elevation: 91 ft
2.12.6 Touchdown Zone Elevation: 92.3 ft

2.12.1 Designation: 18L
2.12.2 True Bearing: 179
2.12.3 Dimensions: 12005 ft x 200 ft
2.12.4 PCN: 97 R/B/W/T
2.12.5 Coordinates: 28−26−54.0038N / 81−19−20.3022W
2.12.6 Threshold Elevation: 92.4 ft
2.12.6 Touchdown Zone Elevation: 96.4 ft

2.12.1 Designation: 18R
2.12.2 True Bearing: 179
2.12.3 Dimensions: 12004 ft x 200 ft
2.12.4 PCN: 104 R/B/W/T
2.12.5 Coordinates: 28−26−53.8569N / 81−19−37.1091W
2.12.6 Threshold Elevation: 92.5 ft
2.12.6 Touchdown Zone Elevation: 93.5 ft

2.12.1 Designation: 36L
2.12.2 True Bearing: 359
2.12.3 Dimensions: 12004 ft x 200 ft
2.12.4 PCN: 104 R/B/W/T
2.12.5 Coordinates: 28−24−55.007N / 81−19−35.8294W
2.12.6 Threshold Elevation: 91.1 ft
2.12.6 Touchdown Zone Elevation: 92.6 ft

AD 2.13 Declared Distances
2.13.1 Designation: 17L
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 35R
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft

2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 17R
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 35L
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 36R
2.13.2 Take−off Run Available: 12005 ft
2.13.3 Take−off Distance Available: 12005 ft
2.13.4 Accelerate−Stop Distance Available: 11601 ft
2.13.5 Landing Distance Available: 11601 ft

2.13.1 Designation: 18L
2.13.2 Take−off Run Available: 12005 ft
2.13.3 Take−off Distance Available: 12005 ft
2.13.4 Accelerate−Stop Distance Available: 12005 ft
2.13.5 Landing Distance Available: 12005 ft

2.13.1 Designation: 18R
2.13.2 Take−off Run Available: 12004 ft
2.13.3 Take−off Distance Available: 12004 ft
2.13.4 Accelerate−Stop Distance Available: 12004 ft
2.13.5 Landing Distance Available: 12004 ft

2.13.1 Designation: 36L
2.13.2 Take−off Run Available: 12004 ft
2.13.3 Take−off Distance Available: 12004 ft
2.13.4 Accelerate−Stop Distance Available: 11621 ft
2.13.5 Landing Distance Available: 11621 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 17L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 17R
2.14.2 Approach Lighting System: ALSF2

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 36R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 18L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 18R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 36L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 17L. Magnetic variation: 6W
2.19.2 ILS Identification: ARK
2.19.5 Coordinates: 28−24−57.9921N / 81−16−51.737W
2.19.6 Site Elevation: 97 ft

2.19.1 ILS Type: Glide Slope for runway 17L. Magnetic variation: 6W
2.19.2 ILS Identification: ARK
2.19.5 Coordinates: 28−26−27.0479N / 81−16−52.5933W
2.19.6 Site Elevation: 94.4 ft

2.19.1 ILS Type: Inner Marker for runway 17L. Magnetic variation: 6W
2.19.2 ILS Identification: ARK
2.19.5 Coordinates: 28−26−45.819N / 81−16−57.3985W
2.19.6 Site Elevation: 89.6 ft

2.19.1 ILS Type: Localizer for runway 17L. Magnetic variation: 6W
2.19.2 ILS Identification: ARK
2.19.5 Coordinates: 28−24−57.8892N / 81−16−56.2728W
2.19.6 Site Elevation: 89.1 ft

2.19.1 ILS Type: DME for runway 35R. Magnetic variation: 6W
2.19.2 ILS Identification: CER
2.19.5 Coordinates: 28−26−48.2377N / 81−16−52.8447W
2.19.6 Site Elevation: 98.3 ft

2.19.1 ILS Type: Glide Slope for runway 35R. Magnetic variation: 6W
2.19.2 ILS Identification: CER
2.19.5 Coordinates: 28−25−18.6301N / 81−16−51.8726W
2.19.6 Site Elevation: 87.3 ft

2.19.1 ILS Type: Inner Marker for runway 35R. Magnetic variation: 6W
2.19.2 ILS Identification: CER
2.19.5 Coordinates: 28−24−59.6772N / 81−16−56.2924W
2.19.6 Site Elevation: 89.2 ft

2.19.1 ILS Type: Localizer for runway 35R. Magnetic variation: 6W
2.19.2 ILS Identification: CER
2.19.5 Coordinates: 28−26−47.6103N / 81−16−57.3979W
2.19.6 Site Elevation: 89.6 ft

2.19.1 ILS Type: DME for runway 17R. Magnetic variation: 6W
2.19.2 ILS Identification: DIZ
2.19.5 Coordinates: 28−24−18.9549N / 81−17−47.0755W
2.19.6 Site Elevation: 86.4 ft

2.19.1 ILS Type: Glide Slope for runway 17R. Magnetic variation: 6W
2.19.2 ILS Identification: DIZ
2.19.5 Coordinates: 28−25−57.8375N / 81−17−40.5783W
2.19.6 Site Elevation: 92.7 ft

2.19.1 ILS Type: Inner Marker for runway 17R. Magnetic variation: 6W
2.19.2 ILS Identification: DIZ
2.19.5 Coordinates: 28−26−16.6991N / 81−17−45.2569W
2.19.6 Site Elevation: 84.9 ft

2.19.1 ILS Type: Localizer for runway 17R. Magnetic variation: 6W
2.19.2 ILS Identification: DIZ
2.19.5 Coordinates: 28−24−18.7729N / 81−17−44.0255W
2.19.6 Site Elevation: 81.6 ft

2.19.1 ILS Type: DME for runway 35L. Magnetic variation: 6W
2.19.2 ILS Identification: DDO
2.19.5 Coordinates: 28−26−18.3948N / 81−17−48.1528W
2.19.6 Site Elevation: 95.5 ft

2.19.1 ILS Type: Glide Slope for runway 35L. Magnetic variation: 6W
2.19.2 ILS Identification: DDO
2.19.5 Coordinates: 28−24−39.5307N / 81−17−39.7618W
2.19.6 Site Elevation: 83.7 ft

2.19.1 ILS Type: Inner Marker for runway 35L. Magnetic variation: 6W
2.19.2 ILS Identification: DDO
2.19.5 Coordinates: 28−24−20.5349N / 81−17−44.0395W
2.19.6 Site Elevation: 82.1 ft

2.19.1 ILS Type: Localizer for runway 35L. Magnetic variation: 6W

2.19.2 ILS Identification: DDO
2.19.5 Coordinates: 28−26−18.5959N / 81−17−45.2712W
2.19.6 Site Elevation: 87.7 ft

2.19.1 ILS Type: Middle Marker for runway 35L. Magnetic variation: 6W
2.19.2 ILS Identification: DDO
2.19.5 Coordinates: 28−24−1.5295N / 81−17−43.8604W
2.19.6 Site Elevation: 82.4 ft

2.19.1 ILS Type: DME for runway 36R. Magnetic variation: 6W
2.19.2 ILS Identification: OJP
2.19.5 Coordinates: 28−27−0.7626N / 81−19−18.0064W
2.19.6 Site Elevation: 96.2 ft

2.19.1 ILS Type: Glide Slope for runway 36R. Magnetic variation: 6W
2.19.2 ILS Identification: OJP
2.19.5 Coordinates: 28−25−5.5139N / 81−19−23.6289W
2.19.6 Site Elevation: 87.7 ft

2.19.1 ILS Type: Inner Marker for runway 36R. Magnetic variation: 6W
2.19.2 ILS Identification: OJP
2.19.5 Coordinates: 28−24−46.6452N / 81−19−18.9395W
2.19.6 Site Elevation: 86.6 ft

2.19.1 ILS Type: Localizer for runway 36R. Magnetic variation: 6W
2.19.2 ILS Identification: OJP
2.19.5 Coordinates: 28−27−1.4488N / 81−19−20.3839W
2.19.6 Site Elevation: 90.8 ft

2.19.1 ILS Type: Middle Marker for runway 36R. Magnetic variation: 6W
2.19.2 ILS Identification: OJP
2.19.5 Coordinates: 28−24−31.8917N / 81−19−18.7794W
2.19.6 Site Elevation: 84.5 ft

2.19.1 ILS Type: DME for runway 18R. Magnetic variation: 6W
2.19.2 ILS Identification: TFE
2.19.5 Coordinates: 28−24−42.2043N / 81−19−38.5819W
2.19.6 Site Elevation: 94.7 ft

2.19.1 ILS Type: Glide Slope for runway 18R. Magnetic variation: 6W
2.19.2 ILS Identification: TFE
2.19.5 Coordinates: 28−26−43.5N / 81−19−32.21W
2.19.6 Site Elevation: 89 ft

2.19.1 ILS Type: Localizer for runway 18R. Magnetic variation: 6W
2.19.2 ILS Identification: TFE
2.19.5 Coordinates: 28−24−41.97N / 81−19−35.69W
2.19.6 Site Elevation: 86 ft

General Remarks:
WHEN ORL ILS RY 7 AND MCO ILS RYS 17 & 18R SIMULTANEOUS OPERATIONS ARE CONDUCTED, ATC

RADAR REQUIRED.

WEST RAMP CUSTOMS INSPECTION PRKG AREA RSTD TO ACFT WINGSPAN LESS THAN 118'

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

UNLESS ADV BY ATIS, DEP FLTS ON INITIAL CTC WITH GND CTL: ACFT ON WEST RAMP, AIRSIDE 1 & 3 (GATES 1−59) USE GND CTL 121.8. ACFT AT AIRSIDE 2 & 4 (GATES 60 AND HIGHER), USE GND CTL 126.4.

TWY A, BTN W RAMP S END AND TWY B10, RSTRD TO ACFT WINGSPAN LESS THAN 171 FT. PPR FOR ACFT WINGSPAN 171 FT OR GTR.

TWY J3 AND TWY J4 RSTD TO WINGSPAN OF LESS THAN 118 FT.

RUNWAY STATUS LIGHTS ARE IN OPERATION.

BRIGHT LGTS ON ROAD BTN RY 17R/35L AND RY 17L/35R MAY BE MISTAKEN FOR RY LGTS.

AVOID CONTACT WITH TAXIWAY EDGE LIGHTS; ALL AIRCRAFT DETERMINED TO BE FAA DESIGN GROUP IV AND ABOVE MUST PERFORM JUDGEMENTAL OVERSTEERING INSTEAD OF COCKPIT CENTERLINE STEERING WHEN TAXIING.

TWY A, SOUTH OF TWY A3 RSTD TO WINGSPAN OF LESS THAN 118 FT. PPR REQUIRED FOR WINGSPAN 118 FT OR GREATER.

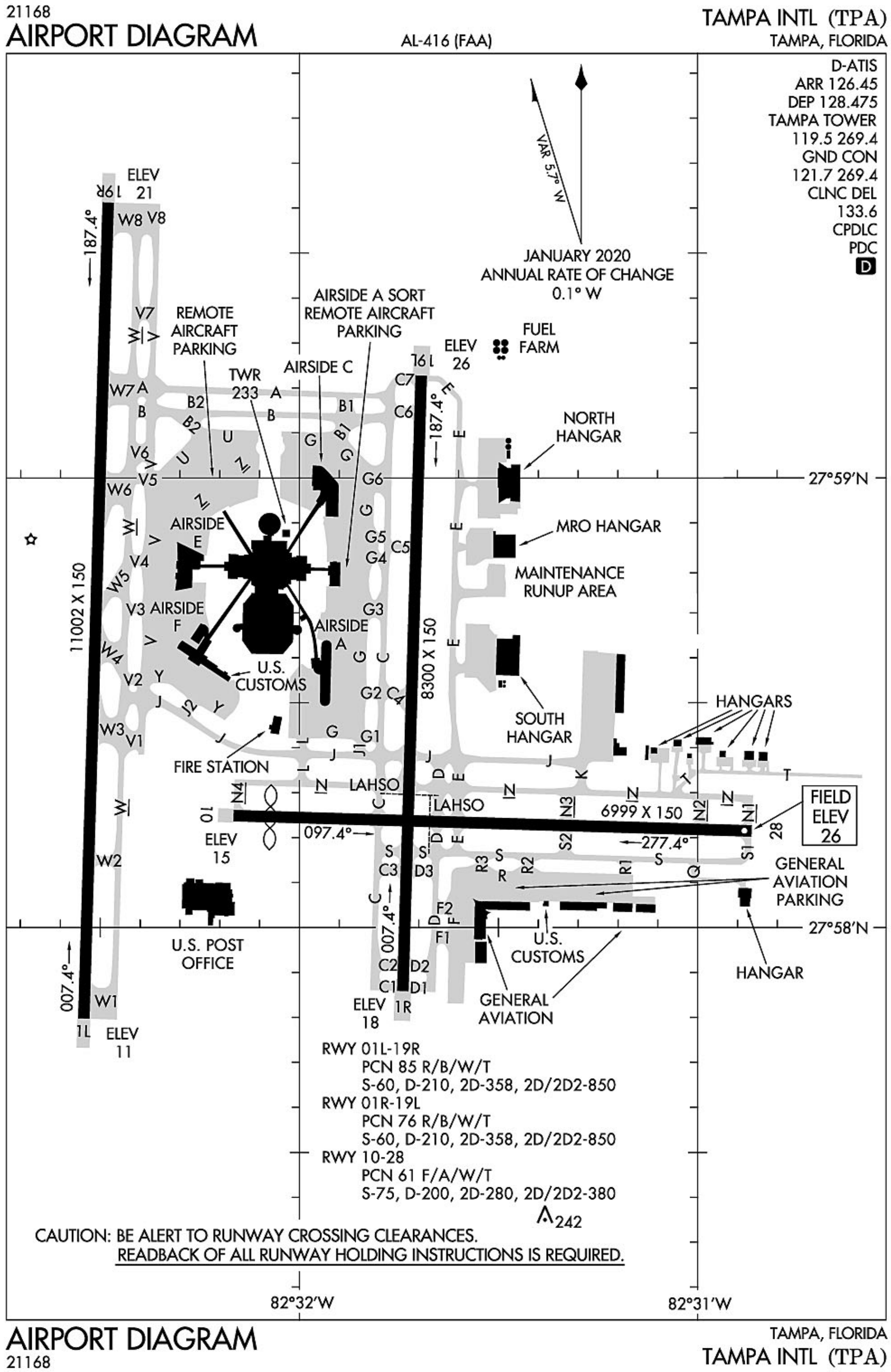
RY 17L−35R UNLIT 0400−1100Z.

USE CAUTION IN VCNTY OF TWY "A" ALONG WEST RAMP.

BIRDS & DEER ON & INVOF ARPT.

ACFT WITH WINGSPAN GREATER THAN 214 FT MUST ADHERE TO SPECIFIC RY AND TAXI ROUTES. CONTACT AIRFIELD OPS AT 407−825−2036 FOR DETAILS.

Tampa, Florida
Tampa International
ICAO Identifier KTPA



Tampa, FL
Tampa Intl
ICAO Identifier KTPA

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 27−58−31.7N / 82−31−59.7W
2.2.2 From City: 6 miles W of TAMPA, FL
2.2.3 Elevation: 26.4 ft
2.2.5 Magnetic Variation: 5W (2010)
2.2.6 Airport Contact: JOHN TILIACOS
PO BOX 22287
TAMPA, FL 33622 (813−870−8700)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 19R
2.12.2 True Bearing: 182
2.12.3 Dimensions: 11002 ft x 150 ft
2.12.4 PCN: 85 R/B/W/T
2.12.5 Coordinates: 27−59−36.7423N / 82−32−28.7801W
2.12.6 Threshold Elevation: 21 ft
2.12.6 Touchdown Zone Elevation: 21 ft

2.12.1 Designation: 01L
2.12.2 True Bearing: 2
2.12.3 Dimensions: 11002 ft x 150 ft
2.12.4 PCN: 85 R/B/W/T
2.12.5 Coordinates: 27−57−47.8596N / 82−32−32.4793W
2.12.6 Threshold Elevation: 10.7 ft
2.12.6 Touchdown Zone Elevation: 10.8 ft

2.12.1 Designation: 19L
2.12.2 True Bearing: 182
2.12.3 Dimensions: 8300 ft x 150 ft
2.12.4 PCN: 76 R/B/W/T
2.12.5 Coordinates: 27−59−13.6607N / 82−31−41.5739W
2.12.6 Threshold Elevation: 26 ft
2.12.6 Touchdown Zone Elevation: 26.1 ft

2.12.1 Designation: 01R
2.12.2 True Bearing: 2
2.12.3 Dimensions: 8300 ft x 150 ft
2.12.4 PCN: 76 R/B/W/T
2.12.5 Coordinates: 27−57−51.5169N / 82−31−44.3687W
2.12.6 Threshold Elevation: 17.7 ft
2.12.6 Touchdown Zone Elevation: 20.5 ft

2.12.1 Designation: 10
2.12.2 True Bearing: 92
2.12.3 Dimensions: 6999 ft x 150 ft
2.12.4 PCN: 61 F/A/W/T
2.12.5 Coordinates: 27−58−14.9917N / 82−32−9.9027W
2.12.6 Threshold Elevation: 14.5 ft
2.12.6 Touchdown Zone Elevation: 21.8 ft

2.12.1 Designation: 28
2.12.2 True Bearing: 272
2.12.3 Dimensions: 6999 ft x 150 ft
2.12.4 PCN: 61 F/A/W/T
2.12.5 Coordinates: 27−58−12.8902N / 82−30−51.8781W
2.12.6 Threshold Elevation: 26.4 ft
2.12.6 Touchdown Zone Elevation: 26.4 ft

AD 2.13 Declared Distances
2.13.1 Designation: 19R
2.13.2 Take−off Run Available: 11002 ft
2.13.3 Take−off Distance Available: 11002 ft
2.13.4 Accelerate−Stop Distance Available: 11002 ft
2.13.5 Landing Distance Available: 11002 ft

2.13.1 Designation: 01L
2.13.2 Take−off Run Available: 11002 ft
2.13.3 Take−off Distance Available: 11002 ft
2.13.4 Accelerate−Stop Distance Available: 10800 ft
2.13.5 Landing Distance Available: 10800 ft

2.13.1 Designation: 19L
2.13.2 Take−off Run Available: 8300 ft
2.13.3 Take−off Distance Available: 8300 ft
2.13.4 Accelerate−Stop Distance Available: 8300 ft
2.13.5 Landing Distance Available: 8300 ft

2.13.1 Designation: 01R
2.13.2 Take−off Run Available: 8300 ft
2.13.3 Take−off Distance Available: 8300 ft
2.13.4 Accelerate−Stop Distance Available: 8300 ft
2.13.5 Landing Distance Available: 8300 ft

2.13.1 Designation: 10

2.13.2 Take−off Run Available: 6999 ft
2.13.3 Take−off Distance Available: 6999 ft
2.13.4 Accelerate−Stop Distance Available: 6999 ft
2.13.5 Landing Distance Available: 6501 ft

2.13.1 Designation: 28
2.13.2 Take−off Run Available: 6999 ft
2.13.3 Take−off Distance Available: 6999 ft
2.13.4 Accelerate−Stop Distance Available: 6501 ft
2.13.5 Landing Distance Available: 6501 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 19R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 01L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 19L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 01R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P DEP/P (001−150)
2.14.3 Channel: 118.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (220−360)
2.14.3 Channel: 118.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (151−219)
2.14.3 Channel: 119.65
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (220−360)
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (001−150)
2.14.3 Channel: 279.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (151−219)
2.14.3 Channel: 353.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC
2.14.3 Channel: 118.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC
2.14.3 Channel: 307.175
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S DEP/S
2.14.3 Channel: 353.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BAYPO DP
2.14.3 Channel: 118.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BAYPO DP
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BLFRG STAR
2.14.3 Channel: 119.65
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BLFRG STAR
2.14.3 Channel: 353.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BLOND STAR
2.14.3 Channel: 118.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BLOND STAR
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BRDGE STAR
2.14.3 Channel: 119.65
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BRDGE STAR
2.14.3 Channel: 353.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 133.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (151−219)
2.14.3 Channel: 119.65
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (001−150)
2.14.3 Channel: 119.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (220−360)
2.14.3 Channel: 125.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (001−150)
2.14.3 Channel: 290.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (220−360)
2.14.3 Channel: 316.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (151−219)
2.14.3 Channel: 353.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CROWD DP
2.14.3 Channel: 135.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CROWD DP
2.14.3 Channel: 279.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (ARR)
2.14.3 Channel: 126.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (DEP)
2.14.3 Channel: 128.475
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DADES STAR
2.14.3 Channel: 135.5

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DADES STAR
2.14.3 Channel: 279.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DARBS STAR
2.14.3 Channel: 118.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DARBS STAR
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DORMR DP
2.14.3 Channel: 118.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DORMR DP
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: ENDED DP
2.14.3 Channel: 118.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ENDED DP
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GANDY DP
2.14.3 Channel: 119.65
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GANDY DP
2.14.3 Channel: 353.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P

2.14.3 Channel: 269.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/S
2.14.3 Channel: 121.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KNOST DP
2.14.3 Channel: 118.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KNOST DP
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 119.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 269.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/S
2.14.3 Channel: 119.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LGTNG DP
2.14.3 Channel: 118.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LGTNG DP
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LZARD STAR
2.14.3 Channel: 135.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LZARD STAR
2.14.3 Channel: 279.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MAATY STAR
2.14.3 Channel: 118.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MAATY STAR
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RAYZZ STAR
2.14.3 Channel: 118.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RAYZZ STAR
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TAMPA DP
2.14.3 Channel: 135.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TAMPA DP
2.14.3 Channel: 279.6
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 01L. Magnetic variation: 5W
2.19.2 ILS Identification: AMP
2.19.5 Coordinates: 27−59−43.4N / 82−32−25.65W
2.19.6 Site Elevation: 20 ft

2.19.1 ILS Type: Glide Slope for runway 01L. Magnetic variation: 5W
2.19.2 ILS Identification: AMP
2.19.5 Coordinates: 27−57−58.2392N / 82−32−36.5897W
2.19.6 Site Elevation: 7.6 ft

2.19.1 ILS Type: Inner Marker for runway 01L. Magnetic variation: 5W
2.19.2 ILS Identification: AMP
2.19.5 Coordinates: 27−57−39.6244N / 82−32−32.7564W
2.19.6 Site Elevation: 6.4 ft

2.19.1 ILS Type: Localizer for runway 01L. Magnetic variation: 5W
2.19.2 ILS Identification: AMP
2.19.5 Coordinates: 27−59−44.7869N / 82−32−28.5048W
2.19.6 Site Elevation: 20.6 ft

2.19.1 ILS Type: DME for runway 19R. Magnetic variation: 5W
2.19.2 ILS Identification: JRT
2.19.5 Coordinates: 27−57−37.34N / 82−32−31.94W
2.19.6 Site Elevation: 5 ft

2.19.1 ILS Type: Glide Slope for runway 19R. Magnetic variation: 5W
2.19.2 ILS Identification: JRT
2.19.5 Coordinates: 27−59−26.4582N / 82−32−33.5927W
2.19.6 Site Elevation: 17.2 ft

2.19.1 ILS Type: Localizer for runway 19R. Magnetic variation: 5W
2.19.2 ILS Identification: JRT
2.19.5 Coordinates: 27−57−37.46N / 82−32−32.84W

2.19.6 Site Elevation: 5 ft

2.19.1 ILS Type: DME for runway 01R. Magnetic variation: 5W
2.19.2 ILS Identification: TWJ
2.19.5 Coordinates: 27−59−22.9831N / 82−31−38.4291W
2.19.6 Site Elevation: 35.9 ft

2.19.1 ILS Type: Localizer for runway 01R. Magnetic variation: 5W
2.19.2 ILS Identification: TWJ
2.19.5 Coordinates: 27−59−23.9328N / 82−31−41.2197W
2.19.6 Site Elevation: 25.6 ft

2.19.1 ILS Type: Glide Slope for runway 19L. Magnetic variation: 5W
2.19.2 ILS Identification: TPA
2.19.5 Coordinates: 27−59−3.1644N / 82−31−37.4636W
2.19.6 Site Elevation: 23.8 ft

2.19.1 ILS Type: Inner Marker for runway 19L. Magnetic variation: 5W
2.19.2 ILS Identification: TPA
2.19.5 Coordinates: 27−59−23.6601N / 82−31−41.2251W
2.19.6 Site Elevation: 25.7 ft

2.19.1 ILS Type: Localizer for runway 19L. Magnetic variation: 5W
2.19.2 ILS Identification: TPA
2.19.5 Coordinates: 27−57−40.972N / 82−31−44.7284W
2.19.6 Site Elevation: 13.7 ft

2.19.1 ILS Type: Outer Marker for runway 19L. Magnetic variation: 5W
2.19.2 ILS Identification: TPA
2.19.5 Coordinates: 28−5−7.2047N / 82−31−30.8942W
2.19.6 Site Elevation: 42.5 ft

General Remarks:

TAXILANE G WEST OF TWY B1 CLSD TO WINGSPAN GTR THAN 118 FT − PPR APT OPS.

RWY 19L IS NOISE SENSITIVE TO TBJT DEPARTURES. RWY 01R IS NOISE SENSITIVE TO TBJT ARRIVALS. PUBLD NOISE ABATEMENT PROCS IN EFCT.

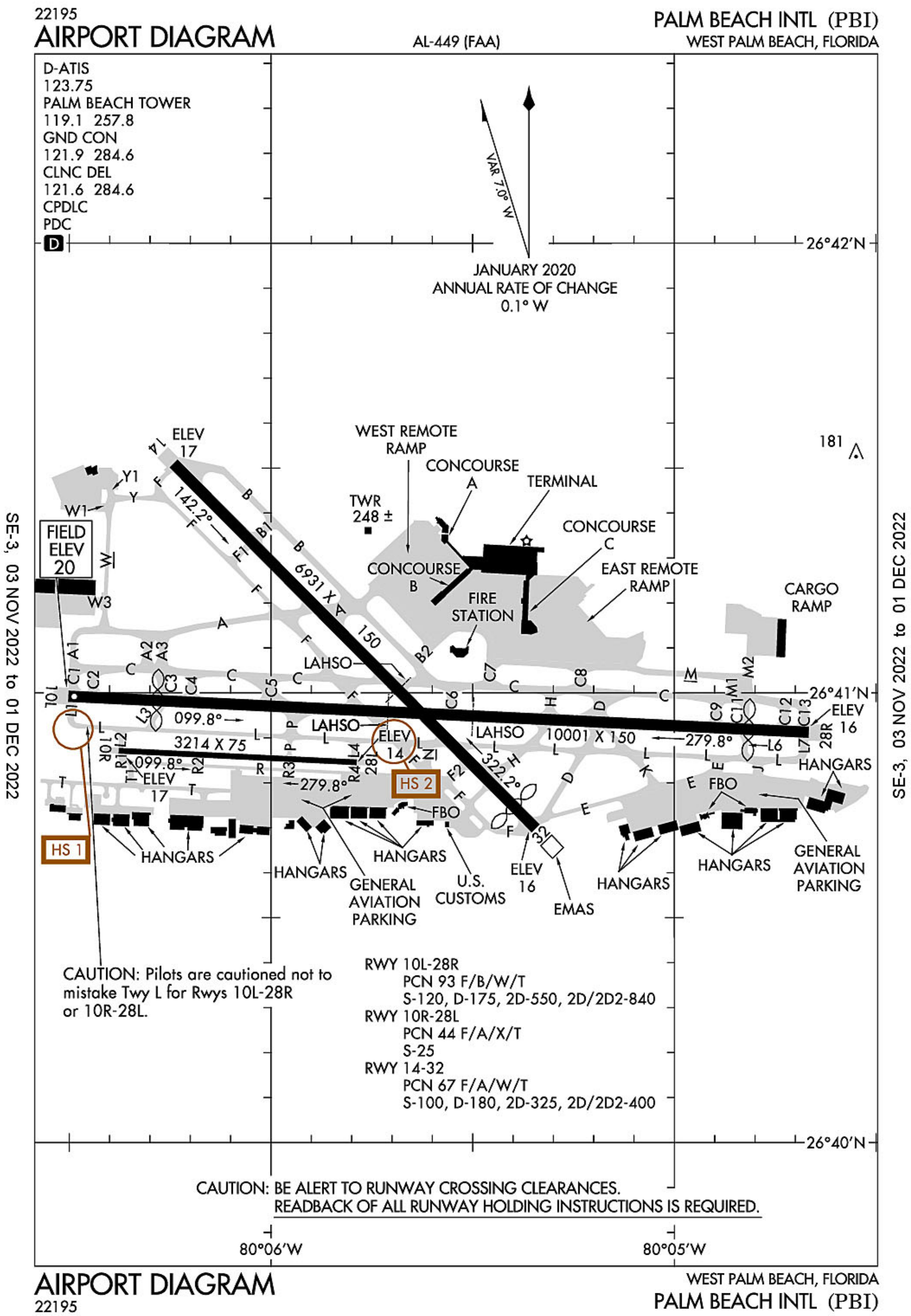
BIRD ACT ON AND INVOF ARPT.

TWY F AND TWY R ARE NON−MOVEMENT AREAS. BOTH LOCATONS ARE UNAVBL FOR GROUP IV ACFT WITH A WINGSPAN GTR THAN 117 FT WO PPR FM ARPT OPS. TWY T PPR FROM ARPT OPS RQRD FOR ACFT WITH A WINGSPAN GTR THAN 90 FT.

ONLY ACFT WITH PRIOR PMSN MAY USE TRML APN; ALL OTRS USE GA APN.

RSTRS TO DESIGN GROUP V OR LGR; TWY J BTN TWY J1 AND TWY J2; TWY N WEST OF TWY L AND TWY E NORTH OF TWY J UNAVBL; TAXILANE Z CLSD TO WINGSPAN GTR THAN 171 FT − PPR ARPT OPS.

West Palm Beach, Florida
Palm Beach International
ICAO Identifier KPBI



West Palm Beach, FL
Palm Beach Intl
ICAO Identifier KPBI

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 26−40−59.382N / 80−5−44.131W
2.2.2 From City: 3 miles W of WEST PALM BEACH, FL
2.2.3 Elevation: 19.6 ft
2.2.5 Magnetic Variation: 6W (2010)
2.2.6 Airport Contact: LAURA BEEBE
846 PALM BEACH INTL AIRPORT
WEST PALM BEACH, FL 33406 (561−471−7420)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/21/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 10L
2.12.2 True Bearing: 93
2.12.3 Dimensions: 10001 ft x 150 ft
2.12.4 PCN: 93 F/B/W/T
2.12.5 Coordinates: 26−40−59.5493N / 80−6−30.1296W
2.12.6 Threshold Elevation: 19.6 ft
2.12.6 Touchdown Zone Elevation: 16.3 ft

2.12.1 Designation: 28R
2.12.2 True Bearing: 273
2.12.3 Dimensions: 10001 ft x 150 ft
2.12.4 PCN: 93 F/B/W/T
2.12.5 Coordinates: 26−40−54.7438N / 80−4−40.0137W
2.12.6 Threshold Elevation: 16.4 ft
2.12.6 Touchdown Zone Elevation: 18.3 ft

2.12.1 Designation: 10R
2.12.2 True Bearing: 93
2.12.3 Dimensions: 3214 ft x 75 ft
2.12.4 PCN: 44 F/A/X/T
2.12.5 Coordinates: 26−40−52.282N / 80−6−22.6416W
2.12.6 Threshold Elevation: 17.1 ft
2.12.6 Touchdown Zone Elevation: 17.2 ft

2.12.1 Designation: 28L
2.12.2 True Bearing: 273
2.12.3 Dimensions: 3214 ft x 75 ft
2.12.4 PCN: 44 F/A/X/T
2.12.5 Coordinates: 26−40−50.7327N / 80−5−47.2501W
2.12.6 Threshold Elevation: 13.6 ft
2.12.6 Touchdown Zone Elevation: 16.9 ft

2.12.1 Designation: 14
2.12.2 True Bearing: 135
2.12.3 Dimensions: 6931 ft x 150 ft
2.12.4 PCN: 67 F/A/W/T
2.12.5 Coordinates: 26−41−30.596N / 80−6−14.482W
2.12.6 Threshold Elevation: 17 ft
2.12.6 Touchdown Zone Elevation: 17.3 ft

2.12.1 Designation: 32
2.12.2 True Bearing: 315
2.12.3 Dimensions: 6931 ft x 150 ft
2.12.4 PCN: 67 F/A/W/T
2.12.5 Coordinates: 26−40−41.913N / 80−5−20.622W
2.12.6 Threshold Elevation: 15.8 ft
2.12.6 Touchdown Zone Elevation: 15.9 ft

AD 2.13 Declared Distances
2.13.1 Designation: 10L
2.13.2 Take−off Run Available: 10001 ft
2.13.3 Take−off Distance Available: 10001 ft
2.13.4 Accelerate−Stop Distance Available: 10001 ft
2.13.5 Landing Distance Available: 8800 ft

2.13.1 Designation: 28R
2.13.2 Take−off Run Available: 10001 ft
2.13.3 Take−off Distance Available: 10001 ft
2.13.4 Accelerate−Stop Distance Available: 10001 ft
2.13.5 Landing Distance Available: 9189 ft

2.13.1 Designation: 10R
2.13.2 Take−off Run Available: 3214 ft
2.13.3 Take−off Distance Available: 3214 ft
2.13.4 Accelerate−Stop Distance Available: 3214 ft
2.13.5 Landing Distance Available: 3214 ft

2.13.1 Designation: 28L
2.13.2 Take−off Run Available: 3214 ft
2.13.3 Take−off Distance Available: 3214 ft
2.13.4 Accelerate−Stop Distance Available: 3214 ft
2.13.5 Landing Distance Available: 3214 ft

2.13.1 Designation: 14

2.13.2 Take−off Run Available: 6926 ft
2.13.3 Take−off Distance Available: 6926 ft
2.13.4 Accelerate−Stop Distance Available: 6000 ft
2.13.5 Landing Distance Available: 6000 ft

2.13.1 Designation: 32
2.13.2 Take−off Run Available: 6926 ft
2.13.3 Take−off Distance Available: 6926 ft
2.13.4 Accelerate−Stop Distance Available: 6926 ft
2.13.5 Landing Distance Available: 6513 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 10L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 28R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 28L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 14
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 32
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P DEP/P (SOUTH)
2.14.3 Channel: 125.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (SOUTH)
2.14.3 Channel: 343.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC
2.14.3 Channel: 128.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 121.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 284.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (SOUTH)
2.14.3 Channel: 125.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (NORTH)
2.14.3 Channel: 128.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (NORTH)
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (SOUTH)
2.14.3 Channel: 343.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLMNT STAR
2.14.3 Channel: 124.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLMNT STAR
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CPTAN STAR
2.14.3 Channel: 124.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CPTAN STAR
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 123.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 284.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: JESTR STAR
2.14.3 Channel: 124.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: JESTR STAR
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 119.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/S
2.14.3 Channel: 118.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/S
2.14.3 Channel: 384.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MAHHI STAR
2.14.3 Channel: 127.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MAHHI STAR
2.14.3 Channel: 343.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MELBOURNE STAR
2.14.3 Channel: 124.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MELBOURNE STAR
2.14.3 Channel: 317.4

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIXAE DP (RWY 10L, 14)
2.14.3 Channel: 127.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIXAE DP (RWY 28R, 32)
2.14.3 Channel: 128.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIXAE DP (RWY 28R, 32)
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MIXAE DP (RWY 10L, 14)
2.14.3 Channel: 343.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: OLAKE DP
2.14.3 Channel: 128.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: OLAKE DP
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PALM BEACH DP (SOUTH)
2.14.3 Channel: 127.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PALM BEACH DP (NORTH)
2.14.3 Channel: 128.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PALM BEACH DP (NORTH)
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PALM BEACH DP (SOUTH)
2.14.3 Channel: 343.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: SLIDZ DP
2.14.3 Channel: 128.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: SLIDZ DP
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: STOOP STAR

2.14.3 Channel: 124.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: STOOP STAR
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TBIRD DP
2.14.3 Channel: 128.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TBIRD DP
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TTLYR STAR
2.14.3 Channel: 125.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TTLYR STAR
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: VUUDU STAR
2.14.3 Channel: 127.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: VUUDU STAR
2.14.3 Channel: 317.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: WELLY DP
2.14.3 Channel: 127.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: WELLY DP
2.14.3 Channel: 343.6
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 10L. Magnetic variation: 6W
2.19.2 ILS Identification: PBI
2.19.5 Coordinates: 26−40−51.4319N / 80−4−29.0092W
2.19.6 Site Elevation: 23.3 ft

2.19.1 ILS Type: Glide Slope for runway 10L. Magnetic variation: 6W
2.19.2 ILS Identification: PBI
2.19.5 Coordinates: 26−40−55.9795N / 80−6−6.0748W
2.19.6 Site Elevation: 14.5 ft

2.19.1 ILS Type: Localizer for runway 10L. Magnetic variation: 6W
2.19.2 ILS Identification: PBI
2.19.5 Coordinates: 26−40−54.2434N / 80−4−28.6079W
2.19.6 Site Elevation: 13 ft

2.19.1 ILS Type: Glide Slope for runway 28R. Magnetic variation: 6W
2.19.2 ILS Identification: PWB
2.19.5 Coordinates: 26−40−53.0853N / 80−5−1.7298W
2.19.6 Site Elevation: 13.5 ft

2.19.1 ILS Type: Localizer for runway 28R. Magnetic variation: 6W
2.19.2 ILS Identification: PWB
2.19.5 Coordinates: 26−40−59.9773N / 80−6−39.9822W
2.19.6 Site Elevation: 18.5 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 3W
2.19.2 Navigation Aid Identification: PBI
2.19.5 Coordinates: 26−40−48.198N / 80−5−11.3586W
2.19.6 Site Elevation: 15.7 ft

General Remarks:
BE ALERT: TWY L IS LCTD BTWN RYS 10L/28R & 10R/28L. TWY L IS WIDER AND LONGER THAN RY 10R/28L − DO NOT CONFUSE TWY L FOR RY. AIRCRAFT WITH WINGSPAN OF 118 FT OR GREATER IS PROHIBITED ON TWY L.

24 HR PPR FOR ACFT WITH WINGSPANS GTR THAN 171 FT.

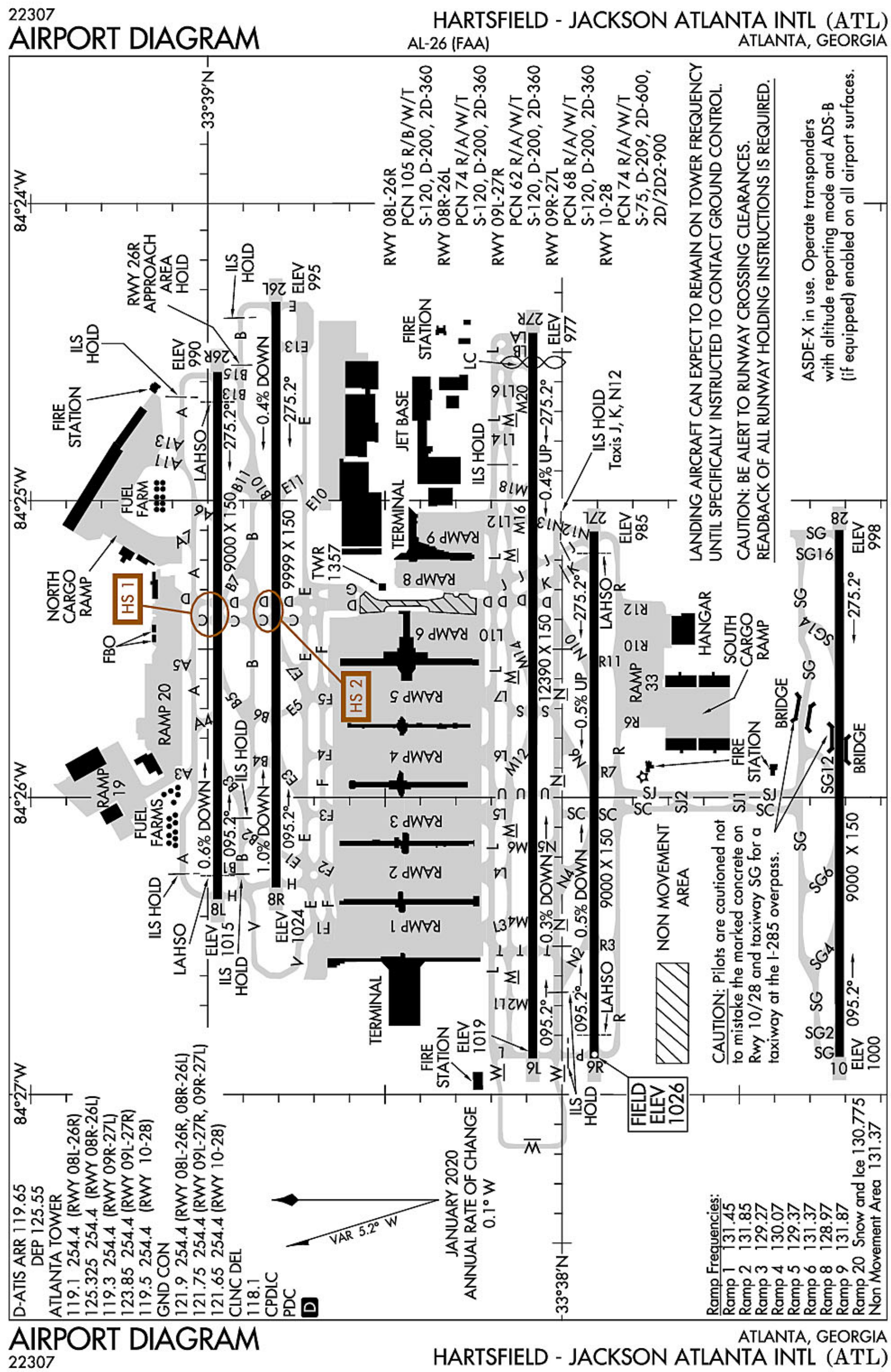
RWY 10R/28L NOT AVBL FOR SKED ACR OPS WITH MORE THAN 9 PAX SEATS OR UNSKED ACR AT LEAST 31 PAX SEATS.

NOISE ABATEMENT PROCEDURES IN EFFECT. MULTIENGINE FLIGHT TRAINING PROHIBITED SS TO SR SUN AND HOLIDAY; STRICT ENVIRONMENTAL OPERATING STAGE 2 ACFT 0300−1200Z CALL NOISE ABATEMENT OFFICER 561−471−7467.

BE ALERT; RYS 28L & 28R THLDS STAGGERED BY 5400 FT.

MIGRATORY BIRDS ON AND INVOF ARPT.

Atlanta, Georgia
Hartsfield−Jackson Atlanta International
ICAO Identifier KATL



Atlanta, GA
Hartsfield − Jackson Atlanta Intl
ICAO Identifier KATL

AD 2.2 Aerodrome geographical and administrative data

2.2.1 Reference Point: 33−38−12.1186N / 84−25−40.3104W

2.2.2 From City: 7 miles S of ATLANTA, GA

2.2.3 Elevation: 1026.2 ft

2.2.5 Magnetic Variation: 5W (2015)

2.2.6 Airport Contact: BALRAM BHEODARI
PO BOX 20509
ATLANTA, GA 30320 (404−530−6600)

2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule

2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities

2.4.1 Cargo Handling Facilities: YES

2.4.2 Fuel Types: 100,100LL,A

2.4.5 Hangar Space: YES

2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services

2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics

2.12.1 Designation: 08L

2.12.2 True Bearing: 90

2.12.3 Dimensions: 9000 ft x 150 ft

2.12.4 PCN: 105 R/B/W/T

2.12.5 Coordinates: 33−38−58.3238N / 84−26−20.4923W

2.12.6 Threshold Elevation: 1014.6 ft

2.12.6 Touchdown Zone Elevation: 1014.6 ft

2.12.1 Designation: 26R

2.12.2 True Bearing: 270

2.12.3 Dimensions: 9000 ft x 150 ft

2.12.4 PCN: 105 R/B/W/T

2.12.5 Coordinates: 33−38−58.3515N / 84−24−34.0341W

2.12.6 Threshold Elevation: 990 ft

2.12.6 Touchdown Zone Elevation: 990 ft

2.12.1 Designation: 08R

2.12.2 True Bearing: 90

2.12.3 Dimensions: 9999 ft x 150 ft
2.12.4 PCN: 74 R/A/W/T
2.12.5 Coordinates: 33−38−48.432N / 84−26−18.1035W
2.12.6 Threshold Elevation: 1023.7 ft
2.12.6 Touchdown Zone Elevation: 1023.8 ft

2.12.1 Designation: 26L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 9999 ft x 150 ft
2.12.4 PCN: 74 R/A/W/T
2.12.5 Coordinates: 33−38−48.4612N / 84−24−19.8313W
2.12.6 Threshold Elevation: 995.4 ft
2.12.6 Touchdown Zone Elevation: 995.5 ft

2.12.1 Designation: 27R
2.12.2 True Bearing: 270
2.12.3 Dimensions: 12390 ft x 150 ft
2.12.4 PCN: 62 R/A/W/T
2.12.5 Coordinates: 33−38−4.929N / 84−24−26.158W
2.12.6 Threshold Elevation: 977.2 ft
2.12.6 Touchdown Zone Elevation: 984.6 ft

2.12.1 Designation: 09L
2.12.2 True Bearing: 90
2.12.3 Dimensions: 12390 ft x 150 ft
2.12.4 PCN: 62 R/A/W/T
2.12.5 Coordinates: 33−38−4.936N / 84−26−52.6807W
2.12.6 Threshold Elevation: 1018.7 ft
2.12.6 Touchdown Zone Elevation: 1018.7 ft

2.12.1 Designation: 09R
2.12.2 True Bearing: 90
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 68 R/A/W/T
2.12.5 Coordinates: 33−37−54.5282N / 84−26−52.6768W
2.12.6 Threshold Elevation: 1026.1 ft
2.12.6 Touchdown Zone Elevation: 1026.2 ft

2.12.1 Designation: 27L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 68 R/A/W/T
2.12.5 Coordinates: 33−37−54.5649N / 84−25−6.243W
2.12.6 Threshold Elevation: 984.7 ft

2.12.6 Touchdown Zone Elevation: 998.9 ft

2.12.1 Designation: 28
2.12.2 True Bearing: 270
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 74 R/A/W/T
2.12.5 Coordinates: 33−37−13.0275N / 84−25−5.9358W
2.12.6 Threshold Elevation: 997.5 ft
2.12.6 Touchdown Zone Elevation: 997.5 ft

2.12.1 Designation: 10
2.12.2 True Bearing: 90
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 74 R/A/W/T
2.12.5 Coordinates: 33−37−12.9808N / 84−26−52.3574W
2.12.6 Threshold Elevation: 1000.3 ft
2.12.6 Touchdown Zone Elevation: 1000.3 ft

AD 2.13 Declared Distances
2.13.1 Designation: 08L
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 8800 ft
2.13.5 Landing Distance Available: 8800 ft

2.13.1 Designation: 26R
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 8500 ft
2.13.5 Landing Distance Available: 8500 ft

2.13.1 Designation: 08R
2.13.2 Take−off Run Available: 9999 ft
2.13.3 Take−off Distance Available: 10999 ft
2.13.4 Accelerate−Stop Distance Available: 9999 ft
2.13.5 Landing Distance Available: 9999 ft

2.13.1 Designation: 26L
2.13.2 Take−off Run Available: 9999 ft
2.13.3 Take−off Distance Available: 9999 ft
2.13.4 Accelerate−Stop Distance Available: 9999 ft
2.13.5 Landing Distance Available: 9999 ft

2.13.1 Designation: 27R
2.13.2 Take−off Run Available: 12390 ft
2.13.3 Take−off Distance Available: 12390 ft
2.13.4 Accelerate−Stop Distance Available: 12190 ft
2.13.5 Landing Distance Available: 11690 ft

2.13.1 Designation: 09L
2.13.2 Take−off Run Available: 12390 ft
2.13.3 Take−off Distance Available: 12390 ft
2.13.4 Accelerate−Stop Distance Available: 11730 ft
2.13.5 Landing Distance Available: 11730 ft

2.13.1 Designation: 09R
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 27L
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 8865 ft
2.13.5 Landing Distance Available: 8865 ft

2.13.1 Designation: 28
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 10
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

AD 2.14 Approach and Runway Lighting

2.14.1 Designation: 08L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26R
2.14.2 Approach Lighting System: MALSR

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 27R
2.14.2 Approach Lighting System: MALS
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 09L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 09R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 27L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 28
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 10
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 08L. Magnetic variation: 5W
2.19.2 ILS Identification: HFW
2.19.5 Coordinates: 33−39−1.782N / 84−24−24.7032W
2.19.6 Site Elevation: 977.2 ft

2.19.1 ILS Type: Glide Slope for runway 08L. Magnetic variation: 5W

2.19.2 ILS Identification: HFW
2.19.5 Coordinates: 33−39−2.288N / 84−26−6.3042W
2.19.6 Site Elevation: 1001.7 ft

2.19.1 ILS Type: Inner Marker for runway 08L. Magnetic variation: 5W
2.19.2 ILS Identification: HFW
2.19.5 Coordinates: 33−38−58.3145N / 84−26−30.5173W
2.19.6 Site Elevation: 1017.7 ft

2.19.1 ILS Type: Localizer for runway 08L. Magnetic variation: 5W
2.19.2 ILS Identification: HFW
2.19.5 Coordinates: 33−38−58.3506N / 84−24−23.3901W
2.19.6 Site Elevation: 985.2 ft

2.19.1 ILS Type: DME for runway 26R. Magnetic variation: 5W
2.19.2 ILS Identification: GXZ
2.19.5 Coordinates: 33−38−53.87N / 84−26−32.61W
2.19.6 Site Elevation: 1008 ft

2.19.1 ILS Type: Glide Slope for runway 26R. Magnetic variation: 5W
2.19.2 ILS Identification: GXZ
2.19.5 Coordinates: 33−39−2.3139N / 84−24−47.6304W
2.19.6 Site Elevation: 983.8 ft

2.19.1 ILS Type: Localizer for runway 26R. Magnetic variation: 5W
2.19.2 ILS Identification: GXZ
2.19.5 Coordinates: 33−38−58.32N / 84−26−30.19W
2.19.6 Site Elevation: 1016 ft

2.19.1 ILS Type: DME for runway 08R. Magnetic variation: 5W
2.19.2 ILS Identification: ATL
2.19.5 Coordinates: 33−38−45.7727N / 84−24−7.5608W
2.19.6 Site Elevation: 992.1 ft

2.19.1 ILS Type: Glide Slope for runway 08R. Magnetic variation: 5W
2.19.2 ILS Identification: ATL
2.19.5 Coordinates: 33−38−52.4042N / 84−26−3.334W
2.19.6 Site Elevation: 1005 ft

2.19.1 ILS Type: Localizer for runway 08R. Magnetic variation: 5W
2.19.2 ILS Identification: ATL
2.19.5 Coordinates: 33−38−48.4575N / 84−24−7.5394W
2.19.6 Site Elevation: 986.8 ft

2.19.1 ILS Type: DME for runway 26L. Magnetic variation: 5W
2.19.2 ILS Identification: BRU
2.19.5 Coordinates: 33−38−49.0988N / 84−26−30.1749W
2.19.6 Site Elevation: 1030.3 ft

2.19.1 ILS Type: Glide Slope for runway 26L. Magnetic variation: 5W
2.19.2 ILS Identification: BRU
2.19.5 Coordinates: 33−38−52.4111N / 84−24−32.8404W
2.19.6 Site Elevation: 993.7 ft

2.19.1 ILS Type: Localizer for runway 26L. Magnetic variation: 5W
2.19.2 ILS Identification: BRU
2.19.5 Coordinates: 33−38−48.4526N / 84−26−30.1664W
2.19.6 Site Elevation: 1021 ft

2.19.1 ILS Type: DME for runway 09L. Magnetic variation: 5W
2.19.2 ILS Identification: HZK
2.19.5 Coordinates: 33−38−7.48N / 84−24−44.38W
2.19.6 Site Elevation: 978 ft

2.19.1 ILS Type: Glide Slope for runway 09L. Magnetic variation: 5W
2.19.2 ILS Identification: HZK
2.19.5 Coordinates: 33−38−2.42N / 84−26−39.67W
2.19.6 Site Elevation: 1014.6 ft

2.19.1 ILS Type: Localizer for runway 09L. Magnetic variation: 5W
2.19.2 ILS Identification: HZK
2.19.5 Coordinates: 33−38−4.94N / 84−24−19.08W
2.19.6 Site Elevation: 949.5 ft

2.19.1 ILS Type: Outer Marker for runway 09L. Magnetic variation: 5W
2.19.2 ILS Identification: HZK
2.19.5 Coordinates: 33−37−57.073N / 84−32−3.073W
2.19.6 Site Elevation:

2.19.1 ILS Type: Glide Slope for runway 27R. Magnetic variation: 5W
2.19.2 ILS Identification: AFA
2.19.5 Coordinates: 33−38−7.45N / 84−24−44.13W
2.19.6 Site Elevation: 977.7 ft

2.19.1 ILS Type: Localizer for runway 27R. Magnetic variation: 5W
2.19.2 ILS Identification: AFA
2.19.5 Coordinates: 33−38−4.931N / 84−27−2.2719W
2.19.6 Site Elevation: 1019.5 ft

2.19.1 ILS Type: DME for runway 09R. Magnetic variation: 5W
2.19.2 ILS Identification: FUN
2.19.5 Coordinates: 33−37−56.6292N / 84−24−54.2376W
2.19.6 Site Elevation: 995.5 ft

2.19.1 ILS Type: Glide Slope for runway 09R. Magnetic variation: 5W
2.19.2 ILS Identification: FUN
2.19.5 Coordinates: 33−37−58.482N / 84−26−39.0507W
2.19.6 Site Elevation: 1019.1 ft

2.19.1 ILS Type: Inner Marker for runway 09R. Magnetic variation: 5W
2.19.2 ILS Identification: FUN
2.19.5 Coordinates: 33−37−54.5222N / 84−27−2.5364W
2.19.6 Site Elevation: 1029.2 ft

2.19.1 ILS Type: Localizer for runway 09R. Magnetic variation: 5W
2.19.2 ILS Identification: FUN
2.19.5 Coordinates: 33−37−54.5664N / 84−24−52.6064W
2.19.6 Site Elevation: 976.2 ft

2.19.1 ILS Type: DME for runway 27L. Magnetic variation: 5W
2.19.2 ILS Identification: FSQ
2.19.5 Coordinates: 33−37−53.7N / 84−27−3.53W
2.19.6 Site Elevation: 1003.8 ft

2.19.1 ILS Type: Glide Slope for runway 27L. Magnetic variation: 5W
2.19.2 ILS Identification: FSQ
2.19.5 Coordinates: 33−37−58.5048N / 84−25−18.9643W
2.19.6 Site Elevation: 986.7 ft

2.19.1 ILS Type: Inner Marker for runway 27L. Magnetic variation: 5W
2.19.2 ILS Identification: FSQ
2.19.5 Coordinates: 33−37−54.59N / 84−24−52.99W
2.19.6 Site Elevation: 983 ft

2.19.1 ILS Type: Localizer for runway 27L. Magnetic variation: 5W
2.19.2 ILS Identification: FSQ
2.19.5 Coordinates: 33−37−54.53N / 84−27−3.03W
2.19.6 Site Elevation: 1015.7 ft

2.19.1 ILS Type: DME for runway 10. Magnetic variation: 5W
2.19.2 ILS Identification: OMO
2.19.5 Coordinates: 33−37−12.4476N / 84−24−53.9549W

2.19.6 Site Elevation: 999.7 ft

2.19.1 ILS Type: Glide Slope for runway 10. Magnetic variation: 5W
2.19.2 ILS Identification: OMO
2.19.5 Coordinates: 33−37−8.9408N / 84−26−38.7669W
2.19.6 Site Elevation: 985.4 ft

2.19.1 ILS Type: Inner Marker for runway 10. Magnetic variation: 5W
2.19.2 ILS Identification: OMO
2.19.5 Coordinates: 33−37−12.9816N / 84−27−2.5224W
2.19.6 Site Elevation: 1001 ft

2.19.1 ILS Type: Localizer for runway 10. Magnetic variation: 5W
2.19.2 ILS Identification: OMO
2.19.5 Coordinates: 33−37−13.0192N / 84−24−53.9594W
2.19.6 Site Elevation: 991.1 ft

2.19.1 ILS Type: DME for runway 28. Magnetic variation: 5W
2.19.2 ILS Identification: PKU
2.19.5 Coordinates: 33−37−12.4016N / 84−27−5.3143W
2.19.6 Site Elevation: 1003.5 ft

2.19.1 ILS Type: Glide Slope for runway 28. Magnetic variation: 5W
2.19.2 ILS Identification: PKU
2.19.5 Coordinates: 33−37−17.0569N / 84−25−18.9449W
2.19.6 Site Elevation: 989.2 ft

2.19.1 ILS Type: Inner Marker for runway 28. Magnetic variation: 5W
2.19.2 ILS Identification: PKU
2.19.5 Coordinates: 33−37−13.0151N / 84−24−55.769W
2.19.6 Site Elevation: 982.2 ft

2.19.1 ILS Type: Localizer for runway 28. Magnetic variation: 5W
2.19.2 ILS Identification: PKU
2.19.5 Coordinates: 33−37−12.9761N / 84−27−5.3149W
2.19.6 Site Elevation: 994.5 ft

2.19.1 Navigation Aid Type: DME. Magnetic variation:
2.19.2 Navigation Aid Identification: ATL
2.19.5 Coordinates: 33−37−42.6494N / 84−26−6.2486W
2.19.6 Site Elevation: 1033.7 ft

General Remarks:
ALL RWYS, TOUCH AND GO OPERATIONS, LOW APPROACHES, AND PRACTICE INSTRUMENT APPROACHES NOT PERMITTED.

ACFT WITH WINGSPAN GREATER THAN 214 FT SHOULD EXPECT TO USE RWYS 09L/27R AND 9R/27L.

NO ACFT WITH WINGSPAN GEATER THAN OR EQUAL TO 225 FT MAY TAXI ON TWY M BETWEEN L14 AND L16, TWY N BETWEEN P AND SC, AND TWY N BETWEEN U AND K.

ALL ACFT WITH WINGSPANS GREATER THAN 214 FT ARE REQUIRED TO USE TAXI SPEEDS NOT GREATER THAN 15 MPH ON TWYS A, L, M, AND SJ.

WHEN ACFT WITH WINGSPANS GREATER THAN 214 FT ARE PRESENT ON THE FIELD, ALL OTHER ACFT MUST ADHERE TO THE TWY CENTERLINE ON TWYS L AND M, TWYS E AND F, AND TWYS SC AND SJ BETWEEN SG AND R DUE TO SEPARATION BETWEEN THE PARALLEL TWYS.

RUNUPS ARE PERMITTED AT VARIOUS SITES; COORD USE OF CITY FACS, MOVEMENT AREAS, ALLOWABLE NON−MOVEMENT AREAS WITH DEPT OF AVN OPNS, 404−787−6095; AND COORD THE USE OF THE AIRLINES FACS WITH THEM.

NOISE & OPNS MONITORING SYSTEM (NOMS) PROGRAM IN EFFECT; CALL THE ATLANTA DEPT OF AVIATION 770−43−NOISE OR 770−436−6473 FOR MORE INFO.

BE ALERT TO RWY CROSSING CLEARANCES. READBACK OF ALL RWY HOLDING INSTRUCTIONS IS REQUIRED.

ACFT WITH WINGSPAN GTR THAN 171 FT AND/OR TAIL HGT GTR THAN 45 FT ARE RSTD FROM USING TWY W. DURG TWY W OPNS RWY 27R INTXN DEPS FROM TWY LB OR TWY LC CAN EXPC THE FLWG DSTCS WITH RWY RMNG: FROM TWY LB 11,040 FT (TORA/TODA) AND 12,140 FT (ASDA); FROM TWY LC 10,810 FT (TODA/TODA) AND 11,910 FT (ASDA). ACFT MAY REQ THE FULL LEN OF RWY 27R FOR DEP UPON INITIAL CTC WITH ATC.

GROUP VI ACFT (LOCKHEED GALAXY C−5; ANTONOV AN−124 & AN−125) WITH A WINGSPAN OF GREATER THAN 214 FT ARE RESTRICTED FM USING TWY F EAST OF RAMP 5 NORTH AND WEST OF TWY D.

RWY 9L DEPARTURES CAN EXPECT INTERSECTION DEPARTURE FM M2 WITH RWY REMAINING 11,440 FT (TORA/TODA) AND 10,780 (ASDA).

TWO ACFT WITH WINGSPANS GREATER THAN OR EQUAL TO 225 FT MAY NOT TAXISIMULTANEOUSLY ON ADJACENT PARALLEL TWYS L/M EXCEPT WEST OF L7 AT SPEEDS LESS THAN 15 MPH.

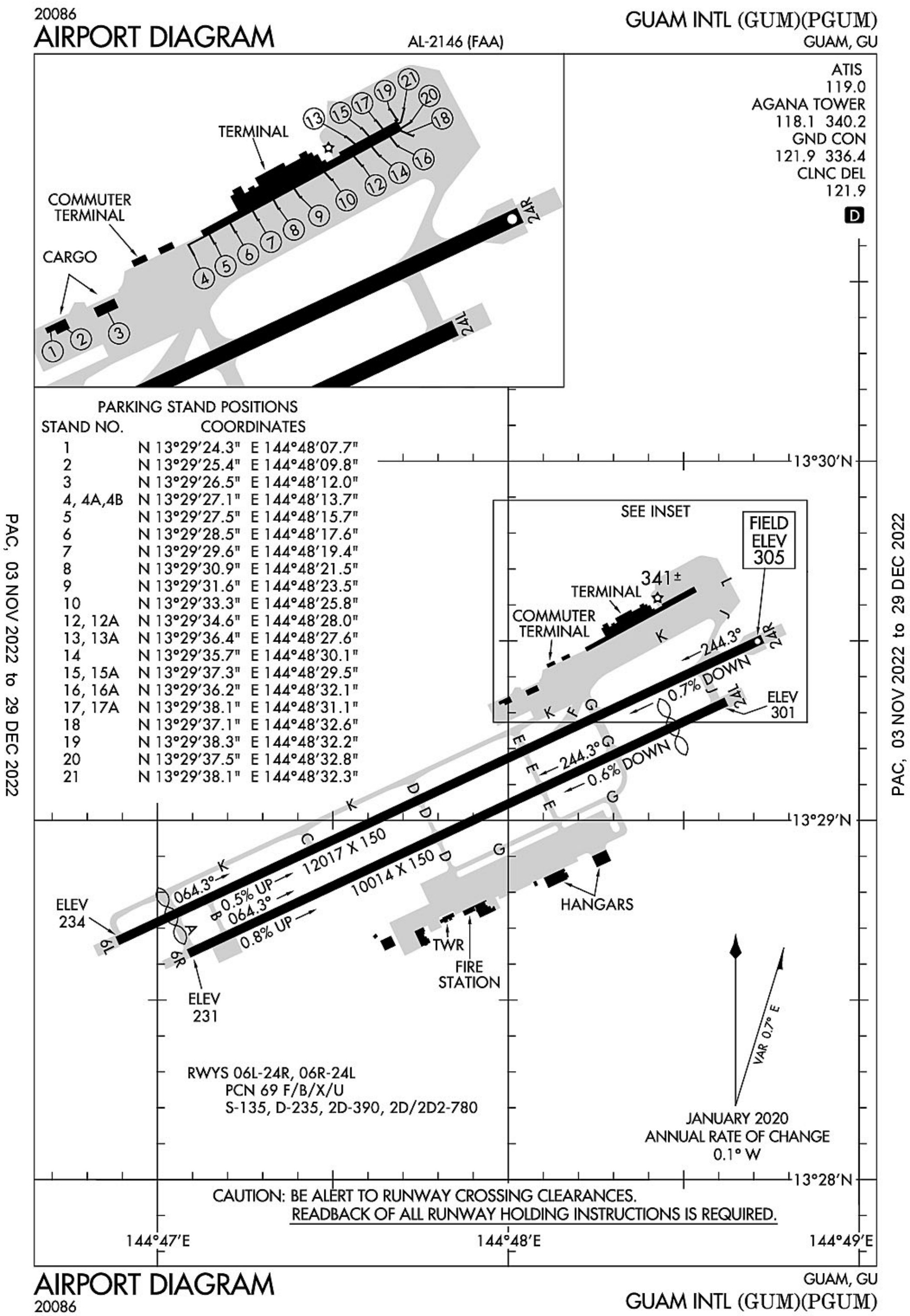
PREFERENTIAL RWY USE IN EFFECT, EXPECT TO USE RWYS 08R/26L, 09L/27R FOR DEPS; RWYS 08L/26R, 09R/27L ARE USED PRIMARILY FOR ARRIVALS.

NO ACFT WITH WINGSPAN GREATER THAN 213 FT MAY PASS ANOTHER ACFT WITH WINGSPAN GREATER THAN OR EQUAL TO 225 FT ON TWY L/M EAST OF L7.

ACFT WITH WINGSPAN GREATER THAN 171 FT ARE RSTRD FROM USING TWY V. ACFT WITH WINGSPAN GREATER THAN 171 FT ARE REQUIRED TO USE TAXI SPEEDS LESS THAN 15 MPH WHEN PASSING ACFT WITH WINGSPAN GREATER THAN 214FT ON TXWY L/M (EAST OF L7).

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

Agana, Guam
Guam International
ICAO Identifier PGUM



PARKING STAND POSITIONS

STAND NO.	COORDINATES
1	N 13°29′24.3″ E 144°48′07.7″
2	N 13°29′25.4″ E 144°48′09.8″
3	N 13°29′26.5″ E 144°48′12.0″
4, 4A,4B	N 13°29′27.1″ E 144°48′13.7″
5	N 13°29′27.5″ E 144°48′15.7″
6	N 13°29′28.5″ E 144°48′17.6″
7	N 13°29′29.6″ E 144°48′19.4″
8	N 13°29′30.9″ E 144°48′21.5″
9	N 13°29′31.6″ E 144°48′23.5″
10	N 13°29′33.3″ E 144°48′25.8″
12, 12A	N 13°29′34.6″ E 144°48′28.0″
13, 13A	N 13°29′36.4″ E 144°48′27.6″
14	N 13°29′35.7″ E 144°48′30.1″
15, 15A	N 13°29′37.3″ E 144°48′29.5″
16, 16A	N 13°29′36.2″ E 144°48′32.1″
17, 17A	N 13°29′38.1″ E 144°48′31.1″
18	N 13°29′37.1″ E 144°48′32.6″
19	N 13°29′38.3″ E 144°48′32.2″
20	N 13°29′37.5″ E 144°48′32.8″
21	N 13°29′38.1″ E 144°48′32.3″

Agana, GU
Guam Intl
ICAO Identifier PGUM

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 13−29−2.2224N / 144−47−49.6576E
2.2.2 From City: 3 miles NE of GUAM, GU
2.2.3 Elevation: 304.5 ft
2.2.5 Magnetic Variation: 2E (2000)
2.2.6 Airport Contact: JOHN QUINATA
P.O. BOX 8770
TAMUNING, GU 96931 (671−646−0300)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A1
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MINOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 4/1/1995

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 06L
2.12.2 True Bearing: 65
2.12.3 Dimensions: 12017 ft x 150 ft
2.12.4 PCN: 69 F/B/X/U
2.12.5 Coordinates: 13−28−39.8522N / 144−46−53.1231E
2.12.6 Threshold Elevation: 233.6 ft
2.12.6 Touchdown Zone Elevation: 256.3 ft

2.12.1 Designation: 24R
2.12.2 True Bearing: 245
2.12.3 Dimensions: 12017 ft x 150 ft
2.12.4 PCN: 69 F/B/X/U
2.12.5 Coordinates: 13−29−30.3057N / 144−48−43.4525E
2.12.6 Threshold Elevation: 304.5 ft
2.12.6 Touchdown Zone Elevation: 304.5 ft

2.12.1 Designation: 06R
2.12.2 True Bearing: 65
2.12.3 Dimensions: 10014 ft x 150 ft
2.12.4 PCN: 69 F/B/X/U
2.12.5 Coordinates: 13−28−37.7713N / 144−47−5.3307E
2.12.6 Threshold Elevation: 231.1 ft
2.12.6 Touchdown Zone Elevation: 258 ft

2.12.1 Designation: 24L
2.12.2 True Bearing: 245
2.12.3 Dimensions: 10014 ft x 150 ft
2.12.4 PCN: 69 F/B/X/U
2.12.5 Coordinates: 13−29−19.8177N / 144−48−37.2722E
2.12.6 Threshold Elevation: 300.7 ft
2.12.6 Touchdown Zone Elevation: 293.1 ft

AD 2.13 Declared Distances
2.13.1 Designation: 06L
2.13.2 Take−off Run Available: 12015 ft
2.13.3 Take−off Distance Available: 12015 ft
2.13.4 Accelerate−Stop Distance Available: 12015 ft
2.13.5 Landing Distance Available: 11015 ft

2.13.1 Designation: 24R
2.13.2 Take−off Run Available: 12015 ft
2.13.3 Take−off Distance Available: 12015 ft
2.13.4 Accelerate−Stop Distance Available: 12015 ft
2.13.5 Landing Distance Available: 12015 ft

2.13.1 Designation: 06R
2.13.2 Take−off Run Available: 10014 ft
2.13.3 Take−off Distance Available: 10014 ft
2.13.4 Accelerate−Stop Distance Available: 10014 ft
2.13.5 Landing Distance Available: 10014 ft

2.13.1 Designation: 24L
2.13.2 Take−off Run Available: 9714 ft
2.13.3 Take−off Distance Available: 9714 ft
2.13.4 Accelerate−Stop Distance Available: 9714 ft
2.13.5 Landing Distance Available: 8710 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 06L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 24R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 06R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 24L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 06L. Magnetic variation: 2E
2.19.2 ILS Identification: GUM
2.19.5 Coordinates: 13−29−38.0674N / 144−48−51.4932E
2.19.6 Site Elevation: 346.1 ft

2.19.1 ILS Type: Glide Slope for runway 06L. Magnetic variation: 2E
2.19.2 ILS Identification: GUM
2.19.5 Coordinates: 13−28−53.073N / 144−47−8.508E
2.19.6 Site Elevation: 246.1 ft

2.19.1 ILS Type: Localizer for runway 06L. Magnetic variation: 2E
2.19.2 ILS Identification: GUM
2.19.5 Coordinates: 13−29−34.7116N / 144−48−53.0934E
2.19.6 Site Elevation: 312.6 ft

2.19.1 ILS Type: DME for runway 06R. Magnetic variation: 2E
2.19.2 ILS Identification: AWD
2.19.5 Coordinates: 13−29−21.74N / 144−48−48.12E
2.19.6 Site Elevation: 315.9 ft

2.19.1 ILS Type: Glide Slope for runway 06R. Magnetic variation: 2E
2.19.2 ILS Identification: AWD
2.19.5 Coordinates: 13−28−38N / 144−47−15.4E
2.19.6 Site Elevation: 236.5 ft

2.19.1 ILS Type: Localizer for runway 06R. Magnetic variation: 2E
2.19.2 ILS Identification: AWD
2.19.5 Coordinates: 13−29−24.23N / 144−48−46.93E
2.19.6 Site Elevation: 310.6 ft

General Remarks:
<1000' OVRN S END & 450' OVRN N END RWY 6L−24R.

CLASS III ACFT ARE PROHIBITED FROM MAKING ANY TURNS ONTO OR OFF TWY GOLF (SOUTH) WHILE UTILIZING TWY ECHO.

THE FIRST 500 FT OF THE LEFT SHOULDER OF RWY 24L IS NOT VISIBLE FROM THE TWR. PILOTS ARE ADVISED TO CAUTION FOR ANY PRESENCE OF WILDLIFE IN THAT AREA.

FOR PARKING INFORMATION ALL ACFT CTC RAMP CTL. ALL ACFT DEP TERMINAL PARKING CTC RAMP CTL FOR ENGINE START AND PUSHBACK.

ADG−VI AIRPLANES MAY DEPART ON RWY 6L AND RWY 24R WITH ACFT ON PARL TWY K AS LONG AS NO ADG−VI ACFT OCCUPIES THE PARL TWY BYD 1500 FT OF THE POINT OF TKOF ROLL.

FOR TAXG B747−8 ACFT ON TWY K FRONTING THE ACFT PRKG APN FROM GATES 5 − 16 AT THE MAIN TRML, MAX TAXG SPEED SHALL BE NO MORE THAN 15 MPH.

DRG TAXG OF THE B747−8 BTN GATES 5 − 16, ALL VEHICLES SHALL YIELD AND RMN CLEAR OF THE VEHICLE TFC PAT AND ARE RSTRD TO A MAX HGT OF 14 FT.

EFFECTIVE RY GRADIENT RY 06L 0.46% UP NE; RY 24R 0.70% DOWN SW; RY 06R 0.80 % UP NE; RY 24L 0.52% DOWN SW.

RISING TERRAIN 75 FT FM RY 24L THLD 140 FT EAST OF CNTRLN EXTENDED +8 FT.

DEP VFR ACFT MAINT RY HDG TIL PAST DEP END OF RY AND REACHING 1000 FT AGL; RGT PAT 24L/R DO NOT EXCEED 1500 FT AGL IN TFC PAT.

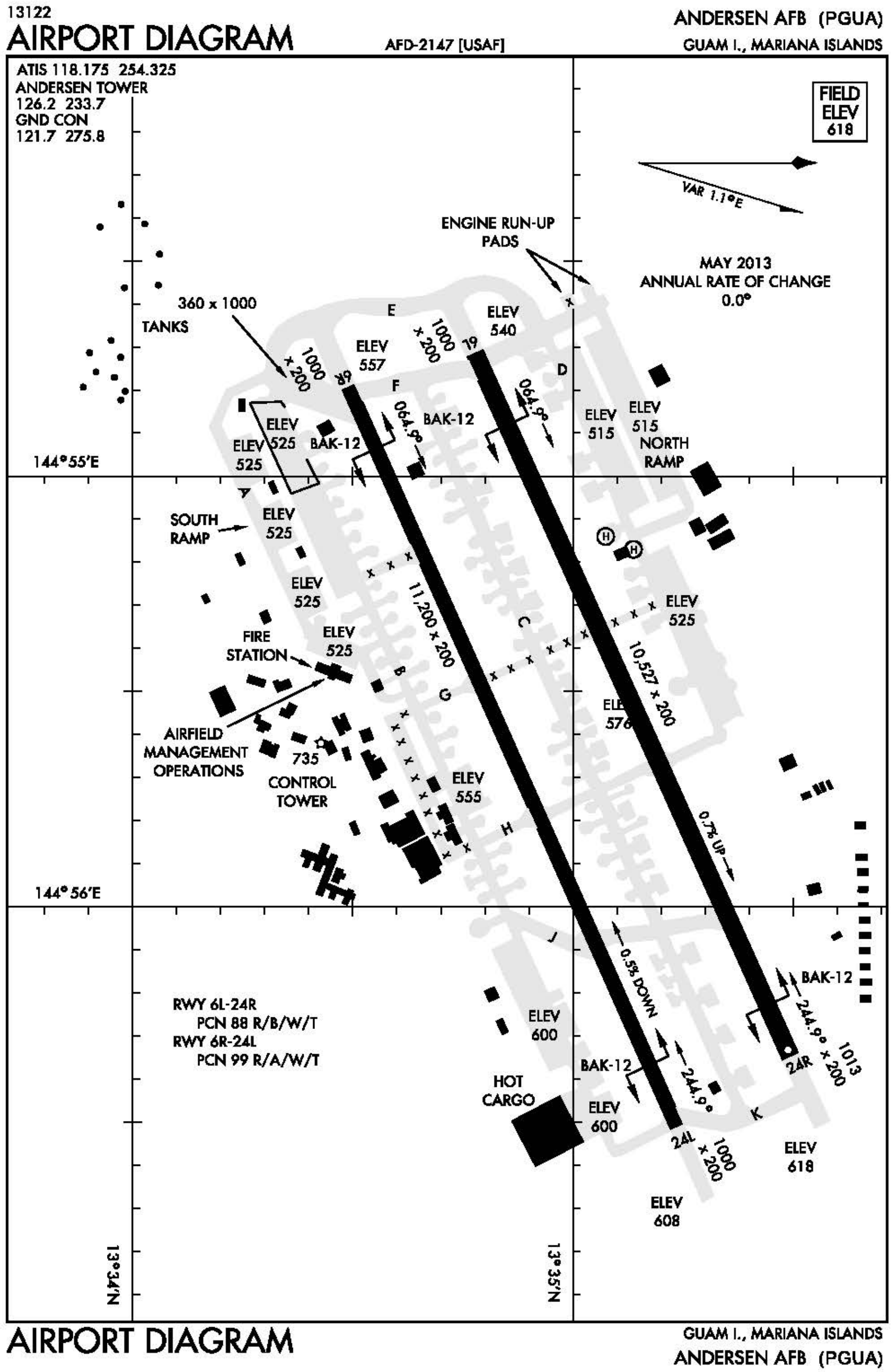
FOR ALL ARRS, THE B747−8 AIRLINE WILL TOW THE ACFT INTO GATES 4 OR 18 FROM TWY K AND AIRLINE TO PRVD WING−WALKERS AS THE ACFT IS BEING TOWED INTO GATES 4 OR 18.

TSNT ACFT PRVD 24 HRS ADVN INFO TO EXEC MGR GUAM INTL ARPT AUTHORITY; 1−671−642−4455 MON−FRI 0800−1700 OR FAX 1−671−646−8587.

LGTD TWR 780 FT 1.3 NM ENE OF RY 24L THLD .

FOR THE B747−8, DRG RWY 24L & 24R OPS AND DUE TO JET BLAST EFCTS AT GATES 14, 16 & 18, THE B747−8 WILL BE TOWED FROM GATE 4 ON TWY K TO TWY J WITH THE ACFT PSND ON TWY J FACING TWD RWY 24R.

Andersen, Mariana Island, GU
Andersen AFB
ICAO Identifier PGUA



Andersen,Mariana Island, GU
Andersen AFB
ICAO Identifier PGUA

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 13−35−1.99N / 144−55−48.2E
2.2.2 From City: 0 miles N of YIGO, GU
2.2.3 Elevation: 617.4 ft
2.2.5 Magnetic Variation: 2E (1980)
2.2.6 Airport Contact: MAJOR BILLY G TOWLES
3 AD
ANDERSEN AFB, GUAM, 69912 ()
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types:
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: NONE

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: None

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 06L
2.12.2 True Bearing:
2.12.3 Dimensions: 10528 ft x 200 ft
2.12.4 PCN: 98 R/A/W/T
2.12.5 Coordinates: 13−34−49.281N / 144−54−56.32E
2.12.6 Threshold Elevation: 539.1 ft
2.12.6 Touchdown Zone Elevation: 539.3 ft

2.12.1 Designation: 24R
2.12.2 True Bearing:
2.12.3 Dimensions: 10528 ft x 200 ft
2.12.4 PCN: 98 R/A/W/T
2.12.5 Coordinates: 13−35−31.93N / 144−56−33.74E
2.12.6 Threshold Elevation: 617.4 ft
2.12.6 Touchdown Zone Elevation: 617.4 ft

2.12.1 Designation: 06R
2.12.2 True Bearing:
2.12.3 Dimensions: 11200 ft x 200 ft
2.12.4 PCN: 98 R/A/W/T
2.12.5 Coordinates: 13−34−31.18N / 144−54−59.38E
2.12.6 Threshold Elevation: 556.8 ft
2.12.6 Touchdown Zone Elevation: 556.8 ft

2.12.1 Designation: 24L
2.12.2 True Bearing:
2.12.3 Dimensions: 11200 ft x 200 ft
2.12.4 PCN: 98 R/A/W/T
2.12.5 Coordinates: 13−35−16.59N / 144−56−43E
2.12.6 Threshold Elevation: 607.2 ft
2.12.6 Touchdown Zone Elevation: 607.2 ft

AD 2.13 Declared Distances
2.13.1 Designation: 06L
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 24R
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 06R
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 24L
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 06L
2.14.2 Approach Lighting System: SALS
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 24R
2.14.2 Approach Lighting System: ALSF1
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 06R
2.14.2 Approach Lighting System: ALSF1
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 24L
2.14.2 Approach Lighting System: SALS
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 24R. Magnetic variation: 2E
2.19.2 ILS Identification: YIG
2.19.5 Coordinates: 13−35−30.26N / 144−56−17.53E
2.19.6 Site Elevation: 593.6 ft

2.19.1 ILS Type: Localizer for runway 24R. Magnetic variation: 2E
2.19.2 ILS Identification: YIG
2.19.5 Coordinates: 13−34−43.23N / 144−54−42.5E
2.19.6 Site Elevation: 533.6 ft

2.19.1 ILS Type: Glide Slope for runway 06R. Magnetic variation: 2E
2.19.2 ILS Identification: UAM
2.19.5 Coordinates: 13−34−40.04N / 144−55−7.21E
2.19.6 Site Elevation: 544.6 ft

2.19.1 ILS Type: Localizer for runway 06R. Magnetic variation: 2E
2.19.2 ILS Identification: UAM
2.19.5 Coordinates: 13−35−21.67N / 144−56−54.64E
2.19.6 Site Elevation: 606.6 ft

2.19.1 ILS Type: Glide Slope for runway 24L. Magnetic variation: 2E
2.19.2 ILS Identification: PMY
2.19.5 Coordinates: 13−35−15.55N / 144−56−29.18E
2.19.6 Site Elevation: 596.1 ft

2.19.1 ILS Type: Localizer for runway 24L. Magnetic variation: 2E
2.19.2 ILS Identification: PMY
2.19.5 Coordinates: 13−34−25.7N / 144−54−46.9E
2.19.6 Site Elevation: 568.8 ft

2.19.1 Navigation Aid Type: TACAN. Magnetic variation: 2E
2.19.2 Navigation Aid Identification: UAM
2.19.5 Coordinates: 13−35−28.39N / 144−56−47.68E
2.19.6 Site Elevation: 614.8 ft

General Remarks:
FREQUENT RAIN SHOWERS OF SHORT DURATION, EXPECT WET RWY BRAKEING ACTION.

RSTD: ALL ACFT CTC 36 WG COMD POST 90 MIN OUT AND AT 30 MIN OUT PRIOR TO ARR.

CAUTION: NSTD DSPLCD THLD MARKINGS FOR RYS 06R, 06L, AND 24R.

MISC: AIRCRAFT EXCEEDING AFLD WEIGHTS MUST REQUEST WEIGHT BEARING CAPACITY WAIVER WITH 24 HR NOTICE TO AIRFIELD OPS TO PROCESS ANY APPROVALS NEEDED. IF REQUESTS ARE NOT MADE WITHIN 24 HRS EXPECT DELAYS.

RSTD: ACFT MUST ADHERE TO PPR ARR +/− 30 MIN. ACFT WITH WINGSPANS GREATER THAN 261’ NOT

AUTHORIZED.

HAZUS AIR TURB FINAL APCH RWYS 24L/24R. NO VSBY REF AVBL ON NGT TKOF BYD END RWY 6.

MISC: RWY 06L/24R CLSD SECOND WED EACH MONTH 2000−2300Z(0600−0900L THU). RWY 06R/24L CLSD FOURTH WED EACH MONTH 2000−23000Z (0600−0900L THU).

SERVICE−LGT: RAMP LGT UNAVBL FOR NGT TIME OPS, AND UNSAFE ACFT MVMT COND EXIST ON NORTH RAMP 3; ACFT TAXI AT THEIR OWN RISK. ALL AFLD ILS STOP LGT UNSVC. VEGETATION OBST RWY 24R/L APCH LGT SYS.

ILS/RADAR−ILS: ILS CRITICAL AREAS NOT PROTECTED.

RSTD: ALL AEROMEDICAL EVAC MSN ARE RQRD TO CTC COMD POST (DSN 366−2961, C671−366−2961) BY ANY MEANS AVAIL 3 HRS PRIOR TO ARR. ALL ACFT RQRD TO MAKE CALL 30 MIN PRIOR TO ARR.

MISC: ANDERSEN AFB DOES NOT HAVE CAPABILITY TO STORE REFRIGERATED CARGO.

RSTD: RESTRICTIONS TO FLT OPNS DUR EA BWC. MOD: NO TOUCH AND GO LDG. RSTD LOW APPCH NO LOWER THAN 200’ OR AS DETERMINED BY SOF. SEVERE: RSTD LOW APPCH NO LOWER THAN 200’ OR AS DETERMINED BY SOF. EMERG LDG AND 36 OG/CC APV DEP ONLY. PHASE I: PHASE I:1 APR − 31 JUL. PHASE II: 1 AUG − 31 MAR.

SERVICE−LGT: ARPT BCN 763 FT MSL LCTD 1.4 NM SSW OF AFLD.

MISC: ”NO VHF CAPABILITIES WITH AFLD MGMT.”

ALL INBD ACFT TO INCL TACC/GDSS MSNS MUST COORD PPR REQ WITH AFLD MGMT AND HAVE VALID PPR NUMBER APV PRIOR TO ARR. PPR REQ MUST BE MADE MORE THAN 24 HR IN ADVANCE AND NO EARLIER THAN 14 DAYS PRIOR TO ARR/DEP. PPR REQ GIVEN WITHIN 24 HR WILL NOT BE APV.

A−GEAR BAK−12 RWYS 06L & 06R 30 MIN NTC RQR.

TWY B AND C BTN TWY J AND K CLSD DUE TO CONSTRUCTION.

CAUTION: TACAN CK PT SIGN ON TWY J SOUTH INCORRECT; CORRECT VERBIAGE: BRG 224 DIST 0.7 NM. ACFT WASH RACK ON NR 3 CLSD DUE TO CONST.

RSTD: ALL OPR MUST OBTAIN APVL FR GND AND AMOPS PRIOR TO ENG START/RUN.

MISC: RWY 06L AND 06R UNDERRUNS 1000’ AVBL FOR TWY/TKOF. RWY 24R UNDERRUN AVBL 500’ FOR TAXI/TKOF.

BASE OPS V366−4188; FAX V366−6217.

CAUTION: USE EXTREME CAUTION FOR EXTV UAS OPS IN VCNTY OF ANDERSEN AFB.

SERVICE−FLUID: C−5 NITROGEN SVC CAPABILITY UNAVBL.

CAUTION: POTENTIAL FOR REDUCED BRAKING CAPABILITY AND/OR DIREC CTL EXISTS, PARTICULARLY DURING WET RSC FOR RWY 06L.

MAINT AVBL 0100−0400 WEEKDAY ONLY; CLOSED WEEKEND & HOL.

RSTD: PPR REQ DSN: AFLD MGMT 315−366−4188.

NO ARRESTING GEAR MARKERS LOCATED ON THE LEFT SIDE OF ALL APPROACH END BARRIERS.

MISC: ALL AIRCREWS TO RON MUST CK INTO AFLD MGT OPS AND PROVIDE POC INFO UPON ARR.

MISC: PAVEMENT PRIOR TO RY 06R AND RY 06L THLDS AVBL FOR TKOF RUN WHEN NECESSARY FOR MSN ACCOMPLISHMENT.

MISC: ATTN: ALL DRY ICE REQ MUST BE MADE THRU 734TH MS/ATOC DSN 315−366−3125/3137/3162 OR C671−366−3125/3137/3162. REQ MUST BE MADE AT LEAST 24 HR IN ADVANCE FOR ACFT LDG TUE−FRI AND 72 HR IN ADVANCE FOR ACFT LDG SAT−MON. DUR HOL, ADD 2 HR TO COORD TIME.

NS ABTMT: QUIET HR 1200−2000Z (2200−0600L) DLY. NO AFTERBURNER, OR OVR FLT OF BASE AND LCL POPULATED AREAS. OTHER RESTRICTIONS BY NOTAM.

CAUTION: 47’ TACAN ANTENNAE LCTD 1,300 FT NE OF RY 24L & 1,300 FT SE OF RY 24R THLDS.

MISC: AFLD MGT HAS NO COMSEC STORAGE AVBL FOR TRAN AIRCREWS. TRANS AIRCREWS CAN STORE COMSEC UP TO TOP−SECRET AT 36 WG CP.

SERVICE−A−GEAR: CONTACT CONTROL TOWER 30 MIN PRIOR FOR DEPARTURE END BAK12 CABLE CONFIGURATION. 30 MIN PRIOR NOTICE REQ FOR CHANGE CONFIGURATION. BAK12 HOUSING LCTD 317’ FROM RY CENTERLINE, 217’ FROM RY EDGE, MAX HEIGHT 8’. NO ARRESTING−GEAR MARKER LCTD ON LEFT SIDE OF ALL APPROACH END BARRIERS.

MISC: WX OPR H24, DSN 315−366−5230. AUTOMATED SENSOR PRVDS OBSN; AUGMENTED DUR HAZ WX & SENSOR OUTAGES. HUMAN WX OBSN VIEW OBSTD BY BLDG N−SSE. WX STN PRVDS LTD WX BRIEF SUPPORT. REMOTE WX BRIEF AVBL H24 FR 17 OWS AT DSN 315−449−8333/7950, C808−448−3809; 2 HR NTC RQRD FOR TIMELY BRIEF.

RSTD 1 OF 2: THERE WILL BE NO OVFT OF MARIANA CROW TERRITORIES BLW 1,000 FT AGL FROM SEP−MAY. OVFT BLW 1,000 FT AGL IS ALLOWED BTN JUNE AND AUG, THE CROW NON−BREEDING SEASON.

AREA BTN 1000’ ROLL BAR AND THU LGT RWY 06R AND 06L UNLGTD. LAST 642’ PRIOR TO THU LGT 24R UNLGTD.

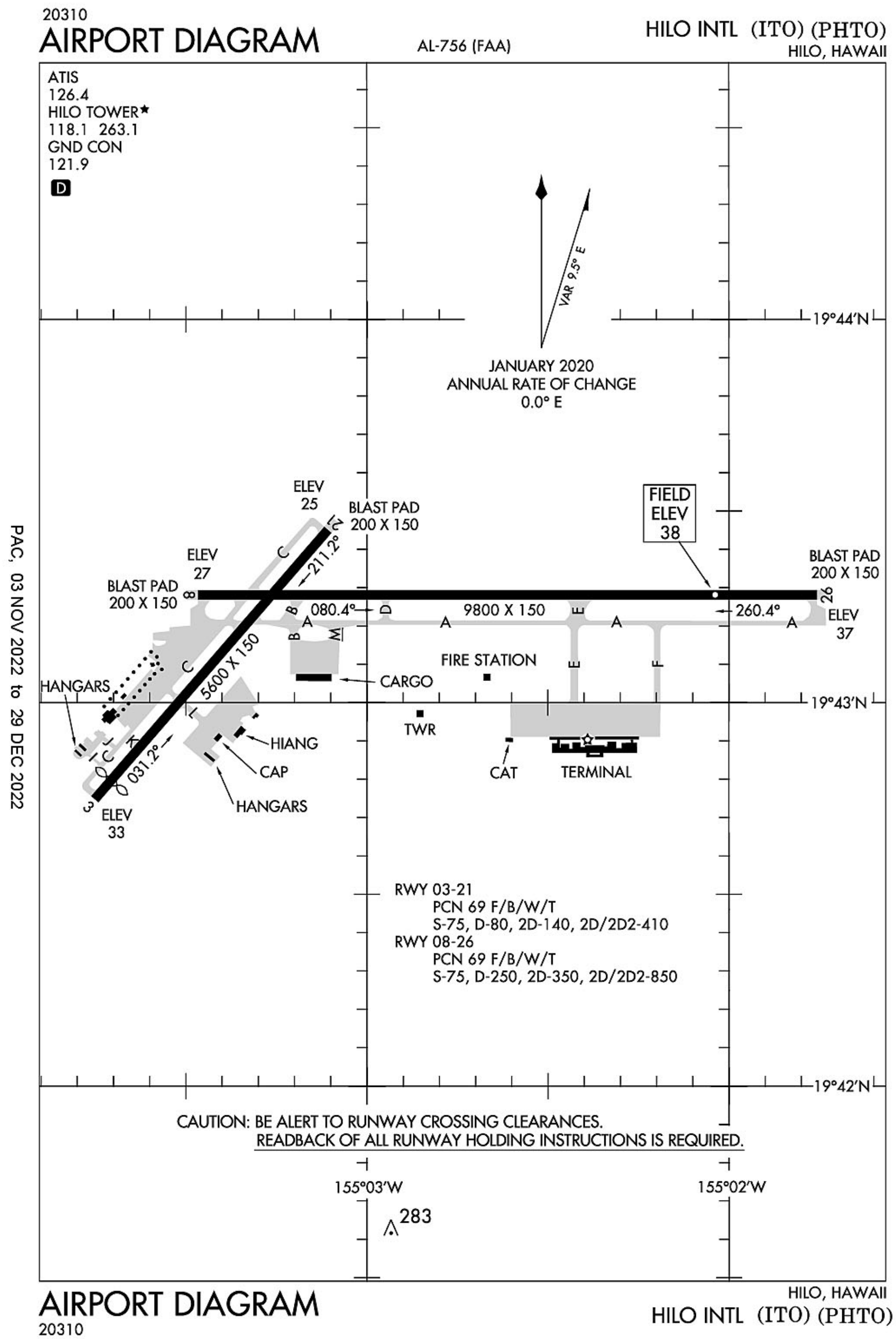
ANY CREW RQRG ASSISTANCE FR AGENCIES OUTSIDE OF AFLD SUPPORT, CTC WING RECEPTIONS DSN 315−366−3464, C671−366−3464.

CAUTION: FAA SIZE 3 SIGNS LCTD GREATER THAN 60 FT FROM TWY EDGES TO ACCOM B−52 ACFT.

RSTD: BA ON BOTH RWYS MAY BE LESS THAN EXP DUE TO RUBBER BUILD−UP; PROBABILITY OF HYDROPLANING EXISTS.

AFLD SIGNS ARE NOT FRANGIBLE.

Hilo, Hawaii
Hilo International
ICAO Identifier PHTO



Hilo, HI
Hilo Intl
ICAO Identifier PHTO

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 19−43−12.9468N / 155−2−54.4925W
2.2.2 From City: 2 miles E of HILO, HI
2.2.3 Elevation: 37.6 ft
2.2.5 Magnetic Variation: 11E (1985)
2.2.6 Airport Contact: STEVEN J. SANTIAGO
ASSISTANT AIRPORT DISTRICT MANAGER
HILO, HI 96720 (808−961−9300)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, 0700−2030 Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MINOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 03
2.12.2 True Bearing: 41
2.12.3 Dimensions: 5600 ft x 150 ft
2.12.4 PCN: 69 F/B/W/T
2.12.5 Coordinates: 19−42−44.9639N / 155−3−44.7803W
2.12.6 Threshold Elevation: 33.3 ft
2.12.6 Touchdown Zone Elevation: 33.7 ft

2.12.1 Designation: 21
2.12.2 True Bearing: 221
2.12.3 Dimensions: 5600 ft x 150 ft
2.12.4 PCN: 69 F/B/W/T
2.12.5 Coordinates: 19−43−26.9946N / 155−3−6.4865W
2.12.6 Threshold Elevation: 25.4 ft
2.12.6 Touchdown Zone Elevation: 31.4 ft

2.12.1 Designation: 08
2.12.2 True Bearing: 90
2.12.3 Dimensions: 9800 ft x 150 ft
2.12.4 PCN: 69 F/B/W/T
2.12.5 Coordinates: 19−43−16.9328N / 155−3−27.9882W
2.12.6 Threshold Elevation: 27.3 ft
2.12.6 Touchdown Zone Elevation: 30.1 ft

2.12.1 Designation: 26
2.12.2 True Bearing: 270
2.12.3 Dimensions: 9800 ft x 150 ft
2.12.4 PCN: 69 F/B/W/T
2.12.5 Coordinates: 19−43−16.9196N / 155−1−45.4051W
2.12.6 Threshold Elevation: 37 ft
2.12.6 Touchdown Zone Elevation: 37.6 ft

AD 2.13 Declared Distances
2.13.1 Designation: 03
2.13.2 Take−off Run Available: 5600 ft
2.13.3 Take−off Distance Available: 5600 ft
2.13.4 Accelerate−Stop Distance Available: 5600 ft
2.13.5 Landing Distance Available: 5251 ft

2.13.1 Designation: 21
2.13.2 Take−off Run Available: 5251 ft
2.13.3 Take−off Distance Available: 5251 ft
2.13.4 Accelerate−Stop Distance Available: 5510 ft
2.13.5 Landing Distance Available: 5510 ft

2.13.1 Designation: 08
2.13.2 Take−off Run Available: 9800 ft
2.13.3 Take−off Distance Available: 9800 ft
2.13.4 Accelerate−Stop Distance Available: 9800 ft
2.13.5 Landing Distance Available: 9800 ft

2.13.1 Designation: 26
2.13.2 Take−off Run Available: 9800 ft
2.13.3 Take−off Distance Available: 9800 ft
2.13.4 Accelerate−Stop Distance Available: 9800 ft
2.13.5 Landing Distance Available: 9800 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 03
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: V4L

2.14.1 Designation: 21
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 08
2.14.2 Approach Lighting System: ODALS
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 26
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P DEP/P
2.14.3 Channel: 119.7
2.14.5 Hours of Operation: 0600−2200

2.14.1 Service Designation: APCH/P DEP/P
2.14.3 Channel: 269.2
2.14.5 Hours of Operation: 0600−2200

2.14.1 Service Designation: APCH/S DEP/S
2.14.3 Channel: 120.25
2.14.5 Hours of Operation: 0600−2200

2.14.1 Service Designation: APCH/S DEP/S
2.14.3 Channel: 323
2.14.5 Hours of Operation: 0600−2200

2.14.1 Service Designation: ATIS
2.14.3 Channel: 126.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 0600−2200

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 118.1
2.14.5 Hours of Operation: 0600−2200

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 263.1
2.14.5 Hours of Operation: 0600−2200

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 26. Magnetic variation: 11E
2.19.2 ILS Identification: ITO
2.19.5 Coordinates: 19−43−13.742N / 155−3−39.505W
2.19.6 Site Elevation: 39 ft

2.19.1 ILS Type: Glide Slope for runway 26. Magnetic variation: 11E

2.19.2 ILS Identification: ITO
2.19.5 Coordinates: 19−43−20.887N / 155−1−58.099W
2.19.6 Site Elevation: 32.5 ft

2.19.1 ILS Type: Localizer for runway 26. Magnetic variation: 11E
2.19.2 ILS Identification: ITO
2.19.5 Coordinates: 19−43−16.933N / 155−3−38.784W
2.19.6 Site Elevation: 25.8 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 11E
2.19.2 Navigation Aid Identification: ITO
2.19.5 Coordinates: 19−43−16.862N / 155−0−39.435W
2.19.6 Site Elevation: 23 ft

General Remarks:
ATCT CTLS ENTRY/EXIT TFC ON TWYS F&E TO EAST TRML RAMP.

BE ALERT OCNL BIRD FLOCKS ON ARPT AND IN FLT ACROSS RWY 08/26 AND 03/21.

PPR FROM ARPT MGR FOR TRANSIENT PARKING.

FOR CD WHEN ATCT IS CLSD CTC HONOLULU CONTROL FACILITY AT 808−840−6262.

181’ LGTD SMOKE STACK 1/2 SM SOUTH OF FLD.

RY 08/26 SINGLE−BELLY TWIN TANDEM (SBTT) GWT 450,000 LBS.

RY 03/21 SINGLE−BELLY TWIN TANDEM (SBTT) GWT 230,000 LBS.

NOISE ABATEMENT: AVOID OVERFLIGHT OF NOISE SENSITIVE RESIDENTIAL AREAS N, W AND SW OF AIRPORT.

RY 3/21 CLSD TO TURBINE ACFT 1800−0600.

TWY E BTN TWY A AND RWY 08/26 PONDING DRG HVY RAINS.

RWY 08 PVD 1325’ MKD BY CHEVRONS, UNUSBL FOR LNDG/TKOF/OVRN/STY; CANNOT BE USED IN COMPUTING TKOF DATA.

DIVISION 1.1, 1.2, 1.3 EXPLOSIVES PROHIBITED.

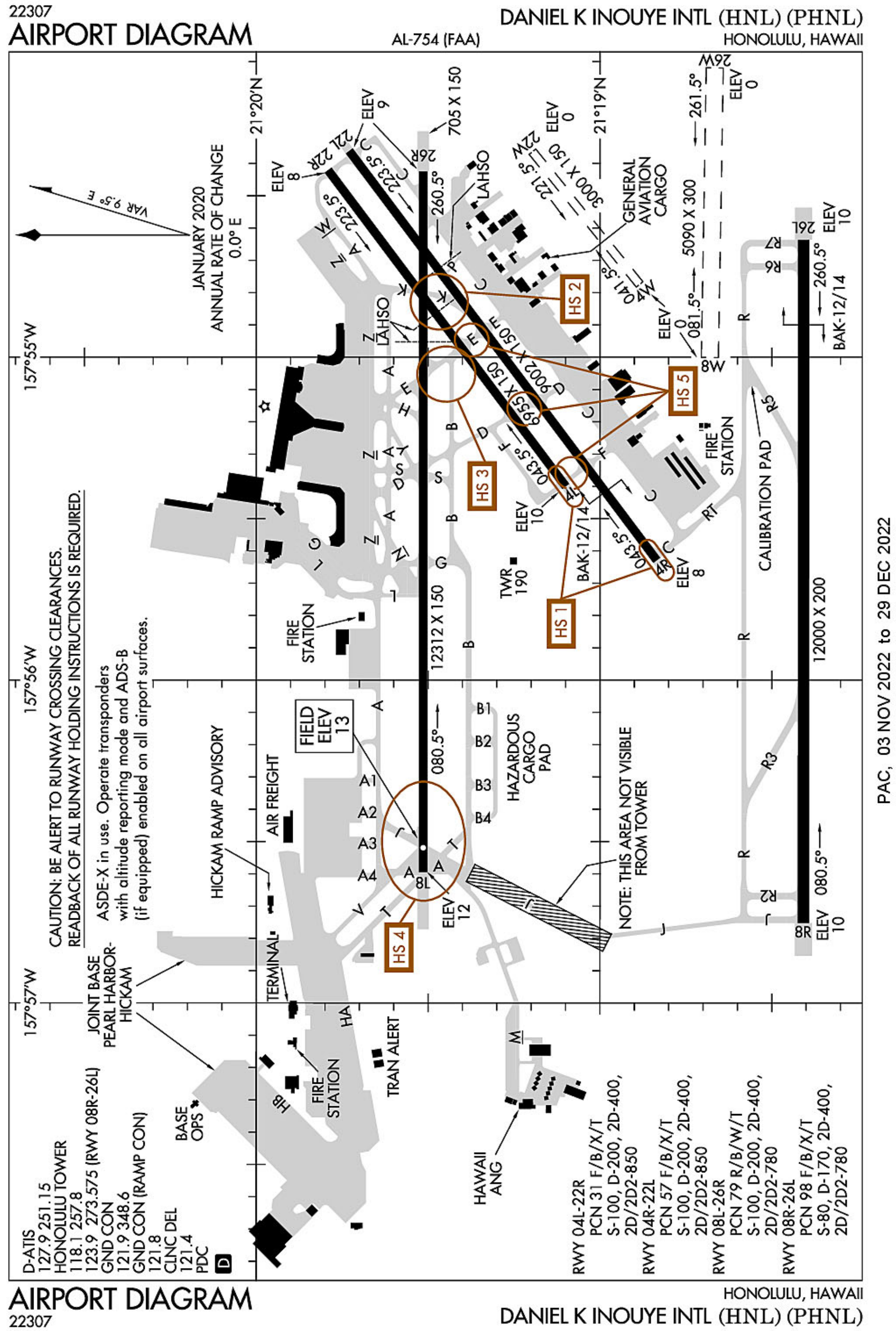
RWYS 8, 21 AND 26 WIND CONES ARE LCTD IN THE ROFA.

(A70A) JET FUEL AVBL MON−SAT 0800−1700 CALL (808) 935−6881/6122 OR 961−6601.

(E93) NO MKD PAD, HEL OPER FM FBO HANGER AREA.

PPR FROM AIRPORT MANAGER FOR TRANSPORTATION OF DIVISION 1.4 EXPLOSIVES AND HAZARDOUS MATERIAL IN OR OUT OF AIRPORT.

Honolulu, Hawaii
Honolulu International
ICAO Identifier PHNL



Honolulu, HI
Honolulu Intl
ICAO Identifier PHNL

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 21−19−4.142N / 157−55−12.819W
2.2.2 From City: 3 miles NW of HONOLULU, HI
2.2.3 Elevation: 12.6 ft
2.2.5 Magnetic Variation: 11E (1990)
2.2.6 Airport Contact: DAVIS YOGI
300 RODGERS BLVD. #12
HONOLULU, HI 96819 (808−836−6434)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100,A,A1+
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 04L
2.12.2 True Bearing: 53
2.12.3 Dimensions: 6955 ft x 150 ft
2.12.4 PCN: 31 F/B/X/T
2.12.5 Coordinates: 21−19−5.9954N / 157−55−23.9541W
2.12.6 Threshold Elevation: 9.8 ft
2.12.6 Touchdown Zone Elevation: 10.2 ft

2.12.1 Designation: 22R
2.12.2 True Bearing: 233
2.12.3 Dimensions: 6955 ft x 150 ft
2.12.4 PCN: 31 F/B/X/T
2.12.5 Coordinates: 21−19−47.4694N / 157−54−25.1972W
2.12.6 Threshold Elevation: 7.5 ft
2.12.6 Touchdown Zone Elevation: 9.6 ft

2.12.1 Designation: 04R
2.12.2 True Bearing: 53
2.12.3 Dimensions: 9002 ft x 150 ft
2.12.4 PCN: 57 F/B/X/T
2.12.5 Coordinates: 21−18−50.1044N / 157−55−37.685W
2.12.6 Threshold Elevation: 8.1 ft
2.12.6 Touchdown Zone Elevation: 8.4 ft

2.12.1 Designation: 22L
2.12.2 True Bearing: 233
2.12.3 Dimensions: 9002 ft x 150 ft
2.12.4 PCN: 57 F/B/X/T
2.12.5 Coordinates: 21−19−43.7762N / 157−54−21.6299W
2.12.6 Threshold Elevation: 8.5 ft
2.12.6 Touchdown Zone Elevation: 8.6 ft

2.12.1 Designation: 04W
2.12.2 True Bearing: 51
2.12.3 Dimensions: 3000 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 21−18−53.09N / 157−54−46.44W
2.12.6 Threshold Elevation: 0 ft
2.12.6 Touchdown Zone Elevation: ft

2.12.1 Designation: 22W
2.12.2 True Bearing: 231
2.12.3 Dimensions: 3000 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 21−19−11.7999N / 157−54−21.78W
2.12.6 Threshold Elevation: 0 ft
2.12.6 Touchdown Zone Elevation: ft

2.12.1 Designation: 08L
2.12.2 True Bearing: 89
2.12.3 Dimensions: 12312 ft x 150 ft
2.12.4 PCN: 79 R/B/W/T
2.12.5 Coordinates: 21−19−30.8826N / 157−56−35.6573W
2.12.6 Threshold Elevation: 11.8 ft
2.12.6 Touchdown Zone Elevation: 12.6 ft

2.12.1 Designation: 26R
2.12.2 True Bearing: 270
2.12.3 Dimensions: 12312 ft x 150 ft
2.12.4 PCN: 79 R/B/W/T
2.12.5 Coordinates: 21−19−30.884N / 157−54−25.4326W
2.12.6 Threshold Elevation: 8.4 ft
2.12.6 Touchdown Zone Elevation: 8.8 ft

2.12.1 Designation: 08R
2.12.2 True Bearing: 90
2.12.3 Dimensions: 12000 ft x 200 ft
2.12.4 PCN: 98 F/B/X/T
2.12.5 Coordinates: 21−18−24.4938N / 157−56−45.061W
2.12.6 Threshold Elevation: 9.9 ft
2.12.6 Touchdown Zone Elevation: 10 ft

2.12.1 Designation: 26L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 12000 ft x 200 ft

2.12.4 PCN: 98 F/B/X/T
2.12.5 Coordinates: 21−18−24.4867N / 157−54−38.152W
2.12.6 Threshold Elevation: 9.8 ft
2.12.6 Touchdown Zone Elevation: 9.8 ft

2.12.1 Designation: 08W
2.12.2 True Bearing: 91
2.12.3 Dimensions: 5090 ft x 300 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 21−18−40.85N / 157−55−0W
2.12.6 Threshold Elevation: 0 ft
2.12.6 Touchdown Zone Elevation: ft

2.12.1 Designation: 26W
2.12.2 True Bearing: 271
2.12.3 Dimensions: 5090 ft x 300 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 21−18−39.9794N / 157−54−6.1782W
2.12.6 Threshold Elevation: 0 ft
2.12.6 Touchdown Zone Elevation: ft

AD 2.13 Declared Distances
2.13.1 Designation: 04L
2.13.2 Take−off Run Available: 6952 ft
2.13.3 Take−off Distance Available: 6952 ft
2.13.4 Accelerate−Stop Distance Available: 6952 ft
2.13.5 Landing Distance Available: 6952 ft

2.13.1 Designation: 22R
2.13.2 Take−off Run Available: 6952 ft
2.13.3 Take−off Distance Available: 6952 ft
2.13.4 Accelerate−Stop Distance Available: 6952 ft
2.13.5 Landing Distance Available: 6952 ft

2.13.1 Designation: 04R
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 8950 ft
2.13.5 Landing Distance Available: 8950 ft

2.13.1 Designation: 22L
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 8937 ft
2.13.5 Landing Distance Available: 8937 ft

2.13.1 Designation: 04W
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft

2.13.5 Landing Distance Available: ft

2.13.1 Designation: 22W
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 08L
2.13.2 Take−off Run Available: 12312 ft
2.13.3 Take−off Distance Available: 12312 ft
2.13.4 Accelerate−Stop Distance Available: 12312 ft
2.13.5 Landing Distance Available: 12312 ft

2.13.1 Designation: 26R
2.13.2 Take−off Run Available: 12300 ft
2.13.3 Take−off Distance Available: 12300 ft
2.13.4 Accelerate−Stop Distance Available: 12300 ft
2.13.5 Landing Distance Available: 12300 ft

2.13.1 Designation: 08R
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 26L
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 08W
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 26W
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 04L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22R

2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 04R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 04W
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 22W
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 08L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26L
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08W
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 26W
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: ADZY (HONOLULU RAMP ADZY)
2.14.3 Channel: 121.8
2.14.5 Hours of Operation:

2.14.1 Service Designation: ADZY (HICKAM RAMP ADZY)
2.14.3 Channel: 133.6

2.14.5 Hours of Operation:

2.14.1 Service Designation: ADZY (HICKAM RAMP ADZY)
2.14.3 Channel: 254.4
2.14.5 Hours of Operation:

2.14.1 Service Designation: ANG OPS
2.14.3 Channel: 293.7
2.14.5 Hours of Operation:

2.14.1 Service Designation: APCH/P
2.14.3 Channel: 317.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (WEST)
2.14.3 Channel: 118.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (WEST)
2.14.3 Channel: 269
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BANZI RNAV DP
2.14.3 Channel: 118.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BANZI RNAV DP
2.14.3 Channel: 269
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 121.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 281.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (ARR E/NW DEP NW)
2.14.3 Channel: 119.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (EAST)
2.14.3 Channel: 124.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (ARR E/NW DEP NW)
2.14.3 Channel: 239.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: COMD POST

2.14.3 Channel: 141.8
2.14.5 Hours of Operation:

2.14.1 Service Designation: COMD POST (15 AW COMD POST)
2.14.3 Channel: 168
2.14.5 Hours of Operation:

2.14.1 Service Designation: COMD POST
2.14.3 Channel: 292.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: COMD POST (15 AW COMD POST)
2.14.3 Channel: 295.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 127.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 251.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (EAST)
2.14.3 Channel: 124.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P CLASS B (EAST)
2.14.3 Channel: 317.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KEAHI DP (JORDA,LANAI, UPOLU TRNS.)
2.14.3 Channel: 124.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KEAHI DP (JORDA, LANAI, UPOLU TRNS.)
2.14.3 Channel: 317.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KEOLA DP (KATHS,LIHUE,LILIA,NONNI,PUPPI, SOUTH KAUAI TRNS.)
2.14.3 Channel: 118.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KEOLA DP (KATHS,LIHUE,LILIA,PUPPI,SOUTH KAUAI TRNS.)
2.14.3 Channel: 269
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 118.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (RWY 08R/26L)
2.14.3 Channel: 123.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (RWY 08R/26L)
2.14.3 Channel: 273.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MOLOKAI DP (APACK, CLUTS ,EBBER, FITES, PULPS, ZIGIE TRNS.)
2.14.3 Channel: 124.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MOLOKAI DP (APACK, CLUTS, EBBER, FITIES, PULPS, ZIGIE TRNS.)
2.14.3 Channel: 317.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: OPS (SHAKA OPS)
2.14.3 Channel: 125.3
2.14.5 Hours of Operation:

2.14.1 Service Designation: OPS (SAC OPS)
2.14.3 Channel: 311
2.14.5 Hours of Operation:

2.14.1 Service Designation: OPS (SHAKA OPS)
2.14.3 Channel: 349.4
2.14.5 Hours of Operation:

2.14.1 Service Designation: PALAY DP (LANAI, MOLOKAI TRNS.)
2.14.3 Channel: 124.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PALAY DP (LANAI, MOLOKAI TRNS.)
2.14.3 Channel: 317.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PIPLN RNAV DP
2.14.3 Channel: 124.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PIPLN RNAV DP
2.14.3 Channel: 317.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PTD (HICKAM)
2.14.3 Channel: 133.6
2.14.5 Hours of Operation:

2.14.1 Service Designation: PTD
2.14.3 Channel: 372.2
2.14.5 Hours of Operation:

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 04R. Magnetic variation: 11E
2.19.2 ILS Identification: IUM
2.19.5 Coordinates: 21−19−47.9018N / 157−54−10.9794W
2.19.6 Site Elevation: 19.5 ft

2.19.1 ILS Type: Glide Slope for runway 04R. Magnetic variation: 11E
2.19.2 ILS Identification: IUM
2.19.5 Coordinates: 21−18−53.9933N / 157−55−26.9028W
2.19.6 Site Elevation: 5.6 ft

2.19.1 ILS Type: Localizer for runway 04R. Magnetic variation: 11E
2.19.2 ILS Identification: IUM
2.19.5 Coordinates: 21−19−49.8152N / 157−54−13.0662W
2.19.6 Site Elevation: 5.1 ft

2.19.1 ILS Type: DME for runway 08L. Magnetic variation: 11E
2.19.2 ILS Identification: HNL
2.19.5 Coordinates: 21−19−27.8674N / 157−54−17.1566W
2.19.6 Site Elevation: 21.2 ft

2.19.1 ILS Type: Glide Slope for runway 08L. Magnetic variation: 11E
2.19.2 ILS Identification: HNL
2.19.5 Coordinates: 21−19−26.6745N / 157−56−24.533W
2.19.6 Site Elevation: 6.7 ft

2.19.1 ILS Type: Localizer for runway 08L. Magnetic variation: 11E
2.19.2 ILS Identification: HNL
2.19.5 Coordinates: 21−19−30.8788N / 157−54−14.7214W

2.19.6 Site Elevation: 5.4 ft

2.19.1 ILS Type: Outer Marker for runway 08L. Magnetic variation: 11E
2.19.2 ILS Identification: HNL
2.19.5 Coordinates: 21−19−28.9934N / 158−2−56.1122W
2.19.6 Site Elevation: 43.5 ft

2.19.1 ILS Type: DME for runway 26L. Magnetic variation: 11E
2.19.2 ILS Identification: EPC
2.19.5 Coordinates: 21−19−37.0011N / 157−54−25.9888W
2.19.6 Site Elevation: 24 ft

2.19.1 ILS Type: Localizer for runway 26L. Magnetic variation: 11E
2.19.2 ILS Identification: EPC
2.19.5 Coordinates: 21−19−35.0845N / 157−54−28.3182W
2.19.6 Site Elevation: 6.5 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 11E
2.19.2 Navigation Aid Identification: HNL
2.19.5 Coordinates: 21−18−29.9581N / 157−55−49.4801W
2.19.6 Site Elevation: 5.1 ft

General Remarks:
MILITARY RSTD: JBPH−H IS PPR TO ALL NON−TFWC MSN, AMC TRNG MSN AND KC−135 8 UN & 8 EN MSN CALL 735TH MOC AT DSN (315) 499−6970 FOR PPR. ALL AMC PPR WILL BE COORD MON−FRI 1700−0400Z ONLY. ALL NON−AMC ACFT SUCH AS FOREIGN, SISTER SVC, TSNT ACFT, AND OTR MSN MUST CTC 15 OSS/OSA (AMOPS) AT DSN (315) 449−0046/0048 FOR PPR COORD. ALL PPR WILL BE APVD NO EARLIER THAN 72 HR BUT NO LATER THAN 24 HR PRIOR.

CAUTION: DURING PERIODS OF REPEATED PRECIPITATION ANTICIPATE WET RY CONDTIONS, IF CURRENT CONDITIONS RQR CONFIRMATION CTC HONOLULU TWR ON INITIAL CONTACT.

CAUTION: RECREATIONAL BOATING ACTIVITIES ON AND INVOF WATERWAYS.

MILITARY: ALL MIL ACFT RQR CSTMS/AG/IMG INSPECTION MUST CTC 15WG COMMAND POST OR IF AMC CTC HICKAM AMCC, NLT 3 HRS PRIOR TO ARR WITH DEPARTURE LOCATION, EST BLOCK TIME, NR OF AIRCREW, CIV/MIL PAX, FOREIGN NATIONALS, AND DV CODES.*

ALL JET ACFT CTC RAMP CONTROL PRIOR TO ENGINE START AT GATE OR HARD STAND.

MILITARY MISC: ALL FPL MUST BE FILED WITH PHNL AS DESTN. IF MIL SIDE OF ARPT IS FINAL DESTN, PLACE ”DESTINATION HIK” IN RMKS OF FPL. FOR NOTAM USE PHNL IDENT.

MILITARY CAUTION: NO FIGHTER TRANSIENT SUPPORT AVAILABLE IN ACCORDANCE WITH ACC LSET FLASH SAFETY 06−02. TRANSIENT FIGHTER UNITS SHOULD PROVIDE THEIR OWN MAINTENANCE SUPPORT.

BIRD STRIKE HAZARD ALL RUNWAYS.

MILITARY/COMMUNICATIONS: BEDTIME (ALL CORONET W TANKERS USE 311.0 FOR TANKER−FTR INTER−PLANE ON LAUNCH DAY. AFT DUTY HR DSN 448−8888 613AOC/AMD, FLT MGMT).

MILITARY MISC: WX OPR H24, DSN 449−2251, C808−658−9961.

PPR FM AMGR FOR TRANSPORATION OF CLASS A OR B EXPLOS IN AND/OR OUT OF HNL.

TFC PAT OVHD ALT 2000 FT, RESTRICTED TO HIANG AND SENTRY ALOHA ACFT.

APRON TAXILANE 2 EAST END 360 FT CLSD.

MILITARY MISC: ANG − HI ANG AFLD OPS OPR 1500−0300Z MON−FRI AND UTA WKENDS; CLSD SAT, SUN AND HOL.

MILITARY CAUTION: FOD HAZARD EXISTS ON ALL MOVEMENT AREAS E OF TWY S. FIGHTER AIRCRAFT EXERCISE EXTREME CTN WHEN TAXIING.

MILITARY MISC 2 OF 2: WAIVERS WILL BE GRANTED ON EXTREME NEC. IF SHORT NOTICE MSN ESSENTIAL WAIVERS ARE NEC, CTC 15OG/CC BY FONE THRU 15 WG COMD POST(15 WG/CP) OR 154 OG/CC FOR HIANG AIRCRAFT. 15 WG COMMAND POST WILL PASS APVL TO HICKAM FLT SVC AND HICKAM RAMP ADZY.

MILITARY RSTD: MIL ACFT OPR DUR BIRD WATCH COND MODERATE (INITIAL TKOF OR FULL STOP LDG ONLY, NO MULTIPLE IFR/VFR APCH) AND SEVERE (TKOF AND LDG PROH WO 15 OG/CC APVL OR 154 OG/CC APVL FOR HIANG ACFT) CTC HIK RAMP, PTD, 15 WG COMD POST, 735 AMC COMD POST, 154 WG COMD POST FOR CURRENT COND.

MILITARY A−GEAR: HOOK MB100(B) LCTD 200 FT FM THLD RY 26R.

MILITARY TRAN ALERT: 15 WG CAN PROVIDE EQPT BUT CREWS MUST PROVIDE OWN PERS WHEN NEEDED.

TWYS G ADG V AND BELOW POWER IN W/PPR.

MILITARY CAUTION: A FOD HAZARD EXISTS ON ALL TAXIWAYS AND RUNWAYS BUT ESPECIALLY ON RUNWAY 4L/22R AND TAXIWAYS NORTH OF RUNWAY 8L/26R.

MILITARY RSTD: UPON ARR, CREWS WILL PRVD CREW ORDER/EAL TO 647 SFS PATROL AND PROCD DRCTLY TO COMMAND POST (BLDG 2050) AND CMPLT AN OUBD SETUP SHEET TO FACILITATE DEP RQMNTS.

DUE TO NON−VISIBILITY TWR UNA TO DTRM IF THE FLWG AREAS ARE CLEAR OF OBSTNS AND/OR TFC: PTNS OF TWY J BTN TWY B & RWY 08R; PTNS OF INTER−ISLAND ACFT PRKG RAMP.

MILITARY MISC: AFLD OPS DSN 449−0046/0048 FAX DSN 449−7624.

RYS 04W/22W AND 08W/26W RECREATIONAL BOATING ACTIVITIESON AND INVOF WATERWAYS.

MILITARY MISC 1 OF 2: DUE TO SENSITIVITIES OF CITIZENS, FTR ACFT DEP ONLY AUTHORIZED FR 1700−0700Z MON−SAT, AND 1800−0700Z SUN AND HOL. ALL REQ FOR WAIVERS WILL BE SENT TO THE 15/OG/CC OR 154 OG/CC FOR HIANG AIRCRAFT AT LEAST 5 WORKING DAYS IN ADVANCE.

MILITARY MISC: NO COMSEC MATERIAL AVBL THRU HICKAM AIRFIELD OPS.

RMN AT LEAST 1 MILE OFF SHORE OF WAIKIKI DIAMOND HEAD KOKO HEAD & EWA BEACH. ARR RWY 08L; FLY ILS APCH PROC OR A CLOSE−IN BASE LEG RMNG OVER CNTR OF PEARL HARBOR CHNL. ARR 26L/R; RNM AT TFC PAT ALTS AS LONG AS PSBL BFR BGNG DSCNT FOR LNDG.

MILITARY RSTD: ALL TRAN ACFT NOT ON AN AMC/TWCF MSN AND HOME STN ACFT TERMINATING AT JBPH−H, WILL PROVIDE A 3 HR OUT CALL (COMM 808−448−6900) AS WELL AS A 20−30 MIN OUT CALL ON 292.5 TO THE 15 WG/CP (KOA CONTROL).

DUE TO LOCATION OF ATCT, CONTROLLERS UNABLE TO DETERMINE WHETHER ACFT ARE ON CORRECT FINAL APCH TO RYS 04L−04R AND 22L−22R.

MILITARY RSTD: IF ACFT IS CARRYING HAZ CARGO, CARGO MANIFEST IS ALSO RQRD. AVBL TIMES TO ACCEPT HAZ CARGO ARE 0400−1600Z; ALL HAZ CARGO MUST COORDINATE WITH AMOPS 449−0046/48 48 HRS PRIOR TO MSN.

MILITARY SERVICE−A−GEAR: RWY 4R/22L AND 8R/26L SFC GROOVED WITHIN 10 FT OF A−G SYSTEM. POTENTIAL FOR FTR ACFT TAIL HOOK SKIP EXISTS.

MILITARY SERVICE−FUEL: A++ (MIL; AVBL H24).

WIDE BODY AND 4 ENGINE TBJTS LDG ON RY 04R ROLL TO END OF RY, NO LEFT TURN AT TWY K WO APVL.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

MILITARY: ALL MIL ACFT WITH VIP CODE 7 OR ABV CTC 15WG COMMAND POST OR RELAY THRU HF/SSB AWY 1 HR OUT TO CFM BLOCKTIME.

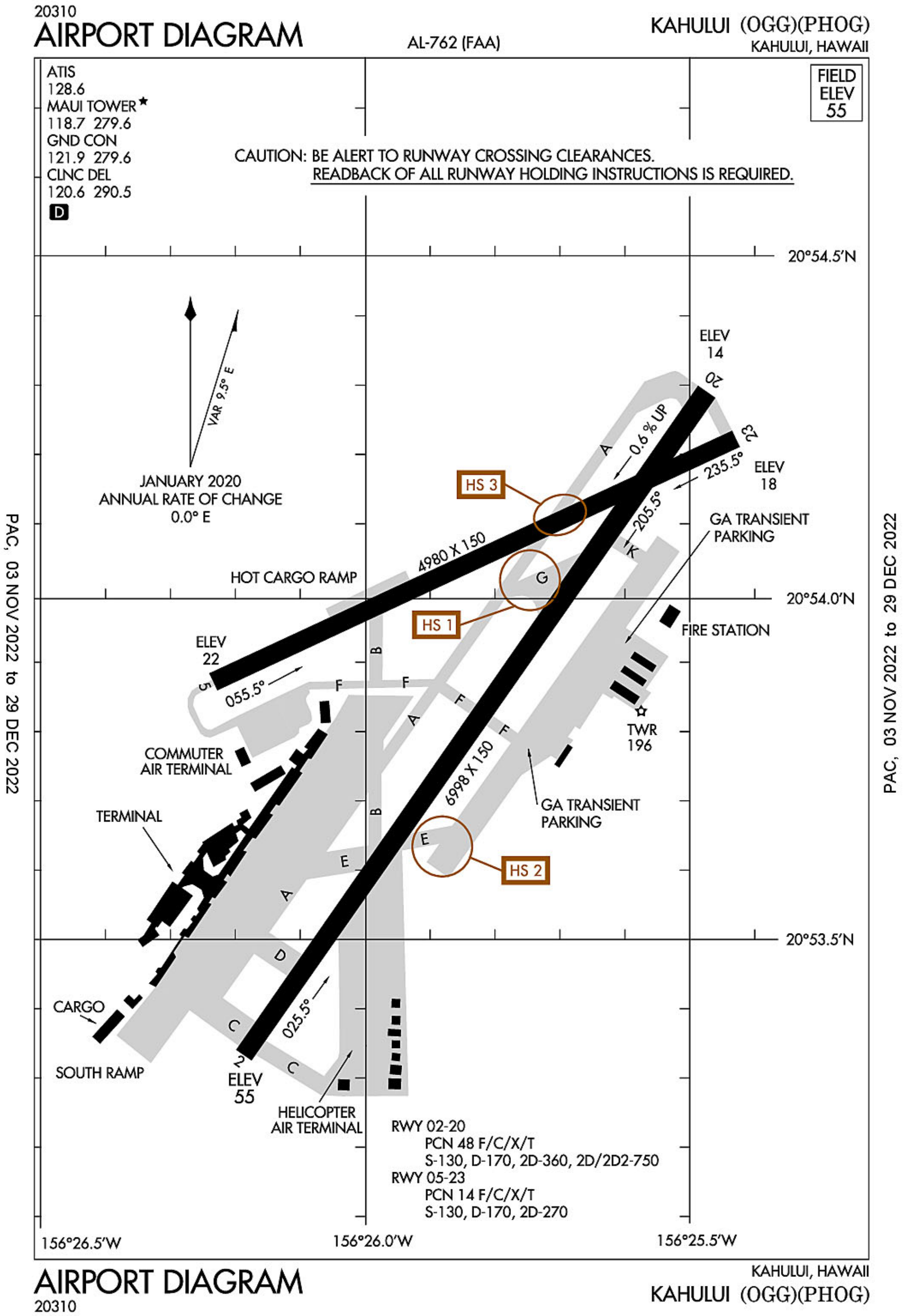
MILITARY REMARKS: SEE FLIP AP/3 SUPPLEMENTARY APRT INFO, RTE AND AREA RSTD, AND OAKLAND FIR FLT HAZ.

MILITARY MISC (2 OF 2 CONT'D): LTD WX BRIEF SUPPORT.REMOTE FLT WX BRIEFINGS CTC 17TH WX SQ H24, DSN 315−449−7950/8333, FAX DSN 315−449−8336; 2 HR PN RQR FOR TIMELY BRIEF.OFFICIAL OBSN TAKEN BY FAA. COOPERATIVE WX WATCH PROCEDURES DO NOT EXIST BTW WX AND ATC.

MILITARY RSTD: TWR APVL RQRD TO USE TWY KILO FROM RWY 4R. HOLD LINE IN EFCT FOR TWY R7 BTN PTN OF TWY XNG APCH ZONE FOR RWY 04L/R. TWY P CLSD TO ACFT OVER 12500 LBS.

APRON TAXILANE 6 BTWN TWY C AND SOUTH RAMP CLSD EXCEPT GA/FIXED WING LOADING/UNLOADING ONLY.

Kahului, Hawaii
Kahului
ICAO Identifier PHOG



Kahului, HI
Kahului
ICAO Identifier PHOG

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 20−53−55.135N / 156−25−49.651W
2.2.2 From City: 3 miles E of KAHULUI, HI
2.2.3 Elevation: 55.4 ft
2.2.5 Magnetic Variation: 11E (1990)
2.2.6 Airport Contact: MARVIN MONIZ
1 KAHULUI AIRPORT ROAD, UNIT 5
KAHULUI, HI 96732 (808−872−3808)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MINOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 02
2.12.2 True Bearing: 35
2.12.3 Dimensions: 6998 ft x 150 ft
2.12.4 PCN: 48 F/C/X/T
2.12.5 Coordinates: 20−53−20.9058N / 156−26−10.7497W
2.12.6 Threshold Elevation: 55.3 ft
2.12.6 Touchdown Zone Elevation: 55.4 ft

2.12.1 Designation: 20
2.12.2 True Bearing: 215
2.12.3 Dimensions: 6998 ft x 150 ft
2.12.4 PCN: 48 F/C/X/T
2.12.5 Coordinates: 20−54−17.7389N / 156−25−28.4443W
2.12.6 Threshold Elevation: 14.3 ft
2.12.6 Touchdown Zone Elevation: 27 ft

2.12.1 Designation: 05
2.12.2 True Bearing: 65
2.12.3 Dimensions: 4980 ft x 150 ft
2.12.4 PCN: 14 F/C/X/T
2.12.5 Coordinates: 20−53−52.8965N / 156−26−13.521W
2.12.6 Threshold Elevation: 22.1 ft
2.12.6 Touchdown Zone Elevation: 22.2 ft

2.12.1 Designation: 23
2.12.2 True Bearing: 245
2.12.3 Dimensions: 4980 ft x 150 ft
2.12.4 PCN: 14 F/C/X/T
2.12.5 Coordinates: 20−54−13.7155N / 156−25−25.928W
2.12.6 Threshold Elevation: 17.6 ft
2.12.6 Touchdown Zone Elevation: 18.9 ft

2.12.1 Designation: H1
2.12.2 True Bearing:
2.12.3 Dimensions: 125 ft x 125 ft
2.12.4 PCN: ///
2.12.5 Coordinates: −− / −−
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

AD 2.13 Declared Distances
2.13.1 Designation: 02
2.13.2 Take−off Run Available: 6995 ft
2.13.3 Take−off Distance Available: 6995 ft
2.13.4 Accelerate−Stop Distance Available: 6995 ft
2.13.5 Landing Distance Available: 6995 ft

2.13.1 Designation: 20
2.13.2 Take−off Run Available: 6995 ft
2.13.3 Take−off Distance Available: 6995 ft
2.13.4 Accelerate−Stop Distance Available: 6995 ft
2.13.5 Landing Distance Available: 6995 ft

2.13.1 Designation: 05
2.13.2 Take−off Run Available: 4990 ft
2.13.3 Take−off Distance Available: 4990 ft
2.13.4 Accelerate−Stop Distance Available: 4990 ft
2.13.5 Landing Distance Available: 4990 ft

2.13.1 Designation: 23
2.13.2 Take−off Run Available: 4990 ft
2.13.3 Take−off Distance Available: 4990 ft
2.13.4 Accelerate−Stop Distance Available: 4990 ft
2.13.5 Landing Distance Available: 4990 ft

2.13.1 Designation: H1
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 02

2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 20
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 05
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 23
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: H1
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P DEP/P IC (SOUTH)
2.14.3 Channel: 119.5
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: APCH/P DEP/P IC (NORTH)
2.14.3 Channel: 120.2
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: APCH/P DEP/P IC (SOUTH)
2.14.3 Channel: 225.4
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: APCH/P DEP/P IC (NORTH)
2.14.3 Channel: 322.4
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: ATIS
2.14.3 Channel: 128.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 120.6
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: CD/P

2.14.3 Channel: 290.5
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: CLASS C (SOUTH)
2.14.3 Channel: 119.5
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: CLASS C (NORTH)
2.14.3 Channel: 120.2
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: CLASS C (SOUTH)
2.14.3 Channel: 225.4
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: CLASS C (NORTH)
2.14.3 Channel: 322.4
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: GND/P
2.14.3 Channel: 279.6
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 118.7
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 279.6
2.14.5 Hours of Operation: 0600−2300 (MAR−NOV)
0600−2400 (NOV−MAR)

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 02. Magnetic variation: 11E
2.19.2 ILS Identification: OGG
2.19.5 Coordinates: 20−54−27.3859N / 156−25−23.7568W
2.19.6 Site Elevation: 22 ft

2.19.1 ILS Type: Glide Slope for runway 02. Magnetic variation: 11E
2.19.2 ILS Identification: OGG
2.19.5 Coordinates: 20−53−29.5489N / 156−25−59.2238W
2.19.6 Site Elevation: 49.5 ft

2.19.1 ILS Type: Localizer for runway 02. Magnetic variation: 11E
2.19.2 ILS Identification: OGG
2.19.5 Coordinates: 20−54−25.9395N / 156−25−22.344W
2.19.6 Site Elevation: 11.1 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 11E
2.19.2 Navigation Aid Identification: OGG
2.19.5 Coordinates: 20−54−23.2995N / 156−25−15.4249W
2.19.6 Site Elevation: 24.3 ft

General Remarks:
ACCESS TO HELIPAD FM TWY C ONLY.

ACFT OVR 30,000 LB LDG ON RY 02/20 UNA TO TURN OFF ONTO RY 05/23 DUE TO PAVEMENT COND.

MIGRATORY BIRD ACTIVITY BLO 1500 FT WI 5 NM RADIUS OF ARPT DURG AUG−MAY.

570’ LGTD TWR APRX 3 MI. W.

COMMUTER AIR TRML RSTRD TO PART 121 AND PART 135 OPRS ONLY. ACFT AT THE TRML SHALL CALL THE TWR ON 121.9 PRIOR TO PUSHBACK.

FOR CD WHEN ATCT IS CLSD CTC HONOLULU CONTROL FACILITY AT 808−840−6262.

RY 02/20 SINGLE−BELLY TWIN TANDEM (SBTT) GWT 460,000 LBS.

TSNT PARKING LCTD ON NE SECTION OF E RAMP.

PPR FOR FIXED WING ACFT OPNS ON HELIPAD DURG NON−OPERATIONAL HRS CALL (808) 872−3880 5:15A−10:00P.

COMMUTER TERMINAL RAMP RESTRICTED TO ACFT 140000 LBS OR LESS.

DUE TO NONVISIBILITY ATCT UNABLE TO DETERMINE IF FLWG AREA IS CLEAR OF OBSTNS AND/OR TFC: PORTION OF TWY F BTN THE COMMUTER AIR TERMINAL & APCH END RY 05.

DUE TO NONVISIBILITY ATCT UNABLE TO PROVIDE ATC SVC BTN ACFT & GROUND VEHICLES ON THE COMMUTER AIR TERMINAL S OF TWY F AND THE HELICOPTER AIR TERMINAL E OF APCH END RY 02.

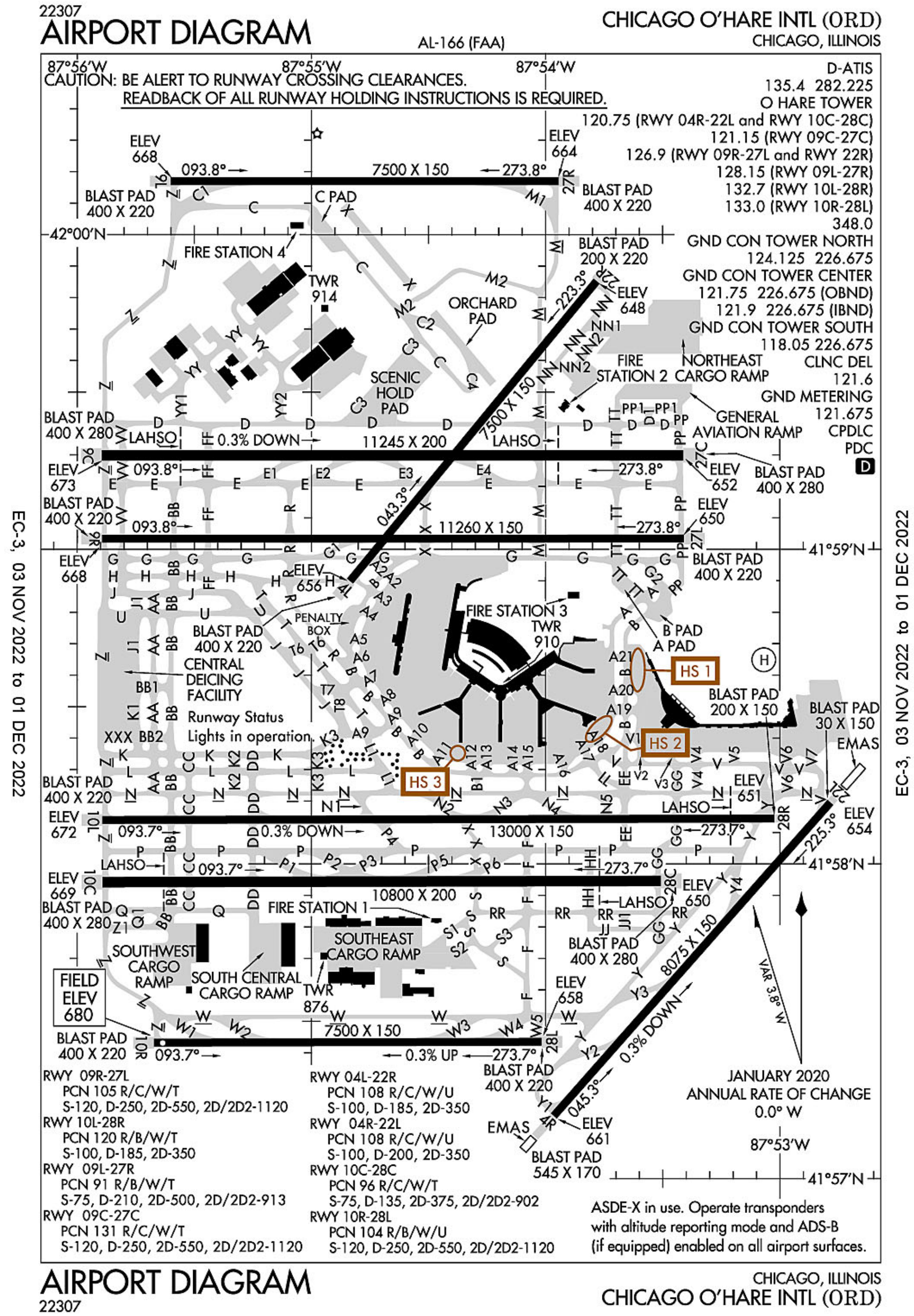
AREA E OF APCH END RY 02 DESIGNATED AS HELICOPTER OPER AREA. NO FIXED WING ACFT MAY OPER ON HELIPAD DURG OPNL HRS SR−SS.

RAMP AREA E SIDE RY 02 UNDER STATE AUTHORITY. FAA NOT RESPONSIBLE FOR DIRECTION & CTL GND TFC IN AREA.

MIL HEL OPS WITH PPR RSTRD TO THE SW CORNER OF HOT CARGO APRON (HAZMAT) N OF RWY 05/23.

24 HRS PPR FOR DIVISION 1.1,1.2,1.3 EXPLOSIVES AND 4 HRS PPR FOR OTHER HAZARDOUS CARGO IN/OUT OF ARPT; CTC (808) 872−3830 0745−1630 OTHER TIMES (808) 872−3888.

Chicago, Illinois
Chicago−O'Hare International
ICAO Identifier KORD



Chicago, IL
Chicago O'Hare Intl
ICAO Identifier KORD

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 41−58−36.985N / 87−54−29.339W
2.2.2 From City: 14 miles NW of CHICAGO, IL
2.2.3 Elevation: 680 ft
2.2.5 Magnetic Variation: 3W (2010)
2.2.6 Airport Contact: JAMIE RHEE
10510 WEST ZEMKE RO
CHICAGO, IL 60666 (773−686−8060)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: NO
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 04L
2.12.2 True Bearing: 39
2.12.3 Dimensions: 7500 ft x 150 ft
2.12.4 PCN: 108 R/C/W/U
2.12.5 Coordinates: 41−58−53.9601N / 87−54−50.1039W
2.12.6 Threshold Elevation: 655.7 ft
2.12.6 Touchdown Zone Elevation: 658.2 ft

2.12.1 Designation: 22R
2.12.2 True Bearing: 219
2.12.3 Dimensions: 7500 ft x 150 ft
2.12.4 PCN: 108 R/C/W/U
2.12.5 Coordinates: 41−59−51.1336N / 87−53−46.9364W
2.12.6 Threshold Elevation: 647.7 ft
2.12.6 Touchdown Zone Elevation: 651.5 ft

2.12.1 Designation: 04R
2.12.2 True Bearing: 42
2.12.3 Dimensions: 8075 ft x 150 ft
2.12.4 PCN: 108 R/C/W/U
2.12.5 Coordinates: 41−57−11.9778N / 87−53−57.9066W
2.12.6 Threshold Elevation: 661.4 ft
2.12.6 Touchdown Zone Elevation: 661.4 ft

2.12.1 Designation: 22L
2.12.2 True Bearing: 222
2.12.3 Dimensions: 8075 ft x 150 ft
2.12.4 PCN: 108 R/C/W/U
2.12.5 Coordinates: 41−58−11.718N / 87−52−47.0759W
2.12.6 Threshold Elevation: 654.4 ft
2.12.6 Touchdown Zone Elevation: 654.4 ft

2.12.1 Designation: 09C
2.12.2 True Bearing: 90
2.12.3 Dimensions: 11245 ft x 200 ft
2.12.4 PCN: 131 R/C/W/T
2.12.5 Coordinates: 41−59−17.8916N / 87−55−53.6564W
2.12.6 Threshold Elevation: 673.3 ft
2.12.6 Touchdown Zone Elevation: 673.3 ft

2.12.1 Designation: 27C
2.12.2 True Bearing: 270
2.12.3 Dimensions: 11245 ft x 200 ft
2.12.4 PCN: 131 R/C/W/T
2.12.5 Coordinates: 41−59−17.9172N / 87−53−24.7562W
2.12.6 Threshold Elevation: 652.4 ft
2.12.6 Touchdown Zone Elevation: 652.8 ft

2.12.1 Designation: 27R
2.12.2 True Bearing: 270
2.12.3 Dimensions: 7500 ft x 150 ft
2.12.4 PCN: 91 R/B/W/T
2.12.5 Coordinates: 42−0−10.1909N / 87−53−56.6997W
2.12.6 Threshold Elevation: 663.6 ft
2.12.6 Touchdown Zone Elevation: 663.6 ft

2.12.1 Designation: 09L
2.12.2 True Bearing: 90
2.12.3 Dimensions: 7500 ft x 150 ft
2.12.4 PCN: 91 R/B/W/T
2.12.5 Coordinates: 42−0−10.1954N / 87−55−36.0339W
2.12.6 Threshold Elevation: 668 ft
2.12.6 Touchdown Zone Elevation: 668 ft

2.12.1 Designation: 09R
2.12.2 True Bearing: 90
2.12.3 Dimensions: 11260 ft x 150 ft
2.12.4 PCN: 105 R/C/W/T
2.12.5 Coordinates: 41−59−2.0171N / 87−55−53.6481W
2.12.6 Threshold Elevation: 668.2 ft
2.12.6 Touchdown Zone Elevation: 668.2 ft

2.12.1 Designation: 27L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 11260 ft x 150 ft

2.12.4 PCN: 105 R/C/W/T
2.12.5 Coordinates: 41−59−2.0417N / 87−53−24.5558W
2.12.6 Threshold Elevation: 650.3 ft
2.12.6 Touchdown Zone Elevation: 653.9 ft

2.12.1 Designation: 10C
2.12.2 True Bearing: 90
2.12.3 Dimensions: 10800 ft x 200 ft
2.12.4 PCN: 96 R/C/W/T
2.12.5 Coordinates: 41−57−56.5251N / 87−55−53.4778W
2.12.6 Threshold Elevation: 669.4 ft
2.12.6 Touchdown Zone Elevation: 669.4 ft

2.12.1 Designation: 28C
2.12.2 True Bearing: 270
2.12.3 Dimensions: 10800 ft x 200 ft
2.12.4 PCN: 96 R/C/W/T
2.12.5 Coordinates: 41−57−56.7568N / 87−53−30.5171W
2.12.6 Threshold Elevation: 650.1 ft
2.12.6 Touchdown Zone Elevation: 651.1 ft

2.12.1 Designation: 28R
2.12.2 True Bearing: 270
2.12.3 Dimensions: 13000 ft x 150 ft
2.12.4 PCN: 120 R/B/W/T
2.12.5 Coordinates: 41−58−8.6529N / 87−53−1.4244W
2.12.6 Threshold Elevation: 651.4 ft
2.12.6 Touchdown Zone Elevation: 651.4 ft

2.12.1 Designation: 10L
2.12.2 True Bearing: 90
2.12.3 Dimensions: 13000 ft x 150 ft
2.12.4 PCN: 120 R/B/W/T
2.12.5 Coordinates: 41−58−8.3816N / 87−55−53.5142W
2.12.6 Threshold Elevation: 672.1 ft
2.12.6 Touchdown Zone Elevation: 672.1 ft

2.12.1 Designation: 28L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 7500 ft x 150 ft
2.12.4 PCN: 104 R/B/W/U
2.12.5 Coordinates: 41−57−26.0865N / 87−54−1.0355W
2.12.6 Threshold Elevation: 658 ft
2.12.6 Touchdown Zone Elevation: 666.8 ft

2.12.1 Designation: 10R
2.12.2 True Bearing: 90
2.12.3 Dimensions: 7500 ft x 150 ft
2.12.4 PCN: 104 R/B/W/U
2.12.5 Coordinates: 41−57−25.924N / 87−55−40.3004W
2.12.6 Threshold Elevation: 680 ft

2.12.6 Touchdown Zone Elevation: 680 ft

2.12.1 Designation: 10X
2.12.2 True Bearing:
2.12.3 Dimensions: 0 ft x 0 ft
2.12.4 PCN: ///
2.12.5 Coordinates: −− / −−
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

2.12.1 Designation: H1
2.12.2 True Bearing:
2.12.3 Dimensions: 200 ft x 100 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 41−58−39.0644N / 87−53−4.0081W
2.12.6 Threshold Elevation: 649.7 ft
2.12.6 Touchdown Zone Elevation: ft

AD 2.13 Declared Distances
2.13.1 Designation: 04L
2.13.2 Take−off Run Available: 7500 ft
2.13.3 Take−off Distance Available: 7500 ft
2.13.4 Accelerate−Stop Distance Available: 7500 ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 22R
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: 7300 ft

2.13.1 Designation: 04R
2.13.2 Take−off Run Available: 8075 ft
2.13.3 Take−off Distance Available: 8075 ft
2.13.4 Accelerate−Stop Distance Available: 8075 ft
2.13.5 Landing Distance Available: 8075 ft

2.13.1 Designation: 22L
2.13.2 Take−off Run Available: 8075 ft
2.13.3 Take−off Distance Available: 8075 ft
2.13.4 Accelerate−Stop Distance Available: 8075 ft
2.13.5 Landing Distance Available: 8075 ft

2.13.1 Designation: 09C
2.13.2 Take−off Run Available: 11245 ft
2.13.3 Take−off Distance Available: 11245 ft
2.13.4 Accelerate−Stop Distance Available: 11245 ft
2.13.5 Landing Distance Available: 11245 ft

2.13.1 Designation: 27C

2.13.2 Take−off Run Available: 11245 ft
2.13.3 Take−off Distance Available: 11245 ft
2.13.4 Accelerate−Stop Distance Available: 11245 ft
2.13.5 Landing Distance Available: 11245 ft

2.13.1 Designation: 27R
2.13.2 Take−off Run Available: 7500 ft
2.13.3 Take−off Distance Available: 7500 ft
2.13.4 Accelerate−Stop Distance Available: 7500 ft
2.13.5 Landing Distance Available: 7500 ft

2.13.1 Designation: 09L
2.13.2 Take−off Run Available: 7500 ft
2.13.3 Take−off Distance Available: 7500 ft
2.13.4 Accelerate−Stop Distance Available: 7500 ft
2.13.5 Landing Distance Available: 7500 ft

2.13.1 Designation: 09R
2.13.2 Take−off Run Available: 11260 ft
2.13.3 Take−off Distance Available: 11260 ft
2.13.4 Accelerate−Stop Distance Available: 11260 ft
2.13.5 Landing Distance Available: 11260 ft

2.13.1 Designation: 27L
2.13.2 Take−off Run Available: 11260 ft
2.13.3 Take−off Distance Available: 11260 ft
2.13.4 Accelerate−Stop Distance Available: 11260 ft
2.13.5 Landing Distance Available: 11260 ft

2.13.1 Designation: 10C
2.13.2 Take−off Run Available: 10801 ft
2.13.3 Take−off Distance Available: 10801 ft
2.13.4 Accelerate−Stop Distance Available: 10540 ft
2.13.5 Landing Distance Available: 10540 ft

2.13.1 Designation: 28C
2.13.2 Take−off Run Available: 10801 ft
2.13.3 Take−off Distance Available: 10801 ft
2.13.4 Accelerate−Stop Distance Available: 10801 ft
2.13.5 Landing Distance Available: 10801 ft

2.13.1 Designation: 28R
2.13.2 Take−off Run Available: 13000 ft
2.13.3 Take−off Distance Available: 13000 ft
2.13.4 Accelerate−Stop Distance Available: 13000 ft
2.13.5 Landing Distance Available: 13000 ft

2.13.1 Designation: 10L
2.13.2 Take−off Run Available: 13000 ft
2.13.3 Take−off Distance Available: 13000 ft
2.13.4 Accelerate−Stop Distance Available: 13000 ft

2.13.5 Landing Distance Available: 12246 ft

2.13.1 Designation: 28L
2.13.2 Take−off Run Available: 7500 ft
2.13.3 Take−off Distance Available: 7500 ft
2.13.4 Accelerate−Stop Distance Available: 7500 ft
2.13.5 Landing Distance Available: 7500 ft

2.13.1 Designation: 10R
2.13.2 Take−off Run Available: 7500 ft
2.13.3 Take−off Distance Available: 7500 ft
2.13.4 Accelerate−Stop Distance Available: 7500 ft
2.13.5 Landing Distance Available: 7500 ft

2.13.1 Designation: 10X
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: H1
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 04L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 22R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 04R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 22L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 09C
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 27C
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 27R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 09L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 09R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 27L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 10C
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28C
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 10R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 10X
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: H1
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 22R. Magnetic variation: 3W
2.19.2 ILS Identification: RXZ
2.19.5 Coordinates: 41−59−46.5114N / 87−53−59.027W
2.19.6 Site Elevation: 645.1 ft

2.19.1 ILS Type: Localizer for runway 22R. Magnetic variation: 3W
2.19.2 ILS Identification: RXZ
2.19.5 Coordinates: 41−58−47.729N / 87−54−56.987W
2.19.6 Site Elevation: 656.5 ft

2.19.1 ILS Type: Glide Slope for runway 04R. Magnetic variation: 3W
2.19.2 ILS Identification: FJU
2.19.5 Coordinates: 41−57−16.8552N / 87−53−44.3489W
2.19.6 Site Elevation: 654.1 ft

2.19.1 ILS Type: Localizer for runway 04R. Magnetic variation: 3W
2.19.2 ILS Identification: FJU
2.19.5 Coordinates: 41−58−16.1967N / 87−52−41.7631W
2.19.6 Site Elevation: 646.6 ft

2.19.1 ILS Type: Glide Slope for runway 22L. Magnetic variation: 3W
2.19.2 ILS Identification: LQQ
2.19.5 Coordinates: 41−58−0.7989N / 87−52−52.6077W
2.19.6 Site Elevation: 645.9 ft

2.19.1 ILS Type: Localizer for runway 22L. Magnetic variation: 3W
2.19.2 ILS Identification: LQQ
2.19.5 Coordinates: 41−57−5.6133N / 87−54−5.4506W
2.19.6 Site Elevation: 653 ft

2.19.1 ILS Type: DME for runway 09C. Magnetic variation: 3W
2.19.2 ILS Identification: OYG
2.19.5 Coordinates: 41−59−22.1969N / 87−56−7.1574W
2.19.6 Site Elevation: 688.1 ft

2.19.1 ILS Type: Glide Slope for runway 09C. Magnetic variation: 3W
2.19.2 ILS Identification: OYG
2.19.5 Coordinates: 41−59−21.8824N / 87−55−38.9074W
2.19.6 Site Elevation: 667.2 ft

2.19.1 ILS Type: Inner Marker for runway 09C. Magnetic variation: 3W
2.19.2 ILS Identification: OYG
2.19.5 Coordinates: 41−59−17.8812N / 87−56−5.0452W
2.19.6 Site Elevation: 680.4 ft

2.19.1 ILS Type: Localizer for runway 09C. Magnetic variation: 3W
2.19.2 ILS Identification: OYG
2.19.5 Coordinates: 41−59−17.9161N / 87−53−10.9443W
2.19.6 Site Elevation: 656.3 ft

2.19.1 ILS Type: DME for runway 27C. Magnetic variation: 3W
2.19.2 ILS Identification: UYJ
2.19.5 Coordinates: 41−59−22.1969N / 87−56−7.1574W
2.19.6 Site Elevation: 688.1 ft

2.19.1 ILS Type: Glide Slope for runway 27C. Magnetic variation: 3W
2.19.2 ILS Identification: UYJ
2.19.5 Coordinates: 41−59−21.9024N / 87−53−38.9227W
2.19.6 Site Elevation: 646.1 ft

2.19.1 ILS Type: Inner Marker for runway 27C. Magnetic variation: 3W
2.19.2 ILS Identification: UYJ
2.19.5 Coordinates: 41−59−17.9169N / 87−53−13.3671W
2.19.6 Site Elevation: 656.3 ft

2.19.1 ILS Type: Localizer for runway 27C. Magnetic variation: 3W
2.19.2 ILS Identification: UYJ
2.19.5 Coordinates: 41−59−17.8863N / 87−56−7.0691W
2.19.6 Site Elevation: 681.9 ft

2.19.1 ILS Type: DME for runway 09L. Magnetic variation: 3W
2.19.2 ILS Identification: SAJ
2.19.5 Coordinates: 42−0−14.0985N / 87−55−48.2323W
2.19.6 Site Elevation: 669.5 ft

2.19.1 ILS Type: Glide Slope for runway 09L. Magnetic variation: 3W
2.19.2 ILS Identification: SAJ
2.19.5 Coordinates: 42−0−14.2182N / 87−55−20.6714W
2.19.6 Site Elevation: 651.3 ft

2.19.1 ILS Type: Inner Marker for runway 09L. Magnetic variation: 3W
2.19.2 ILS Identification: SAJ
2.19.5 Coordinates: 42−0−10.1934N / 87−55−47.4231W
2.19.6 Site Elevation: 668.8 ft

2.19.1 ILS Type: Localizer for runway 09L. Magnetic variation: 3W
2.19.2 ILS Identification: SAJ
2.19.5 Coordinates: 42−0−10.1874N / 87−53−43.3254W
2.19.6 Site Elevation: 660.9 ft

2.19.1 ILS Type: DME for runway 27R. Magnetic variation: 3W
2.19.2 ILS Identification: ABU
2.19.5 Coordinates: 42−0−14.0985N / 87−55−48.2323W
2.19.6 Site Elevation: 669.5 ft

2.19.1 ILS Type: Glide Slope for runway 27R. Magnetic variation: 3W
2.19.2 ILS Identification: ABU
2.19.5 Coordinates: 42−0−14.2137N / 87−54−11.7412W
2.19.6 Site Elevation: 648.4 ft

2.19.1 ILS Type: Inner Marker for runway 27R. Magnetic variation: 3W
2.19.2 ILS Identification: ABU
2.19.5 Coordinates: 42−0−9.9864N / 87−53−45.3008W
2.19.6 Site Elevation: 663.1 ft

2.19.1 ILS Type: Localizer for runway 27R. Magnetic variation: 3W
2.19.2 ILS Identification: ABU
2.19.5 Coordinates: 42−0−10.1939N / 87−55−50.1994W
2.19.6 Site Elevation: 668.1 ft

2.19.1 ILS Type: DME for runway 09R. Magnetic variation: 3W
2.19.2 ILS Identification: JAV
2.19.5 Coordinates: 41−58−57.74N / 87−53−13.65W
2.19.6 Site Elevation: 673 ft

2.19.1 ILS Type: Glide Slope for runway 09R. Magnetic variation: 3W
2.19.2 ILS Identification: JAV
2.19.5 Coordinates: 41−59−6.96N / 87−55−38.39W
2.19.6 Site Elevation: 661.9 ft

2.19.1 ILS Type: Inner Marker for runway 09R. Magnetic variation: 3W
2.19.2 ILS Identification: JAV
2.19.5 Coordinates: 41−59−2.01N / 87−56−4.01W
2.19.6 Site Elevation: 669.1 ft

2.19.1 ILS Type: Localizer for runway 09R. Magnetic variation: 3W
2.19.2 ILS Identification: JAV
2.19.5 Coordinates: 41−59−2.04N / 87−53−10.79W
2.19.6 Site Elevation: 642 ft

2.19.1 ILS Type: DME for runway 27L. Magnetic variation: 3W
2.19.2 ILS Identification: IAC
2.19.5 Coordinates: 41−58−57.74N / 87−53−13.65W
2.19.6 Site Elevation: 673 ft

2.19.1 ILS Type: Glide Slope for runway 27L. Magnetic variation: 3W
2.19.2 ILS Identification: IAC
2.19.5 Coordinates: 41−59−6.98N / 87−53−38.67W
2.19.6 Site Elevation: 647.3 ft

2.19.1 ILS Type: Inner Marker for runway 27L. Magnetic variation: 3W
2.19.2 ILS Identification: IAC
2.19.5 Coordinates: 41−59−2.04N / 87−53−13.53W
2.19.6 Site Elevation: 645 ft

2.19.1 ILS Type: Localizer for runway 27L. Magnetic variation: 3W
2.19.2 ILS Identification: IAC
2.19.5 Coordinates: 41−59−2.01N / 87−56−7.22W
2.19.6 Site Elevation: 673 ft

2.19.1 ILS Type: DME for runway 10C. Magnetic variation: 3W

2.19.2 ILS Identification: SXH
2.19.5 Coordinates: 41−58−0.9714N / 87−56−9.15W
2.19.6 Site Elevation: 689.3 ft

2.19.1 ILS Type: Glide Slope for runway 10C. Magnetic variation: 3W
2.19.2 ILS Identification: SXH
2.19.5 Coordinates: 41−57−52.8465N / 87−55−39.0226W
2.19.6 Site Elevation: 663 ft

2.19.1 ILS Type: Inner Marker for runway 10C. Magnetic variation: 3W
2.19.2 ILS Identification: SXH
2.19.5 Coordinates: 41−57−56.5015N / 87−56−4.8681W
2.19.6 Site Elevation: 674.3 ft

2.19.1 ILS Type: Localizer for runway 10C. Magnetic variation: 3W
2.19.2 ILS Identification: SXH
2.19.5 Coordinates: 41−57−56.803N / 87−52−57.2925W
2.19.6 Site Elevation: 646.3 ft

2.19.1 ILS Type: DME for runway 28C. Magnetic variation: 3W
2.19.2 ILS Identification: VZE
2.19.5 Coordinates: 41−58−0.9714N / 87−56−9.15W
2.19.6 Site Elevation: 689.3 ft

2.19.1 ILS Type: Glide Slope for runway 28C. Magnetic variation: 3W
2.19.2 ILS Identification: VZE
2.19.5 Coordinates: 41−57−53.0321N / 87−53−44.3196W
2.19.6 Site Elevation: 642.4 ft

2.19.1 ILS Type: Inner Marker for runway 28C. Magnetic variation: 3W
2.19.2 ILS Identification: VZE
2.19.5 Coordinates: 41−57−58.7451N / 87−53−19.1677W
2.19.6 Site Elevation: 648 ft

2.19.1 ILS Type: Localizer for runway 28C. Magnetic variation: 3W
2.19.2 ILS Identification: VZE
2.19.5 Coordinates: 41−57−56.5013N / 87−56−6.8848W
2.19.6 Site Elevation: 676.4 ft

2.19.1 ILS Type: DME for runway 10L. Magnetic variation: 3W
2.19.2 ILS Identification: MED
2.19.5 Coordinates: 41−58−5.6721N / 87−52−41.6845W
2.19.6 Site Elevation: 656 ft

2.19.1 ILS Type: Glide Slope for runway 10L. Magnetic variation: 3W
2.19.2 ILS Identification: MED
2.19.5 Coordinates: 41−58−4.3877N / 87−55−38.7659W
2.19.6 Site Elevation: 665.3 ft

2.19.1 ILS Type: Inner Marker for runway 10L. Magnetic variation: 3W
2.19.2 ILS Identification: MED

2.19.5 Coordinates: 41−58−8.5523N / 87−56−4.8866W
2.19.6 Site Elevation: 676.8 ft

2.19.1 ILS Type: Localizer for runway 10L. Magnetic variation: 3W
2.19.2 ILS Identification: MED
2.19.5 Coordinates: 41−58−8.6818N / 87−52−39.6951W
2.19.6 Site Elevation: 644.9 ft

2.19.1 ILS Type: DME for runway 28R. Magnetic variation: 3W
2.19.2 ILS Identification: TSL
2.19.5 Coordinates: 41−58−5.6721N / 87−52−41.6845W
2.19.6 Site Elevation: 656 ft

2.19.1 ILS Type: Glide Slope for runway 28R. Magnetic variation: 3W
2.19.2 ILS Identification: TSL
2.19.5 Coordinates: 41−58−4.4701N / 87−53−15.0487W
2.19.6 Site Elevation: 648.2 ft

2.19.1 ILS Type: Inner Marker for runway 28R. Magnetic variation: 3W
2.19.2 ILS Identification: TSL
2.19.5 Coordinates: 41−58−6.1128N / 87−52−49.1235W
2.19.6 Site Elevation: 649.5 ft

2.19.1 ILS Type: Localizer for runway 28R. Magnetic variation: 3W
2.19.2 ILS Identification: TSL
2.19.5 Coordinates: 41−58−8.356N / 87−56−6.8801W
2.19.6 Site Elevation: 679.1 ft

2.19.1 ILS Type: DME for runway 10R. Magnetic variation: 4W
2.19.2 ILS Identification: BYW
2.19.5 Coordinates: 41−57−28.3399N / 87−53−27.4609W
2.19.6 Site Elevation: 669.6 ft

2.19.1 ILS Type: Glide Slope for runway 10R. Magnetic variation: 4W
2.19.2 ILS Identification: BYW
2.19.5 Coordinates: 41−57−21.909N / 87−55−25.5702W
2.19.6 Site Elevation: 671.7 ft

2.19.1 ILS Type: Localizer for runway 10R. Magnetic variation: 4W
2.19.2 ILS Identification: BYW
2.19.5 Coordinates: 41−57−31.6045N / 87−53−26.3741W
2.19.6 Site Elevation: 649.9 ft

2.19.1 ILS Type: DME for runway 28L. Magnetic variation: 4W
2.19.2 ILS Identification: VQX
2.19.5 Coordinates: 41−57−22.2251N / 87−53−34.2417W
2.19.6 Site Elevation: 656.1 ft

2.19.1 ILS Type: Glide Slope for runway 28L. Magnetic variation: 4W
2.19.2 ILS Identification: VQX
2.19.5 Coordinates: 41−57−22.0258N / 87−54−14.1801W

2.19.6 Site Elevation: 654 ft

2.19.1 ILS Type: Inner Marker for runway 28L. Magnetic variation: 4W
2.19.2 ILS Identification: VQX
2.19.5 Coordinates: 41−57−26.9517N / 87−53−47.4584W
2.19.6 Site Elevation: 650.4 ft

2.19.1 ILS Type: Localizer for runway 28L. Magnetic variation: 4W
2.19.2 ILS Identification: VQX
2.19.5 Coordinates: 41−57−25.8994N / 87−55−53.7065W
2.19.6 Site Elevation: 680.2 ft

2.19.1 ILS Type: DME for runway 10X. Magnetic variation: 4W
2.19.2 ILS Identification: IZJ
2.19.5 Coordinates: 41−57−22.2251N / 87−53−34.2417W
2.19.6 Site Elevation: 656.1 ft

2.19.1 ILS Type: Glide Slope for runway 10X. Magnetic variation: 4W
2.19.2 ILS Identification: IZJ
2.19.5 Coordinates: 41−57−22.1087N / 87−55−25.5572W
2.19.6 Site Elevation: 671.8 ft

2.19.1 ILS Type: Inner Marker for runway 10X. Magnetic variation: 4W
2.19.2 ILS Identification: IZJ
2.19.5 Coordinates: 41−57−25.9088N / 87−55−51.6695W
2.19.6 Site Elevation: 680 ft

2.19.1 ILS Type: Localizer for runway 10X. Magnetic variation: 4W
2.19.2 ILS Identification: IZJ
2.19.5 Coordinates: 41−57−26.1287N / 87−53−32.5409W
2.19.6 Site Elevation: 652.2 ft

General Remarks:
TXL BB2 CLSD TO WINGSPAN MORE THAN 118 FT

A380−800 OPR CONSTRAINTS EXIST ON RWYS, TWYS, & RAMPS − CTC ARPT OPS FOR INFO 773−686−2255.

BIRDS ON & INVOF ARPT; PYROTECHNICS & BIRD CANNONS IN USE.

BE ALERT: THE NORTHEAST/SOUTHWEST PORTION OF TWY YY IS NOT VSBL FM THE CENTER ATCT.

RWY STATUS LGTS ARE IN OPN.

MAG DEVIATION PSBL IMT W OF TWY Y & RWY 22L APCH ON TWY N.

EAST AND WEST GATES ARE MANNED 24 HRS A DAY.

ACFT ARE NOT PMTD TO STOP ON EITHER TWY A OR B BRIDGES.

BE ALERT: TWY S1 OBND OR EB ONLY, TWY S2 INBD OR WB ONLY, TWY P1, P2, P3, P5, AND P6 NB ONLY, TWY E1, E2, E3 & E4 SB ONLY. TWY E3 WB ONLY FM RWY 09C/27C.

ALERT: DUPE ALPHA−NUMERIC TWY DESIGNATORS & TRML GATE DESIGNATIONS INVOLVING THE LTRS

B, C, G, H, K, L & M.

SEE LND & HOLD SHORT OPS SECTION.

B747−8, B747−400, B777−200LR(F), B777−300ER, A350−900, A350−1000, A340−500, A340−600 & A330−900 CANNOT PASS ON TWY A & TWY B DUE TO INSUFFICIENT WINGTIP CLNC

PAEW NEAR VARIOUS TWYS.

ACFT WITH WINGSPAN GREATER THAN 214 FT RQR 48 HRS PPR − 773−686−2255.

LINE UP AND WAIT AUTHORIZATION IN EFF BTWN SS AND SR AT THE FLWG INTS: RWY 28R AT TWY GG, TWY EE AND TWY N5; RWY 10L AT TWY DD AND TWY CC AND TWY BB; RWY 27C AT TWY TT; RWY 9C AT TWY FF; RWY 27L AT TWY TT; RWY 9R AT TWY BB AND FF. THESE RWYS WILL BE USED FOR DEPS ONLY WHEN EXERCISING THE PROVISIONS OF THIS AUTHORIZATION.

ATCT IS AUTH TO CONDUCT SIMUL DEPS FM RWY 04L/04R, RWY 22L/22R, RWY 09R WITH RWY 09L OR RWY 10L, RWY 09C WITH RWY 09L OR RWY 10L, RWY 10C WITH RWY 09R OR RWY 09C, RWY 27L WITH RWY 27R OR RWY 28R, RWY 27C WITH RWY 27R OR RWY 28R, RWY 28C WITH RWY 27L OR RWY 27C WITH CRS DIVERGENCE BEGINNING NO LATER THAN 4 MILES FM RWY END.

B747−8 OPS NOT AUTHORIZED ON RWY 09R/27L, 09L/27R & 10R/28L.

PERIODIC FIRE DEPT TRNG AT N SECTOR OF THE ARPT.

NOISE ABATEMENT PROC IN EFFECT FM 2200 TO 0700; CTC AMGR − 773−686−2255.

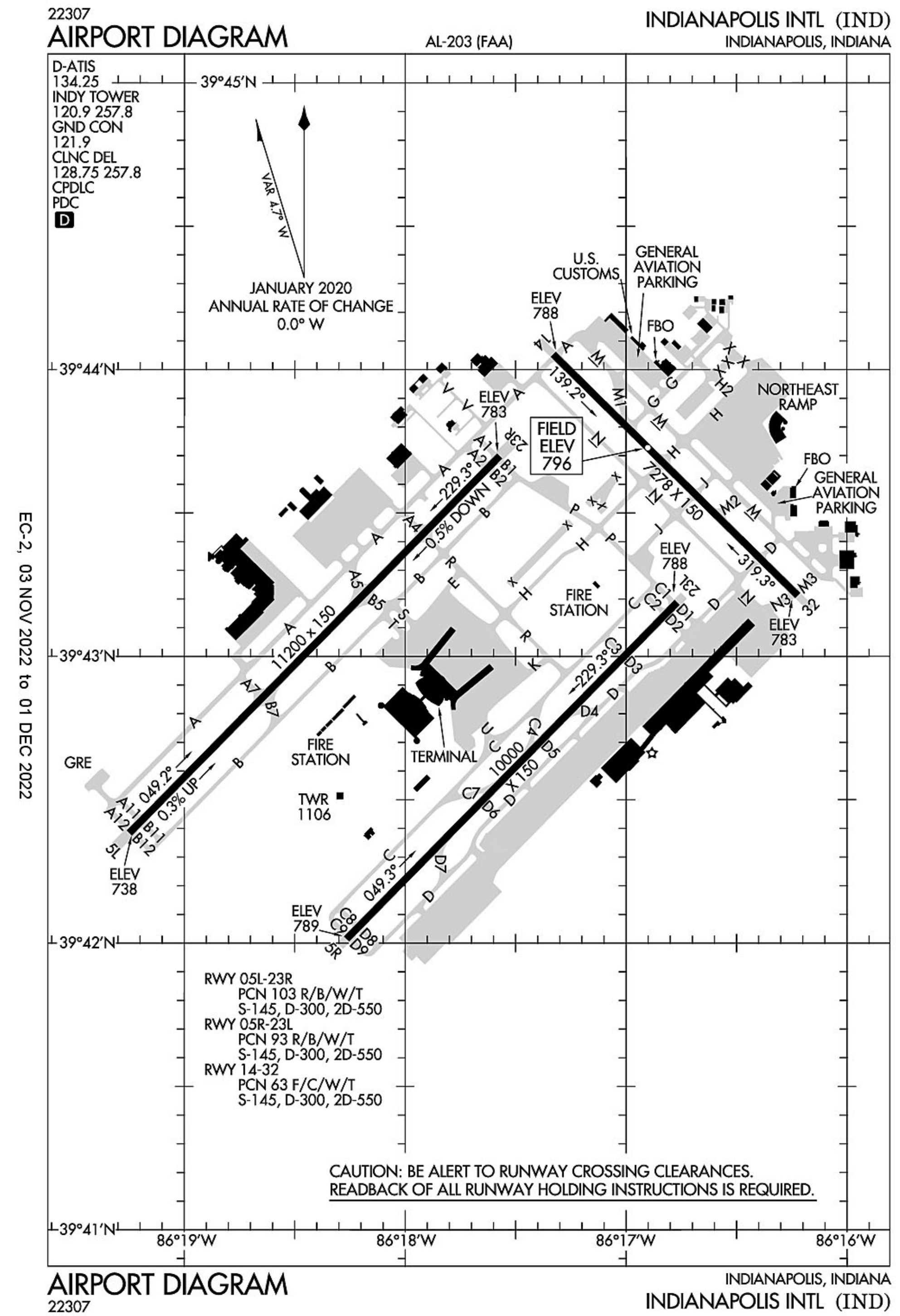
DVRSN ACRS WO A PRESENCE AT ORD SHOULD CTC ARPT OPNS 773−686−2255 PRIOR TO DIVERTING TO THE EXTENT PRACTICAL AND PRVD: CO, FLIGHT OPS CTC INFO, ACFT TYPE, PERSONS OB, INTL OR DOMESTIC, ANY GND HANDLER AGRMTS IN PLACE.

PRIM RUN−UP LOCATION GROUND RUN UP ENCLOSURE; SECONDARY RUN UP LOCATIONS AVBL UPON REQ − CTC CITY OPS 773−686−2255.

ALL PART 91 & UNSKED PART 125, 133 & 135 CHARTER OPERATORS CTC SIGNATURE FLIGHT SUPPORT AT 773−686−7000 REGARDING NEW SECURITY REGULATIONS PRIOR TO DEP.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

Indianapolis, Indiana
Indianapolis International
ICAO Identifier KIND



Indianapolis, IN
Indianapolis Intl
ICAO Identifier KIND

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 39−43−2.3N / 86−17−40.7W
2.2.2 From City: 7 miles SW of INDIANAPOLIS, IN
2.2.3 Elevation: 796.2 ft
2.2.5 Magnetic Variation: 5W (2015)
2.2.6 Airport Contact: MARIO RODRIGUEZ
7800 COL. H. WEIR COOK MEMORIAL DR.
INDIANAPOLIS, IN 46241 (317−487−9594)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A,A1+
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 05L
2.12.2 True Bearing: 45
2.12.3 Dimensions: 11200 ft x 150 ft
2.12.4 PCN: 103 R/B/W/T
2.12.5 Coordinates: 39−42−23.0337N / 86−19−14.9025W
2.12.6 Threshold Elevation: 738 ft
2.12.6 Touchdown Zone Elevation: 747.3 ft

2.12.1 Designation: 23R
2.12.2 True Bearing: 225
2.12.3 Dimensions: 11200 ft x 150 ft
2.12.4 PCN: 103 R/B/W/T
2.12.5 Coordinates: 39−43−41.9101N / 86−17−34.3591W
2.12.6 Threshold Elevation: 782.9 ft
2.12.6 Touchdown Zone Elevation: 782.9 ft

2.12.1 Designation: 05R
2.12.2 True Bearing: 45
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 93 R/B/W/T
2.12.5 Coordinates: 39−42−0.873N / 86−18−15.906W
2.12.6 Threshold Elevation: 788.8 ft
2.12.6 Touchdown Zone Elevation: 790.7 ft

2.12.1 Designation: 23L
2.12.2 True Bearing: 225
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 93 R/B/W/T
2.12.5 Coordinates: 39−43−11.2875N / 86−16−46.1248W
2.12.6 Threshold Elevation: 787.6 ft
2.12.6 Touchdown Zone Elevation: 790.1 ft

2.12.1 Designation: 14
2.12.2 True Bearing: 135
2.12.3 Dimensions: 7278 ft x 150 ft
2.12.4 PCN: 63 F/C/W/T
2.12.5 Coordinates: 39−44−3.2059N / 86−17−19.7638W
2.12.6 Threshold Elevation: 787.5 ft
2.12.6 Touchdown Zone Elevation: 796.2 ft

2.12.1 Designation: 32
2.12.2 True Bearing: 315
2.12.3 Dimensions: 7278 ft x 150 ft
2.12.4 PCN: 63 F/C/W/T
2.12.5 Coordinates: 39−43−12.7458N / 86−16−13.3895W
2.12.6 Threshold Elevation: 782.6 ft
2.12.6 Touchdown Zone Elevation: 792.9 ft

AD 2.13 Declared Distances
2.13.1 Designation: 05L
2.13.2 Take−off Run Available: 11200 ft
2.13.3 Take−off Distance Available: 11200 ft
2.13.4 Accelerate−Stop Distance Available: 11200 ft
2.13.5 Landing Distance Available: 11200 ft

2.13.1 Designation: 23R
2.13.2 Take−off Run Available: 11200 ft
2.13.3 Take−off Distance Available: 11200 ft
2.13.4 Accelerate−Stop Distance Available: 11200 ft
2.13.5 Landing Distance Available: 11200 ft

2.13.1 Designation: 05R
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 23L
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 14

2.13.2 Take−off Run Available: 7278 ft
2.13.3 Take−off Distance Available: 7278 ft
2.13.4 Accelerate−Stop Distance Available: 7278 ft
2.13.5 Landing Distance Available: 7278 ft

2.13.1 Designation: 32
2.13.2 Take−off Run Available: 7278 ft
2.13.3 Take−off Distance Available: 7278 ft
2.13.4 Accelerate−Stop Distance Available: 7278 ft
2.13.5 Landing Distance Available: 7278 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 05L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 23R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 05R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 23L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 14
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 32
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P (WEST OF ACTIVE RWY)
2.14.3 Channel: 124.65
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (EAST OF ACTIVE RWY)
2.14.3 Channel: 127.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P
2.14.3 Channel: 317.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC
2.14.3 Channel: 128.175
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD PRE TAXI CLNC
2.14.3 Channel: 128.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (WEST OF ACTIVE RWY)
2.14.3 Channel: 124.65
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (EAST)
2.14.3 Channel: 124.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (EAST OF ACTIVE RWY)
2.14.3 Channel: 127.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C
2.14.3 Channel: 317.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 134.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (WEST)
2.14.3 Channel: 119.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (EAST)
2.14.3 Channel: 124.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/S
2.14.3 Channel: 121.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 120.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 05L. Magnetic variation: 5W
2.19.2 ILS Identification: IND
2.19.5 Coordinates: 39−43−51.3513N / 86−17−27.5671W
2.19.6 Site Elevation: 797.6 ft

2.19.1 ILS Type: Glide Slope for runway 05L. Magnetic variation: 5W
2.19.2 ILS Identification: IND
2.19.5 Coordinates: 39−42−32.7741N / 86−19−9.6768W
2.19.6 Site Elevation: 735.4 ft

2.19.1 ILS Type: Inner Marker for runway 05L. Magnetic variation: 5W
2.19.2 ILS Identification: IND
2.19.5 Coordinates: 39−42−15.7098N / 86−19−24.4367W
2.19.6 Site Elevation: 735.9 ft

2.19.1 ILS Type: Localizer for runway 05L. Magnetic variation: 5W
2.19.2 ILS Identification: IND
2.19.5 Coordinates: 39−43−49.0283N / 86−17−25.2797W
2.19.6 Site Elevation: 787.8 ft

2.19.1 ILS Type: DME for runway 23R. Magnetic variation: 5W
2.19.2 ILS Identification: UZK
2.19.5 Coordinates: 39−43−51.3513N / 86−17−27.5671W
2.19.6 Site Elevation: 797.6 ft

2.19.1 ILS Type: Glide Slope for runway 23R. Magnetic variation: 5W
2.19.2 ILS Identification: UZK
2.19.5 Coordinates: 39−43−36.5113N / 86−17−48.4342W
2.19.6 Site Elevation: 772.4 ft

2.19.1 ILS Type: Localizer for runway 23R. Magnetic variation: 5W
2.19.2 ILS Identification: UZK
2.19.5 Coordinates: 39−42−15.9186N / 86−19−23.9666W
2.19.6 Site Elevation: 736.6 ft

2.19.1 ILS Type: DME for runway 05R. Magnetic variation: 5W

2.19.2 ILS Identification: OQV
2.19.5 Coordinates: 39−43−20.1868N / 86−16−39.5353W
2.19.6 Site Elevation: 802 ft

2.19.1 ILS Type: Glide Slope for runway 05R. Magnetic variation: 5W
2.19.2 ILS Identification: OQV
2.19.5 Coordinates: 39−42−5.3627N / 86−18−2.9983W
2.19.6 Site Elevation: 788.5 ft

2.19.1 ILS Type: Inner Marker for runway 05R. Magnetic variation: 5W
2.19.2 ILS Identification: OQV
2.19.5 Coordinates: 39−41−52.0586N / 86−18−27.1359W
2.19.6 Site Elevation: 776.4 ft

2.19.1 ILS Type: Localizer for runway 05R. Magnetic variation: 5W
2.19.2 ILS Identification: OQV
2.19.5 Coordinates: 39−43−18.3778N / 86−16−37.0825W
2.19.6 Site Elevation: 785.5 ft

2.19.1 ILS Type: DME for runway 23L. Magnetic variation: 5W
2.19.2 ILS Identification: FVJ
2.19.5 Coordinates: 39−43−20.1868N / 86−16−39.5353W
2.19.6 Site Elevation: 802 ft

2.19.1 ILS Type: Glide Slope for runway 23L. Magnetic variation: 5W
2.19.2 ILS Identification: FVJ
2.19.5 Coordinates: 39−43−2.4585N / 86−16−54.2858W
2.19.6 Site Elevation: 785 ft

2.19.1 ILS Type: Localizer for runway 23L. Magnetic variation: 5W
2.19.2 ILS Identification: FVJ
2.19.5 Coordinates: 39−41−53.5322N / 86−18−25.2565W
2.19.6 Site Elevation: 777.3 ft

2.19.1 ILS Type: Glide Slope for runway 14. Magnetic variation: 5W
2.19.2 ILS Identification: BJP
2.19.5 Coordinates: 39−43−59.3065N / 86−17−7.3342W
2.19.6 Site Elevation: 790 ft

2.19.1 ILS Type: Localizer for runway 14. Magnetic variation: 5W
2.19.2 ILS Identification: BJP
2.19.5 Coordinates: 39−43−5.64N / 86−16−4.06W
2.19.6 Site Elevation: 768.5 ft

2.19.1 ILS Type: Glide Slope for runway 32. Magnetic variation: 5W
2.19.2 ILS Identification: COA
2.19.5 Coordinates: 39−43−16.2751N / 86−16−25.5096W
2.19.6 Site Elevation: 781.7 ft

2.19.1 ILS Type: Localizer for runway 32. Magnetic variation: 5W
2.19.2 ILS Identification: COA

2.19.5 Coordinates: 39−44−10.3487N / 86−17−29.1696W
2.19.6 Site Elevation: 782.3 ft

General Remarks:
TWY V IS NOT AVBL FOR ACR OPS.

TWY H RUNS CONTIGUOUS AT NORTHEAST RAMP.

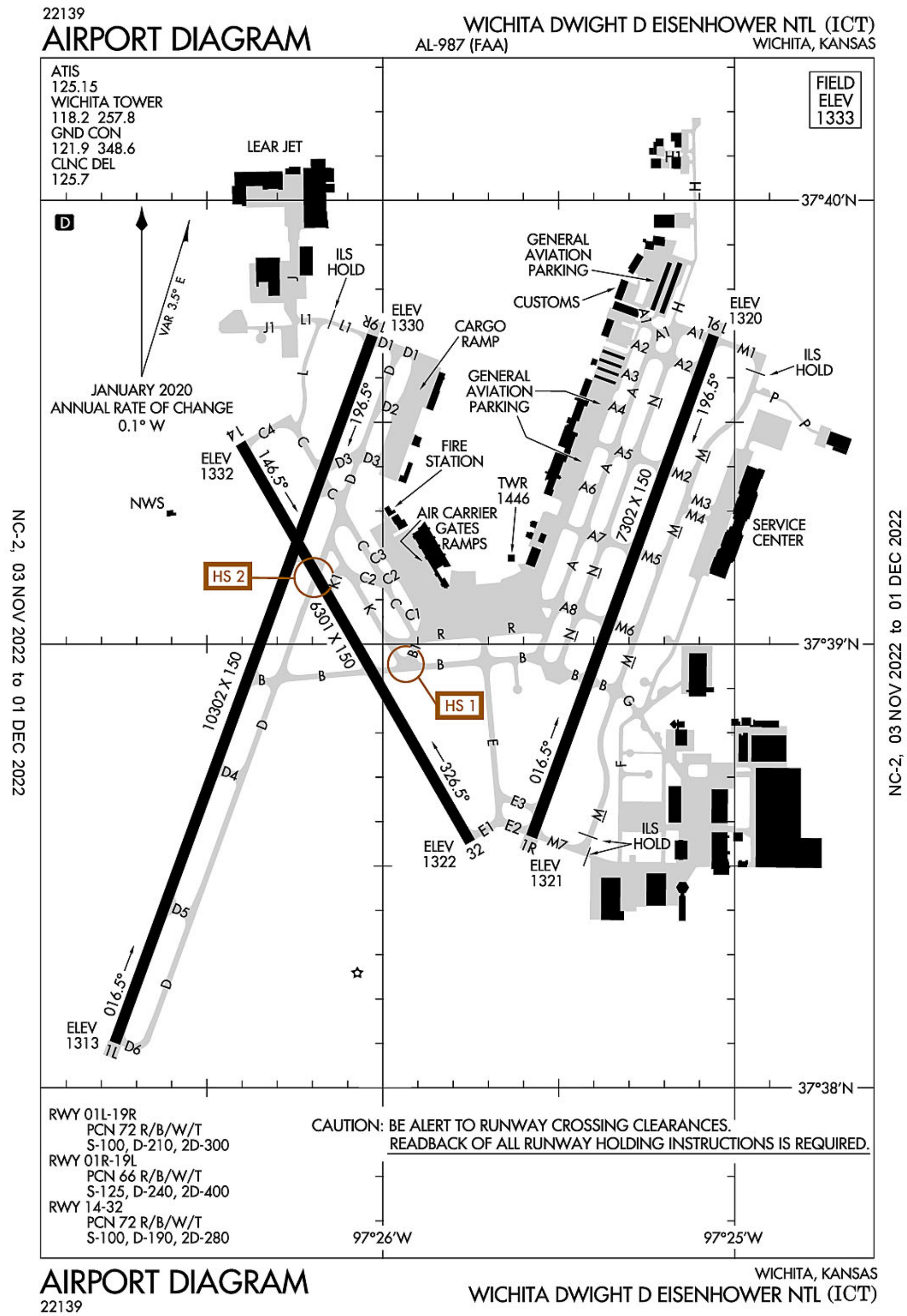
LARGE FLOCKS OF BIRDS ON & INVOF ARPT.

NOISE ABATEMENT PROCEDURES IN EFFECT CTC ARPT MGR.

PRIM STUDENT TGL NOT PMTD.

BE ALERT TO CLOSE PROXIMITY OF RWY 14/32 TO NORTHEAST RAMP.

Wichita, Kansas
Wichita Mid−Continent
ICAO Identifier KICT



Wichita, KS
Wichita Mid−Continent
ICAO Identifier KICT

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 37−38−59.829N / 97−25−58.954W
2.2.2 From City: 5 miles SW of WICHITA, KS
2.2.3 Elevation: 1332.6 ft
2.2.5 Magnetic Variation: 4E (2015)
2.2.6 Airport Contact: MR. JESSE ROMO, A.A.E.
2173 AIR CARGO ROAD
WICHITA, KS 67209 (316−946−4700)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 01L
2.12.2 True Bearing: 20
2.12.3 Dimensions: 10302 ft x 150 ft
2.12.4 PCN: 72 R/B/W/T
2.12.5 Coordinates: 37−38−6.0645N / 97−26−45.5906W
2.12.6 Threshold Elevation: 1312.5 ft
2.12.6 Touchdown Zone Elevation: 1314.1 ft

2.12.1 Designation: 19R
2.12.2 True Bearing: 200
2.12.3 Dimensions: 10302 ft x 150 ft
2.12.4 PCN: 72 R/B/W/T
2.12.5 Coordinates: 37−39−41.7663N / 97−26−1.7916W
2.12.6 Threshold Elevation: 1329.6 ft
2.12.6 Touchdown Zone Elevation: 1329.7 ft

2.12.1 Designation: 19L
2.12.2 True Bearing: 200
2.12.3 Dimensions: 7302 ft x 150 ft
2.12.4 PCN: 66 R/B/W/T
2.12.5 Coordinates: 37−39−41.7709N / 97−25−3.5648W
2.12.6 Threshold Elevation: 1319.8 ft
2.12.6 Touchdown Zone Elevation: 1320.1 ft

2.12.1 Designation: 01R
2.12.2 True Bearing: 20
2.12.3 Dimensions: 7302 ft x 150 ft
2.12.4 PCN: 66 R/B/W/T
2.12.5 Coordinates: 37−38−33.9441N / 97−25−34.6296W
2.12.6 Threshold Elevation: 1321 ft
2.12.6 Touchdown Zone Elevation: 1321.1 ft

2.12.1 Designation: 32
2.12.2 True Bearing: 330
2.12.3 Dimensions: 6301 ft x 150 ft
2.12.4 PCN: 72 R/B/W/T
2.12.5 Coordinates: 37−38−33.2136N / 97−25−45.1001W
2.12.6 Threshold Elevation: 1321.6 ft
2.12.6 Touchdown Zone Elevation: 1321.8 ft

2.12.1 Designation: 14
2.12.2 True Bearing: 150
2.12.3 Dimensions: 6301 ft x 150 ft
2.12.4 PCN: 72 R/B/W/T
2.12.5 Coordinates: 37−39−27.162N / 97−26−24.273W
2.12.6 Threshold Elevation: 1332.1 ft
2.12.6 Touchdown Zone Elevation: 1332.6 ft

AD 2.13 Declared Distances

2.13.1 Designation: 01L
2.13.2 Take−off Run Available: 10301 ft
2.13.3 Take−off Distance Available: 10301 ft
2.13.4 Accelerate−Stop Distance Available: 10301 ft
2.13.5 Landing Distance Available: 10301 ft

2.13.1 Designation: 19R
2.13.2 Take−off Run Available: 10301 ft
2.13.3 Take−off Distance Available: 10301 ft
2.13.4 Accelerate−Stop Distance Available: 10301 ft
2.13.5 Landing Distance Available: 10301 ft

2.13.1 Designation: 19L
2.13.2 Take−off Run Available: 7302 ft
2.13.3 Take−off Distance Available: 7302 ft
2.13.4 Accelerate−Stop Distance Available: 7302 ft
2.13.5 Landing Distance Available: 7302 ft

2.13.1 Designation: 01R
2.13.2 Take−off Run Available: 7302 ft
2.13.3 Take−off Distance Available: 7302 ft
2.13.4 Accelerate−Stop Distance Available: 7302 ft
2.13.5 Landing Distance Available: 7302 ft

2.13.1 Designation: 32

2.13.2 Take−off Run Available: 6301 ft
2.13.3 Take−off Distance Available: 6301 ft
2.13.4 Accelerate−Stop Distance Available: 6301 ft
2.13.5 Landing Distance Available: 6301 ft

2.13.1 Designation: 14
2.13.2 Take−off Run Available: 6301 ft
2.13.3 Take−off Distance Available: 6301 ft
2.13.4 Accelerate−Stop Distance Available: 6301 ft
2.13.5 Landing Distance Available: 6301 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 01L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 19R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 19L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 01R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 32
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 14
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P (270−009 BLW 5000 FT & BYD 20 NM)
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (E IAB BLW 5000 FT)
2.14.3 Channel: 269.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (270−009 BLW 5000 FT & BYD 20 NM)
2.14.3 Channel: 325.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (010−190)
2.14.3 Channel: 134.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (010−190)
2.14.3 Channel: 290.275
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (191−009)
2.14.3 Channel: 126.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (191−009)
2.14.3 Channel: 353.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S DEP/S
2.14.3 Channel: 327.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ATIS
2.14.3 Channel: 125.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 125.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (191−009)
2.14.3 Channel: 126.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (010−190 4000 FT & BLW)
2.14.3 Channel: 134.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (010−190 ABV 4000 FT)
2.14.3 Channel: 134.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (010−190 ABV 4000 FT)
2.14.3 Channel: 290.275
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (191−009)
2.14.3 Channel: 353.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 118.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 01L. Magnetic variation: 4E
2.19.2 ILS Identification: TWI
2.19.5 Coordinates: 37−38−16.7093N / 97−26−46.0091W
2.19.6 Site Elevation: 1310.5 ft

2.19.1 ILS Type: Inner Marker for runway 01L. Magnetic variation: 4E
2.19.2 ILS Identification: TWI
2.19.5 Coordinates: 37−37−57.139N / 97−26−49.6801W
2.19.6 Site Elevation: 1317.9 ft

2.19.1 ILS Type: Localizer for runway 01L. Magnetic variation: 4E
2.19.2 ILS Identification: TWI
2.19.5 Coordinates: 37−39−51.3411N / 97−25−57.406W
2.19.6 Site Elevation: 1319.7 ft

2.19.1 ILS Type: Outer Marker for runway 01L. Magnetic variation: 4E
2.19.2 ILS Identification: TWI
2.19.5 Coordinates: 37−33−33.9381N / 97−28−51.7772W
2.19.6 Site Elevation: 1311.2 ft

2.19.1 ILS Type: Glide Slope for runway 19R. Magnetic variation: 4E
2.19.2 ILS Identification: HOV
2.19.5 Coordinates: 37−39−33.8636N / 97−26−10.8356W
2.19.6 Site Elevation: 1327.4 ft

2.19.1 ILS Type: Localizer for runway 19R. Magnetic variation: 4E
2.19.2 ILS Identification: HOV
2.19.5 Coordinates: 37−37−54.7075N / 97−26−50.7862W

2.19.6 Site Elevation: 1320.8 ft

2.19.1 ILS Type: Outer Marker for runway 19R. Magnetic variation: 4E
2.19.2 ILS Identification: HOV
2.19.5 Coordinates: 37−44−16.6003N / 97−24−0.9982W
2.19.6 Site Elevation: 1325.3 ft

2.19.1 ILS Type: DME for runway 01R. Magnetic variation: 4E
2.19.2 ILS Identification: ICT
2.19.5 Coordinates: 37−39−52.0431N / 97−25−2.8236W
2.19.6 Site Elevation: 1327.1 ft

2.19.1 ILS Type: Glide Slope for runway 01R. Magnetic variation: 4E
2.19.2 ILS Identification: ICT
2.19.5 Coordinates: 37−38−42.6366N / 97−25−24.6949W
2.19.6 Site Elevation: 1314.7 ft

2.19.1 ILS Type: Localizer for runway 01R. Magnetic variation: 4E
2.19.2 ILS Identification: ICT
2.19.5 Coordinates: 37−39−52.0134N / 97−24−58.8717W
2.19.6 Site Elevation: 1309.6 ft

2.19.1 ILS Type: Outer Marker for runway 01R. Magnetic variation: 4E
2.19.2 ILS Identification: ICT
2.19.5 Coordinates: 37−34−41.4784N / 97−27−21.1454W
2.19.6 Site Elevation: 1315.2 ft

2.19.1 ILS Type: DME for runway 19L. Magnetic variation: 4E
2.19.2 ILS Identification: MVP
2.19.5 Coordinates: 37−38−21.5439N / 97−25−43.3444W
2.19.6 Site Elevation: 1320 ft

2.19.1 ILS Type: Glide Slope for runway 19L. Magnetic variation: 4E
2.19.2 ILS Identification: MVP
2.19.5 Coordinates: 37−39−30.7714N / 97−25−3.1731W
2.19.6 Site Elevation: 1313.6 ft

2.19.1 ILS Type: Localizer for runway 19L. Magnetic variation: 4E
2.19.2 ILS Identification: MVP
2.19.5 Coordinates: 37−38−21.2844N / 97−25−40.4224W
2.19.6 Site Elevation: 1319.3 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 7E
2.19.2 Navigation Aid Identification: ICT
2.19.5 Coordinates: 37−44−42.9259N / 97−35−1.782W
2.19.6 Site Elevation: 1472 ft

General Remarks:
CALL FOR PUSHBACK NOT REQUIRED.

TWY L AND L1 CLSD TO ACFT WITH WINGSPAN MORE THAN 118FT.

APN AIR CARGO RAMP CLSD TO ACFT WINGSPAN MORE THAN 148 FT.

TWY H CLSD TO ACFT WITH WINGSPAN MORE THAN 75 FT.TWY H CONGESTED AND NOT VISIBLE FROM ATCT; USE CAUTION.

NOTE: SEE SPECIAL NOTICES−CONTINUOUS POWER FACILITIES.

ACFT ENG RUNS ABV IDLE NOT APPROVED ON ACFT PRKG RAMPS.

TWYS F, G, H, J, P AND ALL PARKING RAMPS ARE NON−MOVEMENT AREAS.

PPR REQUIRED FOR ACFT CARRYING CLASS 1 − DIVISION 1.1; 1.2 OR 1.3 EXPLOSIVES AS DEFINED BY 49 CFR 173.50 OR AS AMENDED.

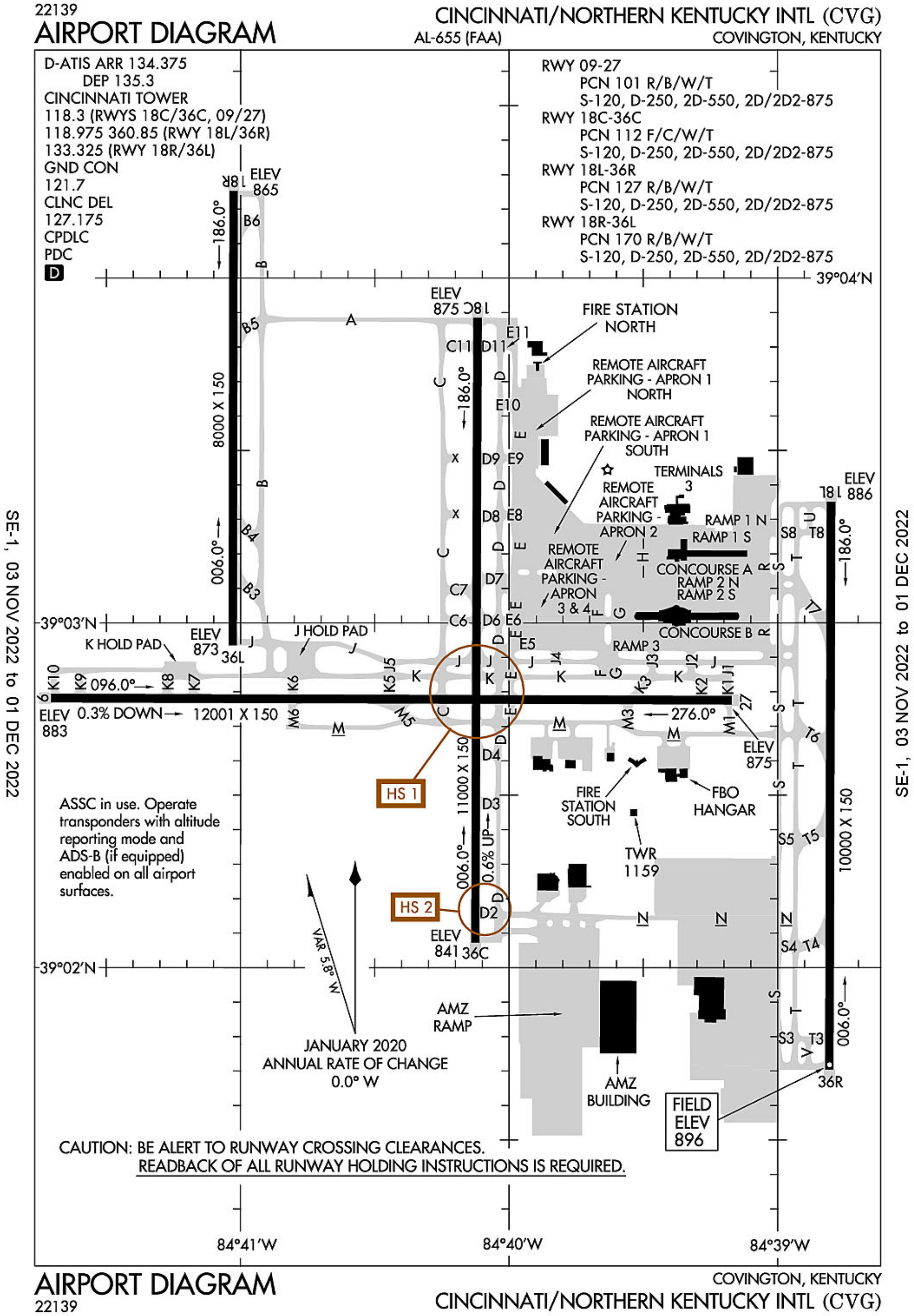
TWY P CLSD TO ACFT WITH WINGSPAN MORE THAN 79FT.

MIGRATORY BIRDS ON AND INVOF ARPT.

ATCT HAS LIMITED VISIBILITY OF TERMINAL GATES 1−8.

FLIGHT NOTIFICATION SERVICE (ADCUS) AVBL.

Covington, Kentucky
Cincinnati/Northern Kentucky International
ICAO Identifier KCVG



Covington, KY
Cincinnati/Northern Kentucky Intl
ICAO Identifier KCVG

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 39−2−55.815N / 84−40−4.155W
2.2.2 From City: 8 miles SW of COVINGTON, KY
2.2.3 Elevation: 896.1 ft
2.2.5 Magnetic Variation: 6W (2025)
2.2.6 Airport Contact: CANDACE MCGRAW
PO BOX 752000
CINCINNATI, OH 45275 (859−767−3151)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 09
2.12.2 True Bearing: 90
2.12.3 Dimensions: 12001 ft x 150 ft
2.12.4 PCN: 101 R/B/W/T
2.12.5 Coordinates: 39−2−46.9049N / 84−41−42.3528W
2.12.6 Threshold Elevation: 883.1 ft
2.12.6 Touchdown Zone Elevation: 883.2 ft

2.12.1 Designation: 27
2.12.2 True Bearing: 270
2.12.3 Dimensions: 12001 ft x 150 ft
2.12.4 PCN: 101 R/B/W/T
2.12.5 Coordinates: 39−2−46.5417N / 84−39−10.2436W
2.12.6 Threshold Elevation: 874.8 ft
2.12.6 Touchdown Zone Elevation: 874.8 ft

2.12.1 Designation: 36C
2.12.2 True Bearing: 0
2.12.3 Dimensions: 11000 ft x 150 ft
2.12.4 PCN: 112 F/C/W/T
2.12.5 Coordinates: 39−2−4.3552N / 84−40−7.4709W
2.12.6 Threshold Elevation: 840.7 ft
2.12.6 Touchdown Zone Elevation: 850.3 ft

2.12.1 Designation: 18C
2.12.2 True Bearing: 180
2.12.3 Dimensions: 11000 ft x 150 ft
2.12.4 PCN: 112 F/C/W/T
2.12.5 Coordinates: 39−3−53.0734N / 84−40−7.0233W
2.12.6 Threshold Elevation: 874.6 ft
2.12.6 Touchdown Zone Elevation: 874.6 ft

2.12.1 Designation: 18L
2.12.2 True Bearing: 180
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 127 R/B/W/T
2.12.5 Coordinates: 39−3−21.0781N / 84−38−48.0048W
2.12.6 Threshold Elevation: 886.3 ft
2.12.6 Touchdown Zone Elevation: 889.1 ft

2.12.1 Designation: 36R
2.12.2 True Bearing: 0
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 127 R/B/W/T
2.12.5 Coordinates: 39−1−42.2406N / 84−38−48.4562W
2.12.6 Threshold Elevation: 896.1 ft
2.12.6 Touchdown Zone Elevation: 896.1 ft

2.12.1 Designation: 36L
2.12.2 True Bearing: 0
2.12.3 Dimensions: 8000 ft x 150 ft
2.12.4 PCN: 170 R/B/W/T
2.12.5 Coordinates: 39−2−56.1037N / 84−41−1.7608W
2.12.6 Threshold Elevation: 872.6 ft
2.12.6 Touchdown Zone Elevation: 872.7 ft

2.12.1 Designation: 18R
2.12.2 True Bearing: 180
2.12.3 Dimensions: 8000 ft x 150 ft
2.12.4 PCN: 170 R/B/W/T
2.12.5 Coordinates: 39−4−15.1736N / 84−41−1.4552W
2.12.6 Threshold Elevation: 864.7 ft
2.12.6 Touchdown Zone Elevation: 867.8 ft

AD 2.13 Declared Distances

2.13.1 Designation: 09
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 27
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft

2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 36C
2.13.2 Take−off Run Available: 11000 ft
2.13.3 Take−off Distance Available: 11000 ft
2.13.4 Accelerate−Stop Distance Available: 11000 ft
2.13.5 Landing Distance Available: 11000 ft

2.13.1 Designation: 18C
2.13.2 Take−off Run Available: 11000 ft
2.13.3 Take−off Distance Available: 11000 ft
2.13.4 Accelerate−Stop Distance Available: 11000 ft
2.13.5 Landing Distance Available: 11000 ft

2.13.1 Designation: 18L
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 36R
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 36L
2.13.2 Take−off Run Available: 8000 ft
2.13.3 Take−off Distance Available: 8000 ft
2.13.4 Accelerate−Stop Distance Available: 8000 ft
2.13.5 Landing Distance Available: 8000 ft

2.13.1 Designation: 18R
2.13.2 Take−off Run Available: 8000 ft
2.13.3 Take−off Distance Available: 8000 ft
2.13.4 Accelerate−Stop Distance Available: 8000 ft
2.13.5 Landing Distance Available: 8000 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 09
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 27
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 36C
2.14.2 Approach Lighting System: ALSF2

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 18C
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 18L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 36R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 36L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 18R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P (090−269)
2.14.3 Channel: 119.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (270−089)
2.14.3 Channel: 123.875
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P
2.14.3 Channel: 363.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 127.175
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (001−180)
2.14.3 Channel: 121
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (181−360)
2.14.3 Channel: 128.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B
2.14.3 Channel: 254.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (ARR)
2.14.3 Channel: 134.375
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (DEP)
2.14.3 Channel: 135.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (001−180)
2.14.3 Channel: 126.65
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (181−360)
2.14.3 Channel: 128.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P
2.14.3 Channel: 254.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: JAKIE STAR
2.14.3 Channel: 119.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: JAKIE STAR
2.14.3 Channel: 254.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (RWY 09/27, 18C/36C)
2.14.3 Channel: 118.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (RWY 18L/36R)
2.14.3 Channel: 118.975
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (RWY 18R/36L)
2.14.3 Channel: 133.325

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (RWY 18L/36R)
2.14.3 Channel: 360.85
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 09. Magnetic variation: 6W
2.19.2 ILS Identification: URN
2.19.5 Coordinates: 39−2−42.9147N / 84−39−2.0835W
2.19.6 Site Elevation: 886.8 ft

2.19.1 ILS Type: Glide Slope for runway 09. Magnetic variation: 6W
2.19.2 ILS Identification: URN
2.19.5 Coordinates: 39−2−42.9226N / 84−41−28.2646W
2.19.6 Site Elevation: 873.4 ft

2.19.1 ILS Type: Localizer for runway 09. Magnetic variation: 6W
2.19.2 ILS Identification: URN
2.19.5 Coordinates: 39−2−46.5213N / 84−39−2.0181W
2.19.6 Site Elevation: 877.4 ft

2.19.1 ILS Type: Glide Slope for runway 27. Magnetic variation: 6W
2.19.2 ILS Identification: JDP
2.19.5 Coordinates: 39−2−42.6295N / 84−39−25.1643W
2.19.6 Site Elevation: 866.4 ft

2.19.1 ILS Type: Localizer for runway 27. Magnetic variation: 6W
2.19.2 ILS Identification: JDP
2.19.5 Coordinates: 39−2−46.9321N / 84−41−55.3805W
2.19.6 Site Elevation: 883.3 ft

2.19.1 ILS Type: DME for runway 18C. Magnetic variation: 6W
2.19.2 ILS Identification: SIC
2.19.5 Coordinates: 39−1−54.1461N / 84−40−8.213W
2.19.6 Site Elevation: 843.6 ft

2.19.1 ILS Type: Glide Slope for runway 18C. Magnetic variation: 6W
2.19.2 ILS Identification: SIC
2.19.5 Coordinates: 39−3−42.6496N / 84−40−12.1363W
2.19.6 Site Elevation: 868 ft

2.19.1 ILS Type: Localizer for runway 18C. Magnetic variation: 6W
2.19.2 ILS Identification: SIC
2.19.5 Coordinates: 39−1−54.1433N / 84−40−7.5139W
2.19.6 Site Elevation: 838.2 ft

2.19.1 ILS Type: DME for runway 36C. Magnetic variation: 6W
2.19.2 ILS Identification: CVG
2.19.5 Coordinates: 39−4−3.9117N / 84−40−10.1702W

2.19.6 Site Elevation: 883 ft

2.19.1 ILS Type: Glide Slope for runway 36C. Magnetic variation: 6W
2.19.2 ILS Identification: CVG
2.19.5 Coordinates: 39−2−15.4827N / 84−40−12.493W
2.19.6 Site Elevation: 834.2 ft

2.19.1 ILS Type: Inner Marker for runway 36C. Magnetic variation: 6W
2.19.2 ILS Identification: CVG
2.19.5 Coordinates: 39−1−53.9241N / 84−40−7.5094W
2.19.6 Site Elevation: 818.2 ft

2.19.1 ILS Type: Localizer for runway 36C. Magnetic variation: 6W
2.19.2 ILS Identification: CVG
2.19.5 Coordinates: 39−4−3.6949N / 84−40−6.9785W
2.19.6 Site Elevation: 882.1 ft

2.19.1 ILS Type: DME for runway 18L. Magnetic variation: 6W
2.19.2 ILS Identification: CIZ
2.19.5 Coordinates: 39−1−31.5713N / 84−38−45.4036W
2.19.6 Site Elevation: 910.4 ft

2.19.1 ILS Type: Glide Slope for runway 18L. Magnetic variation: 6W
2.19.2 ILS Identification: CIZ
2.19.5 Coordinates: 39−3−10.8831N / 84−38−42.976W
2.19.6 Site Elevation: 881.2 ft

2.19.1 ILS Type: Localizer for runway 18L. Magnetic variation: 6W
2.19.2 ILS Identification: CIZ
2.19.5 Coordinates: 39−1−31.787N / 84−38−48.5019W
2.19.6 Site Elevation: 899 ft

2.19.1 ILS Type: DME for runway 36R. Magnetic variation: 6W
2.19.2 ILS Identification: EEI
2.19.5 Coordinates: 39−3−30.8826N / 84−38−51.18W
2.19.6 Site Elevation: 900.1 ft

2.19.1 ILS Type: Glide Slope for runway 36R. Magnetic variation: 6W
2.19.2 ILS Identification: EEI
2.19.5 Coordinates: 39−1−52.8044N / 84−38−43.3385W
2.19.6 Site Elevation: 889.9 ft

2.19.1 ILS Type: Inner Marker for runway 36R. Magnetic variation: 6W
2.19.2 ILS Identification: EEI
2.19.5 Coordinates: 39−1−33.5681N / 84−38−48.5005W
2.19.6 Site Elevation: 898.7 ft

2.19.1 ILS Type: Localizer for runway 36R. Magnetic variation: 6W
2.19.2 ILS Identification: EEI
2.19.5 Coordinates: 39−3−31.4843N / 84−38−47.9544W
2.19.6 Site Elevation: 892.1 ft

2.19.1 ILS Type: DME for runway 18R. Magnetic variation: 6W
2.19.2 ILS Identification: CJN
2.19.5 Coordinates: 39−2−41.52N / 84−41−5.2W
2.19.6 Site Elevation: 869 ft

2.19.1 ILS Type: Glide Slope for runway 18R. Magnetic variation: 6W
2.19.2 ILS Identification: CJN
2.19.5 Coordinates: 39−4−3.91N / 84−41−6.57W
2.19.6 Site Elevation: 860.5 ft

2.19.1 ILS Type: Inner Marker for runway 18R. Magnetic variation: 6W
2.19.2 ILS Identification: CJN
2.19.5 Coordinates: 39−4−23.57N / 84−41−1.42W
2.19.6 Site Elevation: 856 ft

2.19.1 ILS Type: Localizer for runway 18R. Magnetic variation: 6W
2.19.2 ILS Identification: CJN
2.19.5 Coordinates: 39−2−41.27N / 84−41−1.83W
2.19.6 Site Elevation: 871 ft

2.19.1 ILS Type: DME for runway 36L. Magnetic variation: 6W
2.19.2 ILS Identification: VAC
2.19.5 Coordinates: 39−4−25.0237N / 84−41−4.7924W
2.19.6 Site Elevation: 854.5 ft

2.19.1 ILS Type: Glide Slope for runway 36L. Magnetic variation: 6W
2.19.2 ILS Identification: VAC
2.19.5 Coordinates: 39−3−6.5542N / 84−41−6.7898W
2.19.6 Site Elevation: 865.8 ft

2.19.1 ILS Type: Inner Marker for runway 36L. Magnetic variation: 6W
2.19.2 ILS Identification: VAC
2.19.5 Coordinates: 39−2−44.323N / 84−41−1.8019W
2.19.6 Site Elevation: 868.2 ft

2.19.1 ILS Type: Localizer for runway 36L. Magnetic variation: 6W
2.19.2 ILS Identification: VAC
2.19.5 Coordinates: 39−4−25.5032N / 84−41−1.4165W
2.19.6 Site Elevation: 860.3 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 4W
2.19.2 Navigation Aid Identification: CVG
2.19.5 Coordinates: 39−0−57.5308N / 84−42−12.0468W
2.19.6 Site Elevation: 878 ft

General Remarks:
NOISE SENS AREA N & S OF ARPT; RWY ASGN 2200−0700 BASED ON NOISE ABATEMENT.

SUCCESSIVE OR SIMUL DEP FM RWY 18L, 18C, 36L, 36C & 36R APVD WITH COURSE DVRG BGN NO FURTHER THAN 2 MI FM EOR DUE TO NOISE ABATEMENT RSTR.

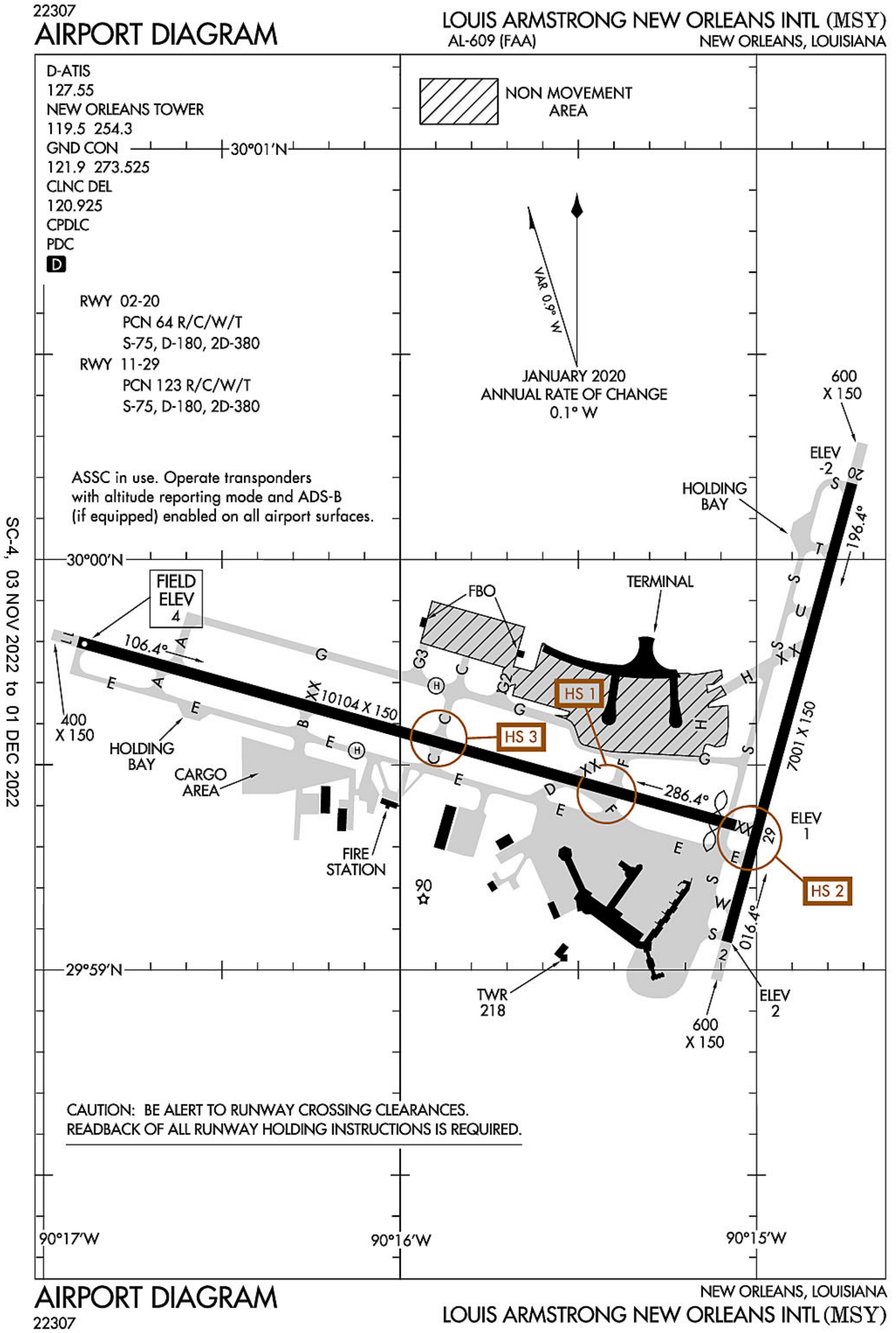
ALL TWYS RSTRD TO 15 MPH OR LESS WITH WINGSPAN 214 FT OR GREATER.

ASSC IN USE: OPR TRANSPONDERS WITH ALT REPORTING MODE & ADS−B IF EQUIPPED ENABLED ON ARPT SFCS.

RAMP CTL: RAMP 1N / 1S TXL & RAMP 2N / 2S TXL − 130.90, RAMP 3 TXL & N TXL − 130.375; DHL RAMP CTL: 129.475; AMZ RAMP CTL: 130.5.

BIRDS ON & INVOF THE ARPT.

New Orleans, Louisiana
Louis Armstrong New Orleans International
ICAO Identifier KMSY



New Orleans, LA
Louis Armstrong New Orleans Intl
ICAO Identifier KMSY

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 29−59−35.8N / 90−15−32.5W
2.2.2 From City: 10 miles W of NEW ORLEANS, LA
2.2.3 Elevation: 3.7 ft
2.2.5 Magnetic Variation: 1W (2020)
2.2.6 Airport Contact: KEVIN DOLLIOLE
PO BOX 20007
NEW ORLEANS, LA 70141 ((504) 303−7652)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: NONE

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 02
2.12.2 True Bearing: 15
2.12.3 Dimensions: 7001 ft x 150 ft
2.12.4 PCN: 64 R/C/W/T
2.12.5 Coordinates: 29−59−4.2055N / 90−15−5.094W
2.12.6 Threshold Elevation: 1.8 ft
2.12.6 Touchdown Zone Elevation: 2.1 ft

2.12.1 Designation: 20
2.12.2 True Bearing: 195
2.12.3 Dimensions: 7001 ft x 150 ft
2.12.4 PCN: 64 R/C/W/T
2.12.5 Coordinates: 30−0−10.9924N / 90−14−43.8363W
2.12.6 Threshold Elevation: −2.4 ft
2.12.6 Touchdown Zone Elevation: −0.6 ft

2.12.1 Designation: 11
2.12.2 True Bearing: 105
2.12.3 Dimensions: 10104 ft x 150 ft
2.12.4 PCN: 123 R/C/W/T
2.12.5 Coordinates: 29−59−47.8556N / 90−16−54.2241W
2.12.6 Threshold Elevation: 3.7 ft
2.12.6 Touchdown Zone Elevation: 3.7 ft

2.12.1 Designation: 29
2.12.2 True Bearing: 285
2.12.3 Dimensions: 10104 ft x 150 ft
2.12.4 PCN: 123 R/C/W/T
2.12.5 Coordinates: 29−59−21.1654N / 90−15−3.4894W
2.12.6 Threshold Elevation: 1.3 ft
2.12.6 Touchdown Zone Elevation: 2 ft

AD 2.13 Declared Distances
2.13.1 Designation: 02
2.13.2 Take−off Run Available: 7001 ft
2.13.3 Take−off Distance Available: 7001 ft
2.13.4 Accelerate−Stop Distance Available: 7001 ft
2.13.5 Landing Distance Available: 7001 ft

2.13.1 Designation: 20
2.13.2 Take−off Run Available: 7001 ft
2.13.3 Take−off Distance Available: 7001 ft
2.13.4 Accelerate−Stop Distance Available: 7001 ft
2.13.5 Landing Distance Available: 7001 ft

2.13.1 Designation: 11
2.13.2 Take−off Run Available: 10104 ft
2.13.3 Take−off Distance Available: 10104 ft
2.13.4 Accelerate−Stop Distance Available: 9800 ft
2.13.5 Landing Distance Available: 9800 ft

2.13.1 Designation: 29
2.13.2 Take−off Run Available: 10104 ft
2.13.3 Take−off Distance Available: 10104 ft
2.13.4 Accelerate−Stop Distance Available: 10104 ft
2.13.5 Landing Distance Available: 9800 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 02
2.14.2 Approach Lighting System: RLLS
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 20
2.14.2 Approach Lighting System: MALS
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 11
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 29
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P DEP/P (WEST)
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (EAST)
2.14.3 Channel: 133.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (EAST)
2.14.3 Channel: 290.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (WEST)
2.14.3 Channel: 350.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S
2.14.3 Channel: 269.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD PRE TAXI CLNC
2.14.3 Channel: 120.925
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 120.925
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SE & SOUTH)
2.14.3 Channel: 123.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (WEST)
2.14.3 Channel: 125.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (NORTH & EAST)
2.14.3 Channel: 133.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SE & SOUTH)
2.14.3 Channel: 256.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (NORTH & EAST)
2.14.3 Channel: 290.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (WEST)
2.14.3 Channel: 350.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 127.55
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 273.525
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 119.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 254.3
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 02. Magnetic variation: 1W
2.19.2 ILS Identification: JFI
2.19.5 Coordinates: 30−0−21.6577N / 90−14−43.2465W
2.19.6 Site Elevation: 1.3 ft

2.19.1 ILS Type: Glide Slope for runway 02. Magnetic variation: 1W
2.19.2 ILS Identification: JFI
2.19.5 Coordinates: 29−59−13.6093N / 90−14−58.5588W
2.19.6 Site Elevation: −0.9 ft

2.19.1 ILS Type: Localizer for runway 02. Magnetic variation: 1W
2.19.2 ILS Identification: JFI
2.19.5 Coordinates: 30−0−20.5102N / 90−14−40.8078W
2.19.6 Site Elevation: −4.2 ft

2.19.1 ILS Type: DME for runway 20. Magnetic variation: 1W
2.19.2 ILS Identification: ONW

2.19.5 Coordinates: 30−0−21.6577N / 90−14−43.2465W
2.19.6 Site Elevation: 1.3 ft

2.19.1 ILS Type: Localizer for runway 20. Magnetic variation: 1W
2.19.2 ILS Identification: ONW
2.19.5 Coordinates: 29−58−55.148N / 90−15−7.973W
2.19.6 Site Elevation: 2.3 ft

2.19.1 ILS Type: DME for runway 11. Magnetic variation: 1W
2.19.2 ILS Identification: MSY
2.19.5 Coordinates: 29−59−17.2127N / 90−14−55.7209W
2.19.6 Site Elevation: 12.4 ft

2.19.1 ILS Type: Glide Slope for runway 11. Magnetic variation: 1W
2.19.2 ILS Identification: MSY
2.19.5 Coordinates: 29−59−48.6197N / 90−16−39.2497W
2.19.6 Site Elevation: −3.1 ft

2.19.1 ILS Type: Inner Marker for runway 11. Magnetic variation: 1W
2.19.2 ILS Identification: MSY
2.19.5 Coordinates: 29−59−50.256N / 90−17−4.1742W
2.19.6 Site Elevation: 4.4 ft

2.19.1 ILS Type: Localizer for runway 11. Magnetic variation: 1W
2.19.2 ILS Identification: MSY
2.19.5 Coordinates: 29−59−19.3211N / 90−14−55.8537W
2.19.6 Site Elevation: −0.5 ft

2.19.1 ILS Type: DME for runway 29. Magnetic variation: 1W
2.19.2 ILS Identification: HOX
2.19.5 Coordinates: 29−59−17.2127N / 90−14−55.7209W
2.19.6 Site Elevation: 12.4 ft

2.19.1 ILS Type: Glide Slope for runway 29. Magnetic variation: 1W
2.19.2 ILS Identification: HOX
2.19.5 Coordinates: 29−59−27.9656N / 90−15−16.7865W
2.19.6 Site Elevation: 0.1 ft

2.19.1 ILS Type: Localizer for runway 29. Magnetic variation: 1W
2.19.2 ILS Identification: HOX
2.19.5 Coordinates: 29−59−50.5168N / 90−17−5.2703W
2.19.6 Site Elevation: 4.4 ft

General Remarks:
180 DEG & LOCKED WHEEL TURNS PROHIBITED ON ASPH SFC ACFT 12500 LBS & OVER.

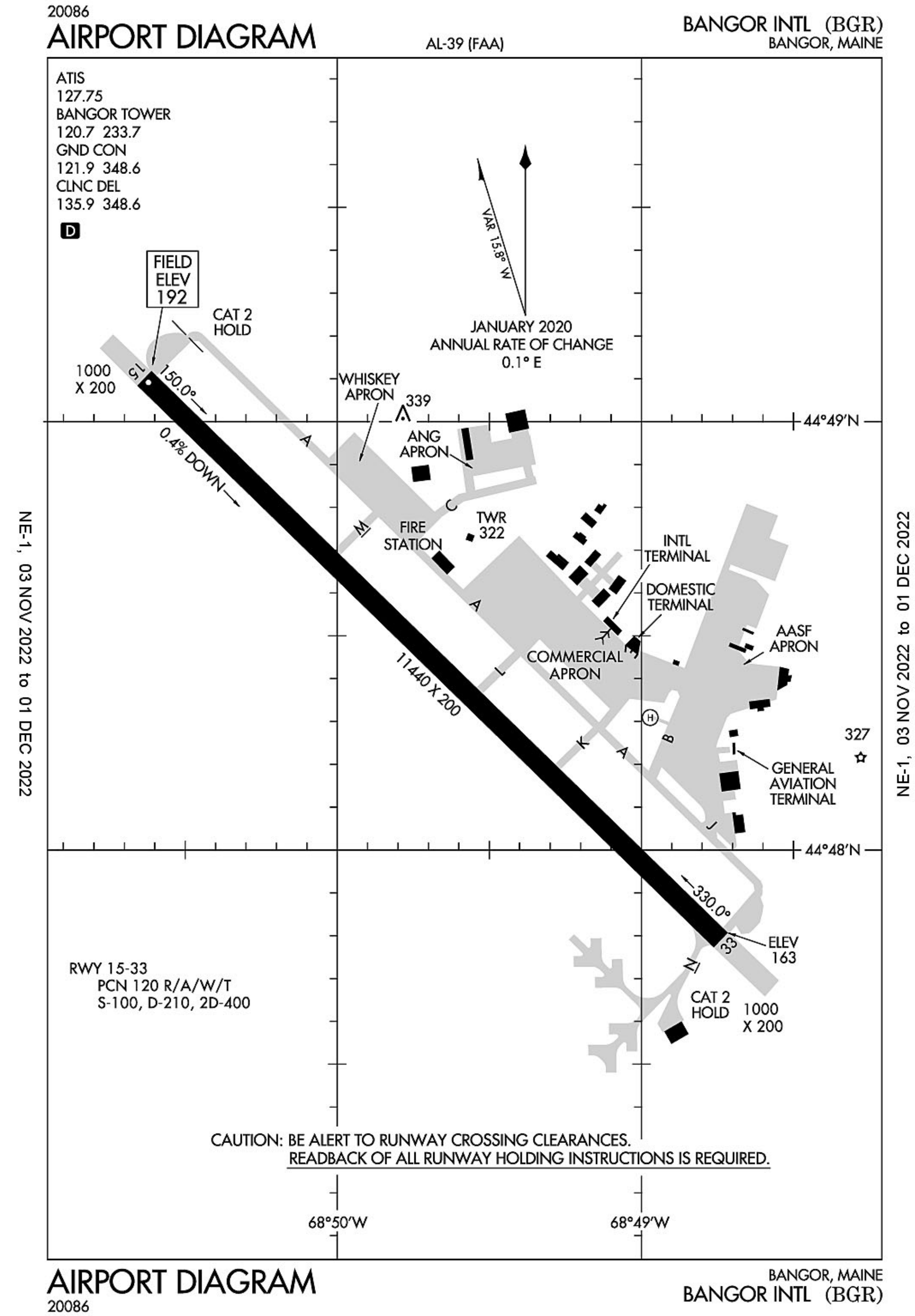
FLOCKS OF BIRDS ON & IN VICINITY OF ARPT.

ASSC IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

TWY G BTN RWY 11/29 AND TWY S SFC MOV GUIDANCE AND CTL SYSTEM U/S PERM

RY 11 NOISE SENSITIVE FOR DEP; AVBL FOR OPNL NECESSITY. ALL RYS NOISE SENSITIVE FOR ARR. ARRIVING TURBOJETS MUST MAKE 5 MILE FINAL APCH TO MINIMIZE NOISE.

Bangor, Maine
Bangor International
ICAO Identifier KBGR



Bangor, ME
Bangor Intl
ICAO Identifier KBGR

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 44−48−26.8N / 68−49−41.3W
2.2.2 From City: 3 miles W of BANGOR, ME
2.2.3 Elevation: 192.1 ft
2.2.5 Magnetic Variation: 16W (2020)
2.2.6 Airport Contact: TONY CARUSO
BANGOR INTERNATIONAL ARPT
BANGOR, ME 4401 (207−992−4600)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I B certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 15
2.12.2 True Bearing: 134
2.12.3 Dimensions: 11440 ft x 200 ft
2.12.4 PCN: 120 R/A/W/T
2.12.5 Coordinates: 44−49−6.1369N / 68−50−38.1522W
2.12.6 Threshold Elevation: 192.1 ft
2.12.6 Touchdown Zone Elevation: 192.1 ft

2.12.1 Designation: 33
2.12.2 True Bearing: 314
2.12.3 Dimensions: 11440 ft x 200 ft
2.12.4 PCN: 120 R/A/W/T
2.12.5 Coordinates: 44−47−47.4136N / 68−48−44.3618W
2.12.6 Threshold Elevation: 162.9 ft
2.12.6 Touchdown Zone Elevation: 162.9 ft

2.12.1 Designation: H1
2.12.2 True Bearing:
2.12.3 Dimensions: 100 ft x 100 ft
2.12.4 PCN: ///
2.12.5 Coordinates: −− / −−
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

AD 2.13 Declared Distances
2.13.1 Designation: 15
2.13.2 Take−off Run Available: 11440 ft
2.13.3 Take−off Distance Available: 11440 ft
2.13.4 Accelerate−Stop Distance Available: 11440 ft
2.13.5 Landing Distance Available: 11440 ft

2.13.1 Designation: 33
2.13.2 Take−off Run Available: 11440 ft
2.13.3 Take−off Distance Available: 11440 ft
2.13.4 Accelerate−Stop Distance Available: 11440 ft
2.13.5 Landing Distance Available: 11440 ft

2.13.1 Designation: H1
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 15
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 33
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: H1
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P DEP/P IC
2.14.3 Channel: 118.925
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S DEP/S
2.14.3 Channel: 124.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ATIS
2.14.3 Channel: 127.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 135.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C
2.14.3 Channel: 118.925
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C
2.14.3 Channel: 239.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C/S
2.14.3 Channel: 124.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 120.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 233.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: NG OPS
2.14.3 Channel: 41.2
2.14.5 Hours of Operation:

AD 2.19 Radio Navigation and Landing Aids

2.19.1 ILS Type: DME for runway 15. Magnetic variation: 16W
2.19.2 ILS Identification: JVH
2.19.5 Coordinates: 44−47−42.4986N / 68−48−31.8082W
2.19.6 Site Elevation: 166.2 ft

2.19.1 ILS Type: Glide Slope for runway 15. Magnetic variation: 16W
2.19.2 ILS Identification: JVH
2.19.5 Coordinates: 44−49−2.1756N / 68−50−22.4761W
2.19.6 Site Elevation: 187.7 ft

2.19.1 ILS Type: Inner Marker for runway 15. Magnetic variation: 16W
2.19.2 ILS Identification: JVH
2.19.5 Coordinates: 44−49−12.0633N / 68−50−46.7197W
2.19.6 Site Elevation: 184 ft

2.19.1 ILS Type: Localizer for runway 15. Magnetic variation: 16W
2.19.2 ILS Identification: JVH
2.19.5 Coordinates: 44−47−40.3704N / 68−48−34.1931W
2.19.6 Site Elevation: 161.7 ft

2.19.1 ILS Type: Middle Marker for runway 15. Magnetic variation: 16W
2.19.2 ILS Identification: JVH
2.19.5 Coordinates: 44−49−23.6858N / 68−51−3.4639W
2.19.6 Site Elevation: 158 ft

2.19.1 ILS Type: DME for runway 33. Magnetic variation: 16W
2.19.2 ILS Identification: BGR
2.19.5 Coordinates: 44−47−42.4986N / 68−48−31.8082W
2.19.6 Site Elevation: 166.2 ft

2.19.1 ILS Type: Glide Slope for runway 33. Magnetic variation: 16W
2.19.2 ILS Identification: BGR
2.19.5 Coordinates: 44−47−53.7039N / 68−48−59.7081W
2.19.6 Site Elevation: 148.8 ft

2.19.1 ILS Type: Localizer for runway 33. Magnetic variation: 16W
2.19.2 ILS Identification: BGR
2.19.5 Coordinates: 44−49−13.6222N / 68−50−48.9786W
2.19.6 Site Elevation: 181.7 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 19W
2.19.2 Navigation Aid Identification: BGR
2.19.5 Coordinates: 44−50−30.4619N / 68−52−26.2752W
2.19.6 Site Elevation: 360.1 ft

General Remarks:
ANG: PPR VALID +/− 1 HR UNLESS PRIOR CDN. 3 HR OUT CALL, 30 MIN OUT CALL 311.0 TO CFM CSTMS/AG AND TRAN SVC. COMMAND POST C207−404−7788 H24.

FUEL: A++ (MIL).

ANG: CAUTION: BASH PHASE II PERIOD SEP−NOV, APR−MAY. EXPECT INCREASED BIRD ACTIVITY.

CONTACT BASE OPS/COMMAND POST/SOF FOR CURRENT BIRDWATCH COND.

ANG: OPR 1100−1930Z++ MON−FRI, CLSD WKEND AND HOL. PPR RQRD FOR ANG RAMP. CTC AFLD MGMT DSN 698−7232, C207−404−7232 FOR PPR DURG OPR HRS. PRE−COORD ALL TRNSPN RQMNTS AND HAZ CARGO WITH PPR REQ.

ARNG: OPR 1230−2100Z++ MON−FRI EXC HOL. LTD MAINT. J8. PPR MAY−OCT SVC DSN 626−1100.

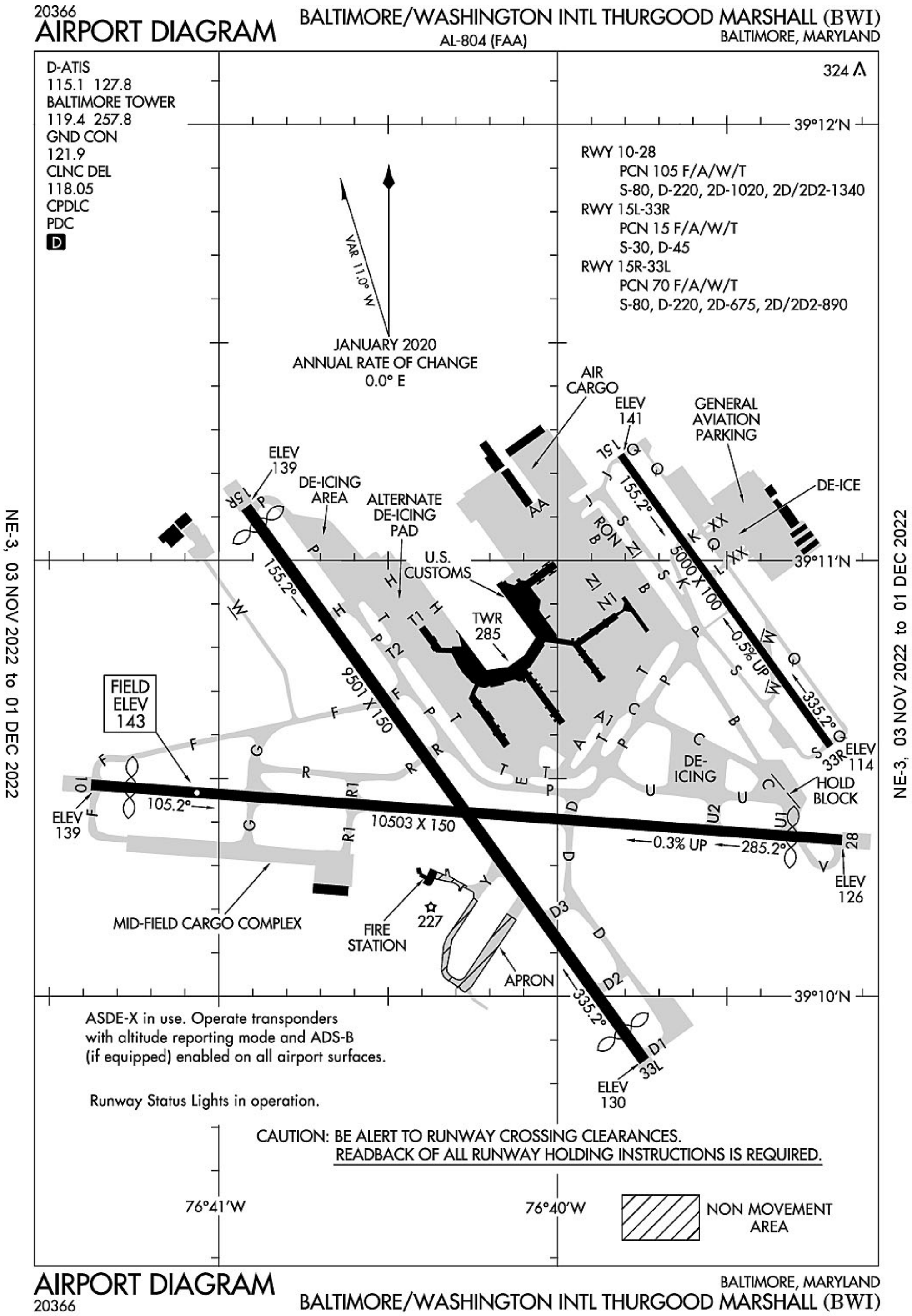
MISC: RWY 15−33 GROOVED.

SVC MIL−FLUID: OFF−BASE CONTRACTED LOX AVBL H24−RQR 24 HR NOTICE.

ANG: TRANSIENT ACFT MAY BE DIVERTED TO CIVILIAN SIDE DURING NON−DUTY HRS & WEEKENDS. FEE REQUIRED; NO ANG TRANSIENT ALERT.

TFC PAT: RWY 33 LEFT TFC, TURBO JET TFC 2000’ MSL UNLESS OTHERWISE INSTR.

Baltimore, Maryland
Baltimore−Washington International Thurgood Marshall
ICAO Identifier KBWI



Baltimore, MD
Baltimore/Washington Intl Thurgood Marshal
ICAO Identifier KBWI

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 39−10−32.622N / 76−40−8.368W
2.2.2 From City: 9 miles S of BALTIMORE, MD
2.2.3 Elevation: 143.4 ft
2.2.5 Magnetic Variation: 11W (2000)
2.2.6 Airport Contact: GREGORY SOLEK
PO BOX 8766
BWI AIRPORT, MD 21240 (410−859−7024)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 10
2.12.2 True Bearing: 94
2.12.3 Dimensions: 10503 ft x 150 ft
2.12.4 PCN: 105 F/A/W/T
2.12.5 Coordinates: 39−10−29.0895N / 76−41−22.6248W
2.12.6 Threshold Elevation: 139 ft
2.12.6 Touchdown Zone Elevation: 143.4 ft

2.12.1 Designation: 28
2.12.2 True Bearing: 274
2.12.3 Dimensions: 10503 ft x 150 ft
2.12.4 PCN: 105 F/A/W/T
2.12.5 Coordinates: 39−10−21.4754N / 76−39−9.6234W
2.12.6 Threshold Elevation: 126.4 ft
2.12.6 Touchdown Zone Elevation: 142.7 ft

2.12.1 Designation: 33R
2.12.2 True Bearing: 324
2.12.3 Dimensions: 5000 ft x 100 ft
2.12.4 PCN: 15 F/A/W/T
2.12.5 Coordinates: 39−10−34.4468N / 76−39−11.6307W
2.12.6 Threshold Elevation: 114 ft
2.12.6 Touchdown Zone Elevation: 124.4 ft

2.12.1 Designation: 15L
2.12.2 True Bearing: 144
2.12.3 Dimensions: 5000 ft x 100 ft
2.12.4 PCN: 15 F/A/W/T
2.12.5 Coordinates: 39−11−14.5431N / 76−39−48.7441W
2.12.6 Threshold Elevation: 141.4 ft
2.12.6 Touchdown Zone Elevation: 141.5 ft

2.12.1 Designation: 33L
2.12.2 True Bearing: 324
2.12.3 Dimensions: 9501 ft x 150 ft
2.12.4 PCN: 70 F/A/W/T
2.12.5 Coordinates: 39−9−51.1311N / 76−39−44.6134W
2.12.6 Threshold Elevation: 129.6 ft
2.12.6 Touchdown Zone Elevation: 142.7 ft

2.12.1 Designation: 15R
2.12.2 True Bearing: 144
2.12.3 Dimensions: 9501 ft x 150 ft
2.12.4 PCN: 70 F/A/W/T
2.12.5 Coordinates: 39−11−7.3007N / 76−40−55.1704W
2.12.6 Threshold Elevation: 139 ft
2.12.6 Touchdown Zone Elevation: 138.3 ft

AD 2.13 Declared Distances
2.13.1 Designation: 10
2.13.2 Take−off Run Available: 10503 ft
2.13.3 Take−off Distance Available: 10503 ft
2.13.4 Accelerate−Stop Distance Available: 10503 ft
2.13.5 Landing Distance Available: 9953 ft

2.13.1 Designation: 28
2.13.2 Take−off Run Available: 10503 ft
2.13.3 Take−off Distance Available: 10503 ft
2.13.4 Accelerate−Stop Distance Available: 10503 ft
2.13.5 Landing Distance Available: 9803 ft

2.13.1 Designation: 33R
2.13.2 Take−off Run Available: 5000 ft
2.13.3 Take−off Distance Available: 5000 ft
2.13.4 Accelerate−Stop Distance Available: 5000 ft
2.13.5 Landing Distance Available: 5000 ft

2.13.1 Designation: 15L
2.13.2 Take−off Run Available: 5000 ft
2.13.3 Take−off Distance Available: 5000 ft
2.13.4 Accelerate−Stop Distance Available: 5000 ft
2.13.5 Landing Distance Available: 5000 ft

2.13.1 Designation: 33L

2.13.2 Take−off Run Available: 9501 ft
2.13.3 Take−off Distance Available: 9501 ft
2.13.4 Accelerate−Stop Distance Available: 8801 ft
2.13.5 Landing Distance Available: 8301 ft

2.13.1 Designation: 15R
2.13.2 Take−off Run Available: 9501 ft
2.13.3 Take−off Distance Available: 9501 ft
2.13.4 Accelerate−Stop Distance Available: 8601 ft
2.13.5 Landing Distance Available: 8301 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 10
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 28
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 33R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 15L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 33L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 15R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 10. Magnetic variation: 11W
2.19.2 ILS Identification: BAL
2.19.5 Coordinates: 39−10−23.557N / 76−41−3.233W
2.19.6 Site Elevation: 137.6 ft

2.19.1 ILS Type: Localizer for runway 10. Magnetic variation: 11W
2.19.2 ILS Identification: BAL
2.19.5 Coordinates: 39−10−20.5919N / 76−38−54.2857W
2.19.6 Site Elevation: 137.5 ft

2.19.1 ILS Type: Glide Slope for runway 28. Magnetic variation: 11W
2.19.2 ILS Identification: OEH
2.19.5 Coordinates: 39−10−18.64N / 76−39−31.024W
2.19.6 Site Elevation: 129.2 ft

2.19.1 ILS Type: Localizer for runway 28. Magnetic variation: 11W
2.19.2 ILS Identification: OEH
2.19.5 Coordinates: 39−10−29.8183N / 76−41−35.4222W
2.19.6 Site Elevation: 134 ft

2.19.1 ILS Type: Glide Slope for runway 15L. Magnetic variation: 11W
2.19.2 ILS Identification: UQC
2.19.5 Coordinates: 39−11−3.67N / 76−39−44.24W
2.19.6 Site Elevation: 138.1 ft

2.19.1 ILS Type: Localizer for runway 15L. Magnetic variation: 11W
2.19.2 ILS Identification: UQC
2.19.5 Coordinates: 39−10−29.3978N / 76−39−6.9539W
2.19.6 Site Elevation: 94 ft

2.19.1 ILS Type: Glide Slope for runway 33R. Magnetic variation: 11W
2.19.2 ILS Identification: BWI
2.19.5 Coordinates: 39−10−40.05N / 76−39−21.19W
2.19.6 Site Elevation: 110.3 ft

2.19.1 ILS Type: Localizer for runway 33R. Magnetic variation: 11W
2.19.2 ILS Identification: BWI
2.19.5 Coordinates: 39−11−19.7555N / 76−39−53.5728W
2.19.6 Site Elevation: 133 ft

2.19.1 ILS Type: Glide Slope for runway 15R. Magnetic variation: 11W
2.19.2 ILS Identification: FND
2.19.5 Coordinates: 39−10−53.6029N / 76−40−48.8976W
2.19.6 Site Elevation: 130.2 ft

2.19.1 ILS Type: Localizer for runway 15R. Magnetic variation: 11W
2.19.2 ILS Identification: FND
2.19.5 Coordinates: 39−9−39.0861N / 76−39−33.4607W
2.19.6 Site Elevation: 115.9 ft

2.19.1 ILS Type: Glide Slope for runway 33L. Magnetic variation: 11W
2.19.2 ILS Identification: RUX
2.19.5 Coordinates: 39−10−0.5283N / 76−39−59.734W
2.19.6 Site Elevation: 125.6 ft

2.19.1 ILS Type: Localizer for runway 33L. Magnetic variation: 11W
2.19.2 ILS Identification: RUX
2.19.5 Coordinates: 39−11−12.2145N / 76−40−59.7239W
2.19.6 Site Elevation: 133 ft

General Remarks:
NO APRON PARKING FOR UNSKED ACR.

GENERAL AVIATION ACFT CTC UNICOM PRIOR TO ARRIVING AT GENERAL AVIATION RAMP FOR SECURITY PURPOSES.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALT REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL ARPT SURFACES.

TWY 'A' IS RSTRD TO GROUP IV ACFT WINGSPAN 171 FT OR LESS.

RWY STATUS LGTS IN OPN.

DISTRACTING LGTS (GOLF DRIVING RANGE) RIGHT SIDE EXTDD CNTRLN RWY 33L FM AER TO 1/4 MI FINAL.

ACFT DEPARTING RWY 28 EXP DEP FM TWY U1.

DURING ATC ZERO EVENTS, UNICOM 119.4.

ACFT ON VISUAL APCHS EXPECT TO MAINTAIN 3000 FT UNTIL 10 DME FM BAL VORTAC; DEP ACFT SHOULD EXPECT TURNS BASED ON BALTIMORE DME.

DEER & BIRDS OCNLLY ON & INVOF ARPT.

PRACTICE LNDG & APCH BY TURBO−PWRD ACFT PROHIBITED 2200−0600; PRACTICE LNDG & TKOF BY B−747 ACFT PROHIBITED RWY 15R/33L.

RWY 28 DE−ICE PAD LANE 1 RSTRD TO ACFT WITH WINGSPAN 171 FT OR LESS, LANE 2 RSTRD TO ACFT WITH WINGSPAN 135 FT OR LESS, LANE 3 IS USED BY LARGE ACFT MAX WINGSPAN 215 FT AND WHEN IN USE− LANES 2 AND 4 ARE UNAVBL. LANES 4, 5 & 6 ARE RSTRD TO ACFT WINGSPAN 135 FT OR LESS.

RWY 15R DEICE PAD, POSITION # 1, RSTRD TO ACFT WITH WINGSPAN OF 156 FT 1 INCH OR LESS & LENGTH OF 180 FT 3 INCHES OR LESS. PSN'S #2 & #3 ARE RSTD TO ACFT WITH A WINGSPAN OF 156 FT 1 INCH OR LESS, POSITION #3 IS RSTRD TO ACFT WITH A WINGSPAN OF 156 FT 1 INCH OR LESS & LENGTH OF 180 FT 3 INCHES OR LESS; POSITION 4 RSTRD TO ACFT WITH WINGSPAN OF 213 FT OR LESS & LENGTH OF 229 FT 2 INCHES OR LESS.

RWY LEN AVBL FOR RWY 28 DEPS FM TWY U1 IS 9802 FT.

MAJOR CONSTR ON ARPT DLY; ACFT MOV & PRKG AREAS SUBJECT TO SHORT NOTICE CHANGE/CLOSURE. FOR CURRENT INFO PHONE BWI OPNS CNTR 410−859−7018.

CONCOURSE A ALT DEICING AREA IS RSTRD TO B737−800 SIZE ACFT WITH WINGLETS OR SMLR ON SPOTS 6, 7 AND 8.

TAXIING PROHIBITED BTN CONCOURSE C & ADJ BLDG STRUCTURE SW OF CONCOURSE C. ACCESS TO GATE C12 MUST BE VIA TWY A.

TWY T BTN TWY H AND TWY E RSTD TO GROUP IV ACFT WITH WINGSPAN LESS THAN 171 FT. TWY T BTN TWY E AND TWY B RSTRD TO GROUP V ACFT WITH WINGSPAN LESS THAN 214 FT; WHEN GROUP V ACFT ARE ON TWY T, TWY A IS RSTRD TO MAX WINGSPANS OF 110 FT.

TWY "S", SOUTH OF TWY "P", RSTRD TO ACFT 60000 LBS & LESS.

TAXILANES 'T−1' & "H" RSTRD TO GROUP III ACFT WITH MAX WINGSPAN OF 118 FEET.

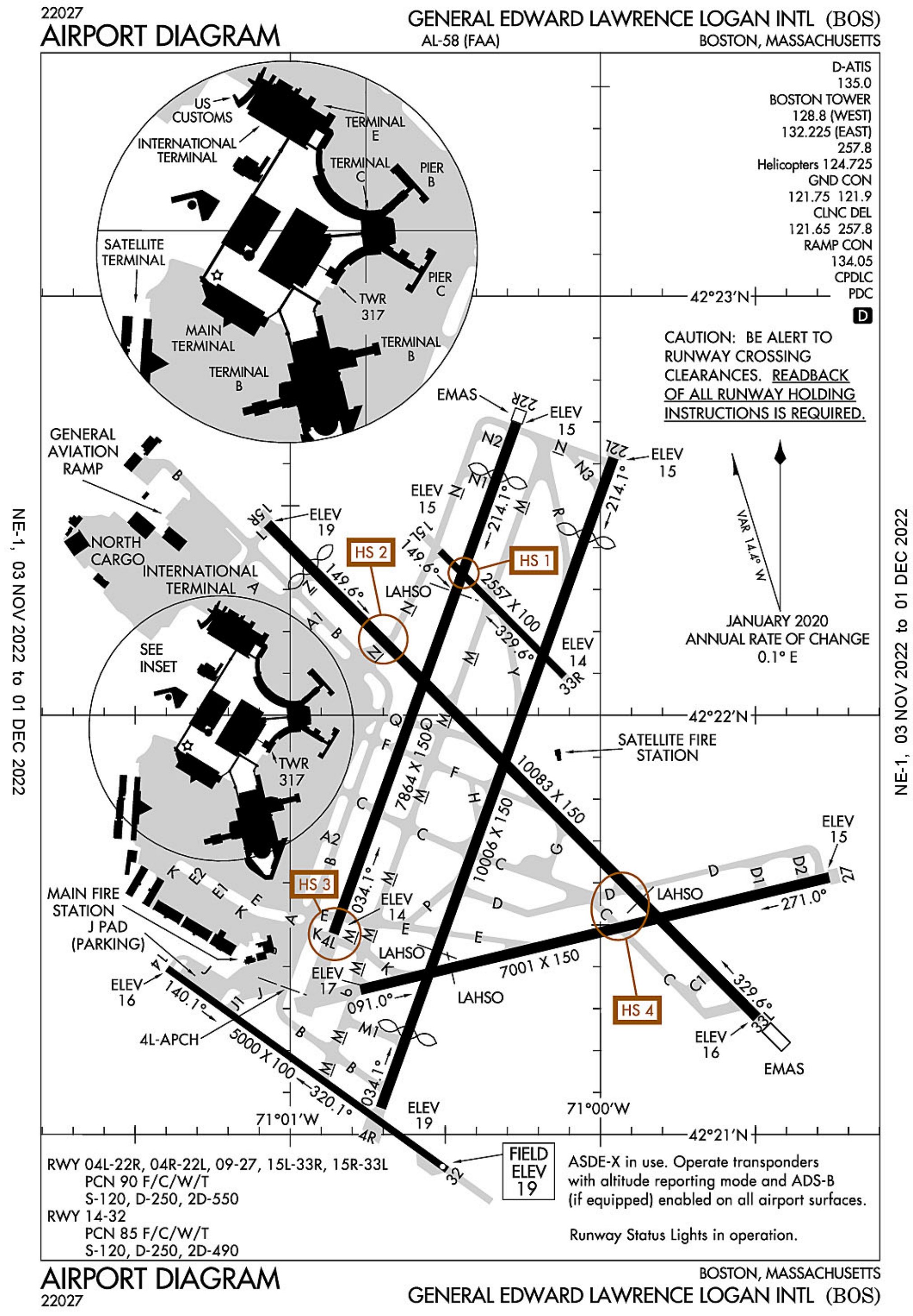
NOISE ABATEMENT PROCEDURES IN EFFECT − RSTRN FOR RWY 15L/33R EXCEPT FOR EMERG OR MERCY FLIGHTS CTC AMGR FOR INFO.

CONT MOWING OPERATIONS ADJ ALL RWYS & TWYS − APR THRU NOV.

UNICOM 119.4.

DUAL PARALLEL TAXILANES HAVE BEEN ADDED TO THE 'D'/'E' ALLEYWAY; TAXILANE 'N' AND TAXILANE 'N1'. TAXILANE 'N' IS DESIGNATED A "GROUP V" TAXILANE WITH MAX WINGSPAN OF 213 FT. TAXILANE 'N1' IS DESIGNATED A "GROUP IV" TAXILANE WITH MAX WINGSPAN OF 170 FT.

Boston, Massachusetts
General Edward Lawrence Logan International
ICAO Identifier KBOS



Boston, MA
General Edward Lawrence Logan Intl
ICAO Identifier KBOS

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 42−21−46.6N / 71−0−23W
2.2.2 From City: 1 miles E of BOSTON, MA
2.2.3 Elevation: 19.1 ft
2.2.5 Magnetic Variation: 15W (2020)
2.2.6 Airport Contact: EDWARD FRENI
LOGAN INTERNATIONAL AIRPORT
EAST BOSTON, MA 2128 (617−567−5400)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 9/1/1972

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 04L
2.12.2 True Bearing: 20
2.12.3 Dimensions: 7864 ft x 150 ft
2.12.4 PCN: 90 F/C/W/T
2.12.5 Coordinates: 42−21−28.7577N / 71−0−51.6187W
2.12.6 Threshold Elevation: 13.9 ft
2.12.6 Touchdown Zone Elevation: 13.9 ft

2.12.1 Designation: 22R
2.12.2 True Bearing: 200
2.12.3 Dimensions: 7864 ft x 150 ft
2.12.4 PCN: 90 F/C/W/T
2.12.5 Coordinates: 42−22−41.8759N / 71−0−16.2499W
2.12.6 Threshold Elevation: 14.9 ft
2.12.6 Touchdown Zone Elevation: 15.2 ft

2.12.1 Designation: 04R
2.12.2 True Bearing: 20
2.12.3 Dimensions: 10006 ft x 150 ft
2.12.4 PCN: 90 F/C/W/T
2.12.5 Coordinates: 42−21−3.8094N / 71−0−42.458W
2.12.6 Threshold Elevation: 18.8 ft
2.12.6 Touchdown Zone Elevation: 17.6 ft

2.12.1 Designation: 22L
2.12.2 True Bearing: 200
2.12.3 Dimensions: 10006 ft x 150 ft
2.12.4 PCN: 90 F/C/W/T
2.12.5 Coordinates: 42−22−36.8399N / 70−59−57.4473W
2.12.6 Threshold Elevation: 14.5 ft
2.12.6 Touchdown Zone Elevation: 15.6 ft

2.12.1 Designation: 09
2.12.2 True Bearing: 77
2.12.3 Dimensions: 7001 ft x 150 ft
2.12.4 PCN: 90 F/C/W/T
2.12.5 Coordinates: 42−21−20.715N / 71−0−46.4187W
2.12.6 Threshold Elevation: 16.7 ft
2.12.6 Touchdown Zone Elevation: 16.8 ft

2.12.1 Designation: 27
2.12.2 True Bearing: 257
2.12.3 Dimensions: 7001 ft x 150 ft
2.12.4 PCN: 90 F/C/W/T
2.12.5 Coordinates: 42−21−36.7767N / 70−59−15.7276W
2.12.6 Threshold Elevation: 14.8 ft
2.12.6 Touchdown Zone Elevation: 17.2 ft

2.12.1 Designation: 14
2.12.2 True Bearing: 125
2.12.3 Dimensions: 5000 ft x 100 ft
2.12.4 PCN: 85 F/C/W/T
2.12.5 Coordinates: 42−21−23.7521N / 71−1−23.7886W
2.12.6 Threshold Elevation: 16 ft
2.12.6 Touchdown Zone Elevation: 19.1 ft

2.12.1 Designation: 32
2.12.2 True Bearing: 305
2.12.3 Dimensions: 5000 ft x 100 ft
2.12.4 PCN: 85 F/C/W/T
2.12.5 Coordinates: 42−20−54.9565N / 71−0−29.6841W
2.12.6 Threshold Elevation: 19.1 ft
2.12.6 Touchdown Zone Elevation: 19.1 ft

2.12.1 Designation: 15L
2.12.2 True Bearing: 135
2.12.3 Dimensions: 2557 ft x 100 ft
2.12.4 PCN: 90 F/C/W/T
2.12.5 Coordinates: 42−22−23.5008N / 71−0−31.0047W
2.12.6 Threshold Elevation: 14.8 ft
2.12.6 Touchdown Zone Elevation: 15.8 ft

2.12.1 Designation: 33R
2.12.2 True Bearing: 315
2.12.3 Dimensions: 2557 ft x 100 ft

2.12.4 PCN: 90 F/C/W/T
2.12.5 Coordinates: 42−22−5.5791N / 71−0−7.0008W
2.12.6 Threshold Elevation: 14 ft
2.12.6 Touchdown Zone Elevation: 15.8 ft

2.12.1 Designation: 15R
2.12.2 True Bearing: 135
2.12.3 Dimensions: 10083 ft x 150 ft
2.12.4 PCN: 90 F/C/W/T
2.12.5 Coordinates: 42−22−27.3749N / 71−1−4.4117W
2.12.6 Threshold Elevation: 18.9 ft
2.12.6 Touchdown Zone Elevation: 17 ft

2.12.1 Designation: 33L
2.12.2 True Bearing: 315
2.12.3 Dimensions: 10083 ft x 150 ft
2.12.4 PCN: 90 F/C/W/T
2.12.5 Coordinates: 42−21−16.7428N / 70−59−29.7098W
2.12.6 Threshold Elevation: 15.7 ft
2.12.6 Touchdown Zone Elevation: 16.2 ft

AD 2.13 Declared Distances

2.13.1 Designation: 04L
2.13.2 Take−off Run Available: 7864 ft
2.13.3 Take−off Distance Available: 7864 ft
2.13.4 Accelerate−Stop Distance Available: 7864 ft
2.13.5 Landing Distance Available: 7864 ft

2.13.1 Designation: 22R
2.13.2 Take−off Run Available: 7864 ft
2.13.3 Take−off Distance Available: 7864 ft
2.13.4 Accelerate−Stop Distance Available: 7864 ft
2.13.5 Landing Distance Available: 7046 ft

2.13.1 Designation: 04R
2.13.2 Take−off Run Available: 10006 ft
2.13.3 Take−off Distance Available: 10006 ft
2.13.4 Accelerate−Stop Distance Available: 10006 ft
2.13.5 Landing Distance Available: 8851 ft

2.13.1 Designation: 22L
2.13.2 Take−off Run Available: 10006 ft
2.13.3 Take−off Distance Available: 10006 ft
2.13.4 Accelerate−Stop Distance Available: 10006 ft
2.13.5 Landing Distance Available: 8806 ft

2.13.1 Designation: 09
2.13.2 Take−off Run Available: 7001 ft
2.13.3 Take−off Distance Available: 7001 ft
2.13.4 Accelerate−Stop Distance Available: 7001 ft

2.13.5 Landing Distance Available: 7001 ft

2.13.1 Designation: 27
2.13.2 Take−off Run Available: 7001 ft
2.13.3 Take−off Distance Available: 7001 ft
2.13.4 Accelerate−Stop Distance Available: 7001 ft
2.13.5 Landing Distance Available: 7001 ft

2.13.1 Designation: 14
2.13.2 Take−off Run Available: 5000 ft
2.13.3 Take−off Distance Available: 5000 ft
2.13.4 Accelerate−Stop Distance Available: 5000 ft
2.13.5 Landing Distance Available: 5000 ft

2.13.1 Designation: 32
2.13.2 Take−off Run Available: 5000 ft
2.13.3 Take−off Distance Available: 5000 ft
2.13.4 Accelerate−Stop Distance Available: 5000 ft
2.13.5 Landing Distance Available: 5000 ft

2.13.1 Designation: 15L
2.13.2 Take−off Run Available: 2557 ft
2.13.3 Take−off Distance Available: 2557 ft
2.13.4 Accelerate−Stop Distance Available: 2557 ft
2.13.5 Landing Distance Available: 2557 ft

2.13.1 Designation: 33R
2.13.2 Take−off Run Available: 2557 ft
2.13.3 Take−off Distance Available: 2557 ft
2.13.4 Accelerate−Stop Distance Available: 2557 ft
2.13.5 Landing Distance Available: 2557 ft

2.13.1 Designation: 15R
2.13.2 Take−off Run Available: 10083 ft
2.13.3 Take−off Distance Available: 10083 ft
2.13.4 Accelerate−Stop Distance Available: 10083 ft
2.13.5 Landing Distance Available: 9202 ft

2.13.1 Designation: 33L
2.13.2 Take−off Run Available: 10083 ft
2.13.3 Take−off Distance Available: 10083 ft
2.13.4 Accelerate−Stop Distance Available: 10083 ft
2.13.5 Landing Distance Available: 10083 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 04L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22R

2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 04R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22L
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 09
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 27
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 14
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 32
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 15L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 33R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 15R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 33L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 04R. Magnetic variation: 15W
2.19.2 ILS Identification: BOS
2.19.5 Coordinates: 42−22−57.4695N / 70−59−50.8873W
2.19.6 Site Elevation: 34.5 ft

2.19.1 ILS Type: Glide Slope for runway 04R. Magnetic variation: 15W
2.19.2 ILS Identification: BOS
2.19.5 Coordinates: 42−21−21.8231N / 71−0−24.5483W
2.19.6 Site Elevation: 10.1 ft

2.19.1 ILS Type: Localizer for runway 04R. Magnetic variation: 15W
2.19.2 ILS Identification: BOS
2.19.5 Coordinates: 42−22−55.9736N / 70−59−48.1884W
2.19.6 Site Elevation: 17.6 ft

2.19.1 ILS Type: DME for runway 22L. Magnetic variation: 15W
2.19.2 ILS Identification: LQN
2.19.5 Coordinates: 42−22−57.4695N / 70−59−50.8873W
2.19.6 Site Elevation: 34.5 ft

2.19.1 ILS Type: Glide Slope for runway 22L. Magnetic variation: 15W
2.19.2 ILS Identification: LQN
2.19.5 Coordinates: 42−22−17.0026N / 71−0−11.9878W
2.19.6 Site Elevation: 11.1 ft

2.19.1 ILS Type: Localizer for runway 22L. Magnetic variation: 15W
2.19.2 ILS Identification: LQN
2.19.5 Coordinates: 42−21−0.0409N / 71−0−44.2844W
2.19.6 Site Elevation: 14.6 ft

2.19.1 ILS Type: DME for runway 27. Magnetic variation: 15W
2.19.2 ILS Identification: DGU
2.19.5 Coordinates: 42−21−15.6955N / 71−0−55.7791W
2.19.6 Site Elevation: 30.5 ft

2.19.1 ILS Type: Glide Slope for runway 27. Magnetic variation: 15W
2.19.2 ILS Identification: DGU
2.19.5 Coordinates: 42−21−31.2953N / 70−59−28.3545W
2.19.6 Site Elevation: 12.3 ft

2.19.1 ILS Type: Localizer for runway 27. Magnetic variation: 15W
2.19.2 ILS Identification: DGU
2.19.5 Coordinates: 42−21−18.4751N / 71−0−59.0489W
2.19.6 Site Elevation: 16.5 ft

2.19.1 ILS Type: DME for runway 15R. Magnetic variation: 15W
2.19.2 ILS Identification: MDC
2.19.5 Coordinates: 42−21−26.5111N / 70−59−35.0574W
2.19.6 Site Elevation: 26.4 ft

2.19.1 ILS Type: Glide Slope for runway 15R. Magnetic variation: 15W
2.19.2 ILS Identification: MDC
2.19.5 Coordinates: 42−22−14.6947N / 71−0−42.4209W
2.19.6 Site Elevation: 11.2 ft

2.19.1 ILS Type: Localizer for runway 15R. Magnetic variation: 15W
2.19.2 ILS Identification: MDC
2.19.5 Coordinates: 42−21−26.3592N / 70−59−37.052W
2.19.6 Site Elevation: 11.1 ft

2.19.1 ILS Type: DME for runway 33L. Magnetic variation: 15W
2.19.2 ILS Identification: LIP
2.19.5 Coordinates: 42−21−26.5111N / 70−59−35.0574W
2.19.6 Site Elevation: 26.4 ft

2.19.1 ILS Type: Glide Slope for runway 33L. Magnetic variation: 15W
2.19.2 ILS Identification: LIP
2.19.5 Coordinates: 42−21−26.6446N / 70−59−34.7132W
2.19.6 Site Elevation: 11.3 ft

2.19.1 ILS Type: Localizer for runway 33L. Magnetic variation: 15W
2.19.2 ILS Identification: LIP
2.19.5 Coordinates: 42−22−37.5624N / 71−1−18.0895W
2.19.6 Site Elevation: 15.9 ft

2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 16W
2.19.2 Navigation Aid Identification: BOS
2.19.5 Coordinates: 42−21−26.8197N / 70−59−22.3742W
2.19.6 Site Elevation: 18.4 ft

General Remarks:
RWY STATUS LGTS IN OPN.

NOISE SENSITIVE AREA − HELS OPNG WITHIN THE CTZL ARE REQD TO MAINT THE HIGHEST POSSIBLE ALT.

NO RON PARKING FOR NON−TENANT CHARTER AIRCRAFT WITHOUT PRIOR MASSPORT PERMISSION.

PILOTS SHOULD COMPLETE ALL CALCULATIONS PRIOR TO PUSHBACK FROM GATE.

BTN 0000−0600 LCL − RY 15R IS PREFERENTIAL NGT RY FOR TKOF & RY 33L IS PREFERENTIAL NGT RY FOR LNDG.

RWY 14/32 UNIDIRECTIONAL; NO LDGS RWY 14; NO TKOFS RWY 32.

NMRS CRANES ON AND INVOF ARPT.

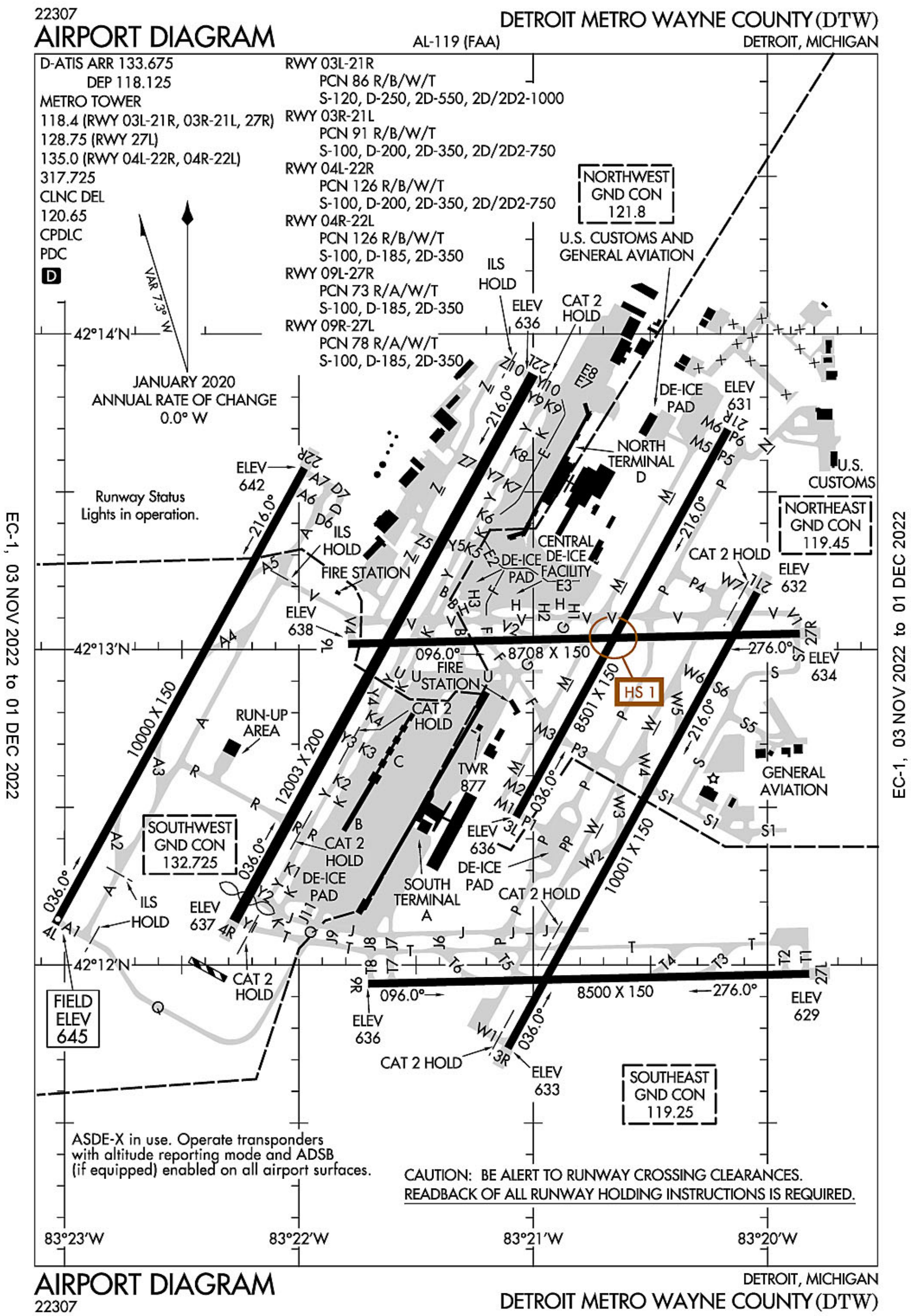
TERMINAL E; NORTH & SOUTH CARGO ARRIVALS CTC MASSPORT GATE CONTROL ON FREQ 131.1 BEFORE ENTERING/DEPARTING RAMP AREA.

FOR NOISE ABATEMENT PROCEDURES CALL 617−561−1636 0900−1700 MON−FRI.

BIRDS ON & INVOF ARPT.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

Detroit, Michigan
Detroit Metropolitan Wayne County
ICAO Identifier KDTW



Detroit, MI
Detroit Metropolitan Wayne County
ICAO Identifier KDTW

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 42−12−44.8N / 83−21−12.2W
2.2.2 From City: 15 miles S of DETROIT, MI
2.2.3 Elevation: 645.2 ft
2.2.5 Magnetic Variation: 7W (2020)
2.2.6 Airport Contact: CHAD NEWTON
11050 ROGELL DR #602
DETROIT, MI 48242 (734−942−3685)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: NONE

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 03L
2.12.2 True Bearing: 29
2.12.3 Dimensions: 8501 ft x 150 ft
2.12.4 PCN: 86 R/B/W/T
2.12.5 Coordinates: 42−12−28.207N / 83−21−4.3869W
2.12.6 Threshold Elevation: 635.7 ft
2.12.6 Touchdown Zone Elevation: 636.8 ft

2.12.1 Designation: 21R
2.12.2 True Bearing: 209
2.12.3 Dimensions: 8501 ft x 150 ft
2.12.4 PCN: 86 R/B/W/T
2.12.5 Coordinates: 42−13−41.852N / 83−20−10.1125W
2.12.6 Threshold Elevation: 631.4 ft
2.12.6 Touchdown Zone Elevation: 634.4 ft

2.12.1 Designation: 03R
2.12.2 True Bearing: 29
2.12.3 Dimensions: 10001 ft x 150 ft
2.12.4 PCN: 91 R/B/W/T
2.12.5 Coordinates: 42−11−44.2115N / 83−21−6.4868W
2.12.6 Threshold Elevation: 632.8 ft
2.12.6 Touchdown Zone Elevation: 633.1 ft

2.12.1 Designation: 21L
2.12.2 True Bearing: 209
2.12.3 Dimensions: 10001 ft x 150 ft
2.12.4 PCN: 91 R/B/W/T
2.12.5 Coordinates: 42−13−10.8552N / 83−20−2.6517W
2.12.6 Threshold Elevation: 631.8 ft
2.12.6 Touchdown Zone Elevation: 632.3 ft

2.12.1 Designation: 04L
2.12.2 True Bearing: 29
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 126 R/B/W/T
2.12.5 Coordinates: 42−12−7.8216N / 83−23−2.4003W
2.12.6 Threshold Elevation: 645.2 ft
2.12.6 Touchdown Zone Elevation: 645.2 ft

2.12.1 Designation: 22R
2.12.2 True Bearing: 209
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 126 R/B/W/T
2.12.5 Coordinates: 42−13−34.4821N / 83−21−58.6115W
2.12.6 Threshold Elevation: 642.1 ft
2.12.6 Touchdown Zone Elevation: 642.1 ft

2.12.1 Designation: 22L
2.12.2 True Bearing: 209
2.12.3 Dimensions: 12003 ft x 200 ft
2.12.4 PCN: 126 R/B/W/T
2.12.5 Coordinates: 42−13−52.3644N / 83−20−59.9655W
2.12.6 Threshold Elevation: 635.8 ft
2.12.6 Touchdown Zone Elevation: 637.4 ft

2.12.1 Designation: 04R
2.12.2 True Bearing: 29
2.12.3 Dimensions: 12003 ft x 200 ft
2.12.4 PCN: 126 R/B/W/T
2.12.5 Coordinates: 42−12−8.3656N / 83−22−16.5697W
2.12.6 Threshold Elevation: 637 ft
2.12.6 Touchdown Zone Elevation: 639.5 ft

2.12.1 Designation: 22X
2.12.2 True Bearing: 209
2.12.3 Dimensions: 0 ft x 0 ft
2.12.4 PCN: ///
2.12.5 Coordinates: −− / −−
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

2.12.1 Designation: 04X
2.12.2 True Bearing: 29
2.12.3 Dimensions: 0 ft x 0 ft

2.12.4 PCN: ///
2.12.5 Coordinates: −− / −−
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

2.12.1 Designation: 09L
2.12.2 True Bearing: 89
2.12.3 Dimensions: 8708 ft x 150 ft
2.12.4 PCN: 73 R/A/W/T
2.12.5 Coordinates: 42−13−1.0821N / 83−21−47.4044W
2.12.6 Threshold Elevation: 638 ft
2.12.6 Touchdown Zone Elevation: 639.6 ft

2.12.1 Designation: 27R
2.12.2 True Bearing: 269
2.12.3 Dimensions: 8708 ft x 150 ft
2.12.4 PCN: 73 R/A/W/T
2.12.5 Coordinates: 42−13−3.0219N / 83−19−51.7146W
2.12.6 Threshold Elevation: 634.3 ft
2.12.6 Touchdown Zone Elevation: 634.7 ft

2.12.1 Designation: 09R
2.12.2 True Bearing: 89
2.12.3 Dimensions: 8500 ft x 150 ft
2.12.4 PCN: 78 R/A/W/T
2.12.5 Coordinates: 42−11−56.4542N / 83−21−42.2248W
2.12.6 Threshold Elevation: 636 ft
2.12.6 Touchdown Zone Elevation: 636.1 ft

2.12.1 Designation: 27L
2.12.2 True Bearing: 269
2.12.3 Dimensions: 8500 ft x 150 ft
2.12.4 PCN: 78 R/A/W/T
2.12.5 Coordinates: 42−11−58.3372N / 83−19−49.3276W
2.12.6 Threshold Elevation: 629 ft
2.12.6 Touchdown Zone Elevation: 630.1 ft

AD 2.13 Declared Distances
2.13.1 Designation: 03L
2.13.2 Take−off Run Available: 8501 ft
2.13.3 Take−off Distance Available: 8501 ft
2.13.4 Accelerate−Stop Distance Available: 8501 ft
2.13.5 Landing Distance Available: 8501 ft

2.13.1 Designation: 21R
2.13.2 Take−off Run Available: 8501 ft
2.13.3 Take−off Distance Available: 8501 ft
2.13.4 Accelerate−Stop Distance Available: 8501 ft
2.13.5 Landing Distance Available: 8501 ft

2.13.1 Designation: 03R
2.13.2 Take−off Run Available: 10001 ft
2.13.3 Take−off Distance Available: 10001 ft
2.13.4 Accelerate−Stop Distance Available: 10001 ft
2.13.5 Landing Distance Available: 10001 ft

2.13.1 Designation: 21L
2.13.2 Take−off Run Available: 10001 ft
2.13.3 Take−off Distance Available: 10001 ft
2.13.4 Accelerate−Stop Distance Available: 10001 ft
2.13.5 Landing Distance Available: 10001 ft

2.13.1 Designation: 04L
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 22R
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 22L
2.13.2 Take−off Run Available: 12003 ft
2.13.3 Take−off Distance Available: 12003 ft
2.13.4 Accelerate−Stop Distance Available: 12003 ft
2.13.5 Landing Distance Available: 12003 ft

2.13.1 Designation: 04R
2.13.2 Take−off Run Available: 12003 ft
2.13.3 Take−off Distance Available: 12003 ft
2.13.4 Accelerate−Stop Distance Available: 12003 ft
2.13.5 Landing Distance Available: 11494 ft

2.13.1 Designation: 22X
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 04X
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 09L
2.13.2 Take−off Run Available: 8708 ft
2.13.3 Take−off Distance Available: 8708 ft

2.13.4 Accelerate−Stop Distance Available: 8618 ft
2.13.5 Landing Distance Available: 8618 ft

2.13.1 Designation: 27R
2.13.2 Take−off Run Available: 8708 ft
2.13.3 Take−off Distance Available: 8708 ft
2.13.4 Accelerate−Stop Distance Available: 8708 ft
2.13.5 Landing Distance Available: 8708 ft

2.13.1 Designation: 09R
2.13.2 Take−off Run Available: 8500 ft
2.13.3 Take−off Distance Available: 8500 ft
2.13.4 Accelerate−Stop Distance Available: 8500 ft
2.13.5 Landing Distance Available: 8500 ft

2.13.1 Designation: 27L
2.13.2 Take−off Run Available: 8500 ft
2.13.3 Take−off Distance Available: 8500 ft
2.13.4 Accelerate−Stop Distance Available: 8500 ft
2.13.5 Landing Distance Available: 8500 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 03L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 21R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 03R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 21L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 04L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 22L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 04R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 22X
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 04X
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 09L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 27R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 09R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 27L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 03R. Magnetic variation: 7W
2.19.2 ILS Identification: HUU
2.19.5 Coordinates: 42−11−34.2185N / 83−21−9.5792W
2.19.6 Site Elevation: 638.7 ft

2.19.1 ILS Type: Glide Slope for runway 03R. Magnetic variation: 7W
2.19.2 ILS Identification: HUU
2.19.5 Coordinates: 42−11−51.1266N / 83−20−54.979W
2.19.6 Site Elevation: 630.1 ft

2.19.1 ILS Type: Inner Marker for runway 03R. Magnetic variation: 7W
2.19.2 ILS Identification: HUU
2.19.5 Coordinates: 42−11−36.5551N / 83−21−12.137W
2.19.6 Site Elevation: 631.1 ft

2.19.1 ILS Type: Localizer for runway 03R. Magnetic variation: 7W
2.19.2 ILS Identification: HUU
2.19.5 Coordinates: 42−13−20.4082N / 83−19−55.609W
2.19.6 Site Elevation: 634 ft

2.19.1 ILS Type: DME for runway 21L. Magnetic variation: 7W
2.19.2 ILS Identification: EJR
2.19.5 Coordinates: 42−11−34.2185N / 83−21−9.5792W
2.19.6 Site Elevation: 638.7 ft

2.19.1 ILS Type: Glide Slope for runway 21L. Magnetic variation: 7W
2.19.2 ILS Identification: EJR
2.19.5 Coordinates: 42−12−58.4945N / 83−20−5.1867W
2.19.6 Site Elevation: 628.9 ft

2.19.1 ILS Type: Localizer for runway 21L. Magnetic variation: 7W
2.19.2 ILS Identification: EJR
2.19.5 Coordinates: 42−11−34.9459N / 83−21−13.3158W
2.19.6 Site Elevation: 631.1 ft

2.19.1 ILS Type: DME for runway 04L. Magnetic variation: 7W
2.19.2 ILS Identification: HJT
2.19.5 Coordinates: 42−13−41.8988N / 83−21−48.7254W
2.19.6 Site Elevation: 649.7 ft

2.19.1 ILS Type: Glide Slope for runway 04L. Magnetic variation: 7W
2.19.2 ILS Identification: HJT
2.19.5 Coordinates: 42−12−18.9498N / 83−23−0.2665W
2.19.6 Site Elevation: 640.6 ft

2.19.1 ILS Type: Inner Marker for runway 04L. Magnetic variation: 7W
2.19.2 ILS Identification: HJT
2.19.5 Coordinates: 42−12−0.3838N / 83−23−7.8811W
2.19.6 Site Elevation: 645.2 ft

2.19.1 ILS Type: Localizer for runway 04L. Magnetic variation: 7W
2.19.2 ILS Identification: HJT
2.19.5 Coordinates: 42−13−43.2279N / 83−21−52.161W
2.19.6 Site Elevation: 642 ft

2.19.1 ILS Type: DME for runway 22R. Magnetic variation: 7W
2.19.2 ILS Identification: JKI
2.19.5 Coordinates: 42−13−41.8988N / 83−21−48.7254W
2.19.6 Site Elevation: 649.7 ft

2.19.1 ILS Type: Glide Slope for runway 22R. Magnetic variation: 7W
2.19.2 ILS Identification: JKI
2.19.5 Coordinates: 42−13−27.2272N / 83−22−10.0062W
2.19.6 Site Elevation: 636.7 ft

2.19.1 ILS Type: Localizer for runway 22R. Magnetic variation: 7W
2.19.2 ILS Identification: JKI
2.19.5 Coordinates: 42−11−59.0707N / 83−23−8.842W
2.19.6 Site Elevation: 644.6 ft

2.19.1 ILS Type: DME for runway 04R. Magnetic variation: 7W
2.19.2 ILS Identification: DTW
2.19.5 Coordinates: 42−13−59.7252N / 83−20−50.3339W
2.19.6 Site Elevation: 645.3 ft

2.19.1 ILS Type: Glide Slope for runway 04R. Magnetic variation: 7W
2.19.2 ILS Identification: DTW
2.19.5 Coordinates: 42−12−23.21N / 83−22−11.85W
2.19.6 Site Elevation: 633.1 ft

2.19.1 ILS Type: Inner Marker for runway 04R. Magnetic variation: 7W
2.19.2 ILS Identification: DTW
2.19.5 Coordinates: 42−12−4.547N / 83−22−19.3737W
2.19.6 Site Elevation: 637.1 ft

2.19.1 ILS Type: Localizer for runway 04R. Magnetic variation: 7W
2.19.2 ILS Identification: DTW
2.19.5 Coordinates: 42−14−1.3028N / 83−20−53.3772W
2.19.6 Site Elevation: 636.5 ft

2.19.1 ILS Type: DME for runway 22L. Magnetic variation: 7W
2.19.2 ILS Identification: DWC
2.19.5 Coordinates: 42−13−59.7252N / 83−20−50.3339W
2.19.6 Site Elevation: 645.3 ft

2.19.1 ILS Type: Glide Slope for runway 22L. Magnetic variation: 7W
2.19.2 ILS Identification: DWC
2.19.5 Coordinates: 42−13−43.8552N / 83−21−12.2894W
2.19.6 Site Elevation: 635.6 ft

2.19.1 ILS Type: Localizer for runway 22L. Magnetic variation: 7W
2.19.2 ILS Identification: DWC
2.19.5 Coordinates: 42−11−59.5406N / 83−22−23.0644W
2.19.6 Site Elevation: 636.1 ft

2.19.1 ILS Type: DME for runway 04X. Magnetic variation: 7W
2.19.2 ILS Identification: ALA
2.19.5 Coordinates: 42−11−57.1056N / 83−23−6.1821W
2.19.6 Site Elevation: 656.5 ft

2.19.1 ILS Type: Glide Slope for runway 04X. Magnetic variation: 7W
2.19.2 ILS Identification: ALA
2.19.5 Coordinates: 42−12−19.0378N / 83−23−0.5079W
2.19.6 Site Elevation: 640.7 ft

2.19.1 ILS Type: Localizer for runway 04X. Magnetic variation: 7W
2.19.2 ILS Identification: ALA
2.19.5 Coordinates: 42−13−33.4002N / 83−21−50.9401W
2.19.6 Site Elevation: 638.5 ft

2.19.1 ILS Type: DME for runway 22X. Magnetic variation: 7W

2.19.2 ILS Identification: BZB
2.19.5 Coordinates: 42−11−57.1056N / 83−23−6.1821W
2.19.6 Site Elevation: 656.6 ft

2.19.1 ILS Type: Glide Slope for runway 22X. Magnetic variation: 7W
2.19.2 ILS Identification: BZB
2.19.5 Coordinates: 42−13−27.3517N / 83−22−10.3013W
2.19.6 Site Elevation: 636.8 ft

2.19.1 ILS Type: Localizer for runway 22X. Magnetic variation: 7W
2.19.2 ILS Identification: BZB
2.19.5 Coordinates: 42−11−56.2259N / 83−23−1.9618W
2.19.6 Site Elevation: 646.3 ft

2.19.1 ILS Type: DME for runway 27R. Magnetic variation: 7W
2.19.2 ILS Identification: DMI
2.19.5 Coordinates: 42−12−47.2915N / 83−21−59.9856W
2.19.6 Site Elevation: 636.5 ft

2.19.1 ILS Type: Glide Slope for runway 27R. Magnetic variation: 7W
2.19.2 ILS Identification: DMI
2.19.5 Coordinates: 42−12−58.3552N / 83−20−4.8574W
2.19.6 Site Elevation: 629 ft

2.19.1 ILS Type: Localizer for runway 27R. Magnetic variation: 7W
2.19.2 ILS Identification: DMI
2.19.5 Coordinates: 42−13−0.7158N / 83−22−9.2988W
2.19.6 Site Elevation: 639.3 ft

2.19.1 ILS Type: DME for runway 27L. Magnetic variation: 7W
2.19.2 ILS Identification: EPA
2.19.5 Coordinates: 42−11−53.6723N / 83−21−55.0763W
2.19.6 Site Elevation: 634.8 ft

2.19.1 ILS Type: Glide Slope for runway 27L. Magnetic variation: 7W
2.19.2 ILS Identification: EPA
2.19.5 Coordinates: 42−11−54.6653N / 83−20−2.5117W
2.19.6 Site Elevation: 625.9 ft

2.19.1 ILS Type: Localizer for runway 27L. Magnetic variation: 7W
2.19.2 ILS Identification: EPA
2.19.5 Coordinates: 42−11−56.2294N / 83−21−55.6348W
2.19.6 Site Elevation: 634.1 ft

General Remarks:
BRIGHTLY LIGHTED PARKING LOT 2.6 NM SW OF ARPT.

RWY VISUAL SCREEN 20 FT AGL 1150 FT S. AER 04R

TURNING RESTRICTION TWY B TO TWY K RESTRICTED TO AIRCRAFT WITH WINGSPAN 171 FT OR LESS.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF

EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

PPR FOR B747−8 OPRS DUE TO CONSTRAINTS ON RWYS, TWYS AND RAMPS CTC AIRFIELD OPRS AT 734−942−3685.

TAXI ON RWY 09L/27R LTD TO: EXITING FM RWY 04R/22L, 03L/21R, & 03R/21L EXC NO TAXI BTN RWY 03L/21R & TWY W; TWO−WAY TAXI BTN TWY Y & TWY M WHEN RED STOP BAR LGTS ARE LGTD AT RWY 04R/22L & 03L/21R OR WHEN BARRICADES ARE USED INSTEAD AT THE RESPECTIVE INTS. TAXI BTN SS−SR OR IN CONDS WITH VIS LESS THAN 1 SM RQRS GREEN CNTRLN LGT TO BE OPR.

BE ALERT BIRDS, WATERFOWL, ON & INVOF ARPT.

RY STATUS LGTS ARE IN OPN.

ACFT WITH WINGSPAN GTR THAN 171 FT ARE RSTRD FM USING TWY P BTN TWY J & TWY P3.

TURNING RSTRD TO WINGSPAN 135 FT OR LESS TWY G NORTH TO TWY V EAST.

ACFT WITH WINGSPAN GTR THAN 171 FT ARE RSTRD FM USING TWY H BTN TWY B & TWY F.

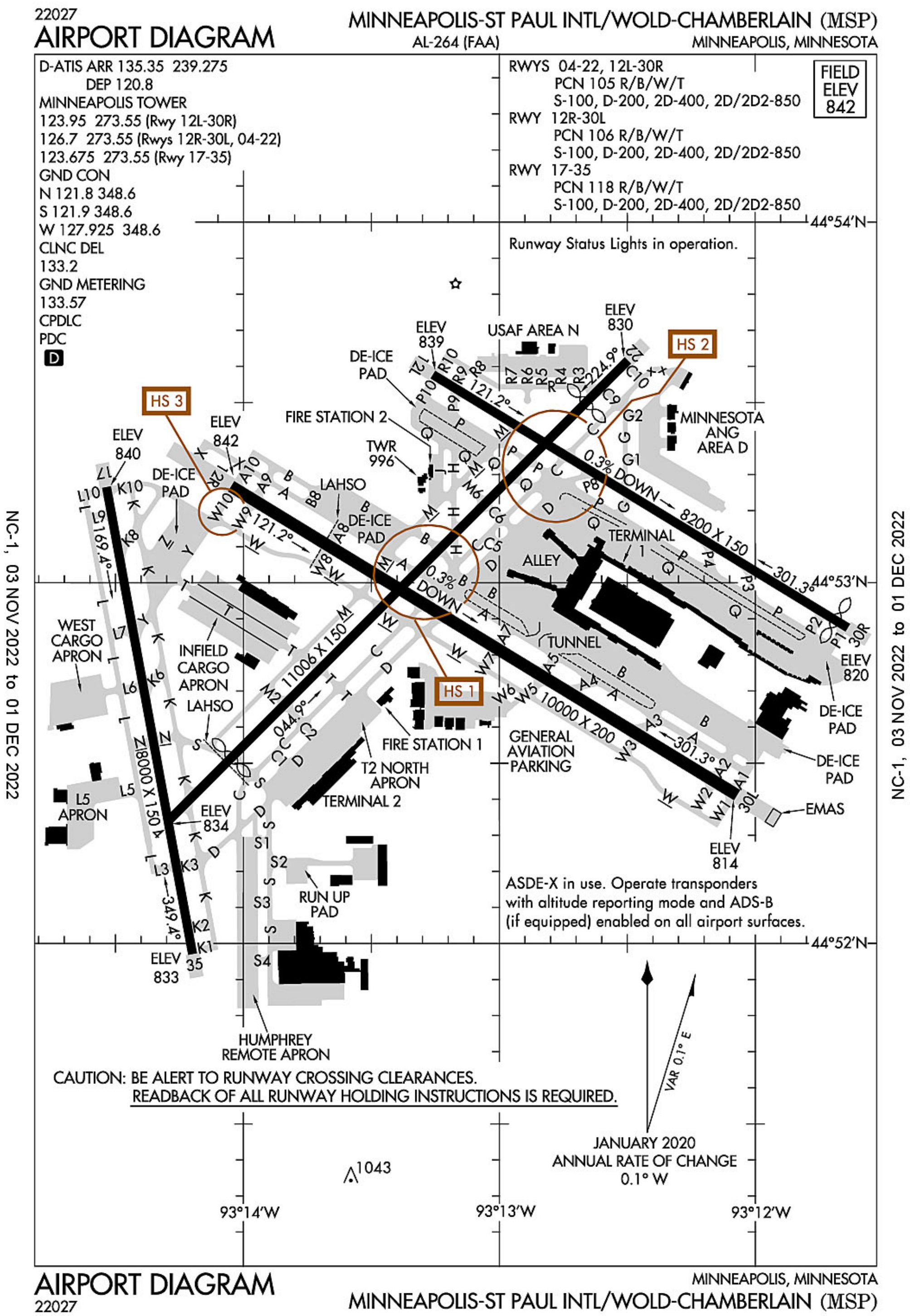
AIRCRAFT WITH WINGSPAN GREATER THAN 171 FT CANNOT PASS EACH OTHER ON TWYS Y AND K BETWEEN TWYS U AND K6 INSUFFICIENT WINGTIP CLEARANCE.

ACFT ON TWY 'F' AND TWY 'V' DO NOT BLOCK FIRE STATION EXITS.

DIVERSIONAIR CARRIERS WITHOUT A PRESENCE AT DTW SHOULD CTC AIRFIELD OPRS 734−942−3685 PRIOR TO DIVERTING TO THE EXTENT PRACTICAL AND PROVIDE COMPANY, FLT OPRS, CTC INFO, AIRCRAFT TYPE, PERSONS ONBOARD, INTERNATIONAL OR DOMESTIC, ANY GRND HANDLER AGGREEMENTS IN PLACE.

AUTH TO CONDUCT SIMUL INDEPENDENT INSTR APCHS TO PARL RWY 04L/22R & 03R/21L WO FINAL MONITORS, RWY CNTRLNS SEPARATED BY 8800 FT.

Minneapolis, Minnesota
Minneapolis−St. Paul International (Wold−Chamberlain)
ICAO Identifier KMSP



Minneapolis, MN
Minneapolis−St Paul Intl/Wold−Chamberlain
ICAO Identifier KMSP

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 44−52−55.1N / 93−13−18.4W
2.2.2 From City: 6 miles S of MINNEAPOLIS, MN
2.2.3 Elevation: 841.8 ft
2.2.5 Magnetic Variation: 0E (2015)
2.2.6 Airport Contact: BRIAN RYKS
6040 28TH AVE S
MINNEAPOLIS, MN 55450 (612−726−8100)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A,A++
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 04
2.12.2 True Bearing: 45
2.12.3 Dimensions: 11006 ft x 150 ft
2.12.4 PCN: 105 R/B/W/T
2.12.5 Coordinates: 44−52−20.158N / 93−14−17.9427W
2.12.6 Threshold Elevation: 833.5 ft
2.12.6 Touchdown Zone Elevation: 831.7 ft

2.12.1 Designation: 22
2.12.2 True Bearing: 225
2.12.3 Dimensions: 11006 ft x 150 ft
2.12.4 PCN: 105 R/B/W/T
2.12.5 Coordinates: 44−53−36.9917N / 93−12−29.8434W
2.12.6 Threshold Elevation: 830.3 ft
2.12.6 Touchdown Zone Elevation: 828.3 ft

2.12.1 Designation: 30R
2.12.2 True Bearing: 301
2.12.3 Dimensions: 8200 ft x 150 ft
2.12.4 PCN: 105 R/B/W/T
2.12.5 Coordinates: 44−52−52.5152N / 93−11−38.296W
2.12.6 Threshold Elevation: 819.5 ft
2.12.6 Touchdown Zone Elevation: 822.4 ft

2.12.1 Designation: 12L
2.12.2 True Bearing: 121
2.12.3 Dimensions: 8200 ft x 150 ft
2.12.4 PCN: 105 R/B/W/T
2.12.5 Coordinates: 44−53−34.6287N / 93−13−15.5666W
2.12.6 Threshold Elevation: 838.6 ft
2.12.6 Touchdown Zone Elevation: 840.7 ft

2.12.1 Designation: 12R
2.12.2 True Bearing: 121
2.12.3 Dimensions: 10000 ft x 200 ft
2.12.4 PCN: 106 R/B/W/T
2.12.5 Coordinates: 44−53−16.0438N / 93−14−2.8731W
2.12.6 Threshold Elevation: 841.8 ft
2.12.6 Touchdown Zone Elevation: 841.8 ft

2.12.1 Designation: 30L
2.12.2 True Bearing: 301
2.12.3 Dimensions: 10000 ft x 200 ft
2.12.4 PCN: 106 R/B/W/T
2.12.5 Coordinates: 44−52−24.68N / 93−12−4.2689W
2.12.6 Threshold Elevation: 814.4 ft
2.12.6 Touchdown Zone Elevation: 823 ft

2.12.1 Designation: 17
2.12.2 True Bearing: 170
2.12.3 Dimensions: 8000 ft x 150 ft
2.12.4 PCN: 118 R/B/W/T
2.12.5 Coordinates: 44−53−15.9127N / 93−14−32.1137W
2.12.6 Threshold Elevation: 840.4 ft
2.12.6 Touchdown Zone Elevation: 840.4 ft

2.12.1 Designation: 35
2.12.2 True Bearing: 350
2.12.3 Dimensions: 8000 ft x 150 ft
2.12.4 PCN: 118 R/B/W/T
2.12.5 Coordinates: 44−51−58.2366N / 93−14−11.9205W
2.12.6 Threshold Elevation: 833.3 ft
2.12.6 Touchdown Zone Elevation: 834.4 ft

AD 2.13 Declared Distances
2.13.1 Designation: 04
2.13.2 Take−off Run Available: 11006 ft
2.13.3 Take−off Distance Available: 11006 ft
2.13.4 Accelerate−Stop Distance Available: 11006 ft
2.13.5 Landing Distance Available: 9456 ft

2.13.1 Designation: 22
2.13.2 Take−off Run Available: 11006 ft
2.13.3 Take−off Distance Available: 11006 ft

2.13.4 Accelerate−Stop Distance Available: 11006 ft
2.13.5 Landing Distance Available: 10006 ft

2.13.1 Designation: 30R
2.13.2 Take−off Run Available: 8200 ft
2.13.3 Take−off Distance Available: 8200 ft
2.13.4 Accelerate−Stop Distance Available: 8200 ft
2.13.5 Landing Distance Available: 8000 ft

2.13.1 Designation: 12L
2.13.2 Take−off Run Available: 8200 ft
2.13.3 Take−off Distance Available: 8200 ft
2.13.4 Accelerate−Stop Distance Available: 7620 ft
2.13.5 Landing Distance Available: 7620 ft

2.13.1 Designation: 12R
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 30L
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 17
2.13.2 Take−off Run Available: 8000 ft
2.13.3 Take−off Distance Available: 8000 ft
2.13.4 Accelerate−Stop Distance Available: 8000 ft
2.13.5 Landing Distance Available: 8000 ft

2.13.1 Designation: 35
2.13.2 Take−off Run Available: 8000 ft
2.13.3 Take−off Distance Available: 8000 ft
2.13.4 Accelerate−Stop Distance Available: 8000 ft
2.13.5 Landing Distance Available: 8000 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 04
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 30R
2.14.2 Approach Lighting System: MALSF

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 12L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 12R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 30L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 17
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 35
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Localizer for runway 04. Magnetic variation: 0E
2.19.2 ILS Identification: APL
2.19.5 Coordinates: 44−53−44.0038N / 93−12−19.9688W
2.19.6 Site Elevation: 832.1 ft

2.19.1 ILS Type: Localizer for runway 22. Magnetic variation: 0E
2.19.2 ILS Identification: SIJ
2.19.5 Coordinates: 44−52−12.792N / 93−14−28.3006W
2.19.6 Site Elevation: 831.4 ft

2.19.1 ILS Type: DME for runway 12L. Magnetic variation: 0E
2.19.2 ILS Identification: PJL
2.19.5 Coordinates: 44−53−3.674N / 93−11−48.8687W
2.19.6 Site Elevation: 824 ft

2.19.1 ILS Type: Glide Slope for runway 12L. Magnetic variation: 0E
2.19.2 ILS Identification: PJL
2.19.5 Coordinates: 44−53−31.1153N / 93−12−56.6941W
2.19.6 Site Elevation: 831 ft

2.19.1 ILS Type: Inner Marker for runway 12L. Magnetic variation: 0E
2.19.2 ILS Identification: PJL
2.19.5 Coordinates: 44−53−39.694N / 93−13−25.8963W
2.19.6 Site Elevation: 845.3 ft

2.19.1 ILS Type: Localizer for runway 12L. Magnetic variation: 0E
2.19.2 ILS Identification: PJL
2.19.5 Coordinates: 44−52−50.3312N / 93−11−33.2418W
2.19.6 Site Elevation: 813 ft

2.19.1 ILS Type: DME for runway 30R. Magnetic variation: 0E
2.19.2 ILS Identification: INN
2.19.5 Coordinates: 44−53−3.674N / 93−11−48.8687W
2.19.6 Site Elevation: 824 ft

2.19.1 ILS Type: Glide Slope for runway 30R. Magnetic variation: 0E
2.19.2 ILS Identification: INN
2.19.5 Coordinates: 44−53−3.4471N / 93−11−48.8472W
2.19.6 Site Elevation: 813.2 ft

2.19.1 ILS Type: Localizer for runway 30R. Magnetic variation: 0E
2.19.2 ILS Identification: INN
2.19.5 Coordinates: 44−53−40.841N / 93−13−29.92W
2.19.6 Site Elevation: 843.1 ft

2.19.1 ILS Type: DME for runway 12R. Magnetic variation: 0E
2.19.2 ILS Identification: HKZ
2.19.5 Coordinates: 44−52−26.9244N / 93−12−20.5476W
2.19.6 Site Elevation: 825.4 ft

2.19.1 ILS Type: Glide Slope for runway 12R. Magnetic variation: 0E
2.19.2 ILS Identification: HKZ
2.19.5 Coordinates: 44−53−7.28N / 93−13−53.62W
2.19.6 Site Elevation: 835.1 ft

2.19.1 ILS Type: Inner Marker for runway 12R. Magnetic variation: 0E
2.19.2 ILS Identification: HKZ
2.19.5 Coordinates: 44−53−20.8698N / 93−14−12.7019W
2.19.6 Site Elevation: 840 ft

2.19.1 ILS Type: Localizer for runway 12R. Magnetic variation: 0E
2.19.2 ILS Identification: HKZ
2.19.5 Coordinates: 44−52−20.3796N / 93−11−54.3455W
2.19.6 Site Elevation: 812.8 ft

2.19.1 ILS Type: DME for runway 30L. Magnetic variation: 0E
2.19.2 ILS Identification: MSP
2.19.5 Coordinates: 44−52−26.9244N / 93−12−20.5476W
2.19.6 Site Elevation: 825.4 ft

2.19.1 ILS Type: Glide Slope for runway 30L. Magnetic variation: 0E
2.19.2 ILS Identification: MSP
2.19.5 Coordinates: 44−52−27.0021N / 93−12−20.2067W
2.19.6 Site Elevation: 812.1 ft

2.19.1 ILS Type: Inner Marker for runway 30L. Magnetic variation: 0E

2.19.2 ILS Identification: MSP
2.19.5 Coordinates: 44−52−19.4377N / 93−11−52.1826W
2.19.6 Site Elevation: 808.1 ft

2.19.1 ILS Type: Localizer for runway 30L. Magnetic variation: 0E
2.19.2 ILS Identification: MSP
2.19.5 Coordinates: 44−53−22.4589N / 93−14−17.688W
2.19.6 Site Elevation: 840 ft

2.19.1 ILS Type: DME for runway 17. Magnetic variation: 0E
2.19.2 ILS Identification: TJZ
2.19.5 Coordinates: 44−53−24.6166N / 93−14−38.0356W
2.19.6 Site Elevation: 832.5 ft

2.19.1 ILS Type: Localizer for runway 17. Magnetic variation: 0E
2.19.2 ILS Identification: TJZ
2.19.5 Coordinates: 44−51−48.4327N / 93−14−9.3727W
2.19.6 Site Elevation: 830.4 ft

2.19.1 ILS Type: DME for runway 35. Magnetic variation: 0E
2.19.2 ILS Identification: BMA
2.19.5 Coordinates: 44−53−24.6166N / 93−14−38.0356W
2.19.6 Site Elevation: 832.5 ft

2.19.1 ILS Type: Glide Slope for runway 35. Magnetic variation: 0E
2.19.2 ILS Identification: BMA
2.19.5 Coordinates: 44−52−7.7086N / 93−14−20.1127W
2.19.6 Site Elevation: 829.9 ft

2.19.1 ILS Type: Inner Marker for runway 35. Magnetic variation: 0E
2.19.2 ILS Identification: BMA
2.19.5 Coordinates: 44−51−49.9075N / 93−14−9.7433W
2.19.6 Site Elevation: 832.6 ft

2.19.1 ILS Type: Localizer for runway 35. Magnetic variation: 0E
2.19.2 ILS Identification: BMA
2.19.5 Coordinates: 44−53−25.7158N / 93−14−34.6512W
2.19.6 Site Elevation: 845.3 ft

2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 2E
2.19.2 Navigation Aid Identification: MSP
2.19.5 Coordinates: 44−53−47.3958N / 93−14−11.5137W
2.19.6 Site Elevation: 831.6 ft

General Remarks:
NOISE ABATEMENT PROCEDURES − 612−726−9411. NO STAGE 1 CAT CIVIL ACFT. NIGHT HR 2230−0600.

TRNG FLTS PROHIBITED. GA FLTS MUST TRMT AT THE FBO OR US CUSTOMS UNLESS APVD BY AMGR.

MILITARY RSTD: NO HAZ CL/DIV1.1 OR 1.2 EXPLOSIVES PERMITTED. LOADING OR UNLOADING OF HAZ CL/DIV 1.3, 1.4, 1.5 0R 1.6 MUST BE APV BY ARPT DRCT PRIOR TO FLT.

MILITARY: ARFC 934 AW OPS 1300−0400Z++ MON−FRI; CLSD WKEND AND HOL. UNIT TRNG ASSEMBLY WKEND 1330−2200Z++. ALL TRANS ACFT MUST RECEIVE PPR 48 HR PRIOR TO ETA − CTC AIRFIELD MGMT.

ASDE−X IN USE; OPR TRANSPONDERS WITH ALT RPRT MODE & ADS−B ENABLED ON ALL ARPT SFCS.

RWY STATUS LGTS IN OPRN.

TWY J CLSD TO ACFT WINGSPAN MORE THAN 85.5 FT.

133 AW AFLD MGMT − 324.1 REMARKS: CALL LIGHTHOUSE.

UNSKED ACFT AT TRML 2−HUMPHREY REQ TO CTC TRML 2 GATE CONTROL ON 122.95 OR CALL 612−726−5742 PRIOR TO ARR.

SIGNATURE FLIGHT SUPPORT 128.95

COMMUNICATIONS: MINNEAPOLIS AIR RESERVE STATION JOINT COMD POST − 252.1 REMARKS: CALL NORTHSTAR.

REMARKS: AFRC 934 AW CTC PTD VIKING OPS 20 MIN PRIOR LDG.

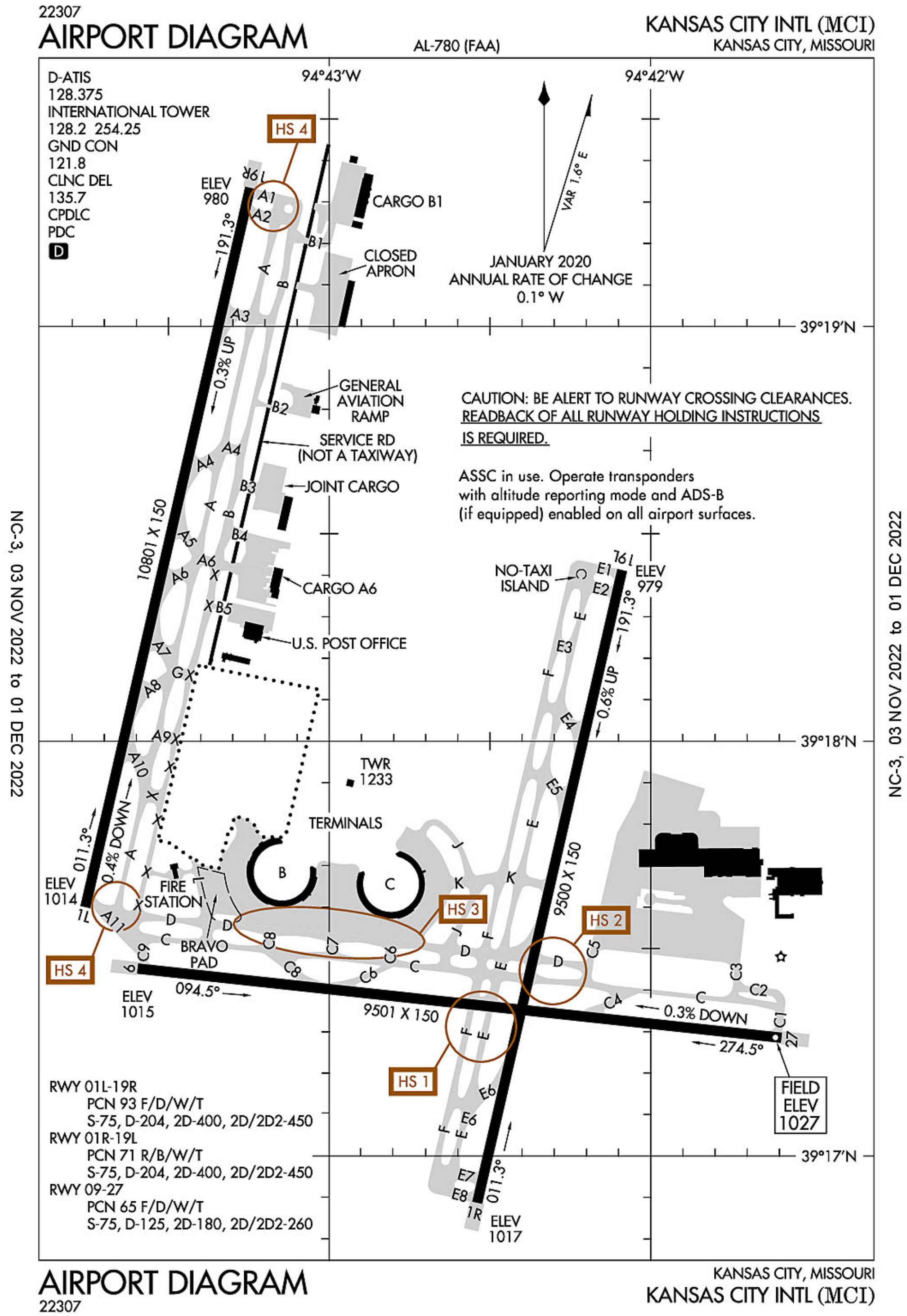
ALL GROUP VI ACFT WITH WINGSPAN GREATER THAN 214 FT PPR REQ PRIOR TO ARR − CTC AIRSIDE OPS 612−726−5111.

934 AW AFLD MGMT − PTD 282.675 REMARKS: CALL VIKING OPS.

BIRDS ON & INVOF ARPT.

ALL GA ACFT WITH LESS THAN 20 PAX THAT NEED TO CLEAR US CUSTOMS SHOULD CTC SIGNATURE FLT SUPPORT 128.95 OR 612−726−5700 PRIOR TO ARR.

Kansas City, Missouri
Kansas City International
ICAO Identifier KMCI



Kansas City, MO
Kansas City Intl
ICAO Identifier KMCI

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 39−17−51.4N / 94−42−50W
2.2.2 From City: 15 miles NW of KANSAS CITY, MO
2.2.3 Elevation: 1026.9 ft
2.2.5 Magnetic Variation: 2E (2015)
2.2.6 Airport Contact: MR. BOB JOHNSON
P.O. BOX 20047
KANSAS CITY, MO 64195 (816−243−5248)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: NONE

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 01L
2.12.2 True Bearing: 13
2.12.3 Dimensions: 10801 ft x 150 ft
2.12.4 PCN: 93 F/D/W/T
2.12.5 Coordinates: 39−17−36.0029N / 94−43−45.5433W
2.12.6 Threshold Elevation: 1014.4 ft
2.12.6 Touchdown Zone Elevation: 1014.4 ft

2.12.1 Designation: 19R
2.12.2 True Bearing: 193
2.12.3 Dimensions: 10801 ft x 150 ft
2.12.4 PCN: 93 F/D/W/T
2.12.5 Coordinates: 39−19−20.0396N / 94−43−14.7835W
2.12.6 Threshold Elevation: 979.6 ft
2.12.6 Touchdown Zone Elevation: 990.5 ft

2.12.1 Designation: 19L
2.12.2 True Bearing: 193
2.12.3 Dimensions: 9500 ft x 150 ft
2.12.4 PCN: 71 R/B/W/T
2.12.5 Coordinates: 39−18−24.7369N / 94−42−5.3226W
2.12.6 Threshold Elevation: 978.5 ft
2.12.6 Touchdown Zone Elevation: 995.2 ft

2.12.1 Designation: 01R
2.12.2 True Bearing: 13
2.12.3 Dimensions: 9500 ft x 150 ft
2.12.4 PCN: 71 R/B/W/T
2.12.5 Coordinates: 39−16−53.2341N / 94−42−32.3935W
2.12.6 Threshold Elevation: 1017.2 ft
2.12.6 Touchdown Zone Elevation: 1017.4 ft

2.12.1 Designation: 27
2.12.2 True Bearing: 276
2.12.3 Dimensions: 9501 ft x 150 ft
2.12.4 PCN: 65 F/D/W/T
2.12.5 Coordinates: 39−17−17.0716N / 94−41−35.5978W
2.12.6 Threshold Elevation: 1026.9 ft
2.12.6 Touchdown Zone Elevation: 1026.9 ft

2.12.1 Designation: 09
2.12.2 True Bearing: 96
2.12.3 Dimensions: 9501 ft x 150 ft
2.12.4 PCN: 65 F/D/W/T
2.12.5 Coordinates: 39−17−27.099N / 94−43−35.7371W
2.12.6 Threshold Elevation: 1015.3 ft
2.12.6 Touchdown Zone Elevation: 1015.7 ft

AD 2.13 Declared Distances
2.13.1 Designation: 01L
2.13.2 Take−off Run Available: 10801 ft
2.13.3 Take−off Distance Available: 10801 ft
2.13.4 Accelerate−Stop Distance Available: 10801 ft
2.13.5 Landing Distance Available: 10801 ft

2.13.1 Designation: 19R
2.13.2 Take−off Run Available: 10801 ft
2.13.3 Take−off Distance Available: 10801 ft
2.13.4 Accelerate−Stop Distance Available: 10801 ft
2.13.5 Landing Distance Available: 10801 ft

2.13.1 Designation: 19L
2.13.2 Take−off Run Available: 9500 ft
2.13.3 Take−off Distance Available: 9500 ft
2.13.4 Accelerate−Stop Distance Available: 9500 ft
2.13.5 Landing Distance Available: 9500 ft

2.13.1 Designation: 01R
2.13.2 Take−off Run Available: 9500 ft
2.13.3 Take−off Distance Available: 9500 ft
2.13.4 Accelerate−Stop Distance Available: 9500 ft
2.13.5 Landing Distance Available: 9500 ft

2.13.1 Designation: 27

2.13.2 Take−off Run Available: 9501 ft
2.13.3 Take−off Distance Available: 9501 ft
2.13.4 Accelerate−Stop Distance Available: 9501 ft
2.13.5 Landing Distance Available: 9501 ft

2.13.1 Designation: 09
2.13.2 Take−off Run Available: 9501 ft
2.13.3 Take−off Distance Available: 9501 ft
2.13.4 Accelerate−Stop Distance Available: 9501 ft
2.13.5 Landing Distance Available: 9501 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 01L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 19R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 19L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 01R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 27
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 09
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P
2.14.3 Channel: 120.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P
2.14.3 Channel: 318.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 135.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHIEF DP
2.14.3 Channel: 124.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHIEF DP
2.14.3 Channel: 284.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (EAST OF RWY 01/19)
2.14.3 Channel: 118.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (S OF A LINE FROM LWC ARPT TO 3GV ARPT)
2.14.3 Channel: 118.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (WEST OF RWY 01/19)
2.14.3 Channel: 124.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (EAST OF RWY 01−19)
2.14.3 Channel: 294.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (S OF A LINE FROM LWC ARPT TO 3GV ARPT)
2.14.3 Channel: 294.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (WEST OF RWY 01/19)
2.14.3 Channel: 318.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 128.375
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (010−190)
2.14.3 Channel: 123.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (191−009)
2.14.3 Channel: 124.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (191−009)
2.14.3 Channel: 284.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (010−190)
2.14.3 Channel: 318.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/S
2.14.3 Channel: 121.65
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LAKES DP
2.14.3 Channel: 123.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LAKES DP
2.14.3 Channel: 318.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 128.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 254.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/S
2.14.3 Channel: 125.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RACER DP (BUTLER/SPRINGFIELD TRANSITION)
2.14.3 Channel: 123.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RACER DP (DOSOA TRANSITION)
2.14.3 Channel: 124.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RACER DP (DOSOA TRANSITION)
2.14.3 Channel: 284.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RACER DP (BUTLER/SPRINGFIELD TRANSITION)
2.14.3 Channel: 318.1

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ROYAL DP (ARENZ/BODYN TRANSITION)
2.14.3 Channel: 123.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ROYAL DP (TONCE TRANSITION)
2.14.3 Channel: 124.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ROYAL DP (TONCE TRANSITION)
2.14.3 Channel: 284.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ROYAL DP (ARENZ/BODYN TRANSITION)
2.14.3 Channel: 318.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TIFTO DP
2.14.3 Channel: 124.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TIFTO DP
2.14.3 Channel: 284.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: WILDCAT DP
2.14.3 Channel: 124.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: WILDCAT DP
2.14.3 Channel: 284.7
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 01L. Magnetic variation: 2E
2.19.2 ILS Identification: DOT
2.19.5 Coordinates: 39−19−30.0746N / 94−43−8.2388W
2.19.6 Site Elevation: 988.8 ft

2.19.1 ILS Type: Glide Slope for runway 01L. Magnetic variation: 2E
2.19.2 ILS Identification: DOT
2.19.5 Coordinates: 39−17−48.2654N / 94−43−47.1321W
2.19.6 Site Elevation: 1002.8 ft

2.19.1 ILS Type: Localizer for runway 01L. Magnetic variation: 2E
2.19.2 ILS Identification: DOT
2.19.5 Coordinates: 39−19−31.1181N / 94−43−11.5232W
2.19.6 Site Elevation: 972.3 ft

2.19.1 ILS Type: DME for runway 19R. Magnetic variation: 2E
2.19.2 ILS Identification: PAJ
2.19.5 Coordinates: 39−17−25.7846N / 94−43−51.9618W
2.19.6 Site Elevation: 1026 ft

2.19.1 ILS Type: Glide Slope for runway 19R. Magnetic variation: 2E
2.19.2 ILS Identification: PAJ
2.19.5 Coordinates: 39−19−11.0536N / 94−43−22.6772W
2.19.6 Site Elevation: 976.8 ft

2.19.1 ILS Type: Inner Marker for runway 19R. Magnetic variation: 2E
2.19.2 ILS Identification: PAJ
2.19.5 Coordinates: 39−19−30.1157N / 94−43−11.8201W
2.19.6 Site Elevation: 972.4 ft

2.19.1 ILS Type: Localizer for runway 19R. Magnetic variation: 2E
2.19.2 ILS Identification: PAJ
2.19.5 Coordinates: 39−17−23.1222N / 94−43−49.3464W
2.19.6 Site Elevation: 1017.6 ft

2.19.1 ILS Type: Middle Marker for runway 19R. Magnetic variation: 2E
2.19.2 ILS Identification: PAJ
2.19.5 Coordinates: 39−19−49.2587N / 94−43−6.2032W
2.19.6 Site Elevation: 965.1 ft

2.19.1 ILS Type: DME for runway 01R. Magnetic variation: 2E
2.19.2 ILS Identification: PVL
2.19.5 Coordinates: 39−18−35.6272N / 94−42−5.4664W
2.19.6 Site Elevation: 960 ft

2.19.1 ILS Type: Glide Slope for runway 01R. Magnetic variation: 2E
2.19.2 ILS Identification: PVL
2.19.5 Coordinates: 39−17−3.1905N / 94−42−24.2292W
2.19.6 Site Elevation: 1010.8 ft

2.19.1 ILS Type: Inner Marker for runway 01R. Magnetic variation: 2E
2.19.2 ILS Identification: PVL
2.19.5 Coordinates: 39−16−45.0995N / 94−42−34.8009W
2.19.6 Site Elevation: 1011.1 ft

2.19.1 ILS Type: Localizer for runway 01R. Magnetic variation: 2E
2.19.2 ILS Identification: PVL
2.19.5 Coordinates: 39−18−34.4013N / 94−42−2.4648W
2.19.6 Site Elevation: 963.3 ft

2.19.1 ILS Type: Middle Marker for runway 01R. Magnetic variation: 2E
2.19.2 ILS Identification: PVL
2.19.5 Coordinates: 39−16−27.6318N / 94−42−39.9693W
2.19.6 Site Elevation: 994.9 ft

2.19.1 ILS Type: DME for runway 19L. Magnetic variation: 2E

2.19.2 ILS Identification: DYH
2.19.5 Coordinates: 39−16−43.6236N / 94−42−38.5532W
2.19.6 Site Elevation: 1017.5 ft

2.19.1 ILS Type: Glide Slope for runway 19L. Magnetic variation: 2E
2.19.2 ILS Identification: DYH
2.19.5 Coordinates: 39−18−13.9534N / 94−42−3.2934W
2.19.6 Site Elevation: 977.9 ft

2.19.1 ILS Type: Localizer for runway 19L. Magnetic variation: 2E
2.19.2 ILS Identification: DYH
2.19.5 Coordinates: 39−16−43.575N / 94−42−35.2495W
2.19.6 Site Elevation: 1011.8 ft

2.19.1 ILS Type: DME for runway 09. Magnetic variation: 2E
2.19.2 ILS Identification: RNI
2.19.5 Coordinates: 39−17−18.904N / 94−41−21.7047W
2.19.6 Site Elevation: 1032.1 ft

2.19.1 ILS Type: Glide Slope for runway 09. Magnetic variation: 2E
2.19.2 ILS Identification: RNI
2.19.5 Coordinates: 39−17−21.0763N / 94−43−22.949W
2.19.6 Site Elevation: 1010.7 ft

2.19.1 ILS Type: Localizer for runway 09. Magnetic variation: 2E
2.19.2 ILS Identification: RNI
2.19.5 Coordinates: 39−17−16.0109N / 94−41−22.9272W
2.19.6 Site Elevation: 1020.2 ft

2.19.1 ILS Type: DME for runway 27. Magnetic variation: 2E
2.19.2 ILS Identification: UQY
2.19.5 Coordinates: 39−17−25.6745N / 94−43−54.5943W
2.19.6 Site Elevation: 1024.3 ft

2.19.1 ILS Type: Glide Slope for runway 27. Magnetic variation: 2E
2.19.2 ILS Identification: UQY
2.19.5 Coordinates: 39−17−15.7129N / 94−41−50.2717W
2.19.6 Site Elevation: 1021.4 ft

2.19.1 ILS Type: Localizer for runway 27. Magnetic variation: 2E
2.19.2 ILS Identification: UQY
2.19.5 Coordinates: 39−17−28.6283N / 94−43−54.0717W
2.19.6 Site Elevation: 1015.3 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 5E
2.19.2 Navigation Aid Identification: MCI
2.19.5 Coordinates: 39−17−7.02N / 94−44−13.42W
2.19.6 Site Elevation: 1017 ft

General Remarks:
PPR TO PARK AT AIRLINE GATES CTC RESPECTIVE AIRLINE.

WHEN USING HIGH−SPEED EXITS C5 & C6 CONTINUE UNTIL FIRST PARALLEL TWY, THEN USE EXTREME CARE WHEN TURNING IN EXCESS OF 90 DEGREES.

NOISE ABATEMENT PROCEDURES IN EFFECT 2200−0600 WITH LANDING ON RYS 01L & 19L; TAKEOFFS ON RYS 01R & 19R.

PUSHBACK CLNC RQRD AT GATES 43 THRU 57 IN TRML B AND GATES 68 THRU 77 IN TRML C, PUSHBACK FROM THESE GATES ENTERS TWY D.

ASSC IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

DESIGN GROUP V AND VI ACFT RQR AN ARPT ESCORT ON TWY DELTA BTN TWYS JULIET AND LIMA.

NO ACFT PARKING ON POSTAL APRON.

MIL ACFT MAY BE CHARGED RAMP/PARKING FEES.

TWY B1 BTN TWY B AND FEDEX APN COCKPIT OVER CNTRLN STEERING RQRD

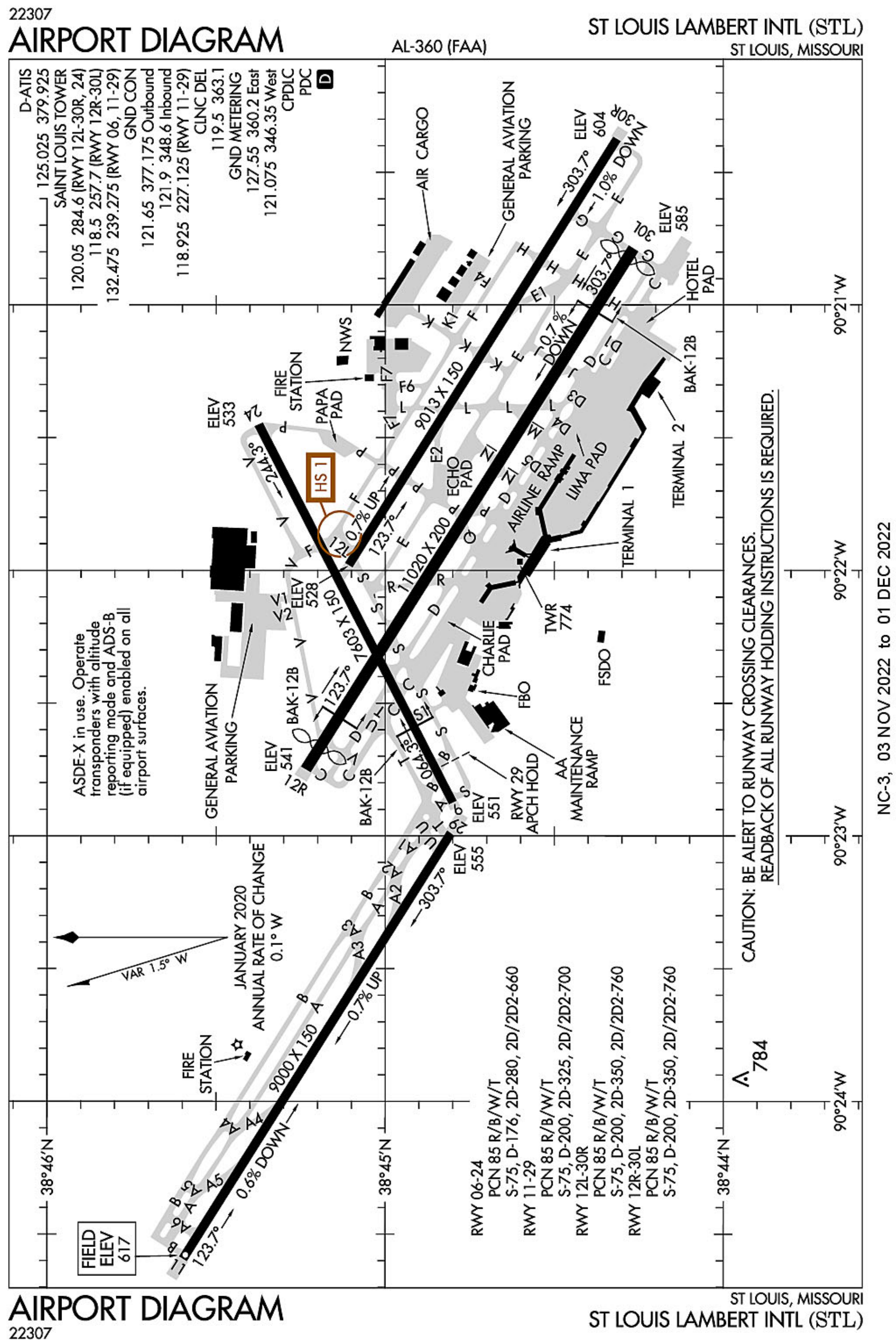
TWY L BTN TWY L1 AND TWY D WINGSPAN RESTRICTION OF 118 FT. TWY C2 BTN TWY C3 AND TWY C1 WINGSPAN RESTRICTION OF 118 FT.

WINDSHEAR ALERT SYSTEM ON ARPT.

WATERFOWL ON AND INVOF ARPT.

FLIGHT NOTIFICATION SVC (ADCUS) AVBL AT GATE 90.

St. Louis, Missouri
Lambert−St. Louis International
ICAO Identifier KSTL



St Louis, MO
Lambert−St Louis Intl
ICAO Identifier KSTL

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 38−44−55.3136N / 90−22−12.0926W
2.2.2 From City: 10 miles NW of ST LOUIS, MO
2.2.3 Elevation: 617.3 ft
2.2.5 Magnetic Variation: 1W (2020)
2.2.6 Airport Contact: MS. RHONDA HAMM−NIEBRUEGGE
BOX 10212
ST LOUIS, MO 63145 (314−426−8000)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 06
2.12.2 True Bearing: 63
2.12.3 Dimensions: 7603 ft x 150 ft
2.12.4 PCN: 85 R/B/W/T
2.12.5 Coordinates: 38−44−48.0621N / 90−22−52.3834W
2.12.6 Threshold Elevation: 550.6 ft
2.12.6 Touchdown Zone Elevation: 550.9 ft

2.12.1 Designation: 24
2.12.2 True Bearing: 243
2.12.3 Dimensions: 7603 ft x 150 ft
2.12.4 PCN: 85 R/B/W/T
2.12.5 Coordinates: 38−45−22.3829N / 90−21−27.014W
2.12.6 Threshold Elevation: 533.2 ft
2.12.6 Touchdown Zone Elevation: 533.7 ft

2.12.1 Designation: 11
2.12.2 True Bearing: 122
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 85 R/B/W/T
2.12.5 Coordinates: 38−45−35.8282N / 90−24−35.5403W
2.12.6 Threshold Elevation: 616.8 ft
2.12.6 Touchdown Zone Elevation: 617.3 ft

2.12.1 Designation: 29
2.12.2 True Bearing: 302
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 85 R/B/W/T
2.12.5 Coordinates: 38−44−48.4521N / 90−22−59.3854W
2.12.6 Threshold Elevation: 555.2 ft
2.12.6 Touchdown Zone Elevation: 579.6 ft

2.12.1 Designation: 30R
2.12.2 True Bearing: 302
2.12.3 Dimensions: 9013 ft x 150 ft
2.12.4 PCN: 85 R/B/W/T
2.12.5 Coordinates: 38−44−18.9859N / 90−20−22.5077W
2.12.6 Threshold Elevation: 604.3 ft
2.12.6 Touchdown Zone Elevation: 604.5 ft

2.12.1 Designation: 12L
2.12.2 True Bearing: 122
2.12.3 Dimensions: 9013 ft x 150 ft
2.12.4 PCN: 85 R/B/W/T
2.12.5 Coordinates: 38−45−6.4559N / 90−21−58.7582W
2.12.6 Threshold Elevation: 527.7 ft
2.12.6 Touchdown Zone Elevation: 540.6 ft

2.12.1 Designation: 12R
2.12.2 True Bearing: 122
2.12.3 Dimensions: 11020 ft x 200 ft
2.12.4 PCN: 85 R/B/W/T
2.12.5 Coordinates: 38−45−14.0539N / 90−22−44.9719W
2.12.6 Threshold Elevation: 541.3 ft
2.12.6 Touchdown Zone Elevation: 539.7 ft

2.12.1 Designation: 30L
2.12.2 True Bearing: 302
2.12.3 Dimensions: 11020 ft x 200 ft
2.12.4 PCN: 85 R/B/W/T
2.12.5 Coordinates: 38−44−16.0145N / 90−20−47.272W
2.12.6 Threshold Elevation: 585.3 ft
2.12.6 Touchdown Zone Elevation: 582.5 ft

AD 2.13 Declared Distances
2.13.1 Designation: 06
2.13.2 Take−off Run Available: 7603 ft
2.13.3 Take−off Distance Available: 7603 ft
2.13.4 Accelerate−Stop Distance Available: 7323 ft
2.13.5 Landing Distance Available: 7323 ft

2.13.1 Designation: 24
2.13.2 Take−off Run Available: 7603 ft
2.13.3 Take−off Distance Available: 7603 ft

2.13.4 Accelerate−Stop Distance Available: 7603 ft
2.13.5 Landing Distance Available: 7603 ft

2.13.1 Designation: 11
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 29
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 30R
2.13.2 Take−off Run Available: 9013 ft
2.13.3 Take−off Distance Available: 9013 ft
2.13.4 Accelerate−Stop Distance Available: 9013 ft
2.13.5 Landing Distance Available: 9013 ft

2.13.1 Designation: 12L
2.13.2 Take−off Run Available: 9013 ft
2.13.3 Take−off Distance Available: 9013 ft
2.13.4 Accelerate−Stop Distance Available: 8956 ft
2.13.5 Landing Distance Available: 8956 ft

2.13.1 Designation: 12R
2.13.2 Take−off Run Available: 11020 ft
2.13.3 Take−off Distance Available: 11020 ft
2.13.4 Accelerate−Stop Distance Available: 11020 ft
2.13.5 Landing Distance Available: 10553 ft

2.13.1 Designation: 30L
2.13.2 Take−off Run Available: 11020 ft
2.13.3 Take−off Distance Available: 11020 ft
2.13.4 Accelerate−Stop Distance Available: 10880 ft
2.13.5 Landing Distance Available: 10679 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 06
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 24
2.14.2 Approach Lighting System: MALS
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 11
2.14.2 Approach Lighting System: ALSF2

2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 29
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 30R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 12L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 12R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 30L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 06. Magnetic variation: 1W
2.19.2 ILS Identification: JAK
2.19.5 Coordinates: 38−44−40.533N / 90−22−58.4278W
2.19.6 Site Elevation: 555.1 ft

2.19.1 ILS Type: Glide Slope for runway 06. Magnetic variation: 1W
2.19.2 ILS Identification: JAK
2.19.5 Coordinates: 38−44−54.582N / 90−22−40.1291W
2.19.6 Site Elevation: 537.6 ft

2.19.1 ILS Type: Localizer for runway 06. Magnetic variation: 1W
2.19.2 ILS Identification: JAK
2.19.5 Coordinates: 38−45−27.2803N / 90−21−14.821W
2.19.6 Site Elevation: 547.5 ft

2.19.1 ILS Type: DME for runway 24. Magnetic variation: 1W
2.19.2 ILS Identification: STL
2.19.5 Coordinates: 38−44−40.533N / 90−22−58.4278W
2.19.6 Site Elevation: 555.1 ft

2.19.1 ILS Type: Glide Slope for runway 24. Magnetic variation: 1W
2.19.2 ILS Identification: STL
2.19.5 Coordinates: 38−45−13.5951N / 90−21−37.573W
2.19.6 Site Elevation: 528.6 ft

2.19.1 ILS Type: Localizer for runway 24. Magnetic variation: 1W
2.19.2 ILS Identification: STL
2.19.5 Coordinates: 38−44−43.5036N / 90−23−3.7184W
2.19.6 Site Elevation: 545.7 ft

2.19.1 ILS Type: DME for runway 11. Magnetic variation: 1W
2.19.2 ILS Identification: OGZ
2.19.5 Coordinates: 38−44−36.5929N / 90−22−41.4734W
2.19.6 Site Elevation: 562.6 ft

2.19.1 ILS Type: Glide Slope for runway 11. Magnetic variation: 1W
2.19.2 ILS Identification: OGZ
2.19.5 Coordinates: 38−45−26.0348N / 90−24−25.3788W
2.19.6 Site Elevation: 598.2 ft

2.19.1 ILS Type: Inner Marker for runway 11. Magnetic variation: 1W
2.19.2 ILS Identification: OGZ
2.19.5 Coordinates: 38−45−40.3474N / 90−24−44.7374W
2.19.6 Site Elevation: 613.3 ft

2.19.1 ILS Type: Localizer for runway 11. Magnetic variation: 1W
2.19.2 ILS Identification: OGZ
2.19.5 Coordinates: 38−44−38.7168N / 90−22−39.6283W
2.19.6 Site Elevation: 544.8 ft

2.19.1 ILS Type: DME for runway 29. Magnetic variation: 1W
2.19.2 ILS Identification: RQN
2.19.5 Coordinates: 38−45−43.8773N / 90−24−45.2373W
2.19.6 Site Elevation: 628 ft

2.19.1 ILS Type: Glide Slope for runway 29. Magnetic variation: 1W
2.19.2 ILS Identification: RQN
2.19.5 Coordinates: 38−44−49.8126N / 90−23−11.853W
2.19.6 Site Elevation: 555.6 ft

2.19.1 ILS Type: Localizer for runway 29. Magnetic variation: 1W
2.19.2 ILS Identification: RQN
2.19.5 Coordinates: 38−45−41.3528N / 90−24−46.7635W
2.19.6 Site Elevation: 612.3 ft

2.19.1 ILS Type: DME for runway 12L. Magnetic variation: 1W
2.19.2 ILS Identification: LDZ
2.19.5 Coordinates: 38−44−10.3827N / 90−20−12.0493W
2.19.6 Site Elevation: 614.1 ft

2.19.1 ILS Type: Glide Slope for runway 12L. Magnetic variation: 1W
2.19.2 ILS Identification: LDZ
2.19.5 Coordinates: 38−44−58.2183N / 90−21−50.3412W
2.19.6 Site Elevation: 533.8 ft

2.19.1 ILS Type: Inner Marker for runway 12L. Magnetic variation: 1W

2.19.2 ILS Identification: LDZ
2.19.5 Coordinates: 38−45−11.9417N / 90−22−9.8845W
2.19.6 Site Elevation: 531.1 ft

2.19.1 ILS Type: Localizer for runway 12L. Magnetic variation: 1W
2.19.2 ILS Identification: LDZ
2.19.5 Coordinates: 38−44−13.6664N / 90−20−11.7277W
2.19.6 Site Elevation: 601.7 ft

2.19.1 ILS Type: DME for runway 30R. Magnetic variation: 1W
2.19.2 ILS Identification: SJW
2.19.5 Coordinates: 38−45−14.1233N / 90−22−7.9077W
2.19.6 Site Elevation: 541 ft

2.19.1 ILS Type: Glide Slope for runway 30R. Magnetic variation: 1W
2.19.2 ILS Identification: SJW
2.19.5 Coordinates: 38−44−21.9637N / 90−20−38.0149W
2.19.6 Site Elevation: 592.5 ft

2.19.1 ILS Type: Inner Marker for runway 30R. Magnetic variation: 1W
2.19.2 ILS Identification: SJW
2.19.5 Coordinates: 38−44−14.6573N / 90−20−13.7268W
2.19.6 Site Elevation: 600.9 ft

2.19.1 ILS Type: Localizer for runway 30R. Magnetic variation: 1W
2.19.2 ILS Identification: SJW
2.19.5 Coordinates: 38−45−12.1188N / 90−22−10.2369W
2.19.6 Site Elevation: 531.7 ft

2.19.1 ILS Type: DME for runway 12R. Magnetic variation: 1W
2.19.2 ILS Identification: LMR
2.19.5 Coordinates: 38−44−7.6656N / 90−20−39.8597W
2.19.6 Site Elevation: 606.5 ft

2.19.1 ILS Type: Glide Slope for runway 12R. Magnetic variation: 1W
2.19.2 ILS Identification: LMR
2.19.5 Coordinates: 38−45−8.9361N / 90−22−24.8753W
2.19.6 Site Elevation: 532 ft

2.19.1 ILS Type: Localizer for runway 12R. Magnetic variation: 1W
2.19.2 ILS Identification: LMR
2.19.5 Coordinates: 38−44−10.2182N / 90−20−35.5392W
2.19.6 Site Elevation: 595.6 ft

2.19.1 ILS Type: Glide Slope for runway 30L. Magnetic variation: 1W
2.19.2 ILS Identification: BKY
2.19.5 Coordinates: 38−44−28.0656N / 90−21−1.7914W
2.19.6 Site Elevation: 564.5 ft

2.19.1 ILS Type: Localizer for runway 30L. Magnetic variation: 1W
2.19.2 ILS Identification: BKY

2.19.5 Coordinates: 38−45−19.3841N / 90−22−55.7958W
2.19.6 Site Elevation: 550.8 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 1E
2.19.2 Navigation Aid Identification: STL
2.19.5 Coordinates: 38−51−38.6039N / 90−28−56.456W
2.19.6 Site Elevation: 445.5 ft

General Remarks:
TWY DELTA OR TAXILANE CHARLIE FM TWY SIERRA TO TWY GOLF, B−747S ARE NOT AUTH TO PASS OR BE PASSED BY B767 OR OTR LRGR ACFT OPRG ON THE PARL TWY/TAXILANE.

TWY ALPHA EAST OF TWY TANGO, TWY SIERRA AND RWY 6/24 SOUTH OF TWY BRAVO, NO ACFT OR VEHICLE OPNS WHEN ARRIVING OR DEPG RWY 11 OR ARRIVING RWY 29.

TWY LIMA, NORTH OF RWY 12L/30R, ACFT LRGR THAN A GULFSTREAM VI TAX NBND ARE PROHIBITED FM MAKING A RIGHT TURN EBND ON TWY FOXTROT.

TWY KILO 1 IS UNAVBL TO B−767 OR LRGR ACFT (WINGSPAN 118 FT OR GTR).

WG TIP CLNC WITH GND VEH NOT ADEQUATE ALONG N SIDE OF MAIN TRML APN.

TWY VICTOR 2 IS UNAVBL TO B−767 OR LRGR ACFT (WINGSPAN 118 FT OR GTR).

WAIVER TO CONDUCT SIMULTANEOUS APCHS TO PARALLEL RYS SEPARATED BY 1,300 FT IN EFFECT.

TAXILANE CHARLIE, FM TWY SIERRA TO TWY ROMEO, RSTRD TO B−767 OR SMLR ACFT (156 FT AVBL) WHEN ACFT ARE PARKED IN THE CHARLIE PAD. RSTRN IS FOR TAX ACFT, LRGR ACFT MAY BE TOWED THRU THE AREA.

TWY VICTOR, UNDERLYING THE RWY 12L FNA CRS, IS RSTRD TO ACFT WITH A TAIL HGT OF 25 FT OR LESS (CRJ−700 OR SMLR) WHEN ACFT ARE LNDG ON RWY 12L.

TWY ECHO, BTN TWY PAPA AND TWY NOVEMBER, RSTRD TO B−767 OR SMLR ACFT (WINGSPAN LESS THAN 171 FT) WHEN ACFT ARE PARKED ON THE ECHO PAD.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

A−GEAR: A−G ARE KEPT IN RECESSED POSN TIL REQ FOR USE. TWR MUST BE NOTIFIED AT LEAST 5 SEC PRIOR TO ENGAGEMENT SO THAT CABLE MAY BE RAISED.

TWY PAPA, EAST OF THE PAPA PAD TO TWY FOXTROT, RSTRD TO ACFT WITH A WINGSPAN OF LESS THAN 79 FT (CRJ−900 OR SMLR), WHEN ACFT ARE PARKED ON THE PAPA PAD. THIS AREA IS RSTRD TO ALL OPNS WHEN ACFT ARE PERFORMING ENG RUN−UPS IN THE PAPA PAD

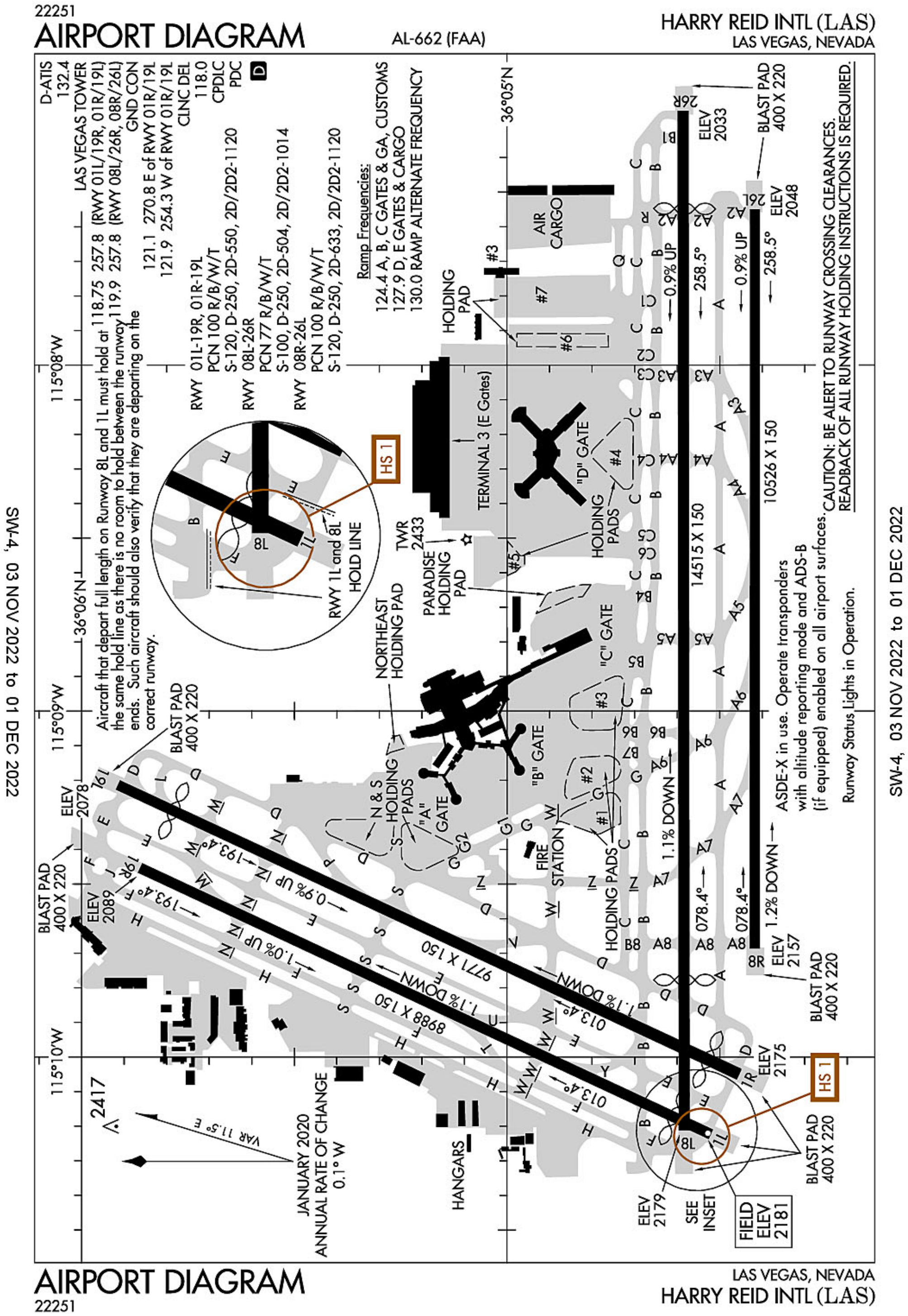
TAXILANE/TWY CHARLIE, EAST OF TWY DELTA ONE TO THE AER 30L, RSTRD TO B−737 OR SMLR ACFT (WINGSPAN LESS THAN 118 FT) WHEN ACFT ARE PARKED ON THE HOTEL PAD.

TAXILANE CHARLIE, FROM TWY PAPA TO TWY QUEBEC, RSTRD TO A B757−300 SERIES OR SMLR.

TAXILANE CHARLIE, FROM TWY PAPA TO TWY DELTA FOUR, RSTRD TO B757−300 SERIES OR SMLR WHEN PASSING BHND ACFT THAT HAVE MADE THE INITIAL 10 FT PUSHBACK.

TWY VICTOR 2, B−737 (WINGSPAN GTR THAN 79 FT BUT LESS THAN 118 FT) MUST PERFORM JUDGMENTAL OVERSTEERING INSTEAD OF COCKPIT OVR CNTRLN STEERING WHEN TAX.

Las Vegas, Nevada
Harry Reid International
ICAO Identifier KLAS



Las Vegas, NV
Mc Carran Intl
ICAO Identifier KLAS

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 36−4−48.158N / 115−9−8.045W
2.2.2 From City: 5 miles S of LAS VEGAS, NV
2.2.3 Elevation: 2181.2 ft
2.2.5 Magnetic Variation: 11E (2020)
2.2.6 Airport Contact: ROSEMARY A. VASSILIADIS
5757 WAYNE NEWTON BLVD
LAS VEGAS, NV 89119 (702−261−5211)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100,100LL,A1+
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 01L
2.12.2 True Bearing: 25
2.12.3 Dimensions: 8988 ft x 150 ft
2.12.4 PCN: 100 R/B/W/T
2.12.5 Coordinates: 36−4−31.1684N / 115−10−13.3148W
2.12.6 Threshold Elevation: 2181.2 ft
2.12.6 Touchdown Zone Elevation: 2176.1 ft

2.12.1 Designation: 19R
2.12.2 True Bearing: 205
2.12.3 Dimensions: 8988 ft x 150 ft
2.12.4 PCN: 100 R/B/W/T
2.12.5 Coordinates: 36−5−51.7658N / 115−9−27.1851W
2.12.6 Threshold Elevation: 2088.5 ft
2.12.6 Touchdown Zone Elevation: 2116.6 ft

2.12.1 Designation: 01R
2.12.2 True Bearing: 25
2.12.3 Dimensions: 9771 ft x 150 ft
2.12.4 PCN: 100 R/B/W/T
2.12.5 Coordinates: 36−4−27.264N / 115−10−2.9581W
2.12.6 Threshold Elevation: 2175.1 ft
2.12.6 Touchdown Zone Elevation: 2169.8 ft

2.12.1 Designation: 19L
2.12.2 True Bearing: 205
2.12.3 Dimensions: 9771 ft x 150 ft
2.12.4 PCN: 100 R/B/W/T
2.12.5 Coordinates: 36−5−54.8814N / 115−9−12.8055W
2.12.6 Threshold Elevation: 2077.6 ft
2.12.6 Touchdown Zone Elevation: 2112.1 ft

2.12.1 Designation: 08L
2.12.2 True Bearing: 90
2.12.3 Dimensions: 14515 ft x 150 ft
2.12.4 PCN: 77 R/B/W/T
2.12.5 Coordinates: 36−4−34.9211N / 115−10−12.6889W
2.12.6 Threshold Elevation: 2179.2 ft
2.12.6 Touchdown Zone Elevation: 2154.9 ft

2.12.1 Designation: 26R
2.12.2 True Bearing: 270
2.12.3 Dimensions: 14515 ft x 150 ft
2.12.4 PCN: 77 R/B/W/T
2.12.5 Coordinates: 36−4−35.0633N / 115−7−15.8989W
2.12.6 Threshold Elevation: 2033 ft
2.12.6 Touchdown Zone Elevation: 2067.1 ft

2.12.1 Designation: 08R
2.12.2 True Bearing: 90
2.12.3 Dimensions: 10526 ft x 150 ft
2.12.4 PCN: 100 R/B/W/T
2.12.5 Coordinates: 36−4−25.0637N / 115−9−41.1617W
2.12.6 Threshold Elevation: 2156.9 ft
2.12.6 Touchdown Zone Elevation: 2156.9 ft

2.12.1 Designation: 26L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 10526 ft x 150 ft
2.12.4 PCN: 100 R/B/W/T
2.12.5 Coordinates: 36−4−25.1671N / 115−7−32.9665W
2.12.6 Threshold Elevation: 2048.4 ft
2.12.6 Touchdown Zone Elevation: 2069 ft

AD 2.13 Declared Distances
2.13.1 Designation: 01L
2.13.2 Take−off Run Available: 8988 ft
2.13.3 Take−off Distance Available: 8988 ft
2.13.4 Accelerate−Stop Distance Available: 8988 ft
2.13.5 Landing Distance Available: 8401 ft

2.13.1 Designation: 19R
2.13.2 Take−off Run Available: 8988 ft
2.13.3 Take−off Distance Available: 9400 ft

2.13.4 Accelerate−Stop Distance Available: 8417 ft
2.13.5 Landing Distance Available: 8417 ft

2.13.1 Designation: 01R
2.13.2 Take−off Run Available: 9771 ft
2.13.3 Take−off Distance Available: 10168 ft
2.13.4 Accelerate−Stop Distance Available: 9276 ft
2.13.5 Landing Distance Available: 8785 ft

2.13.1 Designation: 19L
2.13.2 Take−off Run Available: 9771 ft
2.13.3 Take−off Distance Available: 10171 ft
2.13.4 Accelerate−Stop Distance Available: 9686 ft
2.13.5 Landing Distance Available: 8808 ft

2.13.1 Designation: 08L
2.13.2 Take−off Run Available: 14515 ft
2.13.3 Take−off Distance Available: 15099 ft
2.13.4 Accelerate−Stop Distance Available: 14099 ft
2.13.5 Landing Distance Available: 11960 ft

2.13.1 Designation: 26R
2.13.2 Take−off Run Available: 14515 ft
2.13.3 Take−off Distance Available: 15037 ft
2.13.4 Accelerate−Stop Distance Available: 14037 ft
2.13.5 Landing Distance Available: 12638 ft

2.13.1 Designation: 08R
2.13.2 Take−off Run Available: 10526 ft
2.13.3 Take−off Distance Available: 10526 ft
2.13.4 Accelerate−Stop Distance Available: 10526 ft
2.13.5 Landing Distance Available: 10526 ft

2.13.1 Designation: 26L
2.13.2 Take−off Run Available: 10526 ft
2.13.3 Take−off Distance Available: 10526 ft
2.13.4 Accelerate−Stop Distance Available: 10526 ft
2.13.5 Landing Distance Available: 10526 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 01L
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 19R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 01R
2.14.2 Approach Lighting System:

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 19L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26R
2.14.2 Approach Lighting System: MALS
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26L
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 01L. Magnetic variation: 11E
2.19.2 ILS Identification: CUA
2.19.5 Coordinates: 36−6−1.7244N / 115−9−25.0625W
2.19.6 Site Elevation: 2089.4 ft

2.19.1 ILS Type: Glide Slope for runway 01L. Magnetic variation: 11E
2.19.2 ILS Identification: CUA
2.19.5 Coordinates: 36−4−49.142N / 115−10−6.5151W
2.19.6 Site Elevation: 2158.4 ft

2.19.1 ILS Type: Localizer for runway 01L. Magnetic variation: 11E
2.19.2 ILS Identification: CUA
2.19.5 Coordinates: 36−6−0.8259N / 115−9−22W
2.19.6 Site Elevation: 2078.9 ft

2.19.1 ILS Type: DME for runway 26R. Magnetic variation: 11E
2.19.2 ILS Identification: LAS
2.19.5 Coordinates: 36−4−30.5228N / 115−10−19.1659W
2.19.6 Site Elevation: 2201.5 ft

2.19.1 ILS Type: Glide Slope for runway 26R. Magnetic variation: 11E
2.19.2 ILS Identification: LAS
2.19.5 Coordinates: 36−4−32.0826N / 115−7−46.6759W
2.19.6 Site Elevation: 2046.5 ft

2.19.1 ILS Type: Localizer for runway 26R. Magnetic variation: 11E
2.19.2 ILS Identification: LAS
2.19.5 Coordinates: 36−4−34.9114N / 115−10−19.1797W
2.19.6 Site Elevation: 2186.3 ft

2.19.1 ILS Type: DME for runway 26L. Magnetic variation: 11E
2.19.2 ILS Identification: RLE
2.19.5 Coordinates: 36−4−22.2517N / 115−9−53.2672W
2.19.6 Site Elevation: 2182.2 ft

2.19.1 ILS Type: Glide Slope for runway 26L. Magnetic variation: 11E
2.19.2 ILS Identification: RLE
2.19.5 Coordinates: 36−4−21.996N / 115−7−46.6672W
2.19.6 Site Elevation: 2050.4 ft

2.19.1 ILS Type: Localizer for runway 26L. Magnetic variation: 11E
2.19.2 ILS Identification: RLE
2.19.5 Coordinates: 36−4−25.0515N / 115−9−53.3413W
2.19.6 Site Elevation: 2168.2 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 15E
2.19.2 Navigation Aid Identification: LAS
2.19.5 Coordinates: 36−4−46.9253N / 115−9−35.2725W
2.19.6 Site Elevation: 2136 ft

General Remarks:
ACFT OPER NEAR THE INT OF TWYS S, D, G AND THE N END OF TWY Z SHOULD BE ALERT AS THERE ARE CLOSELY ALIGNED TWY CNTRLN AND RADIUS TURNS.

ACFT WITH WINGSPAN GTR THAN 135 FT PPR FM DEPT OF AVN TO USE TWY H.

ACFT THAT DEP FULL LENGTH OF RWYS 01L AND 08L MUST HOLD AT THE SAME HOLD LINE AS THERE IS NO ROOM TO HOLD BTN THE RWY ENDS AND SUCH ACFT SHOULD VERIFY THAT THEY ARE ON THE CORRECT RWY.

ALL ACFT CTC RAMP CTL ON FREQ 124.4 FOR OPNS AT A, B, AND C GATES; CTC RAMP CTL FREQ 127.9 FOR OPNS AT D & E GATES AND CARGO RAMP PRIOR TO ENTERING RAMP OR PUSHING BACK FM GATE OR PRKG SPOT. RAMP CTL OPR HRS 0530−0100. CTC ATC FM 0100−0530 FOR RAMP OPNS.

WHEN SPL EVENT PRKG PPR PROGRAM NOTAM IS ACTV, TSNT ACFT OPERS NOT PERM BASED NEED TO OBTAIN A PPR NR FM AN FBO FOR EA LDG. PPR APPVL & CONFIRMATION NRS CAN BE OBTAINED FM THE SEL FBO AT 702−261−7775. PPR CONFIRMATION NRS SHOULD BE ENTERED IN THE RMKS SECTION OF EACH FLT PLAN.

GA CUST AND IMG LCTD WEST SIDE OF AFLD BTWN FBO'S.

ACFT TAX WB ON TWY B NEAR TWY E USE CARE NOT TO ENTER THE RWY ON TWY Y, ACFT TAX WB ON TWY W NEAR TWY E USE CARE NOT TO ENTER THE RWY ON TWY U.

ACFT MAY EXPERIENCE REFLECTION OF SUN FM GLASS HOTELS LCTD NW OF ARPT. REFLECTION MAY OCCUR AT VARIOUS ALTS, HDGS, & DSTCS FM ARPT.

ALL NON−STD RWY OPNS PPR FM DEPT OF AVN.

RWY STS LGTS ARE IN OPN.

ACFT DEPG RWY 19R USE MINIMAL PWR UNTIL PASSING THE RWY THLD. RWY 19R THLD HAS STD RWY MARKINGS AND IS 780 FT S OF THE BLAST PAD.

PLA AUZD BTN 0200 & 0600.

LGTD GOLF RANGE 1400 FT S OF RWYS 01L/19R AND 01R/19L.

RWY 08L 589 FT CWY; RWY 26R 645 FT CWY.

GA CBP RSVNS ARE RQRD TO BE SMTD A MIN OF 12 HOURS IN ADVN (OTHER CONDS APPLY). RSVNS MUST BE MADE ONLINE AT WWW.MCCARRAN.COM/GACBP . QNS CAN BE DCTD TO CBP559@MCCARRAN.COM.

LRG NR OF BIRDS AND BATS INVOF OF ARPT BTWN SS AND SR.

TBJT DEPS NOT PMTD ON RWY 01R/19L OR RWY 01L/19R 2000−0800. XCPNS FOR WX OR OPNL NECESSITY.

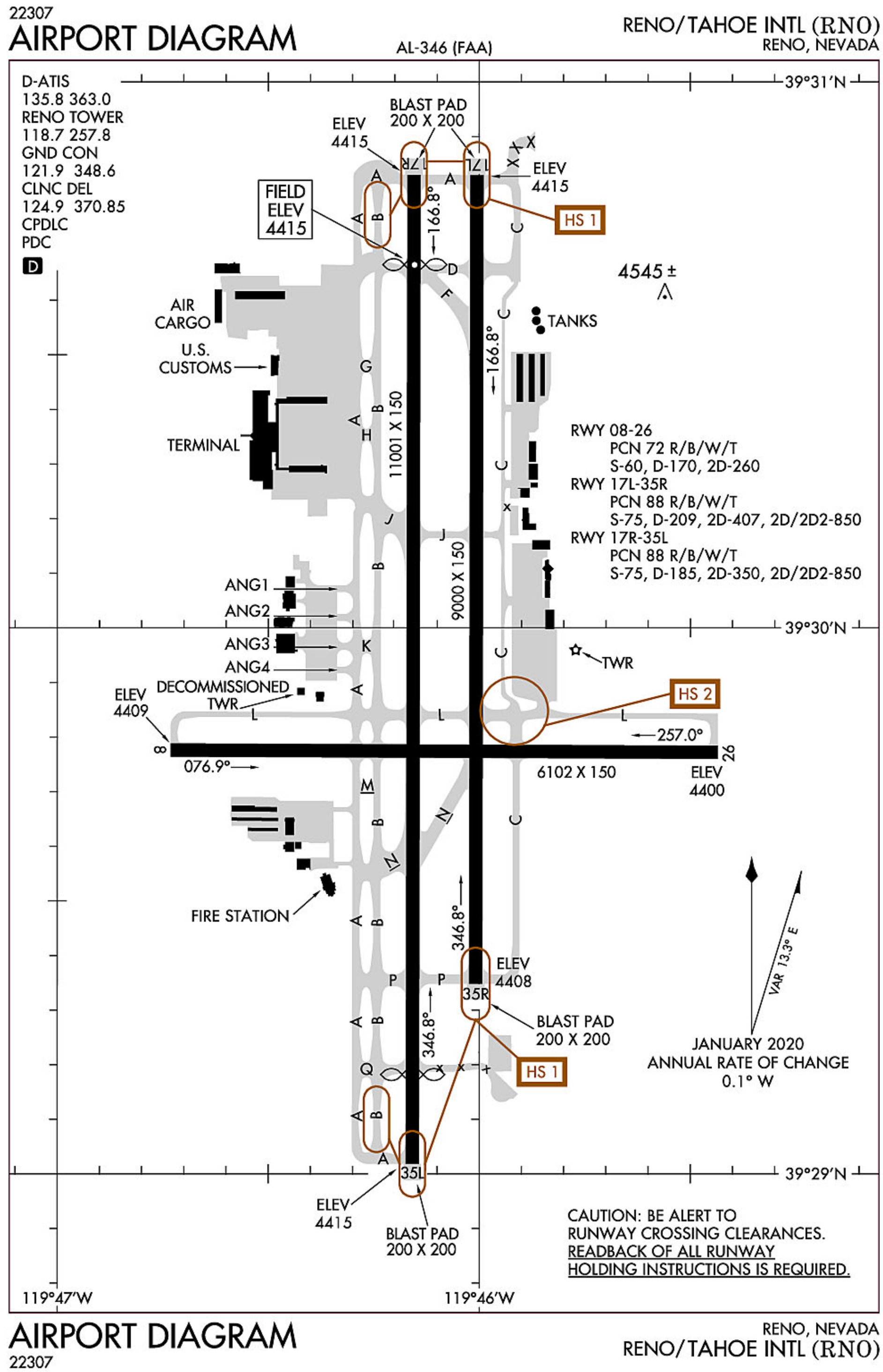
EXTSV GLDR/SOARING OPNS WKENDS & HOLS; SR−SS; LAS R187/020; ALTS UP TO BUT NOT INCLG FL180. GLDRS RMN CLEAR OF THE TCA BUT OTHERWISE OPR WI THE ENTIRE SW QUAD OF THE TCA VEIL.

(E98) PLUS 64 SHELTERS & 24 SHEDS.

TIEDOWN FEE.

GA PRKG VERY LTD. FOR PRKG AVAILABILITY CTC EITHER FBO (702) 736−1830 OR (702) 739−1100.

Reno, Nevada
Reno/Tahoe International
ICAO Identifier KRNO



Reno, NV
Reno/Tahoe Intl
ICAO Identifier KRNO

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 39−29−56.8N / 119−46−5.2W
2.2.2 From City: 3 miles SE of RENO, NV
2.2.3 Elevation: 4414.9 ft
2.2.5 Magnetic Variation: 13E (2020)
2.2.6 Airport Contact: DAREN GRIFFIN, A.A.E.
P O BOX 12490
RENO, NV 89510 (775−328−6550)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A1+
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 08
2.12.2 True Bearing: 90
2.12.3 Dimensions: 6102 ft x 150 ft
2.12.4 PCN: 72 R/B/W/T
2.12.5 Coordinates: 39−29−46.6299N / 119−46−43.822W
2.12.6 Threshold Elevation: 4409.2 ft
2.12.6 Touchdown Zone Elevation: 4409.3 ft

2.12.1 Designation: 26
2.12.2 True Bearing: 270
2.12.3 Dimensions: 6102 ft x 150 ft
2.12.4 PCN: 72 R/B/W/T
2.12.5 Coordinates: 39−29−46.3739N / 119−45−25.9978W
2.12.6 Threshold Elevation: 4399.6 ft
2.12.6 Touchdown Zone Elevation: 4401.8 ft

2.12.1 Designation: 17L
2.12.2 True Bearing: 180
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 88 R/B/W/T
2.12.5 Coordinates: 39−30−49.8258N / 119−46−0.266W
2.12.6 Threshold Elevation: 4414.8 ft
2.12.6 Touchdown Zone Elevation: 4414.8 ft

2.12.1 Designation: 35R
2.12.2 True Bearing: 0
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 88 R/B/W/T
2.12.5 Coordinates: 39−29−20.8949N / 119−46−0.4971W
2.12.6 Threshold Elevation: 4408.3 ft
2.12.6 Touchdown Zone Elevation: 4408.3 ft

2.12.1 Designation: 17R
2.12.2 True Bearing: 180
2.12.3 Dimensions: 11001 ft x 150 ft
2.12.4 PCN: 88 R/B/W/T
2.12.5 Coordinates: 39−30−49.8381N / 119−46−9.1937W
2.12.6 Threshold Elevation: 4414.8 ft
2.12.6 Touchdown Zone Elevation: 4414.8 ft

2.12.1 Designation: 35L
2.12.2 True Bearing: 0
2.12.3 Dimensions: 11001 ft x 150 ft
2.12.4 PCN: 88 R/B/W/T
2.12.5 Coordinates: 39−29−1.1337N / 119−46−9.475W
2.12.6 Threshold Elevation: 4414.5 ft
2.12.6 Touchdown Zone Elevation: 4410.2 ft

AD 2.13 Declared Distances
2.13.1 Designation: 08
2.13.2 Take−off Run Available: 5854 ft
2.13.3 Take−off Distance Available: 5854 ft
2.13.4 Accelerate−Stop Distance Available: 6102 ft
2.13.5 Landing Distance Available: 5854 ft

2.13.1 Designation: 26
2.13.2 Take−off Run Available: 6102 ft
2.13.3 Take−off Distance Available: 6102 ft
2.13.4 Accelerate−Stop Distance Available: 6102 ft
2.13.5 Landing Distance Available: 6102 ft

2.13.1 Designation: 17L
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 35R
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 17R

2.13.2 Take−off Run Available: 11001 ft
2.13.3 Take−off Distance Available: 11001 ft
2.13.4 Accelerate−Stop Distance Available: 11001 ft
2.13.5 Landing Distance Available: 10001 ft

2.13.1 Designation: 35L
2.13.2 Take−off Run Available: 11001 ft
2.13.3 Take−off Distance Available: 11001 ft
2.13.4 Accelerate−Stop Distance Available: 11001 ft
2.13.5 Landing Distance Available: 10011 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 08
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 17L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 17R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 17R. Magnetic variation: 13E
2.19.2 ILS Identification: RNO
2.19.5 Coordinates: 39−28−48.3183N / 119−46−6.1675W
2.19.6 Site Elevation: 4433.4 ft

2.19.1 ILS Type: Glide Slope for runway 17R. Magnetic variation: 13E
2.19.2 ILS Identification: RNO
2.19.5 Coordinates: 39−30−28.0958N / 119−46−5.6655W
2.19.6 Site Elevation: 4408.4 ft

2.19.1 ILS Type: Localizer for runway 17R. Magnetic variation: 13E
2.19.2 ILS Identification: RNO
2.19.5 Coordinates: 39−28−49.5342N / 119−46−9.505W
2.19.6 Site Elevation: 4419.7 ft

2.19.1 ILS Type: DME for runway 35L. Magnetic variation: 13E
2.19.2 ILS Identification: AGY
2.19.5 Coordinates: 39−31−0.2724N / 119−46−12.5676W
2.19.6 Site Elevation: 4434.8 ft

2.19.1 ILS Type: Glide Slope for runway 35L. Magnetic variation: 13E
2.19.2 ILS Identification: AGY
2.19.5 Coordinates: 39−29−19.6039N / 119−46−5.3446W
2.19.6 Site Elevation: 4403.3 ft

2.19.1 ILS Type: Localizer for runway 35L. Magnetic variation: 13E
2.19.2 ILS Identification: AGY
2.19.5 Coordinates: 39−30−59.9826N / 119−46−9.1647W
2.19.6 Site Elevation: 4433.1 ft

General Remarks:
ANG: APN HAS 22 FT X 6 FT ACFT GND EQUIP (AGE) BOXES LCTD TO THE EAST OF EA PKG SPOT.

INTENSIVE GLIDER ACTIVITY INVOF ARPT AND SURROUNDING AREAS UP TO 18000 FT.

ACFT OVR 12500 LBS: WRITTEN PPR FOR TRNG FLIGHTS; FOR MORE INFO CTC ARPT OPS 1−775−328−6490.

MIL ACFT: TSNT ACFT EXECUTE STRAIGHT−IN FULL STOP APCH. OVERHEAD PAT NOT AUTH FOR TSNT ACFT.

ANG: PPR 24 HR PN RQRD.

NOISE SENSITIVE AREA ALL QUADS. PILOTS OF TBJT ACFT USE RCMDD NOISE ABATEMENT PROCS; AVBL ON REQ.

TWY C BTN TWY L & TWY D RSTRD TO ACFT 100000 LBS OR LESS.

PRESIDENT / CEO OF RENO−TAHOE ARPT AUTHORITY−DARREN GRIFFIN, CARRIE GUEDEA, AMGR (775) 328−6446.

TWY A BETWEEN NORTH TWY B AND TWY D CLSD TO ACFT WITH WINGSPAN GREATER THAN 149 FT.

MIL ACFT: NOISE ABTMT CRITICAL TERMINATE AFTERBURNER ASAP THEN CLIMB TO 6500 FT MSL ASAP.

TWY M CLSD TO AIR CARRIER ACFT.

ALL COMMERCIAL AIRCRAFT CONTACT GROUND CONTROL FOR ADVISORIES PRIOR TO PUSH BACK ON THE TERMINAL RAMP.

NOISE NOTE CONT: PILOTS OF NON−TBJT ACFT USE BEST ABATEMENT PROCS AND SETTINGS. AVOID AS MUCH AS FEASIBLE FLYING OVER POPULATED AREAS.

TWY J EAST OF RY 16L/34R CLSD TO AIR CARRIER ACFT.

24 HRS PPR FOR TSNT ACFT PARKING WITH WINGSPANS GREATER THAN 75 FT.

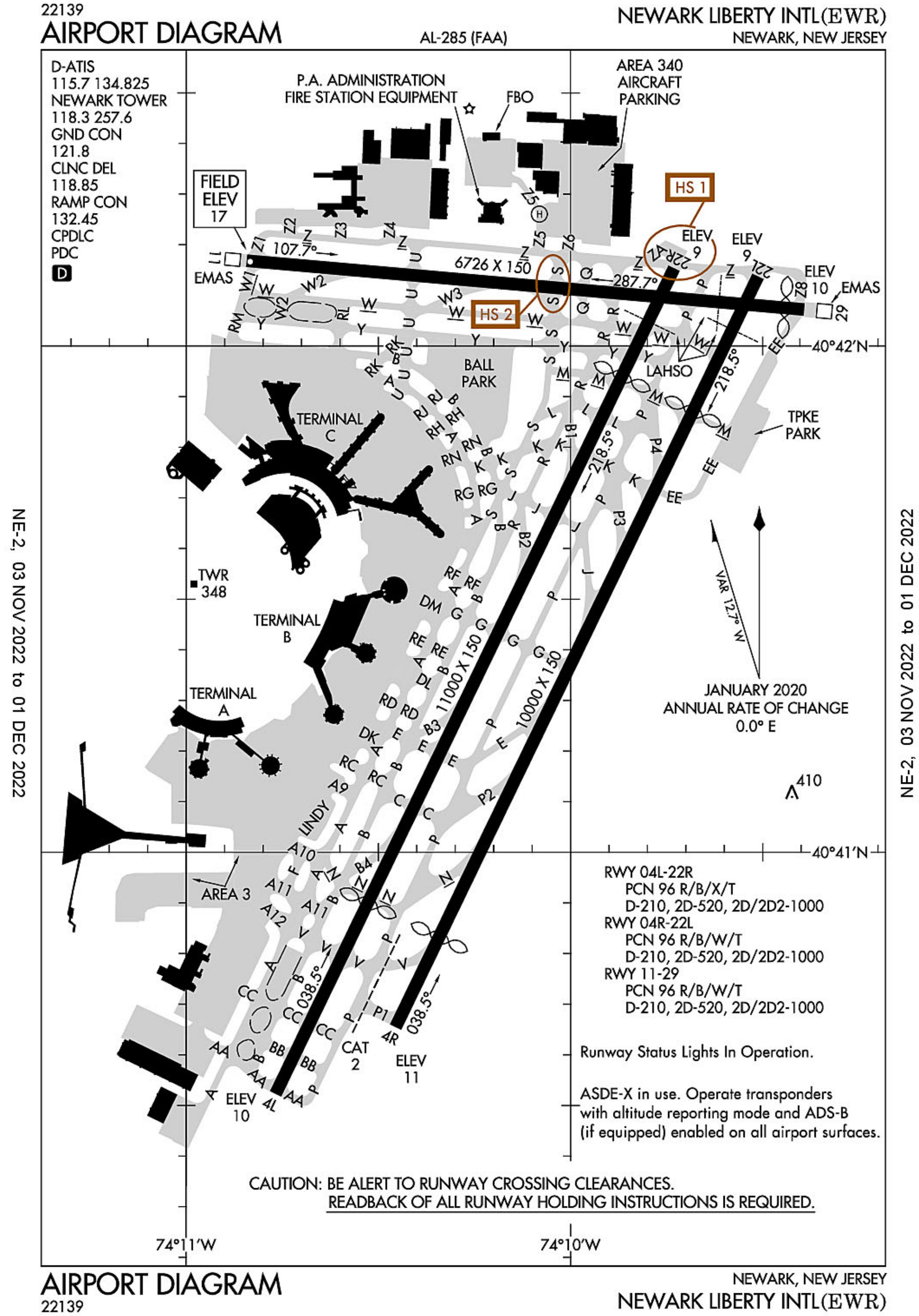
WATERFOWL ALL QUADRANTS ALL SEASONS. CONCENTRATED NW OF RWY 17R AND EAST OF RWY 17L.

GLIDER/SOARING OPER 30−50 MILES SOUTH OF ARPT DURING VFR WEATHER & MOUNTAIN WAVE WIND CONDITIONS 1100 TO SS.

ANG: ANG OPS 1430−2359Z++ MON−FRI EXC HOL AND SKED DAYS OFF; OTR TIMES BY NOTAM; DSN 830−4709 OR C775−788−4709.

TWY C BTN TWY L AND TWY D CLSD TO AIR CARRIER ACFT.

Newark, New Jersey
Newark Liberty International
ICAO Identifier KEWR



Newark, NJ
Newark Liberty Intl
ICAO Identifier KEWR

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 40−41−32.9274N / 74−10−7.2724W
2.2.2 From City: 3 miles S of NEWARK, NJ
2.2.3 Elevation: 17.4 ft
2.2.5 Magnetic Variation: 13W (1985)
2.2.6 Airport Contact: JAMES GILL
BUILDING #1− CONRAD ROAD
NEWARK, NJ 7114 (973−961−6161)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 04L
2.12.2 True Bearing: 26
2.12.3 Dimensions: 11000 ft x 150 ft
2.12.4 PCN: 96 R/B/X/T
2.12.5 Coordinates: 40−40−31.3716N / 74−10−46.0209W
2.12.6 Threshold Elevation: 10.1 ft
2.12.6 Touchdown Zone Elevation: 10.4 ft

2.12.1 Designation: 22R
2.12.2 True Bearing: 206
2.12.3 Dimensions: 11000 ft x 150 ft
2.12.4 PCN: 96 R/B/X/T
2.12.5 Coordinates: 40−42−9.2091N / 74−9−43.8255W
2.12.6 Threshold Elevation: 8.9 ft
2.12.6 Touchdown Zone Elevation: 10.4 ft

2.12.1 Designation: 22L
2.12.2 True Bearing: 206

2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 96 R/B/W/T
2.12.5 Coordinates: 40−42−8.2438N / 74−9−30.7308W
2.12.6 Threshold Elevation: 9.4 ft
2.12.6 Touchdown Zone Elevation: 10.7 ft

2.12.1 Designation: 04R
2.12.2 True Bearing: 26
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 96 R/B/W/T
2.12.5 Coordinates: 40−40−39.2984N / 74−10−27.2835W
2.12.6 Threshold Elevation: 11.1 ft
2.12.6 Touchdown Zone Elevation: 11.3 ft

2.12.1 Designation: 29
2.12.2 True Bearing: 275
2.12.3 Dimensions: 6726 ft x 150 ft
2.12.4 PCN: 96 R/B/W/T
2.12.5 Coordinates: 40−42−4.3181N / 74−9−23.5515W
2.12.6 Threshold Elevation: 9.7 ft
2.12.6 Touchdown Zone Elevation: 9.8 ft

2.12.1 Designation: 11
2.12.2 True Bearing: 95
2.12.3 Dimensions: 6726 ft x 150 ft
2.12.4 PCN: 96 R/B/W/T
2.12.5 Coordinates: 40−42−10.0955N / 74−10−50.5467W
2.12.6 Threshold Elevation: 17.4 ft
2.12.6 Touchdown Zone Elevation: 17.4 ft

2.12.1 Designation: H1
2.12.2 True Bearing:
2.12.3 Dimensions: 54 ft x 54 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 40−42−15.85N / 74−10−5W
2.12.6 Threshold Elevation: 8 ft
2.12.6 Touchdown Zone Elevation: ft

AD 2.13 Declared Distances

2.13.1 Designation: 04L
2.13.2 Take−off Run Available: 11000 ft
2.13.3 Take−off Distance Available: 11000 ft
2.13.4 Accelerate−Stop Distance Available: 11000 ft

2.13.5 Landing Distance Available: 8460 ft

2.13.1 Designation: 22R
2.13.2 Take−off Run Available: 11000 ft
2.13.3 Take−off Distance Available: 11000 ft
2.13.4 Accelerate−Stop Distance Available: 11000 ft
2.13.5 Landing Distance Available: 9560 ft

2.13.1 Designation: 22L
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 8207 ft

2.13.1 Designation: 04R
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 8810 ft

2.13.1 Designation: 29
2.13.2 Take−off Run Available: 6726 ft
2.13.3 Take−off Distance Available: 6726 ft
2.13.4 Accelerate−Stop Distance Available: 6726 ft
2.13.5 Landing Distance Available: 6502 ft

2.13.1 Designation: 11
2.13.2 Take−off Run Available: 6726 ft
2.13.3 Take−off Distance Available: 6726 ft
2.13.4 Accelerate−Stop Distance Available: 6726 ft
2.13.5 Landing Distance Available: 6726 ft

2.13.1 Designation: H1
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 04L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 04R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 29
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 11
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: H1
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 04L. Magnetic variation: 13W
2.19.2 ILS Identification: EWR
2.19.5 Coordinates: 40−42−15.686N / 74−9−33.736W
2.19.6 Site Elevation: 34.3 ft

2.19.1 ILS Type: Glide Slope for runway 04L. Magnetic variation: 13W
2.19.2 ILS Identification: EWR
2.19.5 Coordinates: 40−41−2.167N / 74−10−22.759W
2.19.6 Site Elevation: 7.4 ft

2.19.1 ILS Type: Localizer for runway 04L. Magnetic variation: 13W
2.19.2 ILS Identification: EWR
2.19.5 Coordinates: 40−42−18.192N / 74−9−38.112W
2.19.6 Site Elevation: 8.7 ft

2.19.1 ILS Type: DME for runway 22R. Magnetic variation: 13W

2.19.2 ILS Identification: JNN
2.19.5 Coordinates: 40−42−15.686N / 74−9−33.736W
2.19.6 Site Elevation: 34.3 ft

2.19.1 ILS Type: Glide Slope for runway 22R. Magnetic variation: 13W
2.19.2 ILS Identification: JNN
2.19.5 Coordinates: 40−41−47.5592N / 74−9−53.883W
2.19.6 Site Elevation: 8 ft

2.19.1 ILS Type: Localizer for runway 22R. Magnetic variation: 13W
2.19.2 ILS Identification: JNN
2.19.5 Coordinates: 40−40−22.392N / 74−10−51.726W
2.19.6 Site Elevation: 9.1 ft

2.19.1 ILS Type: DME for runway 04R. Magnetic variation: 13W
2.19.2 ILS Identification: EZA
2.19.5 Coordinates: 40−41−43.5471N / 74−9−41.6275W
2.19.6 Site Elevation: 33.5 ft

2.19.1 ILS Type: Glide Slope for runway 04R. Magnetic variation: 13W
2.19.2 ILS Identification: EZA
2.19.5 Coordinates: 40−40−57.598N / 74−10−9.8776W
2.19.6 Site Elevation: 6 ft

2.19.1 ILS Type: Localizer for runway 04R. Magnetic variation: 13W
2.19.2 ILS Identification: EZA
2.19.5 Coordinates: 40−42−15.9432N / 74−9−25.8352W
2.19.6 Site Elevation: 8.1 ft

2.19.1 ILS Type: DME for runway 22L. Magnetic variation: 13W
2.19.2 ILS Identification: LSQ
2.19.5 Coordinates: 40−41−43.5471N / 74−9−41.6275W
2.19.6 Site Elevation: 33.5 ft

2.19.1 ILS Type: Glide Slope for runway 22L. Magnetic variation: 13W
2.19.2 ILS Identification: LSQ
2.19.5 Coordinates: 40−41−43.6732N / 74−9−41.7368W
2.19.6 Site Elevation: 7.4 ft

2.19.1 ILS Type: Localizer for runway 22L. Magnetic variation: 13W
2.19.2 ILS Identification: LSQ
2.19.5 Coordinates: 40−40−28.9529N / 74−10−33.8654W
2.19.6 Site Elevation: 9.4 ft

2.19.1 ILS Type: DME for runway 11. Magnetic variation: 13W
2.19.2 ILS Identification: GPR
2.19.5 Coordinates: 40−42−9.5406N / 74−10−4.0694W
2.19.6 Site Elevation: 7.1 ft

2.19.1 ILS Type: Glide Slope for runway 11. Magnetic variation: 13W
2.19.2 ILS Identification: GPR
2.19.5 Coordinates: 40−42−10.837N / 74−10−35.03W
2.19.6 Site Elevation: 9.5 ft

2.19.1 ILS Type: Localizer for runway 11. Magnetic variation: 13W
2.19.2 ILS Identification: GPR
2.19.5 Coordinates: 40−42−9.2938N / 74−10−4.9852W
2.19.6 Site Elevation: 7 ft

2.19.1 Navigation Aid Type: FAN MARKER. Magnetic variation: 11W
2.19.2 Navigation Aid Identification: EWR
2.19.5 Coordinates: 40−42−12.1824N / 74−11−14.7211W
2.19.6 Site Elevation: 9.5 ft

General Remarks:
DURNG ATC ZERO EVENTS; ARPT OPS WILL MNT 118.3 AND PROVIDE EMERG NOTIFICATIONS TO ARFF

HIGH VOLUME OF LOW LEVEL HEL TFC ARR AND DEP HELO KEARNY HELI (65NJ) LCTD 3.5 MILES NE OF ARPT.

TWY Z5 CLSD TO ACFT WITH WINGSPANS IN EXCESS OF 118 FT.

TWY Z BTN TWY Z2 & Z4 CLSD TO ACFT WITH WINGSPANS IN EXCESS OF 171 FT.

TWY A11 W OF TWY A ACFT SPD RSTR OF 17 KTS/20 MPH MAX FOR ALL ACFT WITH WINGSPANS IN EXCESS OF 171 FT.

ADG IV ACFT RSTR FM PSG TWY Z3 ON Z

TWY EE BTN RWY 4R−22L AND RWY 11−29 CLSD TO AFCT WITH WINGSPANS IN EXCESS OF 171 FT.

NOISE RSTR CALL 212−435−3784 DRG NML BUS HRS.

FLOCKS OF BIRDS ON & INVOF ARPT.

TWY A BTN TWY AA AND RAMP CLSD TO ACFT WITH WINGSPANS IN EXCESS OF 171 FT.

RWY STATUS LIGHTS IN OPR

TWY Y BTN RM AND TWY U, SPEED RESTRICTION OF 17KT (20MPH).

PARA−SAIL & BANNER TOWING OPS 1000 FT & BLO IN UPPER & LOWER NY BAYS INCLUDING ROCKAWAY INLET INDEF.

CPDLC DEPARTURE CLEARANCE SERVICE AVAILABLE.

ACFT WITH WINGSPANS IN EXCESS OF 118 FEET PROHIBITED FROM TURNING S ON TWY R FROM TWY B1.

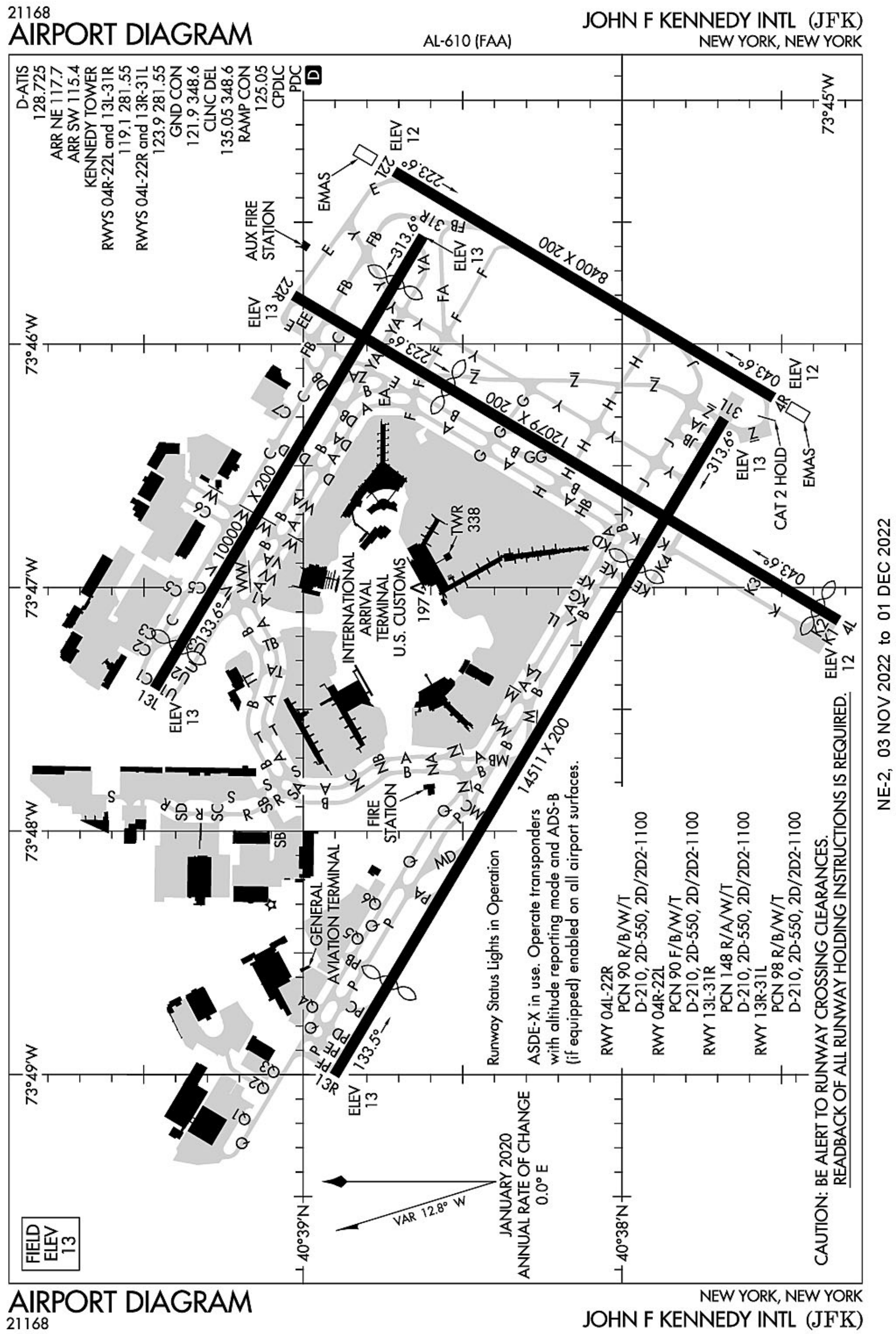
ALL TWYS SURROUNDING "BALLPARK" PRKG AREA (TWY Y BTN TWY S AND TWY U, TWY S BTN TWY Y AND TWY K, TWAY K BTN TWY S AND TWY B, TWY B BTN TWY K AND TWY U, AND TWY U BTN TWY B AND TWY Y) ACFT SPEED RSTR OF 17KTS/20MPH FOR ALL AFCT WITH WINGSPANS IN EXCESS OF 171 FT.

RWY 4R & 4L DEP USE UPPER ANT FOR ATC COM.

ASDE−X IN USE. OPER TRANSPONDER WITH ALT REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL ARPT SFCS.

TWY Z EAST OF TWY U ACFT SPEED RSTR OF 17 KTS/20 MPH MAX FOR ALL ACFT WITH WINGSPANS IN EXCESS OF 171 FT.

New York, New York
John F. Kennedy International
ICAO Identifier KJFK



New York, NY
John F Kennedy Intl
ICAO Identifier KJFK

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 40−38−23.74N / 73−46−43.293W
2.2.2 From City: 13 miles SE of NEW YORK, NY
2.2.3 Elevation: 13 ft
2.2.5 Magnetic Variation: 13W (2020)
2.2.6 Airport Contact: TERESA RIZZUTO
BLDG 14
JAMAICA, NY 11430 ((718) 244−3501)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 04L
2.12.2 True Bearing: 31
2.12.3 Dimensions: 12079 ft x 200 ft
2.12.4 PCN: 90 R/B/W/T
2.12.5 Coordinates: 40−37−19.2759N / 73−47−8.1038W
2.12.6 Threshold Elevation: 11.9 ft
2.12.6 Touchdown Zone Elevation: 12.7 ft

2.12.1 Designation: 22R
2.12.2 True Bearing: 211
2.12.3 Dimensions: 12079 ft x 200 ft
2.12.4 PCN: 90 R/B/W/T
2.12.5 Coordinates: 40−39−1.8337N / 73−45−47.9596W
2.12.6 Threshold Elevation: 12.7 ft
2.12.6 Touchdown Zone Elevation: 12.7 ft

2.12.1 Designation: 04R
2.12.2 True Bearing: 31
2.12.3 Dimensions: 8400 ft x 200 ft
2.12.4 PCN: 90 F/B/W/T
2.12.5 Coordinates: 40−37−31.532N / 73−46−13.25W
2.12.6 Threshold Elevation: 11.8 ft
2.12.6 Touchdown Zone Elevation: 11.9 ft

2.12.1 Designation: 22L
2.12.2 True Bearing: 211
2.12.3 Dimensions: 8400 ft x 200 ft
2.12.4 PCN: 90 F/B/W/T
2.12.5 Coordinates: 40−38−42.849N / 73−45−17.509W
2.12.6 Threshold Elevation: 11.8 ft
2.12.6 Touchdown Zone Elevation: 11.9 ft

2.12.1 Designation: 13L
2.12.2 True Bearing: 121
2.12.3 Dimensions: 10000 ft x 200 ft
2.12.4 PCN: 148 R/A/W/T
2.12.5 Coordinates: 40−39−27.9533N / 73−47−24.86W
2.12.6 Threshold Elevation: 13 ft
2.12.6 Touchdown Zone Elevation: 13 ft

2.12.1 Designation: 31R
2.12.2 True Bearing: 301
2.12.3 Dimensions: 10000 ft x 200 ft
2.12.4 PCN: 148 R/A/W/T
2.12.5 Coordinates: 40−38−37.4079N / 73−45−33.3832W
2.12.6 Threshold Elevation: 12.7 ft
2.12.6 Touchdown Zone Elevation: 13 ft

2.12.1 Designation: 13R
2.12.2 True Bearing: 121
2.12.3 Dimensions: 14511 ft x 200 ft
2.12.4 PCN: 98 R/B/W/T
2.12.5 Coordinates: 40−38−54.102N / 73−49−0.173W
2.12.6 Threshold Elevation: 12.5 ft
2.12.6 Touchdown Zone Elevation: 12.6 ft

2.12.1 Designation: 31L
2.12.2 True Bearing: 301
2.12.3 Dimensions: 14511 ft x 200 ft
2.12.4 PCN: 98 R/B/W/T
2.12.5 Coordinates: 40−37−40.781N / 73−46−18.413W
2.12.6 Threshold Elevation: 12.5 ft
2.12.6 Touchdown Zone Elevation: 12.6 ft

AD 2.13 Declared Distances
2.13.1 Designation: 04L
2.13.2 Take−off Run Available: 11351 ft
2.13.3 Take−off Distance Available: 11351 ft
2.13.4 Accelerate−Stop Distance Available: 11470 ft
2.13.5 Landing Distance Available: 11010 ft

2.13.1 Designation: 22R
2.13.2 Take−off Run Available: 12079 ft
2.13.3 Take−off Distance Available: 12079 ft

2.13.4 Accelerate−Stop Distance Available: 11219 ft
2.13.5 Landing Distance Available: 7794 ft

2.13.1 Designation: 04R
2.13.2 Take−off Run Available: 8400 ft
2.13.3 Take−off Distance Available: 8400 ft
2.13.4 Accelerate−Stop Distance Available: 8400 ft
2.13.5 Landing Distance Available: 8400 ft

2.13.1 Designation: 22L
2.13.2 Take−off Run Available: 8400 ft
2.13.3 Take−off Distance Available: 8400 ft
2.13.4 Accelerate−Stop Distance Available: 8400 ft
2.13.5 Landing Distance Available: 8400 ft

2.13.1 Designation: 13L
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 9093 ft

2.13.1 Designation: 31R
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 9513 ft
2.13.5 Landing Distance Available: 8486 ft

2.13.1 Designation: 13R
2.13.2 Take−off Run Available: 14511 ft
2.13.3 Take−off Distance Available: 14511 ft
2.13.4 Accelerate−Stop Distance Available: 14511 ft
2.13.5 Landing Distance Available: 12468 ft

2.13.1 Designation: 31L
2.13.2 Take−off Run Available: 14511 ft
2.13.3 Take−off Distance Available: 14511 ft
2.13.4 Accelerate−Stop Distance Available: 14511 ft
2.13.5 Landing Distance Available: 11248 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 04L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 04R
2.14.2 Approach Lighting System: ALSF2

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 13L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 31R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 13R
2.14.2 Approach Lighting System: RLLS
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 31L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 04L. Magnetic variation: 13W
2.19.2 ILS Identification: HIQ
2.19.5 Coordinates: 40−37−43.82N / 73−46−40.578W
2.19.6 Site Elevation: 24 ft

2.19.1 ILS Type: Glide Slope for runway 04L. Magnetic variation: 13W
2.19.2 ILS Identification: HIQ
2.19.5 Coordinates: 40−37−31.0826N / 73−46−54.9123W
2.19.6 Site Elevation: 9.3 ft

2.19.1 ILS Type: Localizer for runway 04L. Magnetic variation: 13W
2.19.2 ILS Identification: HIQ
2.19.5 Coordinates: 40−39−6.9659N / 73−45−43.9469W
2.19.6 Site Elevation: 10.5 ft

2.19.1 ILS Type: DME for runway 22R. Magnetic variation: 13W
2.19.2 ILS Identification: JOC
2.19.5 Coordinates: 40−38−53.286N / 73−45−13.179W
2.19.6 Site Elevation: 29 ft

2.19.1 ILS Type: Glide Slope for runway 22R. Magnetic variation: 13W
2.19.2 ILS Identification: JOC
2.19.5 Coordinates: 40−38−21.2797N / 73−46−13.9085W
2.19.6 Site Elevation: 8.6 ft

2.19.1 ILS Type: Localizer for runway 22R. Magnetic variation: 13W
2.19.2 ILS Identification: JOC
2.19.5 Coordinates: 40−37−44.5024N / 73−46−43.0851W
2.19.6 Site Elevation: 9.5 ft

2.19.1 ILS Type: DME for runway 04R. Magnetic variation: 13W
2.19.2 ILS Identification: JFK
2.19.5 Coordinates: 40−38−53.286N / 73−45−13.179W
2.19.6 Site Elevation: 29 ft

2.19.1 ILS Type: Glide Slope for runway 04R. Magnetic variation: 13W
2.19.2 ILS Identification: JFK
2.19.5 Coordinates: 40−37−42.1007N / 73−46−11.0535W
2.19.6 Site Elevation: 12.2 ft

2.19.1 ILS Type: Inner Marker for runway 04R. Magnetic variation: 13W
2.19.2 ILS Identification: JFK
2.19.5 Coordinates: 40−37−23.9N / 73−46−19.1W
2.19.6 Site Elevation: 12 ft

2.19.1 ILS Type: Localizer for runway 04R. Magnetic variation: 13W
2.19.2 ILS Identification: JFK
2.19.5 Coordinates: 40−38−51.57N / 73−45−10.684W
2.19.6 Site Elevation: 12.7 ft

2.19.1 ILS Type: DME for runway 22L. Magnetic variation: 13W
2.19.2 ILS Identification: IWY
2.19.5 Coordinates: 40−37−43.82N / 73−46−40.578W
2.19.6 Site Elevation: 24 ft

2.19.1 ILS Type: Glide Slope for runway 22L. Magnetic variation: 13W
2.19.2 ILS Identification: IWY
2.19.5 Coordinates: 40−38−32.9529N / 73−45−19.9899W
2.19.6 Site Elevation: 13.1 ft

2.19.1 ILS Type: Inner Marker for runway 22L. Magnetic variation: 13W
2.19.2 ILS Identification: IWY
2.19.5 Coordinates: 40−38−51.13N / 73−45−11.04W
2.19.6 Site Elevation: 12 ft

2.19.1 ILS Type: Localizer for runway 22L. Magnetic variation: 13W
2.19.2 ILS Identification: IWY
2.19.5 Coordinates: 40−37−27.513N / 73−46−16.387W
2.19.6 Site Elevation: 10.5 ft

2.19.1 ILS Type: DME for runway 13L. Magnetic variation: 13W
2.19.2 ILS Identification: TLK
2.19.5 Coordinates: 40−38−33.543N / 73−45−18.237W
2.19.6 Site Elevation: 31 ft

2.19.1 ILS Type: Glide Slope for runway 13L. Magnetic variation: 13W

2.19.2 ILS Identification: TLK
2.19.5 Coordinates: 40−39−14.7571N / 73−47−4.857W
2.19.6 Site Elevation: 10.5 ft

2.19.1 ILS Type: Localizer for runway 13L. Magnetic variation: 13W
2.19.2 ILS Identification: TLK
2.19.5 Coordinates: 40−38−30.687N / 73−45−18.566W
2.19.6 Site Elevation: 14.1 ft

2.19.1 ILS Type: DME for runway 31R. Magnetic variation: 13W
2.19.2 ILS Identification: RTH
2.19.5 Coordinates: 40−38−33.543N / 73−45−18.237W
2.19.6 Site Elevation: 31 ft

2.19.1 ILS Type: Glide Slope for runway 31R. Magnetic variation: 13W
2.19.2 ILS Identification: RTH
2.19.5 Coordinates: 40−38−50.3237N / 73−45−51.0237W
2.19.6 Site Elevation: 9.5 ft

2.19.1 ILS Type: Localizer for runway 31R. Magnetic variation: 13W
2.19.2 ILS Identification: RTH
2.19.5 Coordinates: 40−39−30.778N / 73−47−31.088W
2.19.6 Site Elevation: 11.9 ft

2.19.1 ILS Type: Glide Slope for runway 31L. Magnetic variation: 13W
2.19.2 ILS Identification: MOH
2.19.5 Coordinates: 40−37−59.8702N / 73−47−9.4213W
2.19.6 Site Elevation: 8.7 ft

2.19.1 ILS Type: Localizer for runway 31L. Magnetic variation: 13W
2.19.2 ILS Identification: MOH
2.19.5 Coordinates: 40−38−59.645N / 73−49−12.422W
2.19.6 Site Elevation: 13.7 ft

2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 12W
2.19.2 Navigation Aid Identification: JFK
2.19.5 Coordinates: 40−37−58.4N / 73−46−17W
2.19.6 Site Elevation: 11 ft

General Remarks:
PERIODIC FIRE DEPT TRNG ADJACENT APCH END OF RWYS 22L & 22R.

CONTINUOUS TAXIWAY MAINTENANCE ACTIVITIES AT NUMEROUS LOCATIONS

JFK APN BLDG 73 RAMP CLSD TO ACFT WINGSPAN MORE THAN 171FT EXC UNDER TOW.

RY 13R HAS TWO (2) PAPI − P4L SYSTEMS. (RY 13R) OFFSET PAPI SUPPORTS VOR OR GPS RWY 13R & PARKWAY VISUAL RY 13R.

METERING PROCEDURES IN EFFECT− CONTACT RAMP CONTROL PRIOR TO PUSHBACK 1200Z−1500Z DAILY/1900Z−0300Z DAILY.

NON−STD MARKINGS IN GA APN, CTC FBO ON UNICOM OR 347−566−6620 FOR WING WALKERS.

TWY ’H’ CL LGTS BTN TWY ’A’ & RY 4L/22R OTS.

TWY Q3 CNTRLN LGTS OTS.

ACFT ARE NOT PMTD TO STOP ON EITHER TWY A OR B BRIDGES.

CONVERGING OPNS ON RYS 13R AND 22L CONDUCTED VIA ARRIVAL DISTANCE WINDOW.

PARA−SAIL & BANNER TOWING OPNS 1000 FT & BLO IN UPPER & LOWER NEW YORK BAYS INCLUDING ROCKAWAY INLET INDEFLY.

FLOCKS OF BIRDS ON & INVOF ARPT.

NON−STANDARD ENGINEERED MATERIALS ARRESTING SYSTEM (EMAS) 393 FT IN LENGTH BY 226 FT IN WIDTH LCTD AT THE DER 4R.

NON−STANDARD ENGINEERED MATERIALS ARRESTING SYSTEM (EMAS) 405 FT IN LENGTH BY 226 FT IN WIDTH LCTD AT THE DER 22L.

A380 AND B747−800 ACFT TAX SPD RESTRICTED TO MAX 17KTS/20MPH ON ALL TWYS.

GAT HELIPAD NON−STANDARD MARKINGS & LIGHTING.

HIGH VOLUME OF LOW LEVEL VFR TRAFFIC, 500 FT AND BLO, ALONG SHORELINE SOUTH OF JFK.

SPECIAL AIR TFC RULES−PART 93 HIGH DENSITY ARPT. PROR RESERVATION REQUIRED. SEE AERONAUTICAL INFORMATION MANUAL.

TWY ’H’ CL LGTS BTN TERMINAL 4 RAMP AND TWY A OTS.

RY 31R HOLDING POSITION MARKINGS AT RY 4L/22R ’SE’ SIDE OBSC.

TWY NB CLSD TO SB TURNS AT TWY A.

UFN TWY ’D’ BTN TWY ’C’ AND HANGAR 7 CLOSED.

OBST BLDG LGT OTS 6.3 NM ESE JFK 222 FT MSL (220 FT AGL).

FOR NOISE ABATEMENT RSTRNS CALL 212−435−3782 DURG NML BUS HRS.

OBST PARKED ACFT (ASN 2020−AEA−1302−NRA) 403933 N0734749W (1.4NM NW JFK) 74 (64FT AGL) U/S 1200−0100 DLY.

RWY 31R 1000 FT DIST REMAINING SIGN MISG.

RWY STATUS LGTS IN OPS.

RLLS RY 13L USES 1000 FT LGT STN OF THE ALS ONLY WITH CRI VOR APCHS & IS ANGLED TOWARD AQUEDUCT; ALSO 5 SFL FM 1200−2000 FT & A 5 SFL GROUPING APROXLY 1 MI FM RY +1 ADJ FORMING APCH. APCH GATE ANGLED 35 DEGS S OF RY 13L CNTRLN DESIGNED TO PRVD EARLIER IDENT OF RY ENVI.

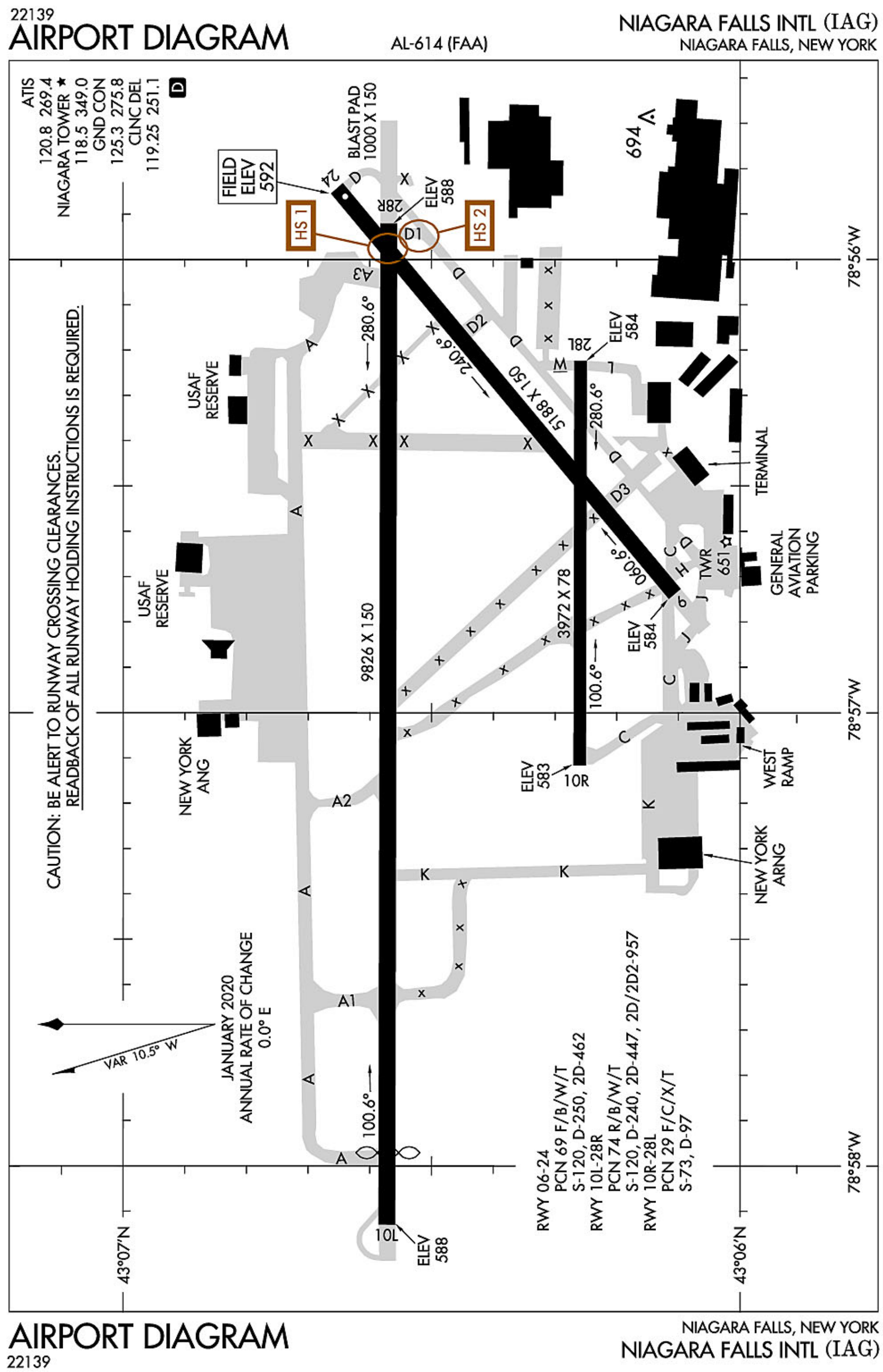
ACFT OPS & TWY RESTRICTIONS EXIST FOR A380, B747−800, B777−300ER, A340−600 AND A350−1000. PLEASE CTC JFK ARPT OPS FOR MORE INFO.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

TWY ’A’ BTN TWY ’NA’ & TWY ’NB’ ARCFT SPEED RESTRICTION OF 17KTS/20MPH MAXIMUM FOR A380, B747−800, B747−400, B777−300ER, B777−200, A340,A330, B787, AND A350

RY 13L HOLDING POSITION MARKINGS AT RY 4L/22R ’NW’ SIDE OBSC.

Niagara Falls, New York
Niagara Falls International
ICAO Identifier KIAG



Niagara Falls, NY
Niagara Falls Intl
ICAO Identifier KIAG

AD 2.2 Aerodrome geographical and administrative data

2.2.1 Reference Point: 43−6−27.2065N / 78−56−45.048W

2.2.2 From City: 4 miles E of NIAGARA FALLS, NY

2.2.3 Elevation: 592.3 ft

2.2.5 Magnetic Variation: 10W (1985)

2.2.6 Airport Contact: MR. ROBERT STONE
2035 NIAGARA FALLS BLVD
NIAGARA FALLS, NY 14304 ((716) 297−4494)

2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule

2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities

2.4.1 Cargo Handling Facilities: YES

2.4.2 Fuel Types: 100LL,A,A+

2.4.5 Hangar Space:

2.4.6 Repair Facilities: MINOR

AD 2.6 Rescue and Firefighting Services

2.6.1 Aerodrome Category for Firefighting: ARFF Index I B certified on 7/1/1974

AD 2.12 Runway Physical Characteristics

2.12.1 Designation: 06

2.12.2 True Bearing: 50

2.12.3 Dimensions: 5188 ft x 150 ft

2.12.4 PCN: 69 F/B/W/T

2.12.5 Coordinates: 43−6−6.3587N / 78−56−44.2955W

2.12.6 Threshold Elevation: 584.3 ft

2.12.6 Touchdown Zone Elevation: 585.8 ft

2.12.1 Designation: 24

2.12.2 True Bearing: 230

2.12.3 Dimensions: 5188 ft x 150 ft

2.12.4 PCN: 69 F/B/W/T

2.12.5 Coordinates: 43−6−39.1997N / 78−55−50.6072W

2.12.6 Threshold Elevation: 592.2 ft

2.12.6 Touchdown Zone Elevation: 592.3 ft

2.12.1 Designation: 10L

2.12.2 True Bearing: 90

2.12.3 Dimensions: 9826 ft x 150 ft
2.12.4 PCN: 74 R/B/W/T
2.12.5 Coordinates: 43−6−34.3453N / 78−58−7.7703W
2.12.6 Threshold Elevation: 588.2 ft
2.12.6 Touchdown Zone Elevation: 588.8 ft

2.12.1 Designation: 28R
2.12.2 True Bearing: 270
2.12.3 Dimensions: 9826 ft x 150 ft
2.12.4 PCN: 74 R/B/W/T
2.12.5 Coordinates: 43−6−34.1594N / 78−55−55.3156W
2.12.6 Threshold Elevation: 587.9 ft
2.12.6 Touchdown Zone Elevation: 588.3 ft

2.12.1 Designation: 10R
2.12.2 True Bearing: 90
2.12.3 Dimensions: 3972 ft x 78 ft
2.12.4 PCN: 29 F/C/X/T
2.12.5 Coordinates: 43−6−15.6025N / 78−57−7.0063W
2.12.6 Threshold Elevation: 582.6 ft
2.12.6 Touchdown Zone Elevation: 584.1 ft

2.12.1 Designation: 28L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 3972 ft x 78 ft
2.12.4 PCN: 29 F/C/X/T
2.12.5 Coordinates: 43−6−15.507N / 78−56−13.4609W
2.12.6 Threshold Elevation: 584.2 ft
2.12.6 Touchdown Zone Elevation: 584.8 ft

AD 2.13 Declared Distances
2.13.1 Designation: 06
2.13.2 Take−off Run Available: 5188 ft
2.13.3 Take−off Distance Available: 5188 ft
2.13.4 Accelerate−Stop Distance Available: 5188 ft
2.13.5 Landing Distance Available: 5188 ft

2.13.1 Designation: 24
2.13.2 Take−off Run Available: 5188 ft
2.13.3 Take−off Distance Available: 5188 ft
2.13.4 Accelerate−Stop Distance Available: 5108 ft
2.13.5 Landing Distance Available: 5108 ft

2.13.1 Designation: 10L
2.13.2 Take−off Run Available: 9829 ft
2.13.3 Take−off Distance Available: 10829 ft
2.13.4 Accelerate−Stop Distance Available: 9829 ft
2.13.5 Landing Distance Available: 9129 ft

2.13.1 Designation: 28R
2.13.2 Take−off Run Available: 9829 ft
2.13.3 Take−off Distance Available: 10529 ft
2.13.4 Accelerate−Stop Distance Available: 9129 ft
2.13.5 Landing Distance Available: 9129 ft

2.13.1 Designation: 10R
2.13.2 Take−off Run Available: 3973 ft
2.13.3 Take−off Distance Available: 3973 ft
2.13.4 Accelerate−Stop Distance Available: 3973 ft
2.13.5 Landing Distance Available: 3973 ft

2.13.1 Designation: 28L
2.13.2 Take−off Run Available: 3973 ft
2.13.3 Take−off Distance Available: 3973 ft
2.13.4 Accelerate−Stop Distance Available: 3973 ft
2.13.5 Landing Distance Available: 3973 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 06
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 24
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: V4L

2.14.1 Designation: 28R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10R
2.14.2 Approach Lighting System:

2.14.4 Visual Approach Slope Indicator System: P2L

2.14.1 Designation: 28L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P2L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 28R. Magnetic variation: 10W
2.19.2 ILS Identification: IAG
2.19.5 Coordinates: 43−6−30.0921N / 78−56−16.6451W
2.19.6 Site Elevation: 582.8 ft

2.19.1 ILS Type: Localizer for runway 28R. Magnetic variation: 10W
2.19.2 ILS Identification: IAG
2.19.5 Coordinates: 43−6−34.3589N / 78−58−18.8146W
2.19.6 Site Elevation: 585.1 ft

2.19.1 ILS Type: Outer Marker for runway 28R. Magnetic variation: 10W
2.19.2 ILS Identification: IAG
2.19.5 Coordinates: 43−6−32.5184N / 78−50−18.2195W
2.19.6 Site Elevation: 614.9 ft

2.19.1 Navigation Aid Type: TACAN. Magnetic variation: 10W
2.19.2 Navigation Aid Identification: IAG
2.19.5 Coordinates: 43−6−45.1638N / 78−57−36.8623W
2.19.6 Site Elevation: 591.5 ft

General Remarks:
CAUTION: HEAVY CONCENTRATIONS OF GULLS−BLACKBIRDS−STARLINGS UP TO 5000 AGL ON & INVOF ARPT. BASH PHASE II OPERATIONS AT KIAG MAR−MAY AND SEP−NOV.

FLUID: SP.

JASU: 2(A/M32A−86) 1(AM32A−60) 1(MA−1A).

FUEL: J8, A++ (MIL).

MISC: LOCAL MISSION AIRCRAFT HAVE PRIORITY FOR DEICING; FULL AIRCRAFT DEICING FOR C−17 AND C−5 AIRCRAFT NOT AVAILABLE.

INTXN DEPS RWY 24 AT TWY D1 ARE NA.

ALL MIL ACFT ONLY MINIMAL CLASSIFIED MATERIALS AVBL; AIRCREWS SHOULD ARRIVE WITH APPROPRIATE AMOUNT TO COMPLETE THEIR MISSION.

EXTSV ACFT ACTIVITY OPERATING INVOF US/CANADIAN FALLS ALL ALTS.

RWY 28R 1000 FT BY 150 FT BLAST PAD

AFLD MGMT DOES NOT ISSUE OR STORE COMSEC, FOR COMSEC STORAGE CTC COMMAND POST DSN 238−2150, C716−236−2150.

TWY ”E” CLSD INDEFLY FM RY 10L/28R TO RY 06/24.

OIL: O−148(MIL).

BEARING STRENGTH RWY 06/24: ST110 TT145 SBTT281TDT415 TRT252.

REMARKS: SEE FLIP AP/1 SUPPLEMENTARY ARPT RMK.

AFRC/ANG: NSTD OPS APN MRKS IDENTIFYING PRKG ROW AND PRKG LCTN. NSTD MAIN APN MRKS PRKG STOP BAR AND ACFT GND EQPT (AGE) BOX.

ALL MIL ACFT ONLY OPNS RESTRICTED DURING BIRD WATCH CONDITIONS. MODERATE − TKOF & LDG PERMISSION ONLY WNEN DEP/ARR RTE AVOIDS IDENTIFIED BIRD ACTIVITY; NO LCL IFR/VFR TFC PAT ACTIVITY. SEVERE − TKOF & LDG PHOHIBITED WO OG/CC APPROVAL; CTC COMMAND POST FOR CURRENT BIRD WATCH CONDITIONS.

TWY D3 RSTRD TO 12500 LBS OR LESS.

AFRC/ANG: CSTMS/AG/IMG SVC NOT LCTD ON NIAGARA FALLS ARS. RQR COORD 72 HR ADVANCE NTC TO ARRANGE U.S. CSTMS PERS FM ONE OF CROSSING BRIDGES TO PROVIDE SVC. SVC AVBL H24.

MILITARY: MISC: FOR CURRENT MIL RWY CONDITION READING (RCR) CALL OR CTC 914 ARW COMD POST OR 914TH ARW AFLD MANAGEMENT.

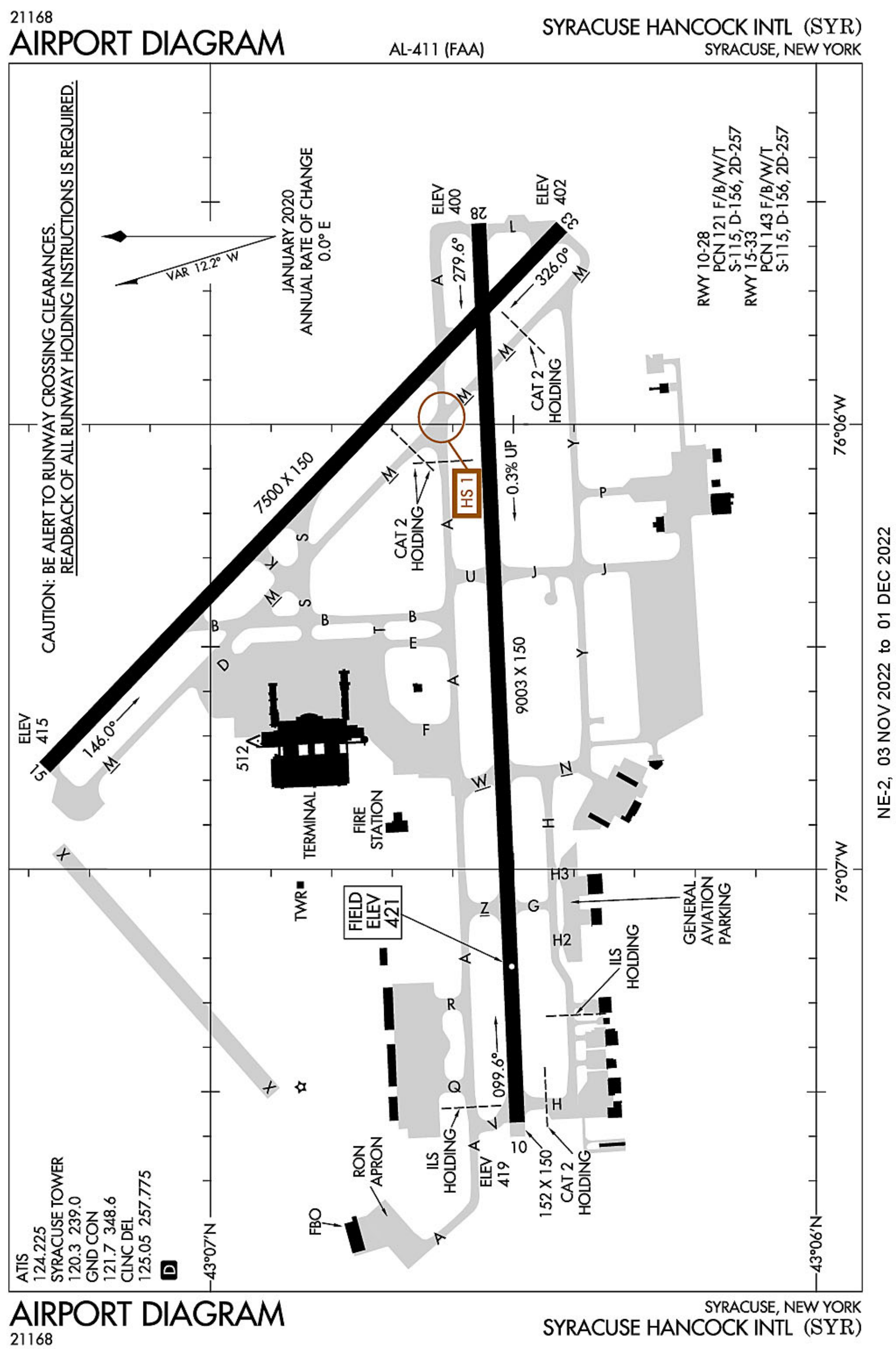
TWY ”E” CLSD PERMLY BETWEEN TWY’S ”C” AND ”D”.

RWY 10R/28L CLSD TO SKED ACR OPS MORE THAN 9 PAX SEATS AND NON SKED ACR OPS MORE THAN 30 PAX SEATS EXC TAX.

PPR CTC AFLD MGT DSN: 238−2175, C716−236−2175.

MILITARY: AFRC/ANG: AIRFIELD OPS SVC 1200−0400Z++ MON−FRI EXC HOL. TWYS A, A1, A2, AND A3 PAINTED MRK FADED AND RETRO−REFLECTIVITY INEFFECTIVE.

Syracuse, New York
Syracuse Hancock International
ICAO Identifier KSYR



Syracuse, NY
Syracuse Hancock Intl
ICAO Identifier KSYR

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 43−6−40.3N / 76−6−22.7W
2.2.2 From City: 4 miles NE of SYRACUSE, NY
2.2.3 Elevation: 421.4 ft
2.2.5 Magnetic Variation: 13W (2000)
2.2.6 Airport Contact: JASON TERRERI
1000 COL EILEEN COLLINS BLVD
SYRACUSE, NY 13212 (315−454−3263)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 10
2.12.2 True Bearing: 87
2.12.3 Dimensions: 9003 ft x 150 ft
2.12.4 PCN: 121 F/B/W/T
2.12.5 Coordinates: 43−6−29.5196N / 76−7−34.1499W
2.12.6 Threshold Elevation: 419.2 ft
2.12.6 Touchdown Zone Elevation: 421.4 ft

2.12.1 Designation: 28
2.12.2 True Bearing: 267
2.12.3 Dimensions: 9003 ft x 150 ft
2.12.4 PCN: 121 F/B/W/T
2.12.5 Coordinates: 43−6−33.5075N / 76−5−32.9118W
2.12.6 Threshold Elevation: 400.4 ft
2.12.6 Touchdown Zone Elevation: 412.7 ft

2.12.1 Designation: 15
2.12.2 True Bearing: 134
2.12.3 Dimensions: 7500 ft x 150 ft
2.12.4 PCN: 143 F/B/W/T
2.12.5 Coordinates: 43−7−16.4186N / 76−6−46.2014W
2.12.6 Threshold Elevation: 415.4 ft
2.12.6 Touchdown Zone Elevation: 416.8 ft

2.12.1 Designation: 33
2.12.2 True Bearing: 314
2.12.3 Dimensions: 7500 ft x 150 ft
2.12.4 PCN: 143 F/B/W/T
2.12.5 Coordinates: 43−6−25.1093N / 76−5−33.2759W
2.12.6 Threshold Elevation: 401.7 ft
2.12.6 Touchdown Zone Elevation: 409.3 ft

AD 2.13 Declared Distances
2.13.1 Designation: 10
2.13.2 Take−off Run Available: 9003 ft
2.13.3 Take−off Distance Available: 9003 ft
2.13.4 Accelerate−Stop Distance Available: 9003 ft
2.13.5 Landing Distance Available: 9003 ft

2.13.1 Designation: 28
2.13.2 Take−off Run Available: 9003 ft
2.13.3 Take−off Distance Available: 9003 ft
2.13.4 Accelerate−Stop Distance Available: 9003 ft
2.13.5 Landing Distance Available: 9003 ft

2.13.1 Designation: 15
2.13.2 Take−off Run Available: 7500 ft
2.13.3 Take−off Distance Available: 7500 ft
2.13.4 Accelerate−Stop Distance Available: 7500 ft
2.13.5 Landing Distance Available: 7500 ft

2.13.1 Designation: 33
2.13.2 Take−off Run Available: 7500 ft
2.13.3 Take−off Distance Available: 7500 ft
2.13.4 Accelerate−Stop Distance Available: 7500 ft
2.13.5 Landing Distance Available: 7500 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 10
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: V4L

2.14.1 Designation: 28
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 15
2.14.2 Approach Lighting System: MALS
2.14.4 Visual Approach Slope Indicator System: V4L

2.14.1 Designation: 33
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: ANG OPS
2.14.3 Channel: 379.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: APCH/P DEP/P
2.14.3 Channel: 134.275
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P
2.14.3 Channel: 279.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC
2.14.3 Channel: 126.125
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC
2.14.3 Channel: 269.125
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: AR OPS
2.14.3 Channel: 245.3
2.14.5 Hours of Operation:

2.14.1 Service Designation: ATIS
2.14.3 Channel: 124.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 125.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 257.775
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C
2.14.3 Channel: 126.125
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C
2.14.3 Channel: 269.125
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 120.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 239
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 10. Magnetic variation: 13W
2.19.2 ILS Identification: MRZ
2.19.5 Coordinates: 43−6−31.27N / 76−5−20.92W
2.19.6 Site Elevation: 390.5 ft

2.19.1 ILS Type: Glide Slope for runway 10. Magnetic variation: 13W
2.19.2 ILS Identification: MRZ
2.19.5 Coordinates: 43−6−26.02N / 76−7−20.146W
2.19.6 Site Elevation: 422.6 ft

2.19.1 ILS Type: Localizer for runway 10. Magnetic variation: 13W
2.19.2 ILS Identification: MRZ
2.19.5 Coordinates: 43−6−33.96N / 76−5−19.01W
2.19.6 Site Elevation: 395.6 ft

2.19.1 ILS Type: DME for runway 28. Magnetic variation: 13W
2.19.2 ILS Identification: SYR
2.19.5 Coordinates: 43−6−31.27N / 76−5−20.92W
2.19.6 Site Elevation: 390.5 ft

2.19.1 ILS Type: Glide Slope for runway 28. Magnetic variation: 13W
2.19.2 ILS Identification: SYR
2.19.5 Coordinates: 43−6−39.474N / 76−5−46.433W
2.19.6 Site Elevation: 404.1 ft

2.19.1 ILS Type: Inner Marker for runway 28. Magnetic variation: 13W
2.19.2 ILS Identification: SYR
2.19.5 Coordinates: 43−6−34.1N / 76−5−18.52W
2.19.6 Site Elevation: 395 ft

2.19.1 ILS Type: Localizer for runway 28. Magnetic variation: 13W
2.19.2 ILS Identification: SYR
2.19.5 Coordinates: 43−6−28.943N / 76−7−51.655W
2.19.6 Site Elevation: 416.8 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 11W
2.19.2 Navigation Aid Identification: SYR
2.19.5 Coordinates: 43−9−37.8684N / 76−12−16.4106W
2.19.6 Site Elevation: 453.2 ft

General Remarks:
DEER/COYOTE/BIRDS ON INVOF ARPT.

NON−STD MKG ON MIL RAMP.

ANG: HVY ACFT CTC ARPT COMMISSIONER FOR PRK AVBL AT C315−455−3666. ALL TRAN ACFT RQR NS ABTMT BRIEFING.

UAS OPS IN SYRACUSE APCH/DEP AIRSPACE WILL BE CONTROLLED BY SYR ATC AT ALL TIMES.

NO TSNT ACFT PARKING ON MAIN TERMINAL RAMP.

DIRECT CUSTOM NOTIFICATION IS REQUIRED. HOURS OF NOTIFICATION ARE MON−SAT 0800−1700. ARRIVALS OUTSIDE OF THESE HRS MUST MAKE ARRANGEMENTS DURING REGULAR WORK HRS; CALL 315−455−2271.

HVY ACFT CTC ARPT COMMISSIONER FOR PRK AVBL AT C315−455−3263. LIMITED METRO AVAIL AT DSN 243−2185. C315−233−2185 OR CTC OWS DSN 576−9755/9702. ALL TRAN ACFT REQ NOISE ABATEMENT BRIEFING.

NO CHARTER OPER THRU PASSENGER TERMINAL BLDG WITHOUT PRIOR PERMISSION.

RSTD: TWY J AND P SOUTH OF TWY Y CLSD TO CIV OPS.

NOISE ABATEMENT PROCEDURES IN EFFECT.

MILITARY: COMMUNICATIONS − ANG − OPS − 140.425 379.5 REMARKS: (COBRA OPS) CTC ANG OPS 15 MIN PRIOR TO ARR.

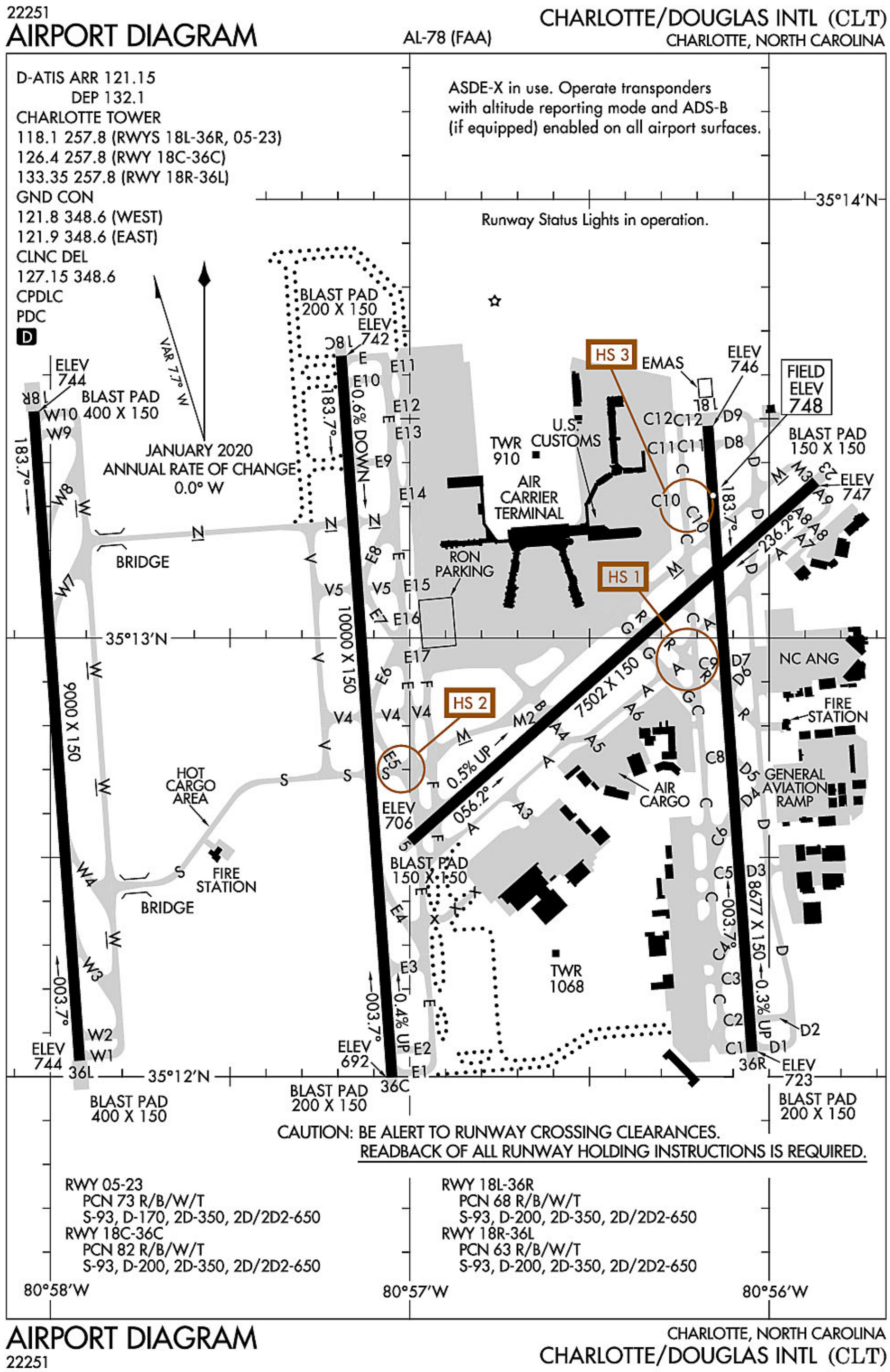
NO JET ENGINE MAINT RUNS ABOVE IDLE BTWN 2300−0600.

CAUTION: TWY J AND P SOUTH OF TWY Y AND ANG RAMP HAVE UNCTL VEH AND EQPT TFC.

UAS OPERATE WITHIN THE CONFINES OF THE SYRACUSE CLASS C, TIMES VARY.

MILITARY: ANG: OPR 1030−2100Z++ MON−THUR EXC HOL. PPR TRANS ACFT OFFL BUS ONLY. AFLD MGR DSN 243−2398, C315−233−2398, AFT DUTY HR CTC C315−233−2398. PPR REQ FOR ALL TRAN ACFT DUE LTD TRANS SVC. NTFY AFLD MGR OF ETA DELAY OVER 30 MIN OR MSN CNL IS RQR.

Charlotte, North Carolina
Charlotte/Douglas International
ICAO Identifier KCLT



Charlotte, NC
Charlotte/Douglas Intl
ICAO Identifier KCLT

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 35−12−49.5N / 80−56−56.6W
2.2.2 From City: 5 miles W of CHARLOTTE, NC
2.2.3 Elevation: 747.9 ft
2.2.5 Magnetic Variation: 7W (2000)
2.2.6 Airport Contact: HALEY GENTRY
5601 WILKINSON BLVD.
CHARLOTTE, NC 28208 (704−359−4000)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 23
2.12.2 True Bearing: 228
2.12.3 Dimensions: 7502 ft x 150 ft
2.12.4 PCN: 73 R/B/W/T
2.12.5 Coordinates: 35−13−21.4183N / 80−55−52.1235W
2.12.6 Threshold Elevation: 746.7 ft
2.12.6 Touchdown Zone Elevation: 746.7 ft

2.12.1 Designation: 05
2.12.2 True Bearing: 48
2.12.3 Dimensions: 7502 ft x 150 ft
2.12.4 PCN: 73 R/B/W/T
2.12.5 Coordinates: 35−12−32.2287N / 80−56−59.8045W
2.12.6 Threshold Elevation: 705.9 ft
2.12.6 Touchdown Zone Elevation: 715.6 ft

2.12.1 Designation: 18C
2.12.2 True Bearing: 176
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 82 R/B/W/T
2.12.5 Coordinates: 35−13−38.6269N / 80−57−11.4094W
2.12.6 Threshold Elevation: 742 ft
2.12.6 Touchdown Zone Elevation: 742 ft

2.12.1 Designation: 36C
2.12.2 True Bearing: 356
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 82 R/B/W/T
2.12.5 Coordinates: 35−11−59.9721N / 80−57−2.9217W
2.12.6 Threshold Elevation: 692.2 ft
2.12.6 Touchdown Zone Elevation: 706.7 ft

2.12.1 Designation: 18L
2.12.2 True Bearing: 176
2.12.3 Dimensions: 8677 ft x 150 ft
2.12.4 PCN: 68 R/B/W/T
2.12.5 Coordinates: 35−13−29.0474N / 80−56−10.1652W
2.12.6 Threshold Elevation: 746 ft
2.12.6 Touchdown Zone Elevation: 747.9 ft

2.12.1 Designation: 36R
2.12.2 True Bearing: 356
2.12.3 Dimensions: 8677 ft x 150 ft
2.12.4 PCN: 68 R/B/W/T
2.12.5 Coordinates: 35−12−3.4456N / 80−56−2.822W
2.12.6 Threshold Elevation: 723.4 ft
2.12.6 Touchdown Zone Elevation: 726.9 ft

2.12.1 Designation: 18R
2.12.2 True Bearing: 176
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 63 R/B/W/T
2.12.5 Coordinates: 35−13−31.0182N / 80−58−2.707W
2.12.6 Threshold Elevation: 744 ft
2.12.6 Touchdown Zone Elevation: 744 ft

2.12.1 Designation: 36L
2.12.2 True Bearing: 356
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 63 R/B/W/T
2.12.5 Coordinates: 35−12−2.2277N / 80−57−55.0671W
2.12.6 Threshold Elevation: 743.9 ft
2.12.6 Touchdown Zone Elevation: 743.9 ft

AD 2.13 Declared Distances
2.13.1 Designation: 23
2.13.2 Take−off Run Available: 7502 ft
2.13.3 Take−off Distance Available: 7502 ft
2.13.4 Accelerate−Stop Distance Available: 7502 ft
2.13.5 Landing Distance Available: 7502 ft

2.13.1 Designation: 05
2.13.2 Take−off Run Available: 7502 ft
2.13.3 Take−off Distance Available: 7502 ft

2.13.4 Accelerate−Stop Distance Available: 7092 ft
2.13.5 Landing Distance Available: 7092 ft

2.13.1 Designation: 18C
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 36C
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 18L
2.13.2 Take−off Run Available: 8676 ft
2.13.3 Take−off Distance Available: 8676 ft
2.13.4 Accelerate−Stop Distance Available: 8676 ft
2.13.5 Landing Distance Available: 8676 ft

2.13.1 Designation: 36R
2.13.2 Take−off Run Available: 8676 ft
2.13.3 Take−off Distance Available: 8676 ft
2.13.4 Accelerate−Stop Distance Available: 8390 ft
2.13.5 Landing Distance Available: 8390 ft

2.13.1 Designation: 18R
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 36L
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 23
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 05
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 18C
2.14.2 Approach Lighting System: MALSR

2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 36C
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 18L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 36R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 18R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 36L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: ALCP
2.14.3 Channel: 292.25
2.14.5 Hours of Operation:

2.14.1 Service Designation: APCH/P
2.14.3 Channel: 126.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (120−295 8000 FT & BLW)
2.14.3 Channel: 120.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (246−074 ABV 8000 FT)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (075−245 ABV 8000 FT)
2.14.3 Channel: 124
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (001−119 8000 FT & BLW)
2.14.3 Channel: 128.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (296−360 8000 FT & BLW)
2.14.3 Channel: 134.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (180−359)
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (360−179)
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BANKR STAR
2.14.3 Channel: 135.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BANKR STAR
2.14.3 Channel: 377.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BARMY DP
2.14.3 Channel: 124
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BARMY DP
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BEAVY DP (RWY 36L, 36C)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BEAVY DP (RWY 05, 18L, 18R, 18C, 23, 36R)
2.14.3 Channel: 124
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BEAVY DP (RWY 36L, 36C)
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BEAVY DP (RWY 05, 18R, 18L, 18C, 23, 36R)
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BOBZY DP
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BOBZY DP
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BTSEY STAR
2.14.3 Channel: 125.35

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 127.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHARLOTTE DP (BUCKL, HARAY & PITTY TRANSITIONS. RWY 36L, 36C)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHARLOTTE DP (RWY 05, 18L, 18R, 18C, 23, 36R)
2.14.3 Channel: 124
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHARLOTTE DP (BUCKL, GANTS, LILLS & RUNIE TRANSITIONS.)
2.14.3 Channel: 124
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHARLOTTE DP (BUCKL, HARAY & PITTY TRANSITION. RWY 36L, 36C)
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHARLOTTE DP (GANTS, LILLS & RUNIE TRANSITIONS)
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHARLOTTE DP (BUCKL TRANSITION, RWY 05, 18L, 18R, 18C, 23, 36R)
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHPTR STAR
2.14.3 Channel: 135.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHPTR STAR
2.14.3 Channel: 377.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHSLY STAR
2.14.3 Channel: 126.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CHSLY STAR
2.14.3 Channel: 282.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (120−295 8000 FT & BLW)

2.14.3 Channel: 120.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (246−074 ABV 8000 FT)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (075−245 ABV 8000 FT)
2.14.3 Channel: 124
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (001−119 8000 FT & BLW)
2.14.3 Channel: 128.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (296−360 8000 FT & BLW)
2.14.3 Channel: 134.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (180−359)
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (360−179)
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (ARR)
2.14.3 Channel: 121.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (DEP)
2.14.3 Channel: 132.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: ESTRR DP
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ESTRR DP
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FILPZ STAR
2.14.3 Channel: 125.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FILPZ STAR
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P (WEST)
2.14.3 Channel: 121.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P (EAST)
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ICONS DP (RWY 36L, 36C)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ICONS DP (RWY 05, 18L, 18R, 18C, 23, 36R)
2.14.3 Channel: 124
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ICONS DP (RWY 36L, 36C)
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ICONS DP (RWY 05, 18R, 18L, 18C, 23, 36R)
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: JOJJO DP
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: JOJJO DP
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: JONZE STAR
2.14.3 Channel: 135.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: JONZE STAR
2.14.3 Channel: 377.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KABEE STAR
2.14.3 Channel: 126.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KABEE STAR
2.14.3 Channel: 282.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KERMIT DP (235−055)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KERMIT DP (055−235)
2.14.3 Channel: 124
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KERMIT DP (235−055)
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KERMIT DP (055−235)
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KILNS DP
2.14.3 Channel: 124
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KILNS DP
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KNIGHTS DP (DEBIE, NEANO TRANSITIONS)
2.14.3 Channel: 120.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KNIGHTS DP (FLYYN, CEGAL TRANSITIONS, RWY 23, 18L, 18C, 18R)
2.14.3 Channel: 120.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KNIGHTS DP (FLYYN, CEGAL TRANSITIONS RWY 05, 36L, 36C, 36R)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KNIGHTS DP (055−235)
2.14.3 Channel: 128.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KNIGHTS DP (PEKNN, LILLS, HAMLN, ANDYS TRANSITIONS)
2.14.3 Channel: 128.325

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KNIGHTS DP (235−055)
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KNIGHTS DP (055−235)
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KRITR DP
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KRITR DP
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KWEEN DP (RWY 36L, 36C)
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KWEEN DP (RWY 05, 18L, 18R, 18C, 23, 36R)
2.14.3 Channel: 124
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KWEEN DP (RWY 36L, 36C)
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KWEEN DP (RWY 05, 18R, 18L, 18C, 23, 36R)
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (RWY 05/23, 18L/36R)
2.14.3 Channel: 118.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (RWY 18C/36C)
2.14.3 Channel: 126.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (RWY 18R/36L)
2.14.3 Channel: 133.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LIILS DP

2.14.3 Channel: 124
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LIINN STAR
2.14.3 Channel: 125.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LIINN STAR
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LILLS DP
2.14.3 Channel: 307.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MAJIC STAR
2.14.3 Channel: 126.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MAJIC STAR
2.14.3 Channel: 282.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MLLET STAR
2.14.3 Channel: 126.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MLLET STAR
2.14.3 Channel: 282.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PARQR STAR
2.14.3 Channel: 125.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PARQR STAR
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RASLN STAR
2.14.3 Channel: 126.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RASLN STAR
2.14.3 Channel: 282.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: STOCR STAR
2.14.3 Channel: 126.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: STOCR STAR
2.14.3 Channel: 282.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: UNARM STAR
2.14.3 Channel: 135.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: UNARM STAR
2.14.3 Channel: 377.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: WEAZL DP
2.14.3 Channel: 120.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: WEAZL DP
2.14.3 Channel: 257.2
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 05. Magnetic variation: 7W
2.19.2 ILS Identification: CLT
2.19.5 Coordinates: 35−12−43.05N / 80−56−52.18W
2.19.6 Site Elevation: 695.1 ft

2.19.1 ILS Type: Localizer for runway 05. Magnetic variation: 7W
2.19.2 ILS Identification: CLT
2.19.5 Coordinates: 35−13−26.34N / 80−55−45.36W
2.19.6 Site Elevation: 738.2 ft

2.19.1 ILS Type: DME for runway 23. Magnetic variation: 7W
2.19.2 ILS Identification: APU
2.19.5 Coordinates: 35−12−21.2833N / 80−57−10.052W
2.19.6 Site Elevation: 699.4 ft

2.19.1 ILS Type: Glide Slope for runway 23. Magnetic variation: 7W
2.19.2 ILS Identification: APU
2.19.5 Coordinates: 35−13−12.1531N / 80−56−0.0758W
2.19.6 Site Elevation: 737.7 ft

2.19.1 ILS Type: Localizer for runway 23. Magnetic variation: 7W
2.19.2 ILS Identification: APU
2.19.5 Coordinates: 35−12−23.38N / 80−57−11.99W
2.19.6 Site Elevation: 704 ft

2.19.1 ILS Type: DME for runway 18C. Magnetic variation: 7W
2.19.2 ILS Identification: PEP
2.19.5 Coordinates: 35−11−50.2369N / 80−56−58.6363W
2.19.6 Site Elevation: 684.4 ft

2.19.1 ILS Type: Glide Slope for runway 18C. Magnetic variation: 7W
2.19.2 ILS Identification: PEP
2.19.5 Coordinates: 35−13−26.9102N / 80−57−15.2356W
2.19.6 Site Elevation: 731.4 ft

2.19.1 ILS Type: Localizer for runway 18C. Magnetic variation: 7W
2.19.2 ILS Identification: PEP
2.19.5 Coordinates: 35−11−48.5979N / 80−57−1.9439W
2.19.6 Site Elevation: 683.3 ft

2.19.1 ILS Type: Glide Slope for runway 36C. Magnetic variation: 7W
2.19.2 ILS Identification: DQG
2.19.5 Coordinates: 35−12−9.1687N / 80−57−8.5431W
2.19.6 Site Elevation: 691.1 ft

2.19.1 ILS Type: Inner Marker for runway 36C. Magnetic variation: 7W
2.19.2 ILS Identification: DQG
2.19.5 Coordinates: 35−11−48.7253N / 80−57−1.9507W
2.19.6 Site Elevation: 682.9 ft

2.19.1 ILS Type: Localizer for runway 36C. Magnetic variation: 7W
2.19.2 ILS Identification: DQG
2.19.5 Coordinates: 35−13−53.9477N / 80−57−12.7316W
2.19.6 Site Elevation: 749.4 ft

2.19.1 ILS Type: DME for runway 18L. Magnetic variation: 7W
2.19.2 ILS Identification: VKQ
2.19.5 Coordinates: 35−11−50.25N / 80−56−4.63W
2.19.6 Site Elevation: 710 ft

2.19.1 ILS Type: Glide Slope for runway 18L. Magnetic variation: 7W
2.19.2 ILS Identification: VKQ
2.19.5 Coordinates: 35−13−19.2609N / 80−56−5.097W
2.19.6 Site Elevation: 743.5 ft

2.19.1 ILS Type: Localizer for runway 18L. Magnetic variation: 7W
2.19.2 ILS Identification: VKQ
2.19.5 Coordinates: 35−11−50.5994N / 80−56−1.7186W
2.19.6 Site Elevation: 719.2 ft

2.19.1 ILS Type: DME for runway 36R. Magnetic variation: 7W
2.19.2 ILS Identification: BQC
2.19.5 Coordinates: 35−13−33.1089N / 80−56−6.903W
2.19.6 Site Elevation: 752.3 ft

2.19.1 ILS Type: Glide Slope for runway 36R. Magnetic variation: 7W
2.19.2 ILS Identification: BQC
2.19.5 Coordinates: 35−12−14.0034N / 80−55−58.8923W
2.19.6 Site Elevation: 717.3 ft

2.19.1 ILS Type: Localizer for runway 36R. Magnetic variation: 7W
2.19.2 ILS Identification: BQC
2.19.5 Coordinates: 35−13−33.7034N / 80−56−10.5664W
2.19.6 Site Elevation: 741.2 ft

2.19.1 ILS Type: DME for runway 18R. Magnetic variation: 7W
2.19.2 ILS Identification: RGS
2.19.5 Coordinates: 35−12−13.2565N / 80−58−1.0908W
2.19.6 Site Elevation: 743.8 ft

2.19.1 ILS Type: Glide Slope for runway 18R. Magnetic variation: 7W
2.19.2 ILS Identification: RGS
2.19.5 Coordinates: 35−13−20.0955N / 80−58−6.7207W
2.19.6 Site Elevation: 733.9 ft

2.19.1 ILS Type: Inner Marker for runway 18R. Magnetic variation: 7W
2.19.2 ILS Identification: RGS
2.19.5 Coordinates: 35−13−38.8124N / 80−58−3.3825W
2.19.6 Site Elevation: 738.6 ft

2.19.1 ILS Type: Localizer for runway 18R. Magnetic variation: 7W
2.19.2 ILS Identification: RGS
2.19.5 Coordinates: 35−11−51.8431N / 80−57−54.1735W
2.19.6 Site Elevation: 738.1 ft

2.19.1 ILS Type: DME for runway 36L. Magnetic variation: 7W
2.19.2 ILS Identification: XUU
2.19.5 Coordinates: 35−13−19.8318N / 80−58−6.8193W
2.19.6 Site Elevation: 738.9 ft

2.19.1 ILS Type: Glide Slope for runway 36L. Magnetic variation: 7W
2.19.2 ILS Identification: XUU
2.19.5 Coordinates: 35−12−12.9817N / 80−58−0.9403W
2.19.6 Site Elevation: 732.3 ft

2.19.1 ILS Type: Inner Marker for runway 36L. Magnetic variation: 7W
2.19.2 ILS Identification: XUU
2.19.5 Coordinates: 35−11−54.4339N / 80−57−54.3965W
2.19.6 Site Elevation: 738.8 ft

2.19.1 ILS Type: Localizer for runway 36L. Magnetic variation: 7W
2.19.2 ILS Identification: XUU
2.19.5 Coordinates: 35−13−41.4048N / 80−58−3.6016W
2.19.6 Site Elevation: 737.3 ft

2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 5W
2.19.2 Navigation Aid Identification: CLT
2.19.5 Coordinates: 35−11−25.0392N / 80−57−6.3124W
2.19.6 Site Elevation: 731.7 ft

General Remarks:
TWY C10 RSTRD TO ACFT WITH WINGSPAN LESS THAN 171 FT WHEN EXITING RWY.

CLT RAMP, NON−MOVMT AREA, IS CTLD RAMP; CTC RAMP CTL PRIOR TO ENTERING.

TWY C10 UNUSBL FOR TXG ONTO RWY 18L/36R.

MILITARY: ANG: CTC COMD POST 30 MIN PRIOR LDG. AMOPS/COMD POST − 292.25 (CALL NEWSREEL).

SUCCESSIVE OR SIMULTANEOUS DEPARTURES FROM RWY 18L AND RWY 18C ARE APPROVED WITH COURSE DIVERGENCE BEGINNING NO FURTHER THAN 4 MILES FROM END OF RWY.

DUAL TAXI BTN DEP CALL SPOTS 11/12 AND 13N/13S RSTRD TO ONE ACFT LESS THAN 214 FT AND ONE ACFT LESS THAN 118 FT OR TWO ACFT LESS THAN 171 FT.

RWY SFC COND INFO DURG DUTY HRS PHONE ANG OPS V583−9177/9144 OR AIRBORNE 292.2.

TWY M BETWEEN THE TERMINAL RAMP AND TWY C, AS WELL AS TWY C NORTH OF TWY M, ARE RESTRICTED TO GROUP V AIRCRAFT WITH A WINGSPAN LESS THAN 214 FT (65M).

DUAL TAXI BTN DEP CALL SPOTS 22/23 AND 24N/24S RSTRD TO ACFT WITH WINGSPANS LESS THAN 118 FT.

RWY STATUS LGTS IN OPR.

TWY C4 AND C6: WHEN TAXIING AIRCRAFT WITH COCKPIT TO MAIN GEAR DISTANCE GREATER THAN 90 FT, PILOT MUST PERFORM JUDGEMENTAL OVERSTEERING INSTEAD OF COCKPIT OVER CENTERLINE STEERING.

TWY D, RESTRICTED TO 15 MPH OR LESS WITH WINGSPAN 171 FT AND GREATER.

GROUP IV ACFT WITH A WINGSPAN GTR THAN 118 FT ARE PROHIBITED FM EXITING RWY 18L/36R AT TWY C10.

GROUP III ACFT WITH A WINGSPAN GTR THAN 79 FT ARE PROHIBITED FM MAKING A NBND TURN ONTO TWY C WHEN TAXIING WB ON TWY A.

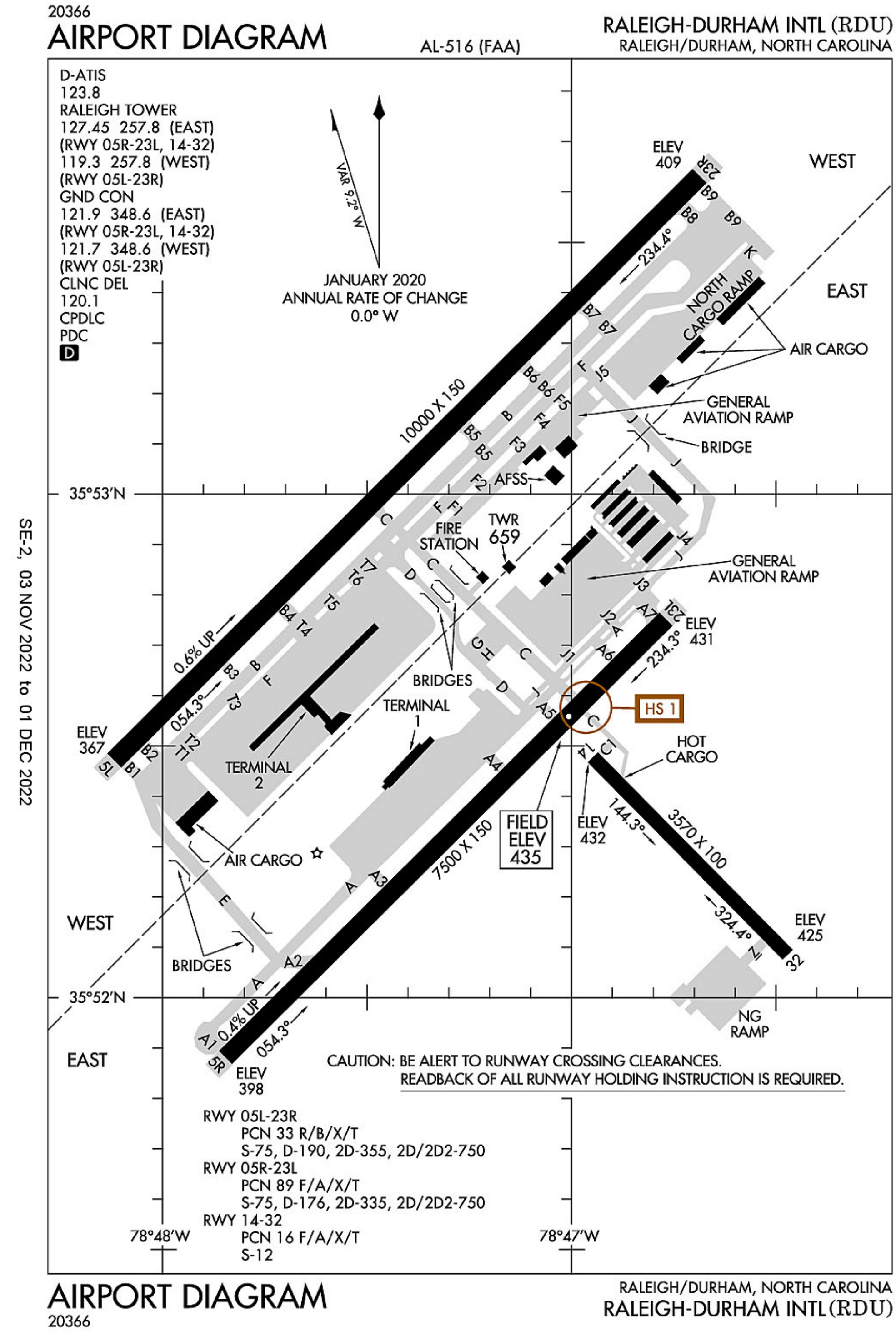
15 MPH SPEED RESTRICTION ON TWY C FROM THE APPROACH OF RWY 18L TO RWY 05/23, AND TWY M FROM THE APRON TO RWY 18L/36R.

BE ALERT FOR FLOCKS OF MIGRATORY BIRDS ON & INVOF ARPT.

GROUP III ACFT WITH A WINGSPAN GTR THAN 79 FT ARE PROHIBITED FM MAKING A SBND TURN ONTO TWY C WHEN TAXIING NWBND ON TWY R.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

Raleigh−Durham, North Carolina
Raleigh−Durham International
ICAO Identifier KRDU



Raleigh/Durham, NC
Raleigh−Durham Intl
ICAO Identifier KRDU

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 35−52−39.5N / 78−47−14.9W
2.2.2 From City: 9 miles NW of RALEIGH/DURHAM, NC
2.2.3 Elevation: 435.2 ft
2.2.5 Magnetic Variation: 9W (2020)
2.2.6 Airport Contact: MICHAEL LANDGUTH
RALEIGH−DURHAM ARPT AUTH
RDU AIRPORT, NC 27623 ((919) 840−7701)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 05L
2.12.2 True Bearing: 45
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 33 R/B/X/T
2.12.5 Coordinates: 35−52−28.016N / 78−48−7.069W
2.12.6 Threshold Elevation: 366.8 ft
2.12.6 Touchdown Zone Elevation: 384.3 ft

2.12.1 Designation: 23R
2.12.2 True Bearing: 225
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 33 R/B/X/T
2.12.5 Coordinates: 35−53−37.7657N / 78−46−40.9198W
2.12.6 Threshold Elevation: 408.6 ft
2.12.6 Touchdown Zone Elevation: 408.6 ft

2.12.1 Designation: 05R
2.12.2 True Bearing: 45
2.12.3 Dimensions: 7500 ft x 150 ft
2.12.4 PCN: 89 F/A/X/T
2.12.5 Coordinates: 35−51−52.6684N / 78−47−50.4174W
2.12.6 Threshold Elevation: 397.5 ft
2.12.6 Touchdown Zone Elevation: 419.8 ft

2.12.1 Designation: 23L
2.12.2 True Bearing: 225
2.12.3 Dimensions: 7500 ft x 150 ft
2.12.4 PCN: 89 F/A/X/T
2.12.5 Coordinates: 35−52−44.9832N / 78−46−45.8171W
2.12.6 Threshold Elevation: 430.7 ft
2.12.6 Touchdown Zone Elevation: 435.2 ft

2.12.1 Designation: 14
2.12.2 True Bearing: 135
2.12.3 Dimensions: 3570 ft x 100 ft
2.12.4 PCN: 16 F/A/X/T
2.12.5 Coordinates: 35−52−30.1119N / 78−46−57.6427W
2.12.6 Threshold Elevation: 432.1 ft
2.12.6 Touchdown Zone Elevation: 432.1 ft

2.12.1 Designation: 32
2.12.2 True Bearing: 315
2.12.3 Dimensions: 3570 ft x 100 ft
2.12.4 PCN: 16 F/A/X/T
2.12.5 Coordinates: 35−52−5.0792N / 78−46−27.0499W
2.12.6 Threshold Elevation: 424.7 ft
2.12.6 Touchdown Zone Elevation: 428.7 ft

AD 2.13 Declared Distances
2.13.1 Designation: 05L
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 23R
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 05R
2.13.2 Take−off Run Available: 7500 ft
2.13.3 Take−off Distance Available: 7500 ft
2.13.4 Accelerate−Stop Distance Available: 7500 ft
2.13.5 Landing Distance Available: 7500 ft

2.13.1 Designation: 23L
2.13.2 Take−off Run Available: 7500 ft
2.13.3 Take−off Distance Available: 7500 ft
2.13.4 Accelerate−Stop Distance Available: 7500 ft
2.13.5 Landing Distance Available: 7500 ft

2.13.1 Designation: 14

2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 32
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 05L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 23R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 05R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 23L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 14
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 32
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P (055−229)
2.14.3 Channel: 124.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (055−229)
2.14.3 Channel: 318.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (230−054)
2.14.3 Channel: 127.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (230−054)
2.14.3 Channel: 307.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ARGAL STAR
2.14.3 Channel: 124.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ARGAL STAR
2.14.3 Channel: 318.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BEXGO DP
2.14.3 Channel: 132.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BEXGO DP
2.14.3 Channel: 256.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BLOGS STAR
2.14.3 Channel: 124.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BLOGS STAR
2.14.3 Channel: 318.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BRADE STAR
2.14.3 Channel: 124.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BRADE STAR
2.14.3 Channel: 318.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BUZZY STAR
2.14.3 Channel: 127.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BUZZY STAR
2.14.3 Channel: 307.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 120.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (055−229)
2.14.3 Channel: 125.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (230−054)
2.14.3 Channel: 132.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (230−054)
2.14.3 Channel: 256.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (055−229)
2.14.3 Channel: 353.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 123.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (055−229)
2.14.3 Channel: 125.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (230−054)
2.14.3 Channel: 132.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (230−054)
2.14.3 Channel: 256.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (SOUTH)
2.14.3 Channel: 353.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (055−229)
2.14.3 Channel: 353.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DMSTR STAR
2.14.3 Channel: 127.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DMSTR STAR
2.14.3 Channel: 307.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: FINAL (EAST)
2.14.3 Channel: 285.425

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: FINAL CTL
2.14.3 Channel: 124.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P (WEST, RWY 05L/23R)
2.14.3 Channel: 121.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P (EAST, RWY 05R/23L, 14/32)
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HOOKZ DP
2.14.3 Channel: 125.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HOOKZ DP
2.14.3 Channel: 353.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HURIC DP
2.14.3 Channel: 125.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: HURIC DP
2.14.3 Channel: 353.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (WEST, RWY 05L/23R)
2.14.3 Channel: 119.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (EAST, RWY 05R/23L, 14/32)
2.14.3 Channel: 127.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LWOOD DP
2.14.3 Channel: 132.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LWOOD DP

2.14.3 Channel: 256.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: OXFRD DP
2.14.3 Channel: 132.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: OXFRD DP
2.14.3 Channel: 256.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PACKK DP (055−229)
2.14.3 Channel: 125.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PACKK DP (230−054)
2.14.3 Channel: 132.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PACKK DP (230−054)
2.14.3 Channel: 256.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PACKK DP (055−229)
2.14.3 Channel: 353.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RALEIGH DP (055−229)
2.14.3 Channel: 125.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RALEIGH DP (230−054)
2.14.3 Channel: 132.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RALEIGH DP (230−054)
2.14.3 Channel: 256.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: RALEIGH DP (055−229)
2.14.3 Channel: 353.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ROZBO DP
2.14.3 Channel: 125.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ROZBO DP
2.14.3 Channel: 353.675
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: SHPRD DP
2.14.3 Channel: 132.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: SHPRD DP
2.14.3 Channel: 256.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TAQLE STAR
2.14.3 Channel: 124.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: TAQLE STAR
2.14.3 Channel: 318.2
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 05L. Magnetic variation: 9W
2.19.2 ILS Identification: GKK
2.19.5 Coordinates: 35−53−46.25N / 78−46−25.87W
2.19.6 Site Elevation: 403 ft

2.19.1 ILS Type: Glide Slope for runway 05L. Magnetic variation: 9W
2.19.2 ILS Identification: GKK
2.19.5 Coordinates: 35−52−37.7972N / 78−48−1.884W
2.19.6 Site Elevation: 365.5 ft

2.19.1 ILS Type: Localizer for runway 05L. Magnetic variation: 9W
2.19.2 ILS Identification: GKK
2.19.5 Coordinates: 35−53−48.0693N / 78−46−28.1855W
2.19.6 Site Elevation: 408.6 ft

2.19.1 ILS Type: DME for runway 23R. Magnetic variation: 9W
2.19.2 ILS Identification: DMP
2.19.5 Coordinates: 35−52−20.25N / 78−48−15.21W
2.19.6 Site Elevation: 358 ft

2.19.1 ILS Type: Glide Slope for runway 23R. Magnetic variation: 9W
2.19.2 ILS Identification: DMP
2.19.5 Coordinates: 35−53−32.4744N / 78−46−54.3483W
2.19.6 Site Elevation: 396.2 ft

2.19.1 ILS Type: Inner Marker for runway 23R. Magnetic variation: 9W
2.19.2 ILS Identification: DMP
2.19.5 Coordinates: 35−53−43.7552N / 78−46−33.5065W
2.19.6 Site Elevation: 402.1 ft

2.19.1 ILS Type: Localizer for runway 23R. Magnetic variation: 9W
2.19.2 ILS Identification: DMP
2.19.5 Coordinates: 35−52−20.84N / 78−48−15.93W

2.19.6 Site Elevation: 358.8 ft

2.19.1 ILS Type: Middle Marker for runway 23R. Magnetic variation: 9W
2.19.2 ILS Identification: DMP
2.19.5 Coordinates: 35−53−54.7234N / 78−46−19.9522W
2.19.6 Site Elevation: 410 ft

2.19.1 ILS Type: DME for runway 05R. Magnetic variation: 9W
2.19.2 ILS Identification: RDU
2.19.5 Coordinates: 35−52−54.38N / 78−46−41.19W
2.19.6 Site Elevation: 412 ft

2.19.1 ILS Type: Glide Slope for runway 05R. Magnetic variation: 9W
2.19.2 ILS Identification: RDU
2.19.5 Coordinates: 35−51−57.0189N / 78−47−38.1689W
2.19.6 Site Elevation: 400.1 ft

2.19.1 ILS Type: Localizer for runway 05R. Magnetic variation: 9W
2.19.2 ILS Identification: RDU
2.19.5 Coordinates: 35−52−52.1055N / 78−46−37.0152W
2.19.6 Site Elevation: 423.6 ft

2.19.1 ILS Type: DME for runway 23L. Magnetic variation: 9W
2.19.2 ILS Identification: LEI
2.19.5 Coordinates: 35−51−43.52N / 78−47−54.49W
2.19.6 Site Elevation: 386 ft

2.19.1 ILS Type: Glide Slope for runway 23L. Magnetic variation: 9W
2.19.2 ILS Identification: LEI
2.19.5 Coordinates: 35−52−36.18N / 78−46−52.21W
2.19.6 Site Elevation: 430.2 ft

2.19.1 ILS Type: Localizer for runway 23L. Magnetic variation: 9W
2.19.2 ILS Identification: LEI
2.19.5 Coordinates: 35−51−45.6108N / 78−47−59.1266W
2.19.6 Site Elevation: 381 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 9W
2.19.2 Navigation Aid Identification: RDU
2.19.5 Coordinates: 35−52−21.0761N / 78−47−0.0316W
2.19.6 Site Elevation: 429.2 ft

General Remarks:
TWY F2 AND F5 CLOSED UNTIL FURTHER NOTICE.

ALL TDG V AIRCRAFT TXG ON TWY A ARE RSTD TO TAXI SPD OF 15 MPH

NO APPROVAL REQUIRED FOR PUSHBACK AT TERMINAL 1 GATES UNLESS ACFT REQUIRED TO USE TWY A. CTC ATC PRIOR TO PUSH ONTO TWY A. TERMINAL 2 ACFT MUST CTC RAMP TOWER PRIOR TO PUSH.

NG 24 HR PPR FOR JET ACFT & TRANS MIL ACFT − 919−840−7510.

TWY E BEHIND SOUTH CARGO 4 & TWY J BEHIND CORPORATE HANGARS NOT VSBL FM ATCT.

RSTD: PPR FOR ALL MILITARY AIRCRAFT F/W − R/W & UNSCHEDULED CHARTER FLIGHTS WITH 30 OR MORE PASSENGERS. 24 HR PN RQR FOR MIL PRACTICE APCH. CTC ARPT OPS 919−840−7510 OR RDU APP C919−380−3125. 24 HR PPR FOR ALL F/W AND R/W MIL ACFT GOING TO ARNG RAMP. POC DSN 582−9000, EXTN 16200, C919−804−5300, EXTN 16200. OSACOM FLT DET DSN 582−9000, EXTN 16202, C919−804−5300, EXTN 16202.

NO JET ENGINE MAINTENANCE RUNS BETWEEN 0000−0600.

ARPT CLSD TO AIRSHIPS.

NG PPR FOR LDG CTC V582−9181 C(919)664−9181.

TAXIWAY F1 IS CLOSED UNTIL FURTHER NOTICE.

ARNG: LTD PRK. ARNG OPS DSN 582−9000, EXTN 16200, C919−804−5300 EXTN 16200, DSN 582−9000,X16200, C919−804−5300,X16200 CTC FORECAST BASE 10 MIN PRIOR LDG. RAMP CLSD TO ALL F/W EXCEPT ARMY & MIL TRANSPORT WITH PPR, FACILITY HRS 1300−2130Z++ MON−FRI EXC HOL. MAKE APPT FOR AFTER DUTY HRS. NO FUEL EXCARNG FERRY ACFT. OSACOM FLT DET DSN 582−9248, C919−664−6248.

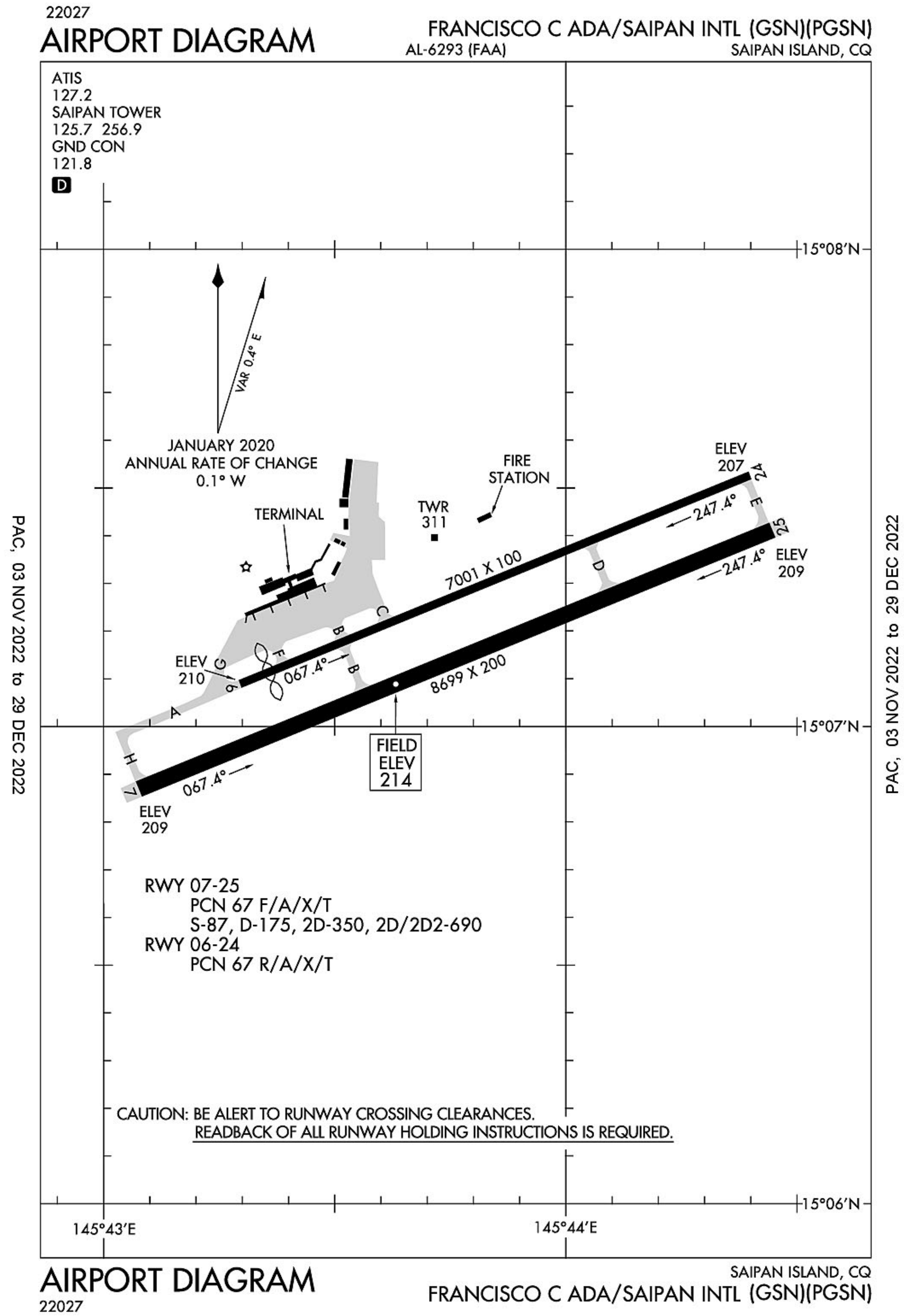
TWY D CLSD TO ACFT WITH WINGSPAN MORE THAN 171 FT WHEN TWY G AND H ARE OCCUPIED.

APN TXL F BTN TWY T1 AND TWY T7 CLSD TO ACFT WITH WINGSPAN MORE THAN 171 FT.

TWY C BTN TWY G AND TWY F CLSD TO ACFT WINGSPAN MORE THAN 118 FT.

TWY C BTN TWY F AND G IS RSTRD TO ACFT LESS THAN A MAX GROSS TAKEOFF WEIGHT OF 490000 LBS.

North Mariana Islands, Saipan Island
Francisco C. Ada/Saipan International
ICAO Identifier PGSN



Saipan Island, CQ
Francisco C. Ada/Saipan Intl
ICAO Identifier PGSN

AD 2.2 Aerodrome geographical and administrative data

2.2.1 Reference Point: 15−7−12.895N / 145−43−47.951E

2.2.2 From City: 4 miles SW of SAIPAN ISLAND, MP

2.2.3 Elevation: 214 ft

2.2.5 Magnetic Variation: 2E (1985)

2.2.6 Airport Contact: CHRISTOPHER S. TENORIO
PO BOX 501055
SAIPAN, MP 96950 (670−285−2504)

2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule

2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities

2.4.1 Cargo Handling Facilities: YES

2.4.2 Fuel Types: 100,100LL,A1+

2.4.5 Hangar Space:

2.4.6 Repair Facilities: NONE

AD 2.6 Rescue and Firefighting Services

2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 1/1/1978

AD 2.12 Runway Physical Characteristics

2.12.1 Designation: 06

2.12.2 True Bearing: 68

2.12.3 Dimensions: 7001 ft x 100 ft

2.12.4 PCN: 67 R/A/X/T

2.12.5 Coordinates: 15−7−5.3655N / 145−43−17.7212E

2.12.6 Threshold Elevation: 209.8 ft

2.12.6 Touchdown Zone Elevation: 212.7 ft

2.12.1 Designation: 24

2.12.2 True Bearing: 248

2.12.3 Dimensions: 7001 ft x 100 ft

2.12.4 PCN: 67 R/A/X/T

2.12.5 Coordinates: 15−7−31.5859N / 145−44−23.8908E

2.12.6 Threshold Elevation: 206.5 ft

2.12.6 Touchdown Zone Elevation: 206.8 ft

2.12.1 Designation: 07

2.12.2 True Bearing: 68

2.12.3 Dimensions: 8699 ft x 200 ft
2.12.4 PCN: 67 F/A/X/T
2.12.5 Coordinates: 15−6−52.1086N / 145−43−4.5454E
2.12.6 Threshold Elevation: 209 ft
2.12.6 Touchdown Zone Elevation: 214 ft

2.12.1 Designation: 25
2.12.2 True Bearing: 248
2.12.3 Dimensions: 8699 ft x 200 ft
2.12.4 PCN: 67 F/A/X/T
2.12.5 Coordinates: 15−7−24.6959N / 145−44−26.7638E
2.12.6 Threshold Elevation: 209 ft
2.12.6 Touchdown Zone Elevation: 209 ft

AD 2.13 Declared Distances
2.13.1 Designation: 06
2.13.2 Take−off Run Available: 7000 ft
2.13.3 Take−off Distance Available: 6800 ft
2.13.4 Accelerate−Stop Distance Available: 6645 ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 24
2.13.2 Take−off Run Available: 6400 ft
2.13.3 Take−off Distance Available: 7000 ft
2.13.4 Accelerate−Stop Distance Available: 6302 ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 07
2.13.2 Take−off Run Available: 8699 ft
2.13.3 Take−off Distance Available: 8669 ft
2.13.4 Accelerate−Stop Distance Available: 8664 ft
2.13.5 Landing Distance Available: 8010 ft

2.13.1 Designation: 25
2.13.2 Take−off Run Available: 8699 ft
2.13.3 Take−off Distance Available: 8699 ft
2.13.4 Accelerate−Stop Distance Available: 8045 ft
2.13.5 Landing Distance Available: 8010 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 06
2.14.2 Approach Lighting System:

2.14.4 Visual Approach Slope Indicator System: PSIL

2.14.1 Designation: 24
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: PSIL

2.14.1 Designation: 07
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: PSIL

2.14.1 Designation: 25
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 07. Magnetic variation: 2E
2.19.2 ILS Identification: GSN
2.19.5 Coordinates: 15−7−30.4581N / 145−44−34.0368E
2.19.6 Site Elevation: 211.1 ft

2.19.1 ILS Type: Glide Slope for runway 07. Magnetic variation: 2E
2.19.2 ILS Identification: GSN
2.19.5 Coordinates: 15−6−58.6872N / 145−43−13.0288E
2.19.6 Site Elevation: 206.5 ft

2.19.1 ILS Type: Localizer for runway 07. Magnetic variation: 2E
2.19.2 ILS Identification: GSN
2.19.5 Coordinates: 15−7−28.4649N / 145−44−36.3028E
2.19.6 Site Elevation: 205.8 ft

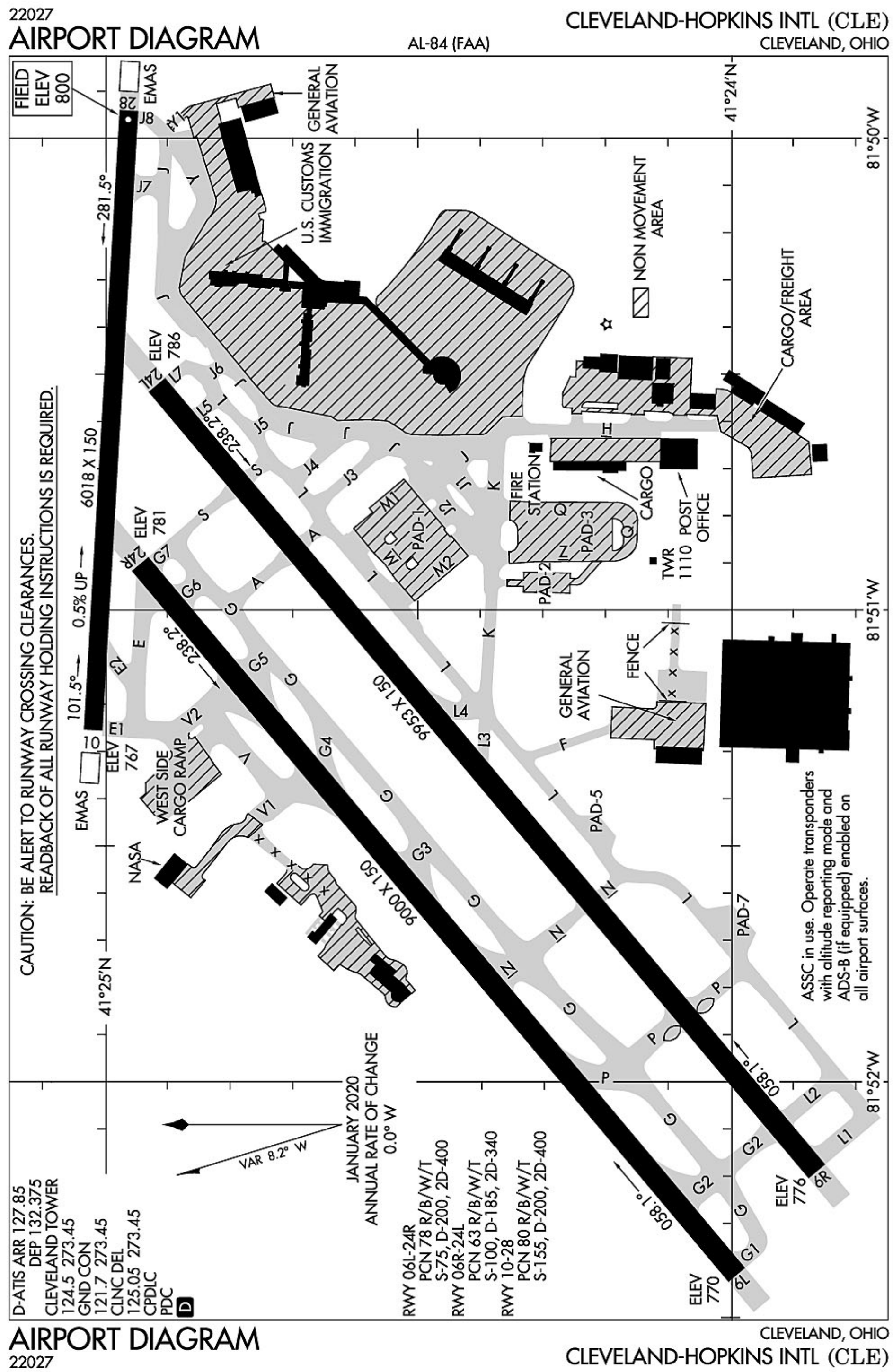
General Remarks:
FOR ARPT SECURITY CALL (670) 237−6529.

RWY 06/24 OPEN FOR TAXIING ONLY (NOT AVBL FOR LDG AND TKOF). OPEN FOR LDG AND TKOF WHEN RWY 7/25 CLSD.

PPR FM EXECUTIVE DIRECTOR COMMONWEALTH PORTS AUTHORITY SAIPAN CALL (670) 237−6500 MON−FRI 0730−1630 OTHER TIMES CALL (670) 237−6535.

IMMIGRATION & CUSTOMS AVBL DURG SCHEDULED OPNS. OTHER TIMES PRIOR ARRANGEMENTS MUST BE MADE WITH CBP PORT DIRECTOR CALL (670)288−0025/26.

Cleveland, Ohio
Cleveland−Hopkins International
ICAO Identifier KCLE



Cleveland, OH
Cleveland−Hopkins Intl
ICAO Identifier KCLE

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 41−24−33.865N / 81−51−16.888W
2.2.2 From City: 9 miles SW of CLEVELAND, OH
2.2.3 Elevation: 799.5 ft
2.2.5 Magnetic Variation: 8W (2020)
2.2.6 Airport Contact: DINA WILSON
PO BOX 81009
CLEVELAND, OH 44181 (216−265−6963)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: NO
2.4.2 Fuel Types: 100LL,A1+
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 06L
2.12.2 True Bearing: 50
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 78 R/B/W/T
2.12.5 Coordinates: 41−23−59.5393N / 81−52−24.5622W
2.12.6 Threshold Elevation: 770.1 ft
2.12.6 Touchdown Zone Elevation: 772.6 ft

2.12.1 Designation: 24R
2.12.2 True Bearing: 230
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 78 R/B/W/T
2.12.5 Coordinates: 41−24−56.7503N / 81−50−54.1515W
2.12.6 Threshold Elevation: 781.1 ft
2.12.6 Touchdown Zone Elevation: 781.1 ft

2.12.1 Designation: 06R
2.12.2 True Bearing: 50
2.12.3 Dimensions: 9953 ft x 150 ft
2.12.4 PCN: 63 R/B/W/T
2.12.5 Coordinates: 41−23−51.8742N / 81−52−11.3519W
2.12.6 Threshold Elevation: 775.5 ft
2.12.6 Touchdown Zone Elevation: 776.5 ft

2.12.1 Designation: 24L
2.12.2 True Bearing: 230
2.12.3 Dimensions: 9953 ft x 150 ft
2.12.4 PCN: 63 R/B/W/T
2.12.5 Coordinates: 41−24−55.141N / 81−50−31.3701W
2.12.6 Threshold Elevation: 785.7 ft
2.12.6 Touchdown Zone Elevation: 785.8 ft

2.12.1 Designation: 10
2.12.2 True Bearing: 93
2.12.3 Dimensions: 6018 ft x 150 ft
2.12.4 PCN: 80 R/B/W/T
2.12.5 Coordinates: 41−25−1.2562N / 81−51−15.2842W
2.12.6 Threshold Elevation: 767.1 ft
2.12.6 Touchdown Zone Elevation: 782.8 ft

2.12.1 Designation: 28
2.12.2 True Bearing: 273
2.12.3 Dimensions: 6018 ft x 150 ft
2.12.4 PCN: 80 R/B/W/T
2.12.5 Coordinates: 41−24−57.8208N / 81−49−56.4392W
2.12.6 Threshold Elevation: 799.5 ft
2.12.6 Touchdown Zone Elevation: 799.5 ft

AD 2.13 Declared Distances
2.13.1 Designation: 06L
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 24R
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 06R
2.13.2 Take−off Run Available: 9956 ft
2.13.3 Take−off Distance Available: 9956 ft
2.13.4 Accelerate−Stop Distance Available: 9956 ft
2.13.5 Landing Distance Available: 8029 ft

2.13.1 Designation: 24L
2.13.2 Take−off Run Available: 9956 ft
2.13.3 Take−off Distance Available: 9956 ft
2.13.4 Accelerate−Stop Distance Available: 9956 ft
2.13.5 Landing Distance Available: 9956 ft

2.13.1 Designation: 10

2.13.2 Take−off Run Available: 6018 ft
2.13.3 Take−off Distance Available: 6018 ft
2.13.4 Accelerate−Stop Distance Available: 6018 ft
2.13.5 Landing Distance Available: 6018 ft

2.13.1 Designation: 28
2.13.2 Take−off Run Available: 6018 ft
2.13.3 Take−off Distance Available: 6018 ft
2.13.4 Accelerate−Stop Distance Available: 6018 ft
2.13.5 Landing Distance Available: 6018 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 06L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 24R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 06R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 24L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 10
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P
2.14.3 Channel: 126.55
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P
2.14.3 Channel: 346.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CAVVS DP
2.14.3 Channel: 135.875
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 125.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 273.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (340−200)
2.14.3 Channel: 125.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (201−339)
2.14.3 Channel: 126.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (ARR)
2.14.3 Channel: 127.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (DEP)
2.14.3 Channel: 132.375
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P
2.14.3 Channel: 128.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P
2.14.3 Channel: 135.875
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 273.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GTLKE DP
2.14.3 Channel: 128.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: KKIDS DP
2.14.3 Channel: 135.875
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 124.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 273.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PFLYD DP
2.14.3 Channel: 128.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ZAAPA DP
2.14.3 Channel: 128.25
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 06L. Magnetic variation: 8W
2.19.2 ILS Identification: LIZ
2.19.5 Coordinates: 41−25−11.9443N / 81−50−35.682W
2.19.6 Site Elevation: 783.4 ft

2.19.1 ILS Type: Glide Slope for runway 06L. Magnetic variation: 8W
2.19.2 ILS Identification: LIZ
2.19.5 Coordinates: 41−24−9.1461N / 81−52−17.5279W
2.19.6 Site Elevation: 764.3 ft

2.19.1 ILS Type: Inner Marker for runway 06L. Magnetic variation: 8W
2.19.2 ILS Identification: LIZ
2.19.5 Coordinates: 41−23−53.9363N / 81−52−33.3994W
2.19.6 Site Elevation: 761.5 ft

2.19.1 ILS Type: Localizer for runway 06L. Magnetic variation: 8W
2.19.2 ILS Identification: LIZ
2.19.5 Coordinates: 41−25−10.1943N / 81−50−32.8939W
2.19.6 Site Elevation: 778.7 ft

2.19.1 ILS Type: DME for runway 24R. Magnetic variation: 8W
2.19.2 ILS Identification: PVY
2.19.5 Coordinates: 41−25−11.9443N / 81−50−35.682W
2.19.6 Site Elevation: 783.4 ft

2.19.1 ILS Type: Glide Slope for runway 24R. Magnetic variation: 8W
2.19.2 ILS Identification: PVY
2.19.5 Coordinates: 41−24−53.0116N / 81−51−8.214W

2.19.6 Site Elevation: 768.4 ft

2.19.1 ILS Type: Inner Marker for runway 24R. Magnetic variation: 8W
2.19.2 ILS Identification: PVY
2.19.5 Coordinates: 41−25−3.7844N / 81−50−47.3046W
2.19.6 Site Elevation: 777.9 ft

2.19.1 ILS Type: Localizer for runway 24R. Magnetic variation: 8W
2.19.2 ILS Identification: PVY
2.19.5 Coordinates: 41−23−53.0789N / 81−52−34.7494W
2.19.6 Site Elevation: 760.6 ft

2.19.1 ILS Type: DME for runway 06R. Magnetic variation: 8W
2.19.2 ILS Identification: CLE
2.19.5 Coordinates: 41−25−4.0601N / 81−50−11.0982W
2.19.6 Site Elevation: 794.1 ft

2.19.1 ILS Type: Glide Slope for runway 06R. Magnetic variation: 8W
2.19.2 ILS Identification: CLE
2.19.5 Coordinates: 41−24−13.6551N / 81−51−45.2101W
2.19.6 Site Elevation: 766 ft

2.19.1 ILS Type: Localizer for runway 06R. Magnetic variation: 8W
2.19.2 ILS Identification: CLE
2.19.5 Coordinates: 41−25−5.1773N / 81−50−15.5025W
2.19.6 Site Elevation: 785.5 ft

2.19.1 ILS Type: DME for runway 24L. Magnetic variation: 8W
2.19.2 ILS Identification: HPI
2.19.5 Coordinates: 41−23−44.3404N / 81−52−18.0729W
2.19.6 Site Elevation: 778.9 ft

2.19.1 ILS Type: Glide Slope for runway 24L. Magnetic variation: 8W
2.19.2 ILS Identification: HPI
2.19.5 Coordinates: 41−24−51.9504N / 81−50−45.3186W
2.19.6 Site Elevation: 782.2 ft

2.19.1 ILS Type: Localizer for runway 24L. Magnetic variation: 8W
2.19.2 ILS Identification: HPI
2.19.5 Coordinates: 41−23−45.4329N / 81−52−21.5252W
2.19.6 Site Elevation: 771.7 ft

2.19.1 ILS Type: DME for runway 28. Magnetic variation: 8W
2.19.2 ILS Identification: PXP
2.19.5 Coordinates: 41−24−58.7198N / 81−51−23.8351W
2.19.6 Site Elevation: 766.3 ft

2.19.1 ILS Type: Glide Slope for runway 28. Magnetic variation: 8W
2.19.2 ILS Identification: PXP
2.19.5 Coordinates: 41−25−3.4337N / 81−50−9.415W
2.19.6 Site Elevation: 786.3 ft

2.19.1 ILS Type: Localizer for runway 28. Magnetic variation: 8W
2.19.2 ILS Identification: PXP
2.19.5 Coordinates: 41−25−1.5177N / 81−51−21.2475W
2.19.6 Site Elevation: 756.3 ft

General Remarks:
CUST AVBL MON−FRI H24 WITH LTD AVBLTY 2100−2200 & SAT−SUN 0800−2000; ALL REQS FOR SER MUST BE MADE WITH THE US CUST SER OFC LCTD AT GATE A14 CALL 216−267−3600 DURG LISTED HRS.

NASA GLENN RESEARCH CENTER; NASA RAMP PPR CALL 216−433−2031; 0800−1730 MON−FRI. CONTACT NASA OPNS ON FREQ 122.925 WITHIN 50 NM.

RAMP AREA CONCOURSE D BTN GATES D1, D28 CLSD EXC ACFT WINGSPAN LESS THAN 86 FT.

TXL H CLSD TO ACFT WITH WINGSPAN OVR 171 FT.

PAD 3 BAYS 1−5 CLOSED TO ACFT WITH WINGSPAN OVER 134 FT.

PAD 2 AND TAXILANE Y1 RSTRD TO GROUP II ACFT LESS THAN 79 FT WINGSPAN.

DEER, COYOTES, & BIRDS INCLG WATERFOWL ON & INVOF ARPT.

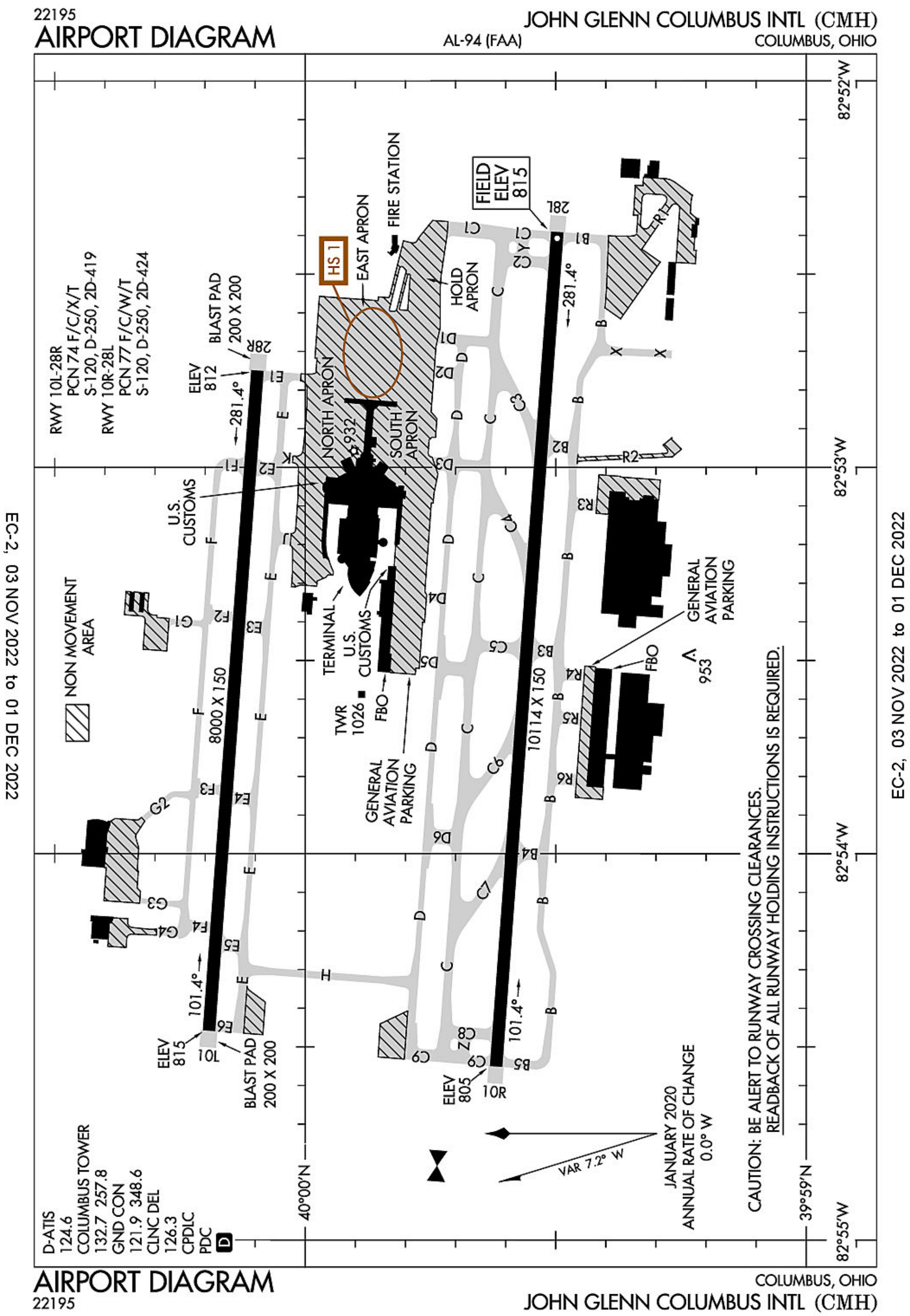
ASSC IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

PAD 3 BAY 6 CLOSED TO ACFT WITH WINGSPAN OVER 94 FT.

ALL APCHS ARE OVR NOISE SENSITIVE AREAS. ARPT LATE NGT NOISE ABATEMENT PROCEDURES ARE IN EFFECT 2300−0600. ADDITIONAL NOISE ABATEMENT PROCEDURES ARE IN EFFECT CALL AMGR NORMAL BUSINESS HRS AT 216−265−6090.

TWYS CLSD OCT−APR TO SUPPORT DEICING OPS: TWY M; TWY J2; TWY M1 BTN TWY L & TWY J1; TWY M2 BTN TWY L & TWY J1.

Columbus, Ohio
Port Columbus International
ICAO Identifier KCMH



Columbus, OH
Port Columbus Intl
ICAO Identifier KCMH

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 39−59−49.008N / 82−53−31.773W
2.2.2 From City: 6 miles E of COLUMBUS, OH
2.2.3 Elevation: 815 ft
2.2.5 Magnetic Variation: 7W (2015)
2.2.6 Airport Contact: JOE NARDONE
COLUMBUS REGIONAL AIRPORT AUTHORITY
COLUMBUS, OH 43219 (614−239−4000)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100,A1+
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 10L
2.12.2 True Bearing: 94
2.12.3 Dimensions: 8000 ft x 150 ft
2.12.4 PCN: 74 F/C/X/T
2.12.5 Coordinates: 40−0−11.5307N / 82−54−27.4941W
2.12.6 Threshold Elevation: 814.7 ft
2.12.6 Touchdown Zone Elevation: 814.8 ft

2.12.1 Designation: 28R
2.12.2 True Bearing: 274
2.12.3 Dimensions: 8000 ft x 150 ft
2.12.4 PCN: 74 F/C/X/T
2.12.5 Coordinates: 40−0−5.7308N / 82−52−44.9692W
2.12.6 Threshold Elevation: 812.3 ft
2.12.6 Touchdown Zone Elevation: 813.1 ft

2.12.1 Designation: 10R
2.12.2 True Bearing: 94
2.12.3 Dimensions: 10114 ft x 150 ft
2.12.4 PCN: 77 F/C/W/T
2.12.5 Coordinates: 39−59−37.1453N / 82−54−33.0422W
2.12.6 Threshold Elevation: 804.9 ft
2.12.6 Touchdown Zone Elevation: 809.2 ft

2.12.1 Designation: 28L
2.12.2 True Bearing: 274
2.12.3 Dimensions: 10114 ft x 150 ft
2.12.4 PCN: 77 F/C/W/T
2.12.5 Coordinates: 39−59−29.8102N / 82−52−23.4543W
2.12.6 Threshold Elevation: 815 ft
2.12.6 Touchdown Zone Elevation: 815 ft

AD 2.13 Declared Distances
2.13.1 Designation: 10L
2.13.2 Take−off Run Available: 8000 ft
2.13.3 Take−off Distance Available: 8000 ft
2.13.4 Accelerate−Stop Distance Available: 8000 ft
2.13.5 Landing Distance Available: 8000 ft

2.13.1 Designation: 28R
2.13.2 Take−off Run Available: 8000 ft
2.13.3 Take−off Distance Available: 8000 ft
2.13.4 Accelerate−Stop Distance Available: 8000 ft
2.13.5 Landing Distance Available: 8000 ft

2.13.1 Designation: 10R
2.13.2 Take−off Run Available: 10113 ft
2.13.3 Take−off Distance Available: 10113 ft
2.13.4 Accelerate−Stop Distance Available: 10113 ft
2.13.5 Landing Distance Available: 10113 ft

2.13.1 Designation: 28L
2.13.2 Take−off Run Available: 10113 ft
2.13.3 Take−off Distance Available: 10113 ft
2.13.4 Accelerate−Stop Distance Available: 10113 ft
2.13.5 Landing Distance Available: 10113 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 10L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 10R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P DEP/P (100−279)
2.14.3 Channel: 134
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (100−279)
2.14.3 Channel: 279.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (280−099)
2.14.3 Channel: 317.775
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (280−099)
2.14.3 Channel: 125.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (280−099)
2.14.3 Channel: 371.975
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 126.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (280−099)
2.14.3 Channel: 125.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (100−279)
2.14.3 Channel: 134
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (100−279)
2.14.3 Channel: 279.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (280−099)
2.14.3 Channel: 317.775
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLPRR STAR
2.14.3 Channel: 134
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 124.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: JAKTZ STAR
2.14.3 Channel: 134
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 132.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: NCLUS DP (DEPARTURES OVER RDBUV & POMCT)
2.14.3 Channel: 125.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: NCLUS DP (DEPARTURES OVER PKACZ & POBSE)
2.14.3 Channel: 134
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: NCLUS DP (DEPARTURES OVER PKACZ & POBSE)
2.14.3 Channel: 279.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: NCLUS DP (DEPARTURES OVER RDBUV & POMCT)
2.14.3 Channel: 371.975
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: OPS (DEICE PAD CONTROL)
2.14.3 Channel: 122.775
2.14.5 Hours of Operation:

2.14.1 Service Designation: SCRLT STAR
2.14.3 Channel: 134
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 10L. Magnetic variation: 7W
2.19.2 ILS Identification: CBP
2.19.5 Coordinates: 40−0−9.71N / 82−54−40.97W
2.19.6 Site Elevation: 822 ft

2.19.1 ILS Type: Glide Slope for runway 10L. Magnetic variation: 7W
2.19.2 ILS Identification: CBP
2.19.5 Coordinates: 40−0−14.35N / 82−54−14.86W
2.19.6 Site Elevation: 809.9 ft

2.19.1 ILS Type: Localizer for runway 10L. Magnetic variation: 7W
2.19.2 ILS Identification: CBP
2.19.5 Coordinates: 40−0−4.9978N / 82−52−32.0266W
2.19.6 Site Elevation: 799.2 ft

2.19.1 ILS Type: DME for runway 28R. Magnetic variation: 7W
2.19.2 ILS Identification: ONB
2.19.5 Coordinates: 40−0−9.71N / 82−54−40.97W
2.19.6 Site Elevation: 822 ft

2.19.1 ILS Type: Glide Slope for runway 28R. Magnetic variation: 7W
2.19.2 ILS Identification: ONB
2.19.5 Coordinates: 40−0−9.1363N / 82−52−56.9903W
2.19.6 Site Elevation: 808.4 ft

2.19.1 ILS Type: Localizer for runway 28R. Magnetic variation: 7W
2.19.2 ILS Identification: ONB
2.19.5 Coordinates: 40−0−12.2661N / 82−54−40.558W
2.19.6 Site Elevation: 811.7 ft

2.19.1 ILS Type: DME for runway 10R. Magnetic variation: 7W
2.19.2 ILS Identification: AQI
2.19.5 Coordinates: 39−59−33.7337N / 82−54−45.9278W
2.19.6 Site Elevation: 814.8 ft

2.19.1 ILS Type: Glide Slope for runway 10R. Magnetic variation: 7W
2.19.2 ILS Identification: AQI
2.19.5 Coordinates: 39−59−32.3813N / 82−54−20.6176W
2.19.6 Site Elevation: 802.7 ft

2.19.1 ILS Type: Localizer for runway 10R. Magnetic variation: 7W
2.19.2 ILS Identification: AQI
2.19.5 Coordinates: 39−59−29.072N / 82−52−10.4143W
2.19.6 Site Elevation: 814.1 ft

2.19.1 ILS Type: DME for runway 28L. Magnetic variation: 7W
2.19.2 ILS Identification: CMH
2.19.5 Coordinates: 39−59−33.7337N / 82−54−45.9278W

2.19.6 Site Elevation: 814.8 ft

2.19.1 ILS Type: Glide Slope for runway 28L. Magnetic variation: 7W
2.19.2 ILS Identification: CMH
2.19.5 Coordinates: 39−59−26.4974N / 82−52−36.6536W
2.19.6 Site Elevation: 810.7 ft

2.19.1 ILS Type: Localizer for runway 28L. Magnetic variation: 7W
2.19.2 ILS Identification: CMH
2.19.5 Coordinates: 39−59−37.8812N / 82−54−46.0853W
2.19.6 Site Elevation: 806 ft

General Remarks:
TWY D−5 PAVEMENT (NORTH OF TWY D) IS RSTRD TO ACFT WITH WINGSPAN LESS THAN 79 FT.

TAXILANE CONCOURSE A BTN TWY D3 AND TWY D4 CLSD TO ACFT WINGSPAN MORE THAN 130 FT.

ALL SURFACES AROUND TERMINAL; NORTH OF TWY 'D' & SOUTH OF TWY 'E' ARE NON−MOVEMENT AREAS.

TO REQ LDG RIGHTS CTC US CUSTOMS BETWEEN 1230−0300Z, MON−FRI AT 614−497−1865.

BIRDS INVOF ARPT.

TWYS R2, R3, R4, R5 AND R6 RSTRD TO WINGSPAN LESS THAN 118 FT.

TWY F1 RSTRD TO AIRCRAFT WITH WINGSPAN LESS THAN 120 FT.

HOLD PAD FOR RWY 28L RSTRD TO ACFT WITH WINGSPAN LESS THAN 118 FT.

NOISE BARRIER LOCATED AT SE SIDE OF AIRFIELD RESTRICTED TO ACFT WITH WINGSPAN LESS THAN 79 FT.

BE ALERT: RY 10L/28R RESTRICTIONS ON STAGE I & II TURBOJET ACFT 2200−0800 & ON STAGE III TURBOJET ACFT 2200−0700. PRACTICE APCHS FOR HIGH NOISE LEVEL TYPE ACFT INCLUDING NON−STAGE III MIL JET ACFT SHALL NOT BE APPROVED UNLESS RY 10R/28L IS IN USE & THE APCH TERMINATES IN A FULL STOP TAXI−BACK OPN.

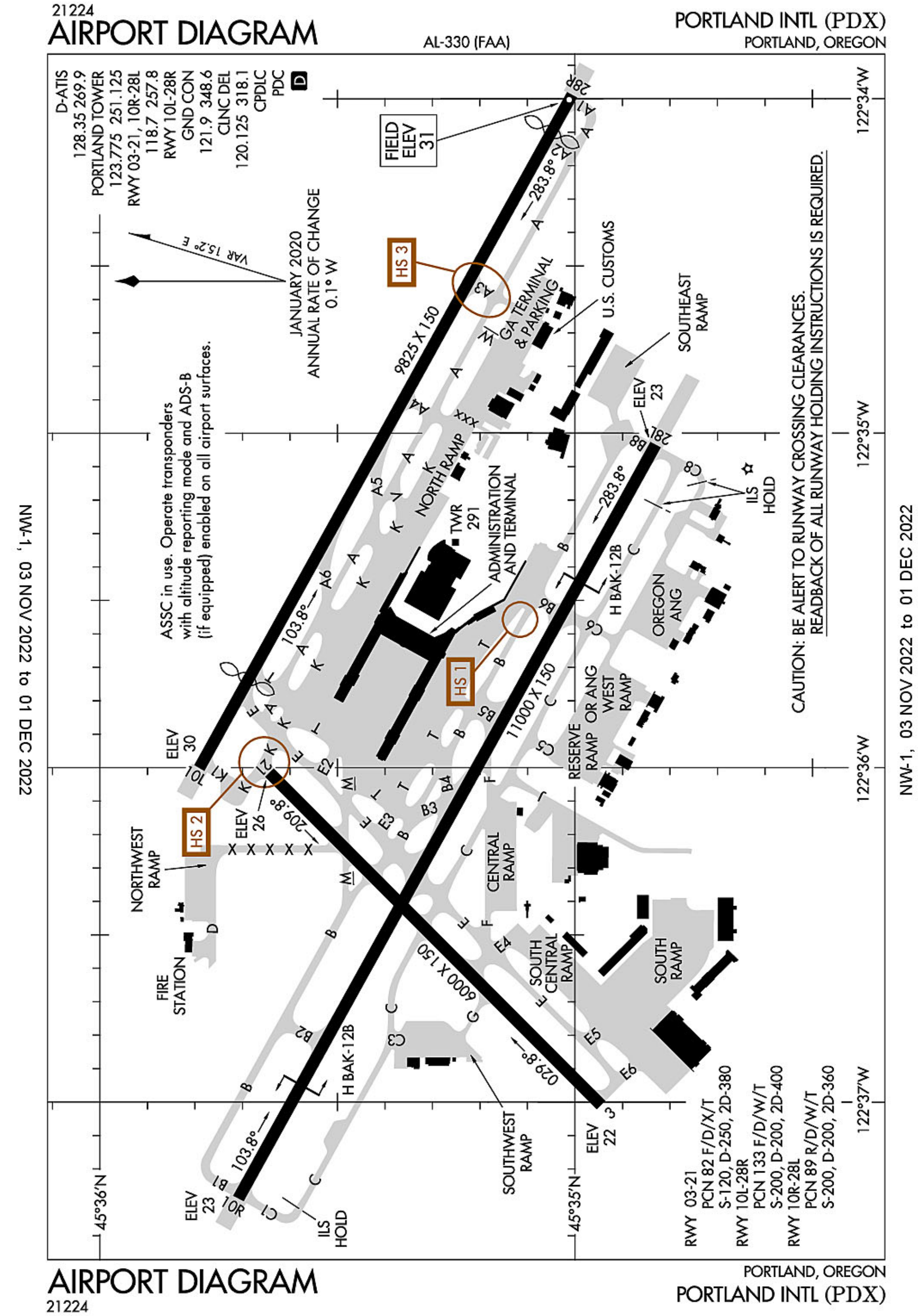
MODEL ACFT TFC WITHIN A 1 NM RDS OF A POINT 8 NM ON A 010 DEG BRG FM THE ARPT; SFC − 5000 FT AGL; SR−SS DLY.

TAXILANE CONCOURSE C BTN TWY J AND TWY K CLSD TO ACFT WINGSPAN MORE THAN 135 FT.

FLIGHT NOTIFICATION SERVICE (ADCUS) AVBL.

TWY R1 RSTRD TO ACFT WITH WINGSPAN LESS THAN 79 FT.

Portland, Oregon
Portland International
ICAO Identifier KPDX



Portland, OR
Portland Intl
ICAO Identifier KPDX

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 45−35−19.3519N / 122−35−48.7299W
2.2.2 From City: 4 miles NE of PORTLAND, OR
2.2.3 Elevation: 30.8 ft
2.2.5 Magnetic Variation: 16E (2010)
2.2.6 Airport Contact: STEPHEN NAGY
7200 NE AIRPORT WAY
PORTLAND, OR 97218 (503−415−6195)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 03
2.12.2 True Bearing: 45
2.12.3 Dimensions: 6000 ft x 150 ft
2.12.4 PCN: 82 F/D/X/T
2.12.5 Coordinates: 45−34−56.73N / 122−37−0.5188W
2.12.6 Threshold Elevation: 22.2 ft
2.12.6 Touchdown Zone Elevation: 22.9 ft

2.12.1 Designation: 21
2.12.2 True Bearing: 225
2.12.3 Dimensions: 6000 ft x 150 ft
2.12.4 PCN: 82 F/D/X/T
2.12.5 Coordinates: 45−35−38.605N / 122−36−0.8463W
2.12.6 Threshold Elevation: 26.4 ft
2.12.6 Touchdown Zone Elevation: 26.4 ft

2.12.1 Designation: 10L
2.12.2 True Bearing: 119
2.12.3 Dimensions: 9825 ft x 150 ft
2.12.4 PCN: 133 F/D/W/T
2.12.5 Coordinates: 45−35−47.454N / 122−36−0.0581W
2.12.6 Threshold Elevation: 29.5 ft
2.12.6 Touchdown Zone Elevation: 30.2 ft

2.12.1 Designation: 28R
2.12.2 True Bearing: 299
2.12.3 Dimensions: 9825 ft x 150 ft
2.12.4 PCN: 133 F/D/W/T
2.12.5 Coordinates: 45−35−0.3785N / 122−33−59.2636W
2.12.6 Threshold Elevation: 30.8 ft
2.12.6 Touchdown Zone Elevation: 30.8 ft

2.12.1 Designation: 10R
2.12.2 True Bearing: 119
2.12.3 Dimensions: 11000 ft x 150 ft
2.12.4 PCN: 89 R/D/W/T
2.12.5 Coordinates: 45−35−42.5347N / 122−37−17.3022W
2.12.6 Threshold Elevation: 22.7 ft
2.12.6 Touchdown Zone Elevation: 23.7 ft

2.12.1 Designation: 28L
2.12.2 True Bearing: 299
2.12.3 Dimensions: 11000 ft x 150 ft
2.12.4 PCN: 89 R/D/W/T
2.12.5 Coordinates: 45−34−49.8531N / 122−35−2.0463W
2.12.6 Threshold Elevation: 22.7 ft
2.12.6 Touchdown Zone Elevation: 22.7 ft

AD 2.13 Declared Distances
2.13.1 Designation: 03
2.13.2 Take−off Run Available: 6000 ft
2.13.3 Take−off Distance Available: 6000 ft
2.13.4 Accelerate−Stop Distance Available: 6000 ft
2.13.5 Landing Distance Available: 6000 ft

2.13.1 Designation: 21
2.13.2 Take−off Run Available: 6000 ft
2.13.3 Take−off Distance Available: 6000 ft
2.13.4 Accelerate−Stop Distance Available: 6000 ft
2.13.5 Landing Distance Available: 6000 ft

2.13.1 Designation: 10L
2.13.2 Take−off Run Available: 9825 ft
2.13.3 Take−off Distance Available: 9825 ft
2.13.4 Accelerate−Stop Distance Available: 9825 ft
2.13.5 Landing Distance Available: 8535 ft

2.13.1 Designation: 28R
2.13.2 Take−off Run Available: 9825 ft
2.13.3 Take−off Distance Available: 9825 ft
2.13.4 Accelerate−Stop Distance Available: 9825 ft
2.13.5 Landing Distance Available: 9290 ft

2.13.1 Designation: 10R

2.13.2 Take−off Run Available: 11000 ft
2.13.3 Take−off Distance Available: 11000 ft
2.13.4 Accelerate−Stop Distance Available: 11000 ft
2.13.5 Landing Distance Available: 11000 ft

2.13.1 Designation: 28L
2.13.2 Take−off Run Available: 11000 ft
2.13.3 Take−off Distance Available: 11000 ft
2.13.4 Accelerate−Stop Distance Available: 11000 ft
2.13.5 Landing Distance Available: 11000 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 03
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 21
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 10L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 10R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 28L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 21. Magnetic variation: 16E
2.19.2 ILS Identification: GPO
2.19.5 Coordinates: 45−34−47.97N / 122−37−7.94W
2.19.6 Site Elevation: 31 ft

2.19.1 ILS Type: Localizer for runway 21. Magnetic variation: 16E
2.19.2 ILS Identification: GPO
2.19.5 Coordinates: 45−34−49.75N / 122−37−10.47W
2.19.6 Site Elevation: 11.4 ft

2.19.1 ILS Type: DME for runway 10L. Magnetic variation: 16E
2.19.2 ILS Identification: VDG
2.19.5 Coordinates: 45−35−47.9502N / 122−36−13.551W
2.19.6 Site Elevation: 25.5 ft

2.19.1 ILS Type: Glide Slope for runway 10L. Magnetic variation: 16E
2.19.2 ILS Identification: VDG
2.19.5 Coordinates: 45−35−39.7602N / 122−35−30.1707W
2.19.6 Site Elevation: 30.8 ft

2.19.1 ILS Type: Localizer for runway 10L. Magnetic variation: 16E
2.19.2 ILS Identification: VDG
2.19.5 Coordinates: 45−34−55.53N / 122−33−46.85W
2.19.6 Site Elevation: 28.9 ft

2.19.1 ILS Type: DME for runway 28R. Magnetic variation: 16E
2.19.2 ILS Identification: IAP
2.19.5 Coordinates: 45−35−47.95N / 122−36−13.551W
2.19.6 Site Elevation: 25.5 ft

2.19.1 ILS Type: Glide Slope for runway 28R. Magnetic variation: 16E
2.19.2 ILS Identification: IAP
2.19.5 Coordinates: 45−35−10.93N / 122−34−16.4W
2.19.6 Site Elevation: 30.1 ft

2.19.1 ILS Type: Localizer for runway 28R. Magnetic variation: 16E
2.19.2 ILS Identification: IAP
2.19.5 Coordinates: 45−35−52.3N / 122−36−12.47W
2.19.6 Site Elevation: 25.6 ft

2.19.1 ILS Type: DME for runway 10R. Magnetic variation: 16E
2.19.2 ILS Identification: PDX
2.19.5 Coordinates: 45−34−46.7386N / 122−34−45.2294W
2.19.6 Site Elevation: 36 ft

2.19.1 ILS Type: Glide Slope for runway 10R. Magnetic variation: 16E
2.19.2 ILS Identification: PDX
2.19.5 Coordinates: 45−35−33.9026N / 122−37−7.2471W
2.19.6 Site Elevation: 16.1 ft

2.19.1 ILS Type: Inner Marker for runway 10R. Magnetic variation: 16E
2.19.2 ILS Identification: PDX
2.19.5 Coordinates: 45−35−46.7091N / 122−37−28.0266W
2.19.6 Site Elevation: 17 ft

2.19.1 ILS Type: Localizer for runway 10R. Magnetic variation: 16E
2.19.2 ILS Identification: PDX
2.19.5 Coordinates: 45−34−43.5268N / 122−34−45.8188W
2.19.6 Site Elevation: 19.5 ft

2.19.1 ILS Type: DME for runway 28L. Magnetic variation: 16E

2.19.2 ILS Identification: JMJ
2.19.5 Coordinates: 45−34−46.7386N / 122−34−45.2294W
2.19.6 Site Elevation: 36 ft

2.19.1 ILS Type: Glide Slope for runway 28L. Magnetic variation: 16E
2.19.2 ILS Identification: JMJ
2.19.5 Coordinates: 45−34−52.6331N / 122−35−16.7121W
2.19.6 Site Elevation: 19.9 ft

2.19.1 ILS Type: Localizer for runway 28L. Magnetic variation: 16E
2.19.2 ILS Identification: JMJ
2.19.5 Coordinates: 45−35−50.5155N / 122−37−37.8096W
2.19.6 Site Elevation: 24.8 ft

General Remarks:
FUEL − A (AIR BP − ATLANTIC AVIATION SVCS. C503−331−4220) J8(MIL) (NC−100LL, A)

BEARING STRENGTH: RWY 03−21 ST 175, RY 10L−28R ST175, RY 10R−28L ST175.

ACFT WITH WINGSPAN GREATER THAN 118 FEET ARE PROHIBITED FROM TURNING EASTBOUND ON TWY C FROM SOUTHWESTBOUND ON TWY F UNLESS UNDER TOW.

NOISE ABATEMENT PROCEDURES IN EFFECT; CALL NOISE OFFICE AT 503−460−4100. RY 28L ARRIVALS ARE NOISE SENSITIVE, EXPECT APCH TO 28R WITH TRANSITION TO 28L.

TWY T BTN EXITS B5 & B6 CLSD TO ACFT WITH WINGSPAN GTR THAN 118 FT.

OIL − O−128−133−148(MIL).

MISC: FLT NOTIFICATION SVC, ADCUS, AVBL.

TWY E3 CLSD TO ACFT WITH WINGSPAN GTR THAN 198 FT.

AREA OF TWY T BTN M & E3 NOT VSB FM TWR.

MIGRATORY & WINTERING FLOCKS OF LRG WATERFOWL ON & INVOF APRT. HEAVY SEAGULL ACTIVITY SEP THRU APR; EXPECT HIGH NMBR OF BIRDS YEAR AROUND; CK LCL ADVISORIES.

ANG: SEE FLIP AP/1 FOR SUPPLEMENTARY ARPT INFO. HAZARDOUS BIRD COND EXIST. PHASE 1 MAY−OCT, PHASE II NOV−APR. CURRENT BIRD WATCH CONDITIONS ARE NOT REPORTED ON ATIS.

ACFT AUTHORIZED TO UTILIZE THE NORTHWEST RAMP WILL BE TOWED TO/FROM THIS RAMP.

TWY T BTN TWY E3 & TWY B5 CLSD TO ACFT WITH WINGSPAN GTR THAN 198 FT.

ASSC IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

TWY K BTN TWY V & TWY A4 CLSD TO ACFT WINGSPAN MORE THAN 118 FT.

180 DEGREE TURNS BY ACFT WEIGHING IN EXCESS OF 12500 LBS PROHIBITED ON RY 10L/28R, RY 03/21 AND ALL TWYS.

ANG : PPR/OFFL BUS ONLY. BASE OPS OPR 1500−2300Z++ MON−FRI EXC HOL.; DSN 638−4390, C503−335−4390. CTC BASE OPS 15 MIN PRIOR TO LDG AND AFTER DEP ON 281.2. TRAN QUARTERS NOT

AVBL. CAUTION: OBST LIGHTING IS NOT NVD COMPATIBLE. NVD NOT AUTHORIZED WHILE AIRBORNE IN VCNTY OF AFLD.

TWY K BTN TWY A5 & TWY V CLSD TO ACFT WINGSPAN MORE THAN 168 FT.

JASU − 4(A/M32A−86) (MC−11) 1(MA−1A).

FLUID − LHOXRB.

(E94) WSFO/WSO/FW/RFC.

TWY V CLSD TO ACFT WITH WINGSPAN GREATER THAN 168 FT. ACFT WITH WINGSPAN GREATER THAN 118 FT PROHIBITED FM TURNING WB ONTO TWY A FM TWY V UNLESS UNDER TOW.

TWY C BTN TWY C6 AND TWY C8 CLSD TO ACFT WITH WINGSPAN GTR THAN 200 FT.

TWY A3 BTN TWY A & THE GA RAMP CLSD TO ACFT WITH WINGSPAN GTR THAN 135 FEET UNLESS UNDER TOW.

UNCONTROLLED TFC AT PEARSON FIELD VANCOUVER WA 3 NM W OF RY 10L THLD ON EXTDD CNTRLN.

ARPT CLSD TO NON−POWERED ACFT EXCP IN EMERG.

AT THE WEST END ARM/DEARM AREA ON TWY C NO ACFT OF ANY TYPE MAY TAXI PAST THE ARM/DEARM AREA WHILE IT IS BEING USED.

TWY C3 CLSD TO ACFT WITH WINGSPAN EQUAL TO OR GTR THAN 79 FT.

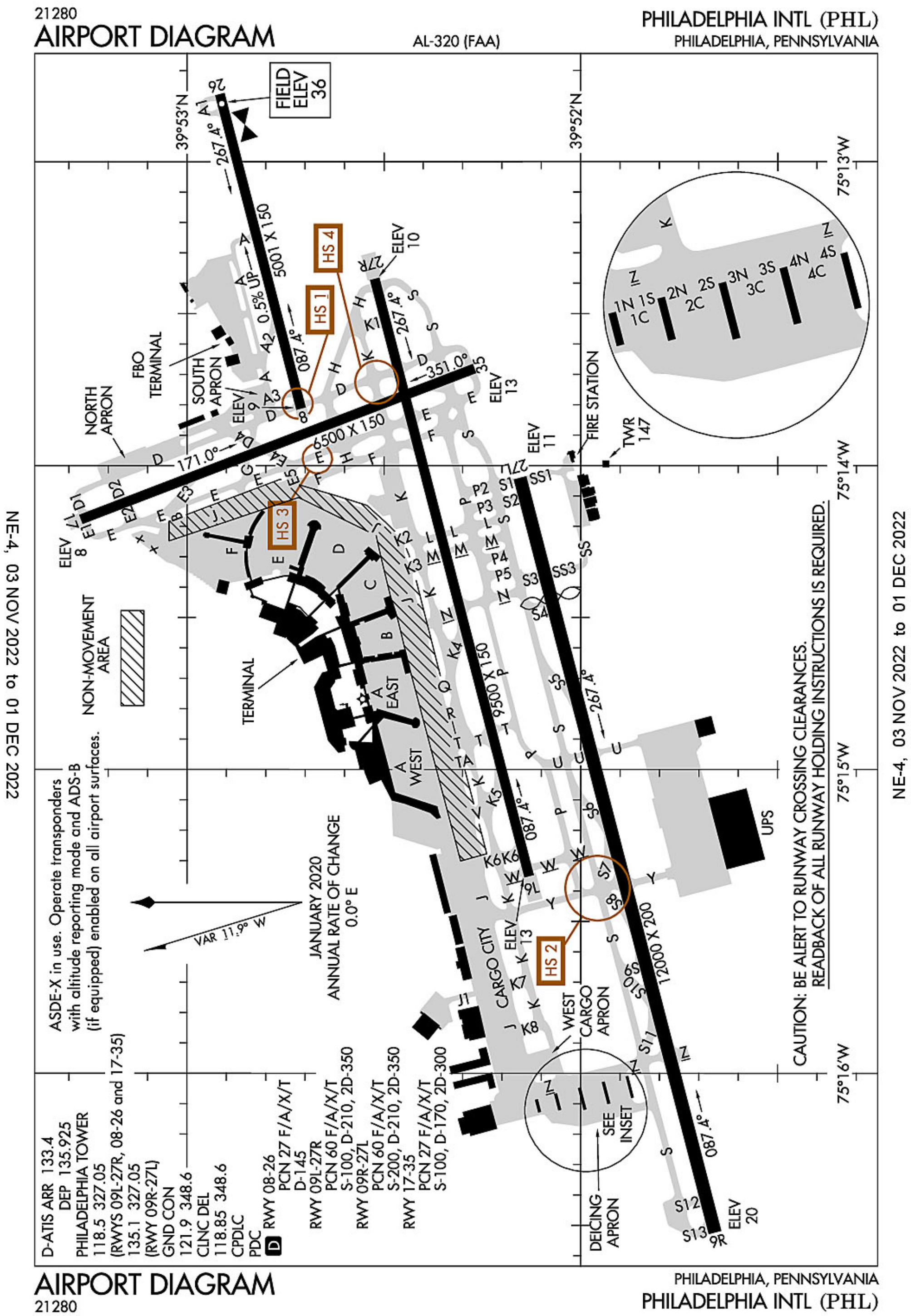
TWY W CLSD TO ACFT WITH WINGSPAN GTR THAN 118 FT UNLESS UNDER TOW.

PDX HAS FAC CONSTRAINTS THAT LMT ITS ABILITY TO ACCOMMODATE DIVD FLTS & MNTN THE ARPT SAFE OPN DUR IREG OPS. ACFT OPRS SHUD CTC THE ARPT DUTY MGR AT (503) 460−4236 TO COORD DIVD FLTS EXC IN THE CASE OF A DECLARED IN−FLT EMERG.

NSTD YELLOW PRK SPOT DESIGNATORS AND EQPT TOOL BOX LCTN PAINTED ON RAMP. PLEASE CTC BASE OPS OR REQ FOLLOW ME IF NOT FAMILIAR WITH PANGB PRK PROCEDURES.

MILITARY: ANG: OREGON ANG E RAMP SUN SHADE OBST LGTS O/S.

Philadelphia, Pennsylvania
Philadelphia International
ICAO Identifier KPHL



Philadelphia, PA
Philadelphia Intl
ICAO Identifier KPHL

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 39−52−19.502N / 75−14−26.387W
2.2.2 From City: 5 miles SW of PHILADELPHIA, PA
2.2.3 Elevation: 35.9 ft
2.2.5 Magnetic Variation: 12W (2020)
2.2.6 Airport Contact: KEITH BRUNE
DIV OF AVIATION TERMINAL E
PHILADELPHIA, PA 19153 (215−937−6914)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 08
2.12.2 True Bearing: 75
2.12.3 Dimensions: 5001 ft x 150 ft
2.12.4 PCN: 27 F/A/X/T
2.12.5 Coordinates: 39−52−42.0147N / 75−13−48.05W
2.12.6 Threshold Elevation: 9.3 ft
2.12.6 Touchdown Zone Elevation: 20.3 ft

2.12.1 Designation: 26
2.12.2 True Bearing: 256
2.12.3 Dimensions: 5001 ft x 150 ft
2.12.4 PCN: 27 F/A/X/T
2.12.5 Coordinates: 39−52−54.3825N / 75−12−45.9478W
2.12.6 Threshold Elevation: 35.9 ft
2.12.6 Touchdown Zone Elevation: 35.9 ft

2.12.1 Designation: 27R
2.12.2 True Bearing: 255
2.12.3 Dimensions: 9500 ft x 150 ft
2.12.4 PCN: 60 F/A/X/T
2.12.5 Coordinates: 39−52−30.7933N / 75−13−22.4291W
2.12.6 Threshold Elevation: 10.4 ft
2.12.6 Touchdown Zone Elevation: 10.5 ft

2.12.1 Designation: 09L
2.12.2 True Bearing: 75
2.12.3 Dimensions: 9500 ft x 150 ft
2.12.4 PCN: 60 F/A/X/T
2.12.5 Coordinates: 39−52−7.2582N / 75−15−20.3809W
2.12.6 Threshold Elevation: 13.2 ft
2.12.6 Touchdown Zone Elevation: 13.3 ft

2.12.1 Designation: 09R
2.12.2 True Bearing: 75
2.12.3 Dimensions: 12000 ft x 200 ft
2.12.4 PCN: 60 F/A/X/T
2.12.5 Coordinates: 39−51−38.9141N / 75−16−30.7061W
2.12.6 Threshold Elevation: 20.3 ft
2.12.6 Touchdown Zone Elevation: 20.6 ft

2.12.1 Designation: 27L
2.12.2 True Bearing: 255
2.12.3 Dimensions: 12000 ft x 200 ft
2.12.4 PCN: 60 F/A/X/T
2.12.5 Coordinates: 39−52−8.65N / 75−14−1.72W
2.12.6 Threshold Elevation: 10.6 ft
2.12.6 Touchdown Zone Elevation: 10.2 ft

2.12.1 Designation: 17
2.12.2 True Bearing: 159
2.12.3 Dimensions: 6500 ft x 150 ft
2.12.4 PCN: 27 F/A/X/T
2.12.5 Coordinates: 39−53−15.5714N / 75−14−9.9268W
2.12.6 Threshold Elevation: 8.2 ft
2.12.6 Touchdown Zone Elevation: 10.5 ft

2.12.1 Designation: 35
2.12.2 True Bearing: 339
2.12.3 Dimensions: 6500 ft x 150 ft
2.12.4 PCN: 27 F/A/X/T
2.12.5 Coordinates: 39−52−15.5777N / 75−13−40.1314W
2.12.6 Threshold Elevation: 12.9 ft
2.12.6 Touchdown Zone Elevation: 12.9 ft

AD 2.13 Declared Distances
2.13.1 Designation: 08
2.13.2 Take−off Run Available: 5001 ft
2.13.3 Take−off Distance Available: 5001 ft
2.13.4 Accelerate−Stop Distance Available: 5001 ft
2.13.5 Landing Distance Available: 5001 ft

2.13.1 Designation: 26
2.13.2 Take−off Run Available: 5001 ft
2.13.3 Take−off Distance Available: 5001 ft

2.13.4 Accelerate−Stop Distance Available: 5001 ft
2.13.5 Landing Distance Available: 5001 ft

2.13.1 Designation: 27R
2.13.2 Take−off Run Available: 9500 ft
2.13.3 Take−off Distance Available: 9500 ft
2.13.4 Accelerate−Stop Distance Available: 9500 ft
2.13.5 Landing Distance Available: 8864 ft

2.13.1 Designation: 09L
2.13.2 Take−off Run Available: 9500 ft
2.13.3 Take−off Distance Available: 9500 ft
2.13.4 Accelerate−Stop Distance Available: 9500 ft
2.13.5 Landing Distance Available: 9500 ft

2.13.1 Designation: 09R
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 27L
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 11825 ft
2.13.5 Landing Distance Available: 9912 ft

2.13.1 Designation: 17
2.13.2 Take−off Run Available: 6500 ft
2.13.3 Take−off Distance Available: 6500 ft
2.13.4 Accelerate−Stop Distance Available: 6500 ft
2.13.5 Landing Distance Available: 6500 ft

2.13.1 Designation: 35
2.13.2 Take−off Run Available: 6500 ft
2.13.3 Take−off Distance Available: 6500 ft
2.13.4 Accelerate−Stop Distance Available: 6500 ft
2.13.5 Landing Distance Available: 6500 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 08
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 26
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 27R
2.14.2 Approach Lighting System: MALSR

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 09L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 09R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 27L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 17
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: 5500 & BLO (NORTH)
2.14.3 Channel: 123.8
2.14.5 Hours of Operation:

2.14.1 Service Designation: 5500 & BLO (NORTH)
2.14.3 Channel: 291.7
2.14.5 Hours of Operation:

2.14.1 Service Designation: APCH/P (001−089, 5000 FT & BLW)
2.14.3 Channel: 123.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (270−360, 5000 FT & BLW)
2.14.3 Channel: 126.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (090−269, 5000 FT & BLW)
2.14.3 Channel: 127.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (270−089, ABV 5000 FT)
2.14.3 Channel: 128.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (090−269, 6000−8000 FT)
2.14.3 Channel: 133.875
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (270−360, 5000 FT & BLW)
2.14.3 Channel: 263.125
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (270−089, ABV 5000 FT)
2.14.3 Channel: 272.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (270−089, ABV 5000 FT)
2.14.3 Channel: 273.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (001−089, 5000 FT & BLW)
2.14.3 Channel: 291.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (090−269 6000−8000 FT)
2.14.3 Channel: 317.55
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (090−269, 5000 FT & BLW)
2.14.3 Channel: 317.55
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC
2.14.3 Channel: 124.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC
2.14.3 Channel: 319.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BUNTS STAR
2.14.3 Channel: 128.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BUNTS STAR
2.14.3 Channel: 272.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 118.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CEDAR LAKE STAR
2.14.3 Channel: 133.875

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CEDAR LAKE STAR
2.14.3 Channel: 317.55
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SW 6000 FT & BLW)
2.14.3 Channel: 118.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SOUTH/SOUTHWEST RWY 27 8500−10000 FT)
2.14.3 Channel: 119.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SE RWY 27 ACTIVE 8500−10000 FT)
2.14.3 Channel: 119.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SE RWY 09 ACTIVE 10000 FT & BLW)
2.14.3 Channel: 119.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (NE 6500 FT & BLW)
2.14.3 Channel: 123.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (W RWY 27 ACTIVE 10000 FT & BLW)
2.14.3 Channel: 124.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (NE 7000−10000 FT)
2.14.3 Channel: 124.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (W RWY 09 ACTIVE 8500−10000 FT)
2.14.3 Channel: 124.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (NW 8000−10000 FT)
2.14.3 Channel: 124.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (5500 FT & BLW)
2.14.3 Channel: 126.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SE−SW 5000 FT & BLW)
2.14.3 Channel: 127.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (WEST RWY 09 ACTIVE 8000 FT & BLW)

2.14.3 Channel: 128.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (NORTH 6500−7500)
2.14.3 Channel: 128.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (6000−8000 FT)
2.14.3 Channel: 133.875
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SOUTHEAST RWY 27 5500−7500)
2.14.3 Channel: 133.875
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (5500 FT & BLW)
2.14.3 Channel: 263.125
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SE RWY 09 ACTIVE 10000 FT & BLW)
2.14.3 Channel: 269.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SE RWY 27 ACTIVE 8500−10000 FT)
2.14.3 Channel: 269.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SOUTH/SOUTHWEST RWY 27 8500−10000 FT)
2.14.3 Channel: 269.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (NORTH 6500−7500)
2.14.3 Channel: 272.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (WEST RWY 09 ACTIVE 8000 FT & BLW)
2.14.3 Channel: 272.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (N NE 6500−7500)
2.14.3 Channel: 273.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (W RWY 09 ACTIVE 8000 FT & BLW)
2.14.3 Channel: 273.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (NE RWY 27 ACTIVE 5000 FT & BLW)
2.14.3 Channel: 291.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (6000−8000 FT)
2.14.3 Channel: 317.55
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SE−SW 5000 FT & BLW)
2.14.3 Channel: 317.55
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (RWY 27, 5500−7500 FT)
2.14.3 Channel: 317.55
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (NE 7000−10000 FT)
2.14.3 Channel: 319.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (WEST RWY 09 ACTIVE 8500−10000 FT)
2.14.3 Channel: 319.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (NW 8000−10000 FT)
2.14.3 Channel: 319.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (SW 6000 FT & BLW)
2.14.3 Channel: 323.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (ARR)
2.14.3 Channel: 133.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (DEP)
2.14.3 Channel: 135.925
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (090−269)
2.14.3 Channel: 119.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (270−089)
2.14.3 Channel: 124.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (090−269)
2.14.3 Channel: 269.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (270−089)
2.14.3 Channel: 319.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: FINAL APCH
2.14.3 Channel: 125.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/S
2.14.3 Channel: 121.65
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: JIIMS STAR
2.14.3 Channel: 133.875
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: JIIMS STAR
2.14.3 Channel: 317.55
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (RWY 08/26, 09L/27R, 17/35)
2.14.3 Channel: 118.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P (RWY 09R/27L)
2.14.3 Channel: 135.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 327.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PAATS STAR
2.14.3 Channel: 133.875
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PAATS STAR
2.14.3 Channel: 317.55

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PHL ONE DP
2.14.3 Channel: 124.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PHL ONE DP
2.14.3 Channel: 319.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PRM (RWY 27L)
2.14.3 Channel: 120.425
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: PRM (RWY 26)
2.14.3 Channel: 123.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: SPUDS STAR
2.14.3 Channel: 128.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: SPUDS STAR
2.14.3 Channel: 272.575
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 26. Magnetic variation: 12W
2.19.2 ILS Identification: LLH
2.19.5 Coordinates: 39−52−42.2207N / 75−13−32.3765W
2.19.6 Site Elevation: 28.9 ft

2.19.1 ILS Type: Glide Slope for runway 26. Magnetic variation: 12W
2.19.2 ILS Identification: LLH
2.19.5 Coordinates: 39−52−49.3706N / 75−12−58.3473W
2.19.6 Site Elevation: 21.3 ft

2.19.1 ILS Type: Localizer for runway 26. Magnetic variation: 12W
2.19.2 ILS Identification: LLH
2.19.5 Coordinates: 39−52−42.383N / 75−13−31.8279W
2.19.6 Site Elevation: 5.4 ft

2.19.1 ILS Type: DME for runway 09L. Magnetic variation: 12W
2.19.2 ILS Identification: VII
2.19.5 Coordinates: 39−52−37.1712N / 75−13−11.1396W
2.19.6 Site Elevation: 20 ft

2.19.1 ILS Type: Glide Slope for runway 09L. Magnetic variation: 12W
2.19.2 ILS Identification: VII
2.19.5 Coordinates: 39−52−6.03N / 75−15−6.06W

2.19.6 Site Elevation: 8.9 ft

2.19.1 ILS Type: Localizer for runway 09L. Magnetic variation: 12W
2.19.2 ILS Identification: VII
2.19.5 Coordinates: 39−52−33.52N / 75−13−8.777W
2.19.6 Site Elevation: 7.2 ft

2.19.1 ILS Type: DME for runway 27R. Magnetic variation: 12W
2.19.2 ILS Identification: PDP
2.19.5 Coordinates: 39−52−37.1712N / 75−13−11.1396W
2.19.6 Site Elevation: 20 ft

2.19.1 ILS Type: Glide Slope for runway 27R. Magnetic variation: 12W
2.19.2 ILS Identification: PDP
2.19.5 Coordinates: 39−52−24.0466N / 75−13−35.8144W
2.19.6 Site Elevation: 7.5 ft

2.19.1 ILS Type: Localizer for runway 27R. Magnetic variation: 12W
2.19.2 ILS Identification: PDP
2.19.5 Coordinates: 39−52−4.7498N / 75−15−32.9263W
2.19.6 Site Elevation: 8.8 ft

2.19.1 ILS Type: DME for runway 09R. Magnetic variation: 12W
2.19.2 ILS Identification: PHL
2.19.5 Coordinates: 39−52−7.3027N / 75−13−47.0541W
2.19.6 Site Elevation: 23.5 ft

2.19.1 ILS Type: Glide Slope for runway 09R. Magnetic variation: 12W
2.19.2 ILS Identification: PHL
2.19.5 Coordinates: 39−51−37.8234N / 75−16−15.7274W
2.19.6 Site Elevation: 13.3 ft

2.19.1 ILS Type: Inner Marker for runway 09R. Magnetic variation: 12W
2.19.2 ILS Identification: PHL
2.19.5 Coordinates: 39−51−36.7356N / 75−16−41.589W
2.19.6 Site Elevation: 7.2 ft

2.19.1 ILS Type: Localizer for runway 09R. Magnetic variation: 12W
2.19.2 ILS Identification: PHL
2.19.5 Coordinates: 39−52−11.1563N / 75−13−49.1425W
2.19.6 Site Elevation: 9 ft

2.19.1 ILS Type: DME for runway 27L. Magnetic variation: 12W
2.19.2 ILS Identification: GLC
2.19.5 Coordinates: 39−52−7.3027N / 75−13−47.0541W
2.19.6 Site Elevation: 23.5 ft

2.19.1 ILS Type: Glide Slope for runway 27L. Magnetic variation: 12W
2.19.2 ILS Identification: GLC
2.19.5 Coordinates: 39−51−57.2838N / 75−14−37.7318W
2.19.6 Site Elevation: 8.4 ft

2.19.1 ILS Type: Localizer for runway 27L. Magnetic variation: 12W
2.19.2 ILS Identification: GLC
2.19.5 Coordinates: 39−51−36.2572N / 75−16−43.9517W
2.19.6 Site Elevation: 6.8 ft

2.19.1 ILS Type: DME for runway 17. Magnetic variation: 12W
2.19.2 ILS Identification: MYY
2.19.5 Coordinates: 39−52−6.7468N / 75−13−39.3372W
2.19.6 Site Elevation: 24.5 ft

2.19.1 ILS Type: Glide Slope for runway 17. Magnetic variation: 12W
2.19.2 ILS Identification: MYY
2.19.5 Coordinates: 39−53−5.9004N / 75−14−8.6899W
2.19.6 Site Elevation: 6.2 ft

2.19.1 ILS Type: Localizer for runway 17. Magnetic variation: 12W
2.19.2 ILS Identification: MYY
2.19.5 Coordinates: 39−52−6.3204N / 75−13−35.5323W
2.19.6 Site Elevation: 12 ft

General Remarks:
ARPT IS LCTD IN A NOISE SENSITIVE AREA. AIRPORT NOISE ABATEMENT TAKEOFF PROCEDURES ARE TO BE USED.

ONLY NOSE−IN PRKG PERMITTED ON NORTH REMOTE APNS. PPR FM ARPT OPS FOR ALL ACFT PRKG ON REMOTE APNS; CTC 215−937−6914/6800.

RY 09R ROLLOUT RVR USED FOR RY 09L MIDPOINT RVR.

RYS 27L, 27R & 35 SHIP CHNL (DELAWARE RIVER) MAX HEIGHT OF SHIPS 189 FT. RY 26 SHIP CHNL (SCHUYLKILL) MAX HEIGHT OF SHIPS 149 FT.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

ALL ACFT TRAVELING ON TWY J MUST USE MINIMUM POWER WHEN TURNING SOUTH DUE TO JETBLAST CONCERNS.

UNLGTD STACK 288 FT MSL (271 FT AGL) 2.3 NM SW OF ARPT.

TCAS EQUIPPED ACFT−TCAS ALERT MAY BE CAUSED BY TRANSPONDER EQUIPPED SHIPS LCTD PHL NAVAL BASE 3 NM E.

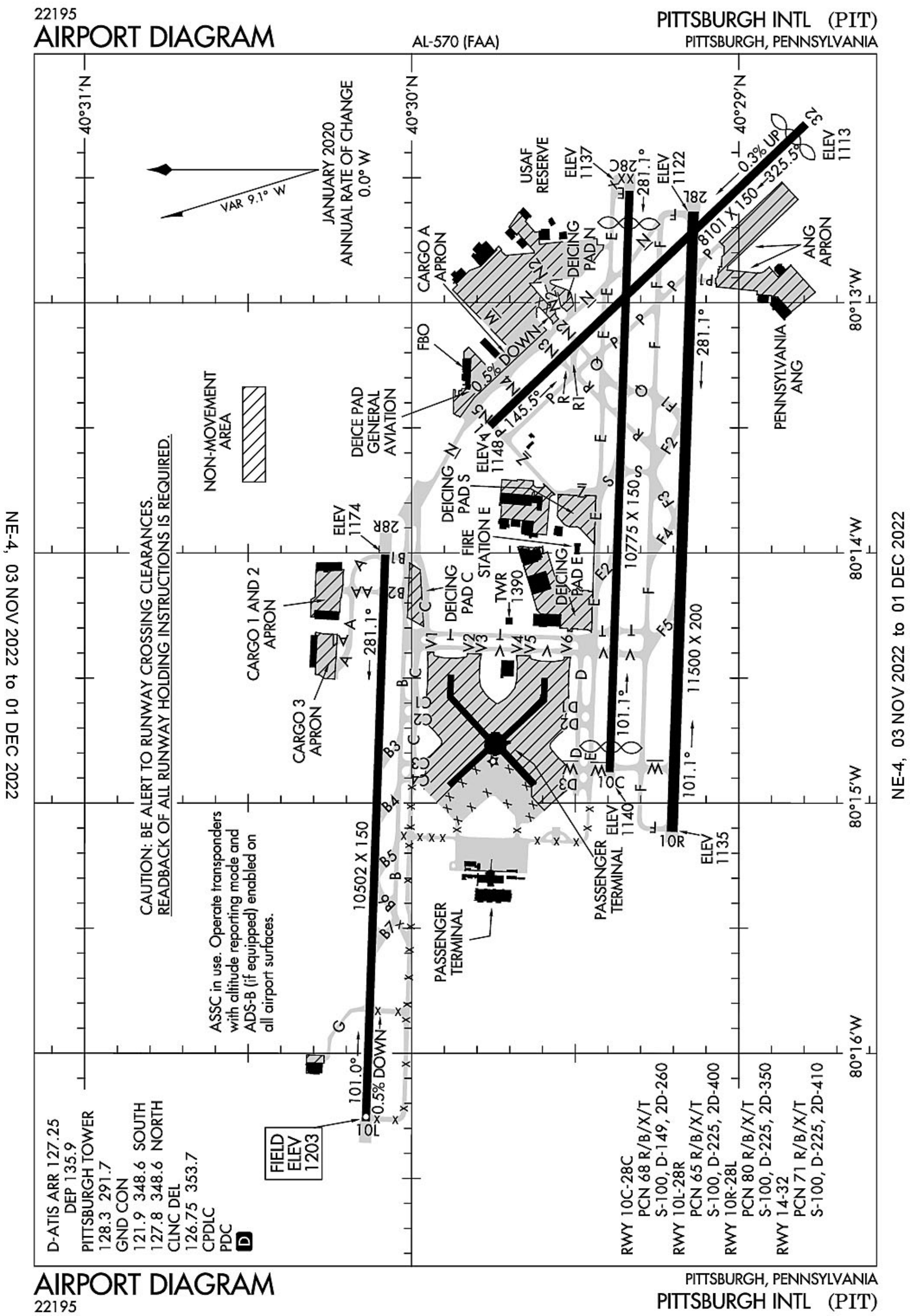
TWY J BTN TWYS K3 AND Q RESTRICTED TO ACFT WITH WINGSPANS 171 FT AND LESS.

ALL ENGINE RUNUPS REQUIRE PPR FM DUTY OPNS OFFICER AT 937−6914/6800; RUNUPS 20 MIN MAXIMUM.

POSSIBLE UNMARKED SHIP OBSTRUCTION TRANSITING EAST OR WESTBOUND ALONG THE DELAWARE RIVER REACHING HEIGHTS OF 189’ − BE ALERT WHEN APPROACHING PHL RUNWAY 35 AND WHENEVER CIRCLING OR VISUALLY APPROACHING ALL OTHER RUNWAYS.

BIRDS ON & INVOF ARPT.

Pittsburgh, Pennsylvania
Pittsburgh International
ICAO Identifier KPIT



Pittsburgh, PA
Pittsburgh Intl
ICAO Identifier KPIT

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 40−29−29.1N / 80−13−57.7W
2.2.2 From City: 12 miles NW of PITTSBURGH, PA
2.2.3 Elevation: 1202.9 ft
2.2.5 Magnetic Variation: 9W (2020)
2.2.6 Airport Contact: CHRISTINA A. CASSOTIS
PO BOX 12370, SUITE 4000
PITTSBURGH, PA 15231 ((412) 472−3509)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MINOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 28C
2.12.2 True Bearing: 272
2.12.3 Dimensions: 10775 ft x 150 ft
2.12.4 PCN: 68 R/B/X/T
2.12.5 Coordinates: 40−29−20.0419N / 80−12−33.1754W
2.12.6 Threshold Elevation: 1136.6 ft
2.12.6 Touchdown Zone Elevation: 1133.5 ft

2.12.1 Designation: 10C
2.12.2 True Bearing: 92
2.12.3 Dimensions: 10775 ft x 150 ft
2.12.4 PCN: 68 R/B/X/T
2.12.5 Coordinates: 40−29−23.6989N / 80−14−52.5475W
2.12.6 Threshold Elevation: 1140.2 ft
2.12.6 Touchdown Zone Elevation: 1141.4 ft

2.12.1 Designation: 10L
2.12.2 True Bearing: 92
2.12.3 Dimensions: 10502 ft x 150 ft
2.12.4 PCN: 65 R/B/X/T
2.12.5 Coordinates: 40−30−8.4012N / 80−16−16.2687W
2.12.6 Threshold Elevation: 1202.9 ft
2.12.6 Touchdown Zone Elevation: 1202.9 ft

2.12.1 Designation: 28R
2.12.2 True Bearing: 272
2.12.3 Dimensions: 10502 ft x 150 ft
2.12.4 PCN: 65 R/B/X/T
2.12.5 Coordinates: 40−30−4.8667N / 80−14−0.4048W
2.12.6 Threshold Elevation: 1174.1 ft
2.12.6 Touchdown Zone Elevation: 1174.1 ft

2.12.1 Designation: 10R
2.12.2 True Bearing: 92
2.12.3 Dimensions: 11500 ft x 200 ft
2.12.4 PCN: 80 R/B/X/T
2.12.5 Coordinates: 40−29−12.2249N / 80−15−6.8568W
2.12.6 Threshold Elevation: 1134.8 ft
2.12.6 Touchdown Zone Elevation: 1134.8 ft

2.12.1 Designation: 28L
2.12.2 True Bearing: 272
2.12.3 Dimensions: 11500 ft x 200 ft
2.12.4 PCN: 80 R/B/X/T
2.12.5 Coordinates: 40−29−8.3238N / 80−12−38.1249W
2.12.6 Threshold Elevation: 1121.9 ft
2.12.6 Touchdown Zone Elevation: 1125 ft

2.12.1 Designation: 32
2.12.2 True Bearing: 316
2.12.3 Dimensions: 8101 ft x 150 ft
2.12.4 PCN: 71 R/B/X/T
2.12.5 Coordinates: 40−28−47.69N / 80−12−17.2183W
2.12.6 Threshold Elevation: 1113.4 ft
2.12.6 Touchdown Zone Elevation: 1123.6 ft

2.12.1 Designation: 14
2.12.2 True Bearing: 136
2.12.3 Dimensions: 8101 ft x 150 ft
2.12.4 PCN: 71 R/B/X/T
2.12.5 Coordinates: 40−29−45.6544N / 80−13−29.5187W
2.12.6 Threshold Elevation: 1147.6 ft
2.12.6 Touchdown Zone Elevation: 1147.6 ft

AD 2.13 Declared Distances
2.13.1 Designation: 28C
2.13.2 Take−off Run Available: 10775 ft
2.13.3 Take−off Distance Available: 10775 ft
2.13.4 Accelerate−Stop Distance Available: 10310 ft
2.13.5 Landing Distance Available: 9708 ft

2.13.1 Designation: 10C
2.13.2 Take−off Run Available: 10775 ft
2.13.3 Take−off Distance Available: 10775 ft

2.13.4 Accelerate−Stop Distance Available: 10173 ft
2.13.5 Landing Distance Available: 9708 ft

2.13.1 Designation: 10L
2.13.2 Take−off Run Available: 10502 ft
2.13.3 Take−off Distance Available: 10502 ft
2.13.4 Accelerate−Stop Distance Available: 10502 ft
2.13.5 Landing Distance Available: 10502 ft

2.13.1 Designation: 28R
2.13.2 Take−off Run Available: 10502 ft
2.13.3 Take−off Distance Available: 10502 ft
2.13.4 Accelerate−Stop Distance Available: 10102 ft
2.13.5 Landing Distance Available: 10102 ft

2.13.1 Designation: 10R
2.13.2 Take−off Run Available: 11500 ft
2.13.3 Take−off Distance Available: 11500 ft
2.13.4 Accelerate−Stop Distance Available: 11492 ft
2.13.5 Landing Distance Available: 11492 ft

2.13.1 Designation: 28L
2.13.2 Take−off Run Available: 11500 ft
2.13.3 Take−off Distance Available: 11500 ft
2.13.4 Accelerate−Stop Distance Available: 11500 ft
2.13.5 Landing Distance Available: 11500 ft

2.13.1 Designation: 32
2.13.2 Take−off Run Available: 8101 ft
2.13.3 Take−off Distance Available: 8101 ft
2.13.4 Accelerate−Stop Distance Available: 7801 ft
2.13.5 Landing Distance Available: 7466 ft

2.13.1 Designation: 14
2.13.2 Take−off Run Available: 8101 ft
2.13.3 Take−off Distance Available: 8101 ft
2.13.4 Accelerate−Stop Distance Available: 7366 ft
2.13.5 Landing Distance Available: 7366 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 28C
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10C
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10L
2.14.2 Approach Lighting System: ALSF2

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 32
2.14.2 Approach Lighting System: MALS
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 14
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: ANG OPS
2.14.3 Channel: 311
2.14.5 Hours of Operation:

2.14.1 Service Designation: APCH/P (271−360)
2.14.3 Channel: 121.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (001−090)
2.14.3 Channel: 124.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (181−270)
2.14.3 Channel: 133.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (270−089)
2.14.3 Channel: 279.625
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (090−269)
2.14.3 Channel: 360.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P
2.14.3 Channel: 336.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (091−180)
2.14.3 Channel: 123.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD PRE TAXI CLNC
2.14.3 Channel: 126.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 353.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (271−360)
2.14.3 Channel: 121.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (091−180)
2.14.3 Channel: 123.95
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (001−090)
2.14.3 Channel: 124.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (181−270)
2.14.3 Channel: 133.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (270−089)
2.14.3 Channel: 279.625
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS B (090−269)
2.14.3 Channel: 360.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: COMD POST
2.14.3 Channel: 252.1
2.14.5 Hours of Operation:

2.14.1 Service Designation: D−ATIS (ARR)
2.14.3 Channel: 127.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS (DEP)
2.14.3 Channel: 135.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (SOUTH)
2.14.3 Channel: 119.35

2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (NORTH)
2.14.3 Channel: 124.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (090−269)
2.14.3 Channel: 285.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (NORTH)
2.14.3 Channel: 338.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/S
2.14.3 Channel: 125.275
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P (SOUTH)
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P (NORTH)
2.14.3 Channel: 127.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 128.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 291.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: OPS
2.14.3 Channel: 36.35
2.14.5 Hours of Operation:

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 10L. Magnetic variation: 9W
2.19.2 ILS Identification: LXB
2.19.5 Coordinates: 40−30−11.9236N / 80−15−59.9044W
2.19.6 Site Elevation: 1195 ft

2.19.1 ILS Type: Inner Marker for runway 10L. Magnetic variation: 9W
2.19.2 ILS Identification: LXB
2.19.5 Coordinates: 40−30−8.7927N / 80−16−27.004W
2.19.6 Site Elevation: 1175.5 ft

2.19.1 ILS Type: Localizer for runway 10L. Magnetic variation: 9W
2.19.2 ILS Identification: LXB
2.19.5 Coordinates: 40−30−4.5231N / 80−13−47.1428W
2.19.6 Site Elevation: 1160.8 ft

2.19.1 ILS Type: Glide Slope for runway 28R. Magnetic variation: 9W
2.19.2 ILS Identification: HFE
2.19.5 Coordinates: 40−30−8.7192N / 80−14−14.6252W
2.19.6 Site Elevation: 1170.6 ft

2.19.1 ILS Type: Localizer for runway 28R. Magnetic variation: 9W
2.19.2 ILS Identification: HFE
2.19.5 Coordinates: 40−30−8.7888N / 80−16−31.3335W
2.19.6 Site Elevation: 1214.2 ft

2.19.1 ILS Type: Glide Slope for runway 10R. Magnetic variation: 9W
2.19.2 ILS Identification: GUT
2.19.5 Coordinates: 40−29−15.3464N / 80−14−53.775W
2.19.6 Site Elevation: 1129.2 ft

2.19.1 ILS Type: Inner Marker for runway 10R. Magnetic variation: 9W
2.19.2 ILS Identification: GUT
2.19.5 Coordinates: 40−29−12.5381N / 80−15−18.8824W
2.19.6 Site Elevation: 1144.8 ft

2.19.1 ILS Type: Localizer for runway 10R. Magnetic variation: 9W
2.19.2 ILS Identification: GUT
2.19.5 Coordinates: 40−29−8.2188N / 80−12−34.1165W
2.19.6 Site Elevation: 1116.6 ft

2.19.1 ILS Type: Glide Slope for runway 28L. Magnetic variation: 9W
2.19.2 ILS Identification: PFS
2.19.5 Coordinates: 40−29−4.7301N / 80−12−51.2688W
2.19.6 Site Elevation: 1120.3 ft

2.19.1 ILS Type: Localizer for runway 28L. Magnetic variation: 9W
2.19.2 ILS Identification: PFS
2.19.5 Coordinates: 40−29−12.6437N / 80−15−23.0275W
2.19.6 Site Elevation: 1141.2 ft

2.19.1 ILS Type: DME for runway 32. Magnetic variation: 9W
2.19.2 ILS Identification: TQW
2.19.5 Coordinates: 40−29−48.847N / 80−13−37.583W
2.19.6 Site Elevation: 1134 ft

2.19.1 ILS Type: Glide Slope for runway 32. Magnetic variation: 9W
2.19.2 ILS Identification: TQW
2.19.5 Coordinates: 40−28−52.663N / 80−12−29.1403W
2.19.6 Site Elevation: 1112.2 ft

2.19.1 ILS Type: Localizer for runway 32. Magnetic variation: 9W
2.19.2 ILS Identification: TQW
2.19.5 Coordinates: 40−29−50.4118N / 80−13−35.4629W
2.19.6 Site Elevation: 1139.1 ft

General Remarks:
TWY AA NO TURN−OFF ONTO TWY A FOR ACFT WINGSPAN 171 FT OR GREATER EXC PPR (412) 472−5630.

[MILITARY]: CAUTION: BASH PHASE II OPS IN EFFECT 1 JUL − 31 AUG ANNUALLY. UNLESS MSN REQUIREMENTS DIRECT OTHERWISE, FLIGHTS SHOULD NOT BE SKED WITHIN +/−1HR OF SS/SR. TRAN AIRCREW SHOULD REQ BIRD WATCH COND FR AFRC (PITT OPS) ON 252.1 OR ANG OPS (STEEL CTL) ON 311.0. AIRCREW WILL BE INFORMED BY STEEL CONTROL OR PITT OPS (AS APPLICABLE) IF CURRENT BWC IS OTHER THAN LOW REGARDLESS OF BASH PHASE.

SERVICE−OIL: O−156.

TERML TAXILANES E OF CONCOURSES A & B RESTRD TO GROUP 3 ACFT & SMALLER.

ACFT USING TWY ’N’ PROHIBITED TO STOP ON OVERPASS AREA DUE TO POSSIBLE EMERGENCY EVACUATION HAZARD.

ALL JETS DEPARTING RY 28R MUST BE ALIGNED WI RY PRIOR TO APPLYING TKOF POWER.

DEER & BIRDS ON & INVOF ARPT.

PPR/OFFL BUS MIN 48 HR CTC AFLD MGMT DSN 277 8163, C412 474 8163. LTD TRAN SVC. AFLD MGT NML DUTY HRS 1300 0100++ MON, WED, FRI, 1300−0500++ TUE, THU, EXC HOL. UNIT TRAINING ASSEMBLY 1300 2100Z++SAT SUN.TRAN ACFT MUST HAVE APPVL OF 911OG/CC FOR PPR DUR OFF DUTY HR. NO SVC AVBL FOR SPACE AVBL PAX DUR OFF DUTY HR. CALL PITT COMD POST (IRON CITY) BY RDO 15 MIN PRIOR TO ARRIVAL. ALFD MGMT DOES NOT ISSUE OR STOR COMSEC. COMSEC STOR CTC COMD POST DSN 277 8146.

ANG: OPR 1130−2030Z++MON−FRI EXCP HOL. (CLSD EV OTH MON.)

ANG ACFT MUST CTC TANKER 303.0/FTR OPNS 293.7 BEFORE CROSSING RWY 28L TO OBTAIN CLNC TO ENTER.

ASSC IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

SERVICE−TRAN ALERT: NO PRIORITY BASIS.

FUEL: A++ PROVIDED BY ANG AND AFRC.(MIL).

LDG FEE.

TRML APN UNCONTROLLED. PUSHBACK PILOT DESCRETION. DO NOT EXIT TRML APN AT TWY C1, C4, V3, V4, D1, W. CTC GC WHEN HLDG AT TWY C2, C3, V1, V2, V5, V6, D2, D3.

PUSHBACK CLNC REQUIRED FR GATES A100 AND A101 AT CARGO A. CTC GC. PUSHBACK FM THESE GATES ENTERS TWY N.

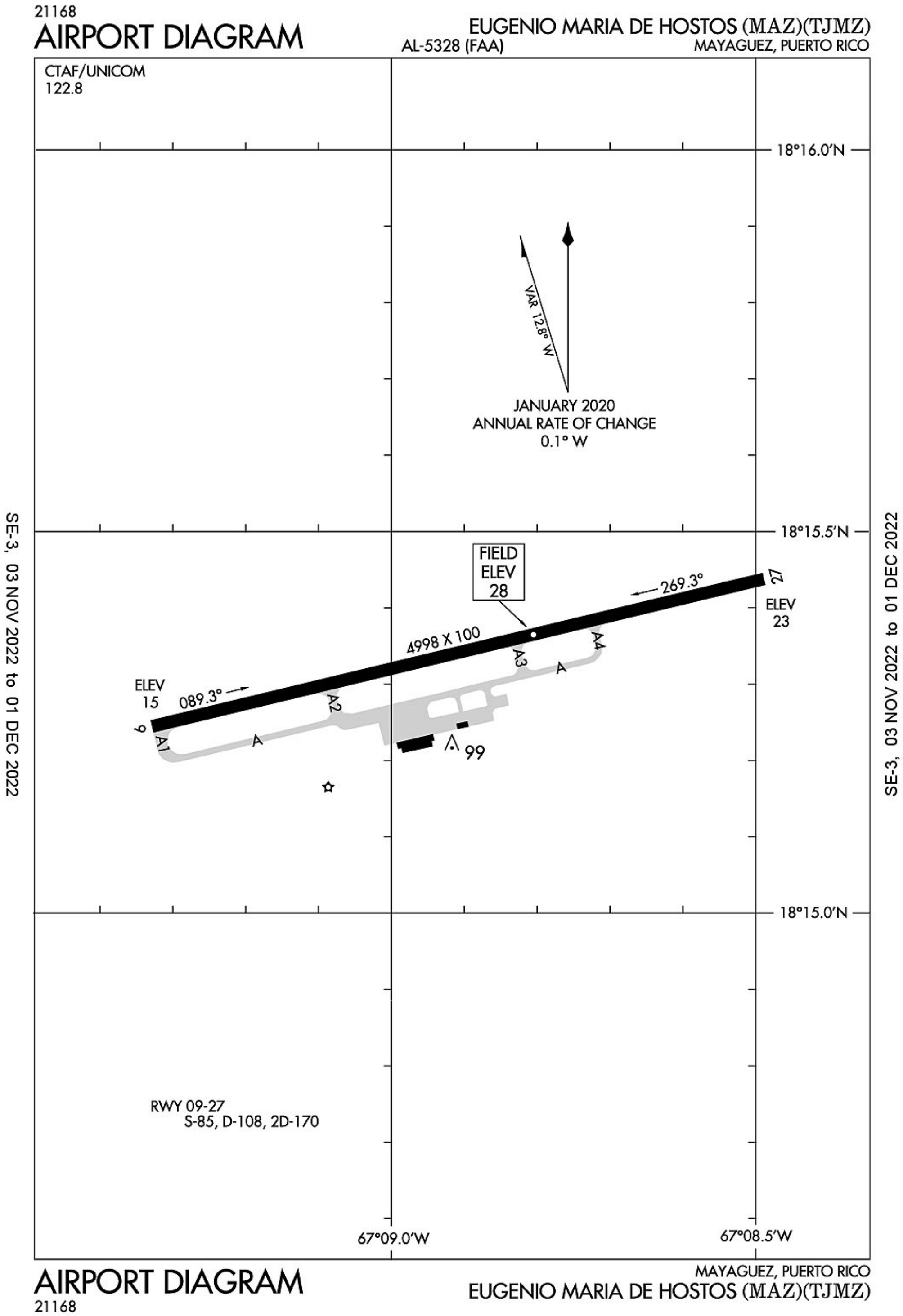
SERVICE−JASU: (ANG) (A/M32A−86) (AM 32−95; (AFRC − 2(A/M32−86 (AM32−95).

SERVICE−FLUID: LPOX LHNIT.

ATCT IS AUTHORIZED TO HAVE ACFT LINE−UP & WAIT ON RYS 28L AT TWY 'P' DURG HRS OF DARKNESS. THE SPECIFIC RY SHALL BE USED ONLY FOR DEPARTURES & THE INTXN MUST BE VSB FM ATCT.

TWY G INTXN AT RY 10L/28R RIGHT TURN NA.

Mayaguez, Puerto Rico
Eugenio Maria De Hostos
ICAO Identifier TJMZ



Mayaguez, PR
Eugenio Maria De Hostos
ICAO Identifier TJMZ

AD 2.2 Aerodrome geographical and administrative data

2.2.1 Reference Point: 18−15−20.5N / 67−8−54.5W

2.2.2 From City: 3 miles N of MAYAGUEZ, PR

2.2.3 Elevation: 27.7 ft

2.2.5 Magnetic Variation: 10W (1985)

2.2.6 Airport Contact: EDGAR SIERRA
BOX 710
MAYAGUEZ, PR 681 (787−832−3390)

2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule

2.3.1 All Months, MON−FRI Days, 0730−1600 Hours

AD 2.4 Handling Services and Facilities

2.4.1 Cargo Handling Facilities: NO

2.4.2 Fuel Types:

2.4.5 Hangar Space: NO

2.4.6 Repair Facilities: NONE

AD 2.6 Rescue and Firefighting Services

2.6.1 Aerodrome Category for Firefighting: None

AD 2.12 Runway Physical Characteristics

2.12.1 Designation: 27

2.12.2 True Bearing: 256

2.12.3 Dimensions: 4998 ft x 100 ft

2.12.4 PCN: ///

2.12.5 Coordinates: 18−15−26.2517N / 67−8−29.2981W

2.12.6 Threshold Elevation: 23.2 ft

2.12.6 Touchdown Zone Elevation: 27.7 ft

2.12.1 Designation: 09

2.12.2 True Bearing: 76

2.12.3 Dimensions: 4998 ft x 100 ft

2.12.4 PCN: ///

2.12.5 Coordinates: 18−15−14.6817N / 67−9−19.728W

2.12.6 Threshold Elevation: 15.3 ft

2.12.6 Touchdown Zone Elevation: 27.6 ft

AD 2.13 Declared Distances

2.13.1 Designation: 27
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: 09
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 27
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 09
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 Navigation Aid Type: NDB. Magnetic variation: 10W
2.19.2 Navigation Aid Identification: MAZ
2.19.5 Coordinates: 18−15−13.529N / 67−9−8.947W
2.19.6 Site Elevation:

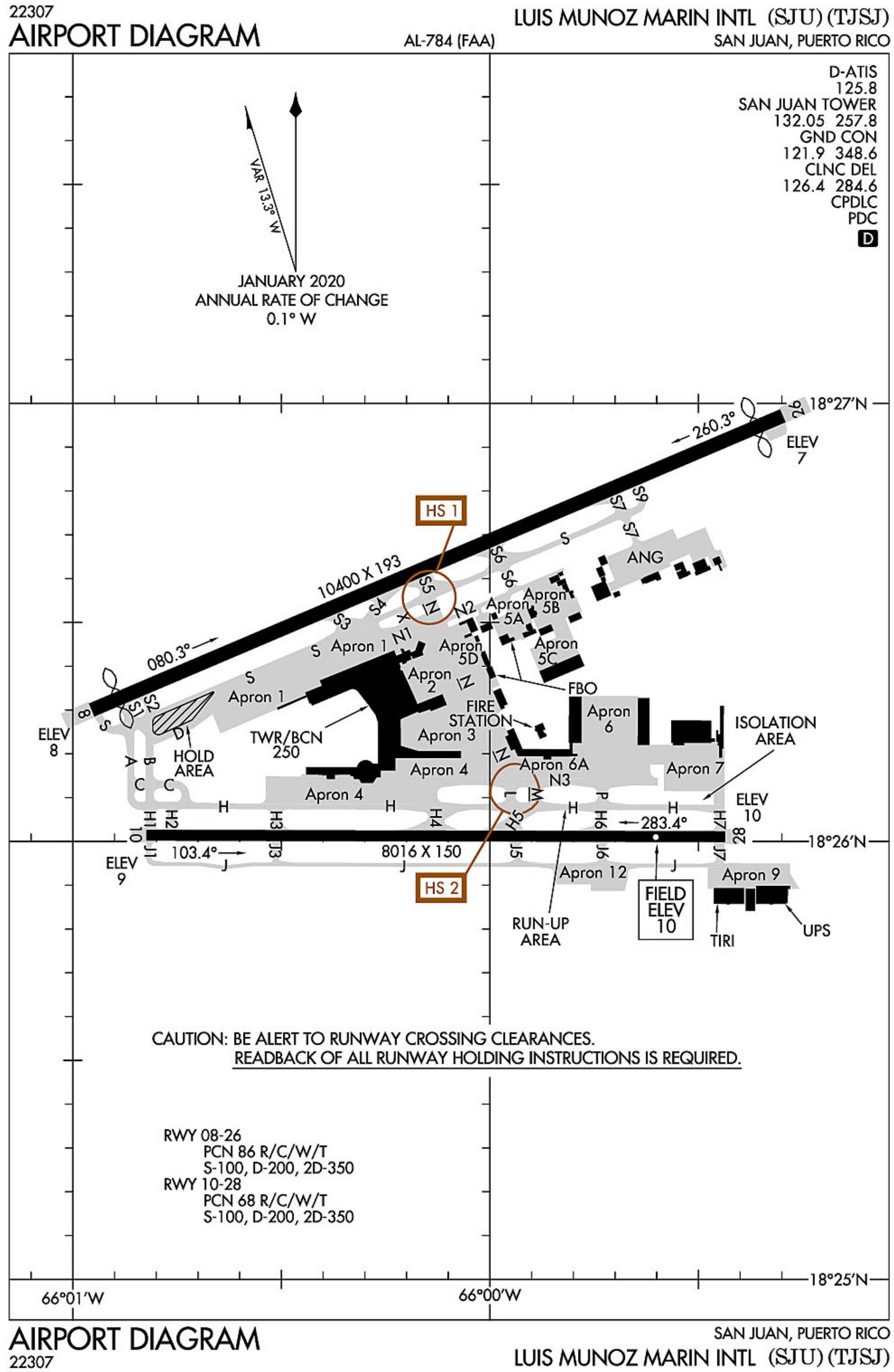
2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 10W
2.19.2 Navigation Aid Identification: MAZ
2.19.5 Coordinates: 18−15−23.2293N / 67−9−3.7215W
2.19.6 Site Elevation: 18 ft

General Remarks:
FOR CD IF FREQ ARE OTS CTC SAN JUAN CERAP AT 787−253−8664/8667

ULTRALIGHT ACTIVITY.

BIRDS ON AND INVOF ARPT.

San Juan, Puerto Rico
Luis Munoz Marin International
ICAO Identifier TJSJ



San Juan, PR
Luis Munoz Marin Intl
ICAO Identifier TJSJ

AD 2.2 Aerodrome geographical and administrative data

2.2.1 Reference Point: 18−26−21.837N / 66−0−7.68W

2.2.2 From City: 3 miles SE of SAN JUAN, PR

2.2.3 Elevation: 9.6 ft

2.2.5 Magnetic Variation: 11W (1985)

2.2.6 Airport Contact: MR. JORGE HERNANDEZ
P. O. BOX 38085
SAN JUAN, PR 937 ((787) 289−7240)

2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule

2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities

2.4.1 Cargo Handling Facilities: YES

2.4.2 Fuel Types: 100,A+,A++

2.4.5 Hangar Space: YES

2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services

2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/2005

AD 2.12 Runway Physical Characteristics

2.12.1 Designation: 08

2.12.2 True Bearing: 67

2.12.3 Dimensions: 10400 ft x 193 ft

2.12.4 PCN: 86 R/C/W/T

2.12.5 Coordinates: 18−26−17.9673N / 66−0−57.3115W

2.12.6 Threshold Elevation: 8.2 ft

2.12.6 Touchdown Zone Elevation: 9.3 ft

2.12.1 Designation: 26

2.12.2 True Bearing: 247

2.12.3 Dimensions: 10400 ft x 193 ft

2.12.4 PCN: 86 R/C/W/T

2.12.5 Coordinates: 18−26−58.2684N / 65−59−17.8783W

2.12.6 Threshold Elevation: 6.9 ft

2.12.6 Touchdown Zone Elevation: 7.4 ft

2.12.1 Designation: 10

2.12.2 True Bearing: 90

2.12.3 Dimensions: 8016 ft x 150 ft
2.12.4 PCN: 68 R/C/W/T
2.12.5 Coordinates: 18−26−0.8092N / 66−0−49.4179W
2.12.6 Threshold Elevation: 9.3 ft
2.12.6 Touchdown Zone Elevation: 9.3 ft

2.12.1 Designation: 28
2.12.2 True Bearing: 270
2.12.3 Dimensions: 8016 ft x 150 ft
2.12.4 PCN: 68 R/C/W/T
2.12.5 Coordinates: 18−26−0.6107N / 65−59−26.159W
2.12.6 Threshold Elevation: 9.5 ft
2.12.6 Touchdown Zone Elevation: 9.6 ft

AD 2.13 Declared Distances
2.13.1 Designation: 08
2.13.2 Take−off Run Available: 10400 ft
2.13.3 Take−off Distance Available: 10400 ft
2.13.4 Accelerate−Stop Distance Available: 9784 ft
2.13.5 Landing Distance Available: 9384 ft

2.13.1 Designation: 26
2.13.2 Take−off Run Available: 10400 ft
2.13.3 Take−off Distance Available: 10400 ft
2.13.4 Accelerate−Stop Distance Available: 10308 ft
2.13.5 Landing Distance Available: 9908 ft

2.13.1 Designation: 10
2.13.2 Take−off Run Available: 8016 ft
2.13.3 Take−off Distance Available: 8016 ft
2.13.4 Accelerate−Stop Distance Available: 8016 ft
2.13.5 Landing Distance Available: 8016 ft

2.13.1 Designation: 28
2.13.2 Take−off Run Available: 8016 ft
2.13.3 Take−off Distance Available: 8016 ft
2.13.4 Accelerate−Stop Distance Available: 8016 ft
2.13.5 Landing Distance Available: 8016 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 08
2.14.2 Approach Lighting System: MALSR

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 10
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 28
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P DEP/P (WEST & SW)
2.14.3 Channel: 119.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (NORTH & EAST)
2.14.3 Channel: 120.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (WEST & SW)
2.14.3 Channel: 269.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (NORTH & EAST)
2.14.3 Channel: 290.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD PRE TAXI CLNC
2.14.3 Channel: 126.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 284.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (WEST & SW)
2.14.3 Channel: 119.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (NORTH & EAST)
2.14.3 Channel: 120.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (WEST & SW)
2.14.3 Channel: 269.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (NORTH & EAST)
2.14.3 Channel: 290.2
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: COMD POST (PRANG COMD POST)
2.14.3 Channel: 235
2.14.5 Hours of Operation:

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 125.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 132.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids

2.19.1 ILS Type: Glide Slope for runway 08. Magnetic variation: 11W
2.19.2 ILS Identification: SJU

2.19.5 Coordinates: 18−26−27.0397N / 66−0−45.5699W
2.19.6 Site Elevation: 4.2 ft

2.19.1 ILS Type: Localizer for runway 08. Magnetic variation: 11W
2.19.2 ILS Identification: SJU
2.19.5 Coordinates: 18−26−59.7947N / 65−59−14.1228W
2.19.6 Site Elevation: 5.6 ft

2.19.1 ILS Type: Outer Marker for runway 08. Magnetic variation: 11W
2.19.2 ILS Identification: SJU
2.19.5 Coordinates: 18−24−31.8227N / 66−5−21.8301W
2.19.6 Site Elevation: 66.5 ft

2.19.1 ILS Type: DME for runway 10. Magnetic variation: 11W
2.19.2 ILS Identification: CLA
2.19.5 Coordinates: 18−26−2.5352N / 65−59−15.6282W
2.19.6 Site Elevation: 18.2 ft

2.19.1 ILS Type: Glide Slope for runway 10. Magnetic variation: 11W
2.19.2 ILS Identification: CLA
2.19.5 Coordinates: 18−25−57.5628N / 66−0−39.041W
2.19.6 Site Elevation: 4.5 ft

2.19.1 ILS Type: Localizer for runway 10. Magnetic variation: 11W
2.19.2 ILS Identification: CLA
2.19.5 Coordinates: 18−26−0.5899N / 65−59−15.5192W
2.19.6 Site Elevation: 9 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 11W
2.19.2 Navigation Aid Identification: SJU
2.19.5 Coordinates: 18−26−46.6101N / 65−59−22.2272W
2.19.6 Site Elevation: 5.7 ft

General Remarks:
TWY J BTN J1 AND J5 (NOT INCLUDING J5) CLSD TO ACFT WITH GREATER THAN 118 FT WINGSPAN.

ACFT 180 TURNS ON TWYS REQUIRES OPS COORDINATIONS.

FBO/GROUND HANDLER MUST SUBMIT 72 HRS PPR FOR ALL MIL ACFT TO: CCO@AEROSTARAIRPORTS.-COM OR BY PHONE TO: 787−253−0979

MILITARY: ANG: INBD ACFT ORIGINATING FR OCONUS WITH A PPR FOR MUNIZ ANGB APN MUST CLEAR CUSTOMS AND BORDER PROTECTION AT CIV SIDE. PRIOR COORD MUST BE MADE WITH ANG AMOPS, FONE 740−9629 AT LEAST ONE BUS DAY PRIOR TO ARRIVAL.

ALL PVT AND CORPORATE AIRCRAFT MUST CONTACT ARPT OPS, BEFORE ARRIVAL, FOR FBOS & GROUND HANDLING INFO AT 787−253−0979.

ENGINE RUNUPS PROHIBITED ON GATES AREA.

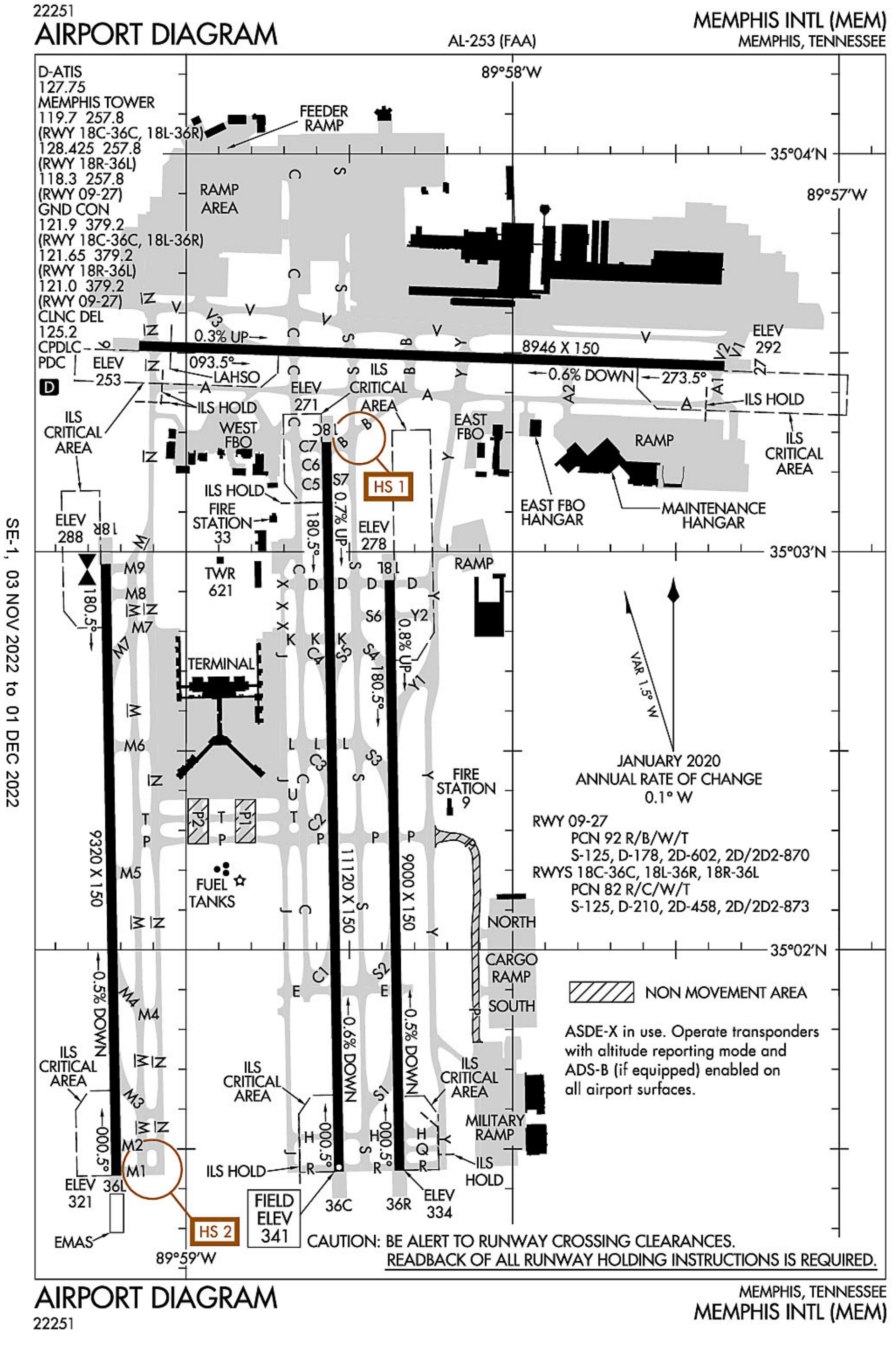
APRON 12 AVBL FOR GA ACFT ONLY.

TWY H BTN TWY C AND TWY H3 CLSD. PLEASE, CONTACT ARPT OPS AT 787−253−0979 FOR FURTHER DETAILS AND RESTRICTIONS.

BASE OPS 1130−2000Z MON−FRI, CLSD WKEND AND HOL.

TWY S BTN TWY S2 AND TWY S5 CLSD LGTD AND BARRICADED.

Memphis, Tennessee
Memphis International
ICAO Identifier KMEM



Memphis, TN
Memphis Intl
ICAO Identifier KMEM

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 35−2−32.681N / 89−58−36.045W
2.2.2 From City: 3 miles S of MEMPHIS, TN
2.2.3 Elevation: 340.9 ft
2.2.5 Magnetic Variation: 1W (2020)
2.2.6 Airport Contact: SCOTT A BROCKMAN
2491 WINCHESTER RD.
MEMPHIS, TN 38116 (901−922−8000)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A,A+,A++
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/21/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 09
2.12.2 True Bearing: 92
2.12.3 Dimensions: 8946 ft x 150 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 35−3−31.046N / 89−59−8.6536W
2.12.6 Threshold Elevation: 253.2 ft
2.12.6 Touchdown Zone Elevation: 258.7 ft

2.12.1 Designation: 27
2.12.2 True Bearing: 272
2.12.3 Dimensions: 8946 ft x 150 ft
2.12.4 PCN: 92 R/B/W/T
2.12.5 Coordinates: 35−3−28.0128N / 89−57−21.0816W
2.12.6 Threshold Elevation: 292 ft
2.12.6 Touchdown Zone Elevation: 292 ft

2.12.1 Designation: 18C
2.12.2 True Bearing: 179
2.12.3 Dimensions: 11120 ft x 150 ft
2.12.4 PCN: 82 R/C/W/T
2.12.5 Coordinates: 35−3−16.5411N / 89−58−34.2156W
2.12.6 Threshold Elevation: 270.6 ft
2.12.6 Touchdown Zone Elevation: 290.1 ft

2.12.1 Designation: 36C
2.12.2 True Bearing: 359
2.12.3 Dimensions: 11120 ft x 150 ft
2.12.4 PCN: 82 R/C/W/T
2.12.5 Coordinates: 35−1−26.5803N / 89−58−31.8977W
2.12.6 Threshold Elevation: 340.9 ft
2.12.6 Touchdown Zone Elevation: 340.9 ft

2.12.1 Designation: 36R
2.12.2 True Bearing: 359
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 82 R/C/W/T
2.12.5 Coordinates: 35−1−26.7376N / 89−58−20.7544W
2.12.6 Threshold Elevation: 334.3 ft
2.12.6 Touchdown Zone Elevation: 334.7 ft

2.12.1 Designation: 18L
2.12.2 True Bearing: 179
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 82 R/C/W/T
2.12.5 Coordinates: 35−2−55.7402N / 89−58−22.6229W
2.12.6 Threshold Elevation: 277.6 ft
2.12.6 Touchdown Zone Elevation: 300.9 ft

2.12.1 Designation: 18R
2.12.2 True Bearing: 179
2.12.3 Dimensions: 9320 ft x 150 ft
2.12.4 PCN: 82 R/C/W/T
2.12.5 Coordinates: 35−2−58.1489N / 89−59−14.7913W
2.12.6 Threshold Elevation: 288.4 ft
2.12.6 Touchdown Zone Elevation: 294.7 ft

2.12.1 Designation: 36L
2.12.2 True Bearing: 359
2.12.3 Dimensions: 9320 ft x 150 ft
2.12.4 PCN: 82 R/C/W/T
2.12.5 Coordinates: 35−1−25.9852N / 89−59−12.8121W
2.12.6 Threshold Elevation: 320.8 ft
2.12.6 Touchdown Zone Elevation: 320.8 ft

AD 2.13 Declared Distances
2.13.1 Designation: 09
2.13.2 Take−off Run Available: 8946 ft
2.13.3 Take−off Distance Available: 8946 ft
2.13.4 Accelerate−Stop Distance Available: 8946 ft
2.13.5 Landing Distance Available: 8946 ft

2.13.1 Designation: 27
2.13.2 Take−off Run Available: 8946 ft
2.13.3 Take−off Distance Available: 8946 ft

2.13.4 Accelerate−Stop Distance Available: 8946 ft
2.13.5 Landing Distance Available: 8946 ft

2.13.1 Designation: 18C
2.13.2 Take−off Run Available: 11120 ft
2.13.3 Take−off Distance Available: 11120 ft
2.13.4 Accelerate−Stop Distance Available: 11120 ft
2.13.5 Landing Distance Available: 11120 ft

2.13.1 Designation: 36C
2.13.2 Take−off Run Available: 11120 ft
2.13.3 Take−off Distance Available: 11120 ft
2.13.4 Accelerate−Stop Distance Available: 10715 ft
2.13.5 Landing Distance Available: 10715 ft

2.13.1 Designation: 36R
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 18L
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 18R
2.13.2 Take−off Run Available: 9320 ft
2.13.3 Take−off Distance Available: 9320 ft
2.13.4 Accelerate−Stop Distance Available: 9320 ft
2.13.5 Landing Distance Available: 9320 ft

2.13.1 Designation: 36L
2.13.2 Take−off Run Available: 9320 ft
2.13.3 Take−off Distance Available: 9320 ft
2.13.4 Accelerate−Stop Distance Available: 9320 ft
2.13.5 Landing Distance Available: 9320 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 09
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 27
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 18C
2.14.2 Approach Lighting System: MALSR

2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 36C
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 36R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 18L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 18R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 36L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 09. Magnetic variation: 1W
2.19.2 ILS Identification: MEM
2.19.5 Coordinates: 35−3−27.2174N / 89−58−56.2128W
2.19.6 Site Elevation: 252.5 ft

2.19.1 ILS Type: Localizer for runway 09. Magnetic variation: 1W
2.19.2 ILS Identification: MEM
2.19.5 Coordinates: 35−3−27.6511N / 89−57−7.9461W
2.19.6 Site Elevation: 296.5 ft

2.19.1 ILS Type: Glide Slope for runway 27. Magnetic variation: 1W
2.19.2 ILS Identification: JIM
2.19.5 Coordinates: 35−3−24.4908N / 89−57−36.2529W
2.19.6 Site Elevation: 277.2 ft

2.19.1 ILS Type: Localizer for runway 27. Magnetic variation: 1W
2.19.2 ILS Identification: JIM
2.19.5 Coordinates: 35−3−31.3982N / 89−59−20.811W
2.19.6 Site Elevation: 252.2 ft

2.19.1 ILS Type: Glide Slope for runway 18C. Magnetic variation: 1W
2.19.2 ILS Identification: SDU
2.19.5 Coordinates: 35−3−7.6024N / 89−58−37.5142W
2.19.6 Site Elevation: 273.1 ft

2.19.1 ILS Type: Localizer for runway 18C. Magnetic variation: 1W
2.19.2 ILS Identification: SDU
2.19.5 Coordinates: 35−1−10.2462N / 89−58−31.5613W
2.19.6 Site Elevation: 345.5 ft

2.19.1 ILS Type: DME for runway 36C. Magnetic variation: 1W
2.19.2 ILS Identification: TSE
2.19.5 Coordinates: 35−3−22.0479N / 89−58−37.3452W
2.19.6 Site Elevation: 268.9 ft

2.19.1 ILS Type: Glide Slope for runway 36C. Magnetic variation: 1W
2.19.2 ILS Identification: TSE
2.19.5 Coordinates: 35−1−38.095N / 89−58−36.9423W
2.19.6 Site Elevation: 329.5 ft

2.19.1 ILS Type: Localizer for runway 36C. Magnetic variation: 1W
2.19.2 ILS Identification: TSE
2.19.5 Coordinates: 35−3−22.514N / 89−58−34.3391W
2.19.6 Site Elevation: 261.2 ft

2.19.1 ILS Type: DME for runway 18L. Magnetic variation: 1W
2.19.2 ILS Identification: EXS
2.19.5 Coordinates: 35−1−16.8761N / 89−58−19.3033W
2.19.6 Site Elevation: 328.2 ft

2.19.1 ILS Type: Glide Slope for runway 18L. Magnetic variation: 1W
2.19.2 ILS Identification: EXS
2.19.5 Coordinates: 35−2−46.7849N / 89−58−17.6254W
2.19.6 Site Elevation: 278.6 ft

2.19.1 ILS Type: Localizer for runway 18L. Magnetic variation: 1W
2.19.2 ILS Identification: EXS
2.19.5 Coordinates: 35−1−16.6952N / 89−58−20.5424W
2.19.6 Site Elevation: 344.5 ft

2.19.1 ILS Type: DME for runway 36R. Magnetic variation: 1W
2.19.2 ILS Identification: MYO
2.19.5 Coordinates: 35−3−5.9229N / 89−58−19.6804W
2.19.6 Site Elevation: 282.5 ft

2.19.1 ILS Type: Glide Slope for runway 36R. Magnetic variation: 1W
2.19.2 ILS Identification: MYO
2.19.5 Coordinates: 35−1−38.0016N / 89−58−16.1795W
2.19.6 Site Elevation: 324.2 ft

2.19.1 ILS Type: Localizer for runway 36R. Magnetic variation: 1W
2.19.2 ILS Identification: MYO
2.19.5 Coordinates: 35−3−6.1649N / 89−58−22.8431W
2.19.6 Site Elevation: 278.7 ft

2.19.1 ILS Type: Glide Slope for runway 18R. Magnetic variation: 1W

2.19.2 ILS Identification: OOI
2.19.5 Coordinates: 35−2−48.6497N / 89−59−18.4713W
2.19.6 Site Elevation: 287.1 ft

2.19.1 ILS Type: Localizer for runway 18R. Magnetic variation: 1W
2.19.2 ILS Identification: OOI
2.19.5 Coordinates: 35−1−17.2969N / 89−59−12.6028W
2.19.6 Site Elevation: 321.4 ft

2.19.1 ILS Type: DME for runway 36L. Magnetic variation: 1W
2.19.2 ILS Identification: OHN
2.19.5 Coordinates: 35−3−6.901N / 89−59−10.0928W
2.19.6 Site Elevation: 285.7 ft

2.19.1 ILS Type: Glide Slope for runway 36L. Magnetic variation: 1W
2.19.2 ILS Identification: OHN
2.19.5 Coordinates: 35−1−38.7288N / 89−59−17.8741W
2.19.6 Site Elevation: 308.9 ft

2.19.1 ILS Type: Localizer for runway 36L. Magnetic variation: 1W
2.19.2 ILS Identification: OHN
2.19.5 Coordinates: 35−3−8.5885N / 89−59−14.9936W
2.19.6 Site Elevation: 277.6 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 1E
2.19.2 Navigation Aid Identification: MEM
2.19.5 Coordinates: 35−0−54.3808N / 89−58−59.5258W
2.19.6 Site Elevation: 363.4 ft

General Remarks:
TWY P1, TWY P2, TWY N NORTH OF TWY V, TWY C NORTH OF TWY V & TWY S NORTH OF TWY V DESIGNATED NON−MOVEMENT AREA.

ANG RAMP OFFL BUS ONLY; PPR − V966−8131. TSNT ACFT RQR FOLLOW ME ASSIST ENTERING ANG RAMP.

ANG: PPR 24 HR PN RQR; OFFL BUS ONLY.

HOLD SHORT INSTRN READ BACK RQR.

COMMUNICATIONS−ANG COMD POST: RADIO CALL GRACELAND OPS.

ANG−PPR DSN 726−7131/7505, C901−291−7131/7505. MIL RAMP OPS 1230−0430Z++ MON−FRI; CLSD ALTN MON & HOL. MIL RAMP CLSD OUTSIDE OF PUB HR WITHOUT OG/CC APVL DSN 726−7557, C901−291−7557. TSNT ACFT MAINT NOT AVBL. REFUEL SVC FOR OTR THAN C17 ACFT RQR QUALIFIED CREW CHIEF OR CREWMEMBERS. NON−C17 ACFT SUPPORT PRVDD BY CONTRACT FBO ON FLD. SECURITY AVBL 24 HRS, DSN 726−7101, C901−291−7101. COMD POST DSN 726−7148/7311/7312, C901−291−7148/7311/7312. OPR 1230−0430Z++ MON−FRI, CLSD ALTN MON AND HOL DUE TO ALTN WORK SCHED. AFLD MGR DOES NOT ISSUE OR STORE COMSEC FOR TRAN CRES. TMPRY STOR OF CLASSIFIED MATERIALS UP TO TOP SECRET AT COMD POST.

HELI OPS TO/FM TRML BLDG NA.

BASH PHASE II APR−MAY & AUG−OCT; CURRENT BIRD WATCH COND NOT ON ATIS.

NOISE ABATEMENT PROC IN EFCT. SUCCESSIVE AND/OR SIMUL DEP APVD ON RWY 36L−18R & RWY 36C−18C OR RWY 36L−18R & RWY 36R−18L WITH COURSE DVRGNC NO LATER THAN 2.27 NM FROM RWY END.

BIRDS INVOF ARPT.

APRON J & N RUNUP PAD CLSD.

MIL: MIL RAMP OPS AT REDUCED ARFF, DOWNGRADED TO YELLOW.

TWY V BTN TWY S & Y RSTR TO ACFT WITH TAIL HEIGHT 65 FT 10 IN OR LESS.

TWY P1 BTN TWY T & TRML RAMP & TWY P2 BTN TWY T & TRML RAMP CLSD.

ACFT WITH WINGSPAN MORE THAN 118 FT RSTR FM TAXI ON TWY J NORTH OF C3.

LRG & HVY EBND ACFT ON TWY V FOR RWY 27 HOLD SHORT AT MNM THRUST AREA SIGN.

ASDE−X IN USE. OPR PARROT WITH ALT RPRTG MODE & ADS−B ENABLED ON ARPT SFCS.

TWY J BTN TWY P & R RSTR TO 15 MPH FOR WINGSPAN MORE THAN 171 FT.

PPR FOR TAXI CLNC ON TWY N NORTH OF TWY V, TWY S NORTH TWY V & TWY C NORTH OF TWY V − FEDEX RAMP ATCT 131.5.

CONDUCT GND OPS WITH PARROT ON.

TWY V BTN SPOT 7W & RWY 27 RSTR TO ACFT WITH WINGSPAN OF 171 FT 6 IN OR LESS.

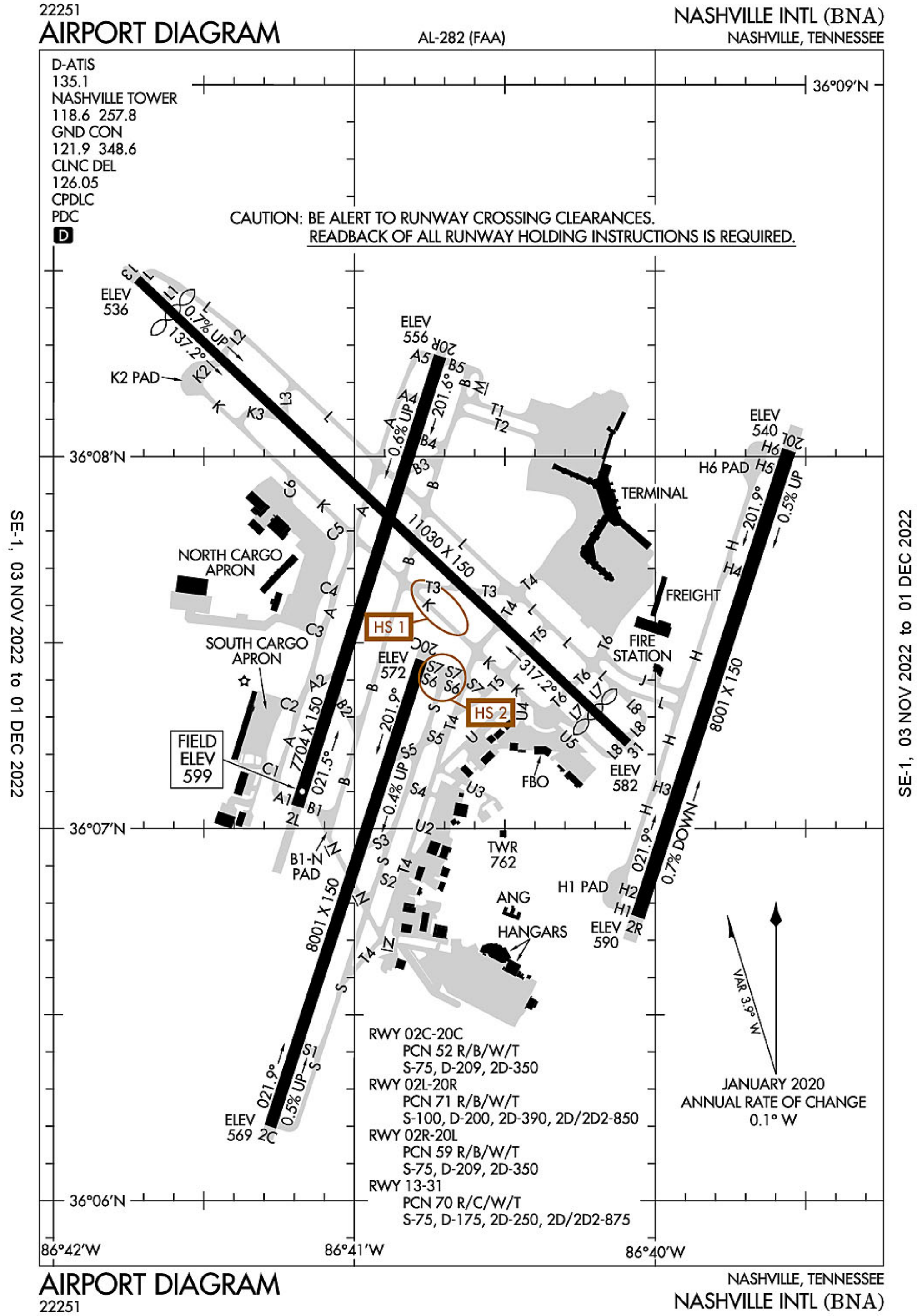
ACFT WITH WINGSPAN MORE THAN 171 FT 6 IN RSTR FM TAXI ON TWY N BTN TWY M7 & T.

CTC RAMP CONTROL 121.8 FOR ENTRY ON ANG RAMP. ANG FREQS 138.95 353.45. AFT HR CTC COMMAND POST − DSN 726−7148; C901−291−7311/7312 OR SECURITY FORCES − DSN 726−7101; C901−291−7101/7133.

PPR FOR TAXI CLNC FM N & S CARGO RAMP PRKG − 121.9.

ANG−ATIS INFO RPRTS BIRD ACT H24.

Nashville, Tennessee
Nashville International
ICAO Identifier KBNA



Nashville, TN
Nashville Intl
ICAO Identifier KBNA

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 36−7−28.11N / 86−40−41.45W
2.2.2 From City: 5 miles SE of NASHVILLE, TN
2.2.3 Elevation: 599 ft
2.2.5 Magnetic Variation: 3W (2010)
2.2.6 Airport Contact: ROBERT RAMSEY
140 BNA PARK DR. SUITE 520
NASHVILLE, TN 37214 (615−275−1612)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I D certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 02C
2.12.2 True Bearing: 18
2.12.3 Dimensions: 8001 ft x 150 ft
2.12.4 PCN: 52 R/B/W/T
2.12.5 Coordinates: 36−6−11.9899N / 86−41−16.6591W
2.12.6 Threshold Elevation: 569.1 ft
2.12.6 Touchdown Zone Elevation: 586.7 ft

2.12.1 Designation: 20C
2.12.2 True Bearing: 198
2.12.3 Dimensions: 8001 ft x 150 ft
2.12.4 PCN: 52 R/B/W/T
2.12.5 Coordinates: 36−7−27.2406N / 86−40−46.55W
2.12.6 Threshold Elevation: 571.8 ft
2.12.6 Touchdown Zone Elevation: 587.7 ft

2.12.1 Designation: 02L
2.12.2 True Bearing: 18
2.12.3 Dimensions: 7704 ft x 150 ft
2.12.4 PCN: 71 R/B/W/T
2.12.5 Coordinates: 36−7−3.6342N / 86−41−11.3105W
2.12.6 Threshold Elevation: 598.7 ft
2.12.6 Touchdown Zone Elevation: 599 ft

2.12.1 Designation: 20R
2.12.2 True Bearing: 198
2.12.3 Dimensions: 7704 ft x 150 ft
2.12.4 PCN: 71 R/B/W/T
2.12.5 Coordinates: 36−8−16.2324N / 86−40−42.8335W
2.12.6 Threshold Elevation: 555.6 ft
2.12.6 Touchdown Zone Elevation: 578 ft

2.12.1 Designation: 02R
2.12.2 True Bearing: 18
2.12.3 Dimensions: 8001 ft x 150 ft
2.12.4 PCN: 59 R/B/W/T
2.12.5 Coordinates: 36−6−45.767N / 86−40−3.5138W
2.12.6 Threshold Elevation: 589.8 ft
2.12.6 Touchdown Zone Elevation: 589.8 ft

2.12.1 Designation: 20L
2.12.2 True Bearing: 198
2.12.3 Dimensions: 8001 ft x 150 ft
2.12.4 PCN: 59 R/B/W/T
2.12.5 Coordinates: 36−8−1.0116N / 86−39−33.3955W
2.12.6 Threshold Elevation: 540 ft
2.12.6 Touchdown Zone Elevation: 550.6 ft

2.12.1 Designation: 13
2.12.2 True Bearing: 133
2.12.3 Dimensions: 11030 ft x 150 ft
2.12.4 PCN: 70 R/C/W/T
2.12.5 Coordinates: 36−8−28.5991N / 86−41−43.2788W
2.12.6 Threshold Elevation: 535.9 ft
2.12.6 Touchdown Zone Elevation: 567.5 ft

2.12.1 Designation: 31
2.12.2 True Bearing: 313
2.12.3 Dimensions: 11030 ft x 150 ft
2.12.4 PCN: 70 R/C/W/T
2.12.5 Coordinates: 36−7−13.7852N / 86−40−5.4384W
2.12.6 Threshold Elevation: 582.3 ft
2.12.6 Touchdown Zone Elevation: 577.5 ft

AD 2.13 Declared Distances
2.13.1 Designation: 02C
2.13.2 Take−off Run Available: 8001 ft
2.13.3 Take−off Distance Available: 8001 ft
2.13.4 Accelerate−Stop Distance Available: 7601 ft
2.13.5 Landing Distance Available: 7601 ft

2.13.1 Designation: 20C
2.13.2 Take−off Run Available: 8001 ft
2.13.3 Take−off Distance Available: 8001 ft

2.13.4 Accelerate−Stop Distance Available: 8001 ft
2.13.5 Landing Distance Available: 8001 ft

2.13.1 Designation: 02L
2.13.2 Take−off Run Available: 7702 ft
2.13.3 Take−off Distance Available: 7702 ft
2.13.4 Accelerate−Stop Distance Available: 7702 ft
2.13.5 Landing Distance Available: 7702 ft

2.13.1 Designation: 20R
2.13.2 Take−off Run Available: 7702 ft
2.13.3 Take−off Distance Available: 7702 ft
2.13.4 Accelerate−Stop Distance Available: 7702 ft
2.13.5 Landing Distance Available: 7702 ft

2.13.1 Designation: 02R
2.13.2 Take−off Run Available: 8000 ft
2.13.3 Take−off Distance Available: 8000 ft
2.13.4 Accelerate−Stop Distance Available: 8000 ft
2.13.5 Landing Distance Available: 8000 ft

2.13.1 Designation: 20L
2.13.2 Take−off Run Available: 8000 ft
2.13.3 Take−off Distance Available: 8000 ft
2.13.4 Accelerate−Stop Distance Available: 8000 ft
2.13.5 Landing Distance Available: 8000 ft

2.13.1 Designation: 13
2.13.2 Take−off Run Available: 10288 ft
2.13.3 Take−off Distance Available: 11029 ft
2.13.4 Accelerate−Stop Distance Available: 10288 ft
2.13.5 Landing Distance Available: 9487 ft

2.13.1 Designation: 31
2.13.2 Take−off Run Available: 10228 ft
2.13.3 Take−off Distance Available: 11029 ft
2.13.4 Accelerate−Stop Distance Available: 10228 ft
2.13.5 Landing Distance Available: 9487 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 02C
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 20C
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 02L
2.14.2 Approach Lighting System: ALSF2

2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 20R
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 02R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 20L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 13
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 31
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: ALCP
2.14.3 Channel: 314.4
2.14.5 Hours of Operation:

2.14.1 Service Designation: APCH/P (WEST)
2.14.3 Channel: 372
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (EAST)
2.14.3 Channel: 118.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (EAST)
2.14.3 Channel: 360.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD PRE TAXI CLNC
2.14.3 Channel: 126.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (EAST)
2.14.3 Channel: 118.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (WEST)
2.14.3 Channel: 119.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (EAST)
2.14.3 Channel: 360.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (WEST)
2.14.3 Channel: 372
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 135.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (EAST)
2.14.3 Channel: 118.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (WEST)
2.14.3 Channel: 119.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (EAST)
2.14.3 Channel: 360.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (WEST)
2.14.3 Channel: 372
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 118.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8

2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids

2.19.1 ILS Type: Glide Slope for runway 02C. Magnetic variation: 3W
2.19.2 ILS Identification: EZN
2.19.5 Coordinates: 36−6−22.6382N / 86−41−16.8861W
2.19.6 Site Elevation: 570.5 ft

2.19.1 ILS Type: Localizer for runway 02C. Magnetic variation: 3W
2.19.2 ILS Identification: EZN
2.19.5 Coordinates: 36−7−32.9571N / 86−40−44.2611W
2.19.6 Site Elevation: 574.3 ft

2.19.1 ILS Type: DME for runway 02L. Magnetic variation: 3W
2.19.2 ILS Identification: BNA
2.19.5 Coordinates: 36−8−26.4864N / 86−40−42.3692W
2.19.6 Site Elevation: 554 ft

2.19.1 ILS Type: Glide Slope for runway 02L. Magnetic variation: 3W
2.19.2 ILS Identification: BNA
2.19.5 Coordinates: 36−7−12.9535N / 86−41−2.539W
2.19.6 Site Elevation: 589.7 ft

2.19.1 ILS Type: Inner Marker for runway 02L. Magnetic variation: 3W
2.19.2 ILS Identification: BNA
2.19.5 Coordinates: 36−6−54.829N / 86−41−14.7612W
2.19.6 Site Elevation: 594.5 ft

2.19.1 ILS Type: Localizer for runway 02L. Magnetic variation: 3W
2.19.2 ILS Identification: BNA
2.19.5 Coordinates: 36−8−25.7779N / 86−40−39.0927W
2.19.6 Site Elevation: 545.4 ft

2.19.1 ILS Type: Glide Slope for runway 20R. Magnetic variation: 3W
2.19.2 ILS Identification: VIY
2.19.5 Coordinates: 36−8−5.8196N / 86−40−42.7621W
2.19.6 Site Elevation: 554.9 ft

2.19.1 ILS Type: Localizer for runway 20R. Magnetic variation: 3W
2.19.2 ILS Identification: VIY
2.19.5 Coordinates: 36−6−49.6756N / 86−41−16.7814W
2.19.6 Site Elevation: 598.1 ft

2.19.1 ILS Type: DME for runway 02R. Magnetic variation: 3W
2.19.2 ILS Identification: UQU
2.19.5 Coordinates: 36−8−9.8916N / 86−39−35.7867W
2.19.6 Site Elevation: 537.1 ft

2.19.1 ILS Type: Glide Slope for runway 02R. Magnetic variation: 3W
2.19.2 ILS Identification: UQU

2.19.5 Coordinates: 36−6−56.0152N / 86−39−54.7364W
2.19.6 Site Elevation: 576.7 ft

2.19.1 ILS Type: Inner Marker for runway 02R. Magnetic variation: 3W
2.19.2 ILS Identification: UQU
2.19.5 Coordinates: 36−6−37.6961N / 86−40−6.7484W
2.19.6 Site Elevation: 569 ft

2.19.1 ILS Type: Localizer for runway 02R. Magnetic variation: 3W
2.19.2 ILS Identification: UQU
2.19.5 Coordinates: 36−8−10.5404N / 86−39−29.5803W
2.19.6 Site Elevation: 531 ft

2.19.1 ILS Type: DME for runway 20L. Magnetic variation: 3W
2.19.2 ILS Identification: SSX
2.19.5 Coordinates: 36−6−30.9674N / 86−40−12.8854W
2.19.6 Site Elevation: 622.2 ft

2.19.1 ILS Type: Glide Slope for runway 20L. Magnetic variation: 3W
2.19.2 ILS Identification: SSX
2.19.5 Coordinates: 36−7−50.0286N / 86−39−33.1134W
2.19.6 Site Elevation: 534.5 ft

2.19.1 ILS Type: Localizer for runway 20L. Magnetic variation: 3W
2.19.2 ILS Identification: SSX
2.19.5 Coordinates: 36−6−30.0253N / 86−40−9.8136W
2.19.6 Site Elevation: 613.4 ft

2.19.1 ILS Type: Glide Slope for runway 31. Magnetic variation: 3W
2.19.2 ILS Identification: PNO
2.19.5 Coordinates: 36−7−28.2722N / 86−40−18.5978W
2.19.6 Site Elevation: 566.4 ft

2.19.1 ILS Type: Localizer for runway 31. Magnetic variation: 3W
2.19.2 ILS Identification: PNO
2.19.5 Coordinates: 36−8−30.6518N / 86−41−45.9626W
2.19.6 Site Elevation: 539.6 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 2W
2.19.2 Navigation Aid Identification: BNA
2.19.5 Coordinates: 36−8−13.0573N / 86−41−5.1762W
2.19.6 Site Elevation: 566.4 ft

General Remarks:
TRML RAMP UNCTLD; MNT ADZYS − 122.95.

180 DEG TURNS FOR ACFT OVR 12500 LBS NA ON ASPH SFC.

TBJT RWY NOISE ABATEMENT PROC; MIL TBJT USE RWY 13/31 FOR ARR & DEP.

DO NOT CONFUSE TWY S FOR RWY 20C.

BIRD ACT ON & INVOF ARPT.

CTN: READ BACK & COMPLIANCE OF RWY HLDG INSTRN RQR; SPCLY TWY K & RWY 20C, TWY L AT RWY 13 & TWY H AT RWY 31.

C CONCOURSE; INNER TXL OUBD TFC; OUTER TXL INBD TFC.

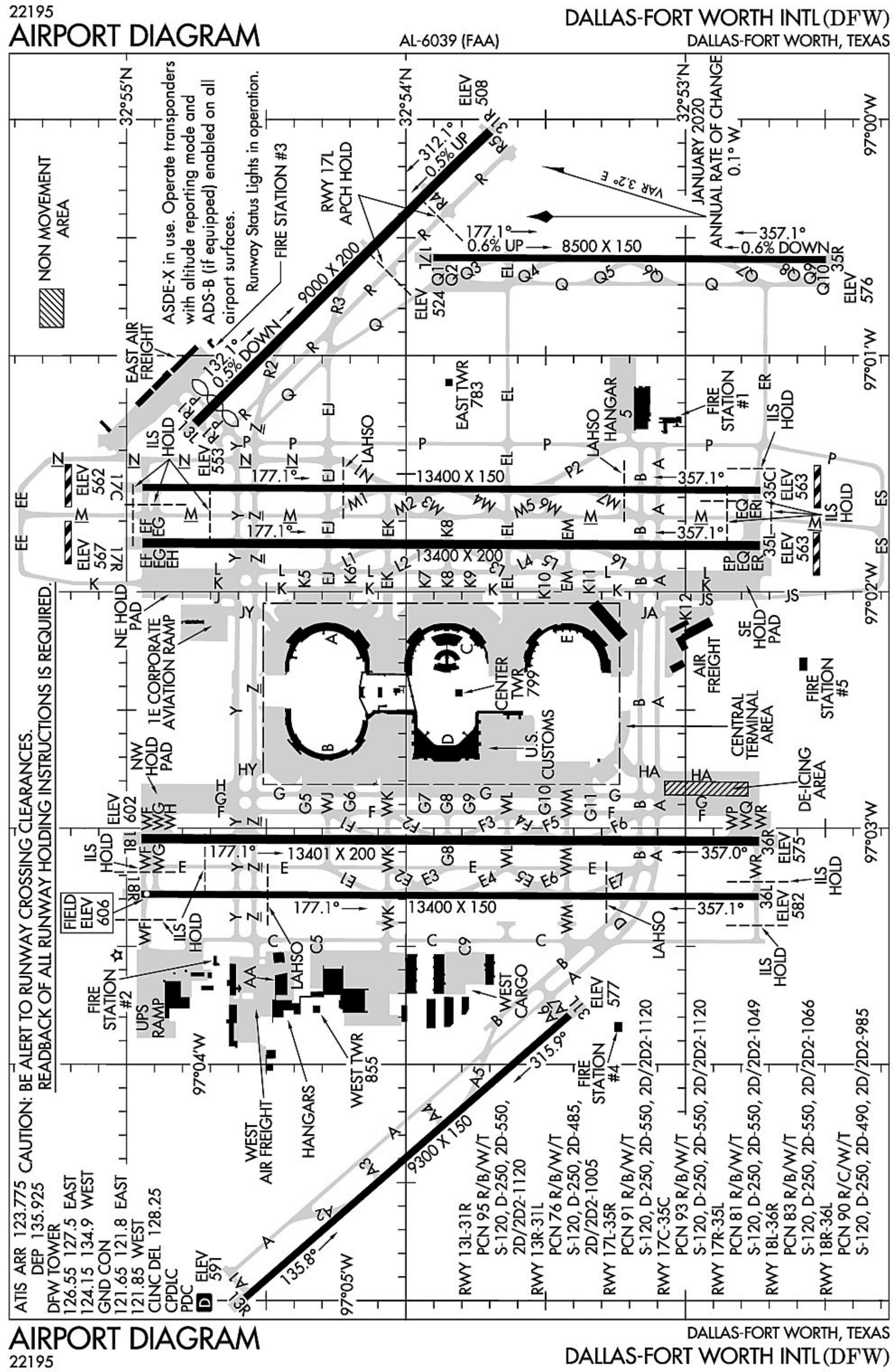
MIL & ACFT MORE THAN 12500 LBS PRAC APCH NA; PRAC APCH BTW 2300−0700 NA.

ANG: PPR − MUSIC CITY OPS 615−367−5579.

FLT NOTIFICATION SVC (ADCUS) AVBL.

FLT OVR MAIN TRML NA.

Dallas, Texas
Dallas−Fort Worth International
ICAO Identifier KDFW



Dallas−Fort Worth, TX
Dallas/Fort Worth Intl
ICAO Identifier KDFW

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 32−53−50.039N / 97−2−15.701W
2.2.2 From City: 12 miles NW of DALLAS−FORT WORTH, TX
2.2.3 Elevation: 606.4 ft
2.2.5 Magnetic Variation: 4E (2015)
2.2.6 Airport Contact: SEAN DONOHUE
PO BOX 619428
DALLAS−FT WORTH, TX 75261 (972−973−3112)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space:
2.4.6 Repair Facilities: None

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 7/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 31R
2.12.2 True Bearing: 315
2.12.3 Dimensions: 9000 ft x 200 ft
2.12.4 PCN: 95 R/B/W/T
2.12.5 Coordinates: 32−53−41.932N / 97−0−3.0376W
2.12.6 Threshold Elevation: 508.4 ft
2.12.6 Touchdown Zone Elevation: 523.4 ft

2.12.1 Designation: 13L
2.12.2 True Bearing: 135
2.12.3 Dimensions: 9000 ft x 200 ft
2.12.4 PCN: 95 R/B/W/T
2.12.5 Coordinates: 32−54−45.197N / 97−1−17.3221W
2.12.6 Threshold Elevation: 553.1 ft
2.12.6 Touchdown Zone Elevation: 550 ft

2.12.1 Designation: 13R
2.12.2 True Bearing: 139

2.12.3 Dimensions: 9300 ft x 150 ft
2.12.4 PCN: 76 R/B/W/T
2.12.5 Coordinates: 32−54−34.4723N / 97−4−59.276W
2.12.6 Threshold Elevation: 591 ft
2.12.6 Touchdown Zone Elevation: 591 ft

2.12.1 Designation: 31L
2.12.2 True Bearing: 319
2.12.3 Dimensions: 9300 ft x 150 ft
2.12.4 PCN: 76 R/B/W/T
2.12.5 Coordinates: 32−53−24.9716N / 97−3−47.7953W
2.12.6 Threshold Elevation: 577.2 ft
2.12.6 Touchdown Zone Elevation: 581.4 ft

2.12.1 Designation: 17C
2.12.2 True Bearing: 180
2.12.3 Dimensions: 13400 ft x 150 ft
2.12.4 PCN: 93 R/B/W/T
2.12.5 Coordinates: 32−54−56.5441N / 97−1−33.5097W
2.12.6 Threshold Elevation: 562.2 ft
2.12.6 Touchdown Zone Elevation: 563.2 ft

2.12.1 Designation: 35C
2.12.2 True Bearing: 0
2.12.3 Dimensions: 13400 ft x 150 ft
2.12.4 PCN: 93 R/B/W/T
2.12.5 Coordinates: 32−52−43.9636N / 97−1−34.218W
2.12.6 Threshold Elevation: 563.1 ft
2.12.6 Touchdown Zone Elevation: 563.2 ft

2.12.1 Designation: 35R
2.12.2 True Bearing: 0
2.12.3 Dimensions: 8500 ft x 150 ft
2.12.4 PCN: 91 R/B/W/T
2.12.5 Coordinates: 32−52−29.8535N / 97−0−35.6686W
2.12.6 Threshold Elevation: 575.6 ft
2.12.6 Touchdown Zone Elevation: 575.6 ft

2.12.1 Designation: 17L
2.12.2 True Bearing: 180
2.12.3 Dimensions: 8500 ft x 150 ft
2.12.4 PCN: 91 R/B/W/T
2.12.5 Coordinates: 32−53−53.9534N / 97−0−35.203W
2.12.6 Threshold Elevation: 524.3 ft

2.12.6 Touchdown Zone Elevation: 545.2 ft

2.12.1 Designation: 35L
2.12.2 True Bearing: 0
2.12.3 Dimensions: 13400 ft x 200 ft
2.12.4 PCN: 81 R/B/W/T
2.12.5 Coordinates: 32−52−44.0203N / 97−1−48.2888W
2.12.6 Threshold Elevation: 563.4 ft
2.12.6 Touchdown Zone Elevation: 564 ft

2.12.1 Designation: 17R
2.12.2 True Bearing: 180
2.12.3 Dimensions: 13400 ft x 200 ft
2.12.4 PCN: 81 R/B/W/T
2.12.5 Coordinates: 32−54−56.5996N / 97−1−47.5806W
2.12.6 Threshold Elevation: 566.6 ft
2.12.6 Touchdown Zone Elevation: 566.7 ft

2.12.1 Designation: 18L
2.12.2 True Bearing: 180
2.12.3 Dimensions: 13401 ft x 200 ft
2.12.4 PCN: 83 R/B/W/T
2.12.5 Coordinates: 32−54−56.8785N / 97−3−2.6511W
2.12.6 Threshold Elevation: 601.5 ft
2.12.6 Touchdown Zone Elevation: 601.6 ft

2.12.1 Designation: 36R
2.12.2 True Bearing: 0
2.12.3 Dimensions: 13401 ft x 200 ft
2.12.4 PCN: 83 R/B/W/T
2.12.5 Coordinates: 32−52−44.2972N / 97−3−3.3332W
2.12.6 Threshold Elevation: 575.3 ft
2.12.6 Touchdown Zone Elevation: 580.7 ft

2.12.1 Designation: 36L
2.12.2 True Bearing: 0
2.12.3 Dimensions: 13400 ft x 150 ft
2.12.4 PCN: 90 R/C/W/T
2.12.5 Coordinates: 32−52−44.3493N / 97−3−17.4003W
2.12.6 Threshold Elevation: 582.2 ft
2.12.6 Touchdown Zone Elevation: 587.6 ft

2.12.1 Designation: 18R
2.12.2 True Bearing: 180

2.12.3 Dimensions: 13400 ft x 150 ft
2.12.4 PCN: 90 R/C/W/T
2.12.5 Coordinates: 32−54−56.9275N / 97−3−16.7239W
2.12.6 Threshold Elevation: 606.4 ft
2.12.6 Touchdown Zone Elevation: 606.4 ft

AD 2.13 Declared Distances
2.13.1 Designation: 31R
2.13.2 Take−off Run Available: 8373 ft
2.13.3 Take−off Distance Available: 8373 ft
2.13.4 Accelerate−Stop Distance Available: 8373 ft
2.13.5 Landing Distance Available: 8373 ft

2.13.1 Designation: 13L
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 8373 ft

2.13.1 Designation: 13R
2.13.2 Take−off Run Available: 9300 ft
2.13.3 Take−off Distance Available: 9300 ft
2.13.4 Accelerate−Stop Distance Available: 9300 ft
2.13.5 Landing Distance Available: 9300 ft

2.13.1 Designation: 31L
2.13.2 Take−off Run Available: 9300 ft
2.13.3 Take−off Distance Available: 9300 ft
2.13.4 Accelerate−Stop Distance Available: 9300 ft
2.13.5 Landing Distance Available: 9300 ft

2.13.1 Designation: 17C
2.13.2 Take−off Run Available: 13400 ft
2.13.3 Take−off Distance Available: 13400 ft
2.13.4 Accelerate−Stop Distance Available: 13400 ft
2.13.5 Landing Distance Available: 13400 ft

2.13.1 Designation: 35C
2.13.2 Take−off Run Available: 13400 ft
2.13.3 Take−off Distance Available: 13400 ft
2.13.4 Accelerate−Stop Distance Available: 13400 ft
2.13.5 Landing Distance Available: 13400 ft

2.13.1 Designation: 35R
2.13.2 Take−off Run Available: 8500 ft
2.13.3 Take−off Distance Available: 8500 ft
2.13.4 Accelerate−Stop Distance Available: 8500 ft
2.13.5 Landing Distance Available: 8500 ft

2.13.1 Designation: 17L
2.13.2 Take−off Run Available: 8500 ft
2.13.3 Take−off Distance Available: 8500 ft
2.13.4 Accelerate−Stop Distance Available: 8500 ft
2.13.5 Landing Distance Available: 8500 ft

2.13.1 Designation: 35L
2.13.2 Take−off Run Available: 13400 ft
2.13.3 Take−off Distance Available: 13400 ft
2.13.4 Accelerate−Stop Distance Available: 13400 ft
2.13.5 Landing Distance Available: 13400 ft

2.13.1 Designation: 17R
2.13.2 Take−off Run Available: 13400 ft
2.13.3 Take−off Distance Available: 13400 ft
2.13.4 Accelerate−Stop Distance Available: 13400 ft
2.13.5 Landing Distance Available: 13400 ft

2.13.1 Designation: 18L
2.13.2 Take−off Run Available: 13401 ft
2.13.3 Take−off Distance Available: 13401 ft
2.13.4 Accelerate−Stop Distance Available: 13401 ft
2.13.5 Landing Distance Available: 13401 ft

2.13.1 Designation: 36R
2.13.2 Take−off Run Available: 13401 ft
2.13.3 Take−off Distance Available: 13401 ft
2.13.4 Accelerate−Stop Distance Available: 13401 ft
2.13.5 Landing Distance Available: 13401 ft

2.13.1 Designation: 36L
2.13.2 Take−off Run Available: 13400 ft
2.13.3 Take−off Distance Available: 13400 ft
2.13.4 Accelerate−Stop Distance Available: 13400 ft
2.13.5 Landing Distance Available: 13400 ft

2.13.1 Designation: 18R
2.13.2 Take−off Run Available: 13400 ft

2.13.3 Take−off Distance Available: 13400 ft
2.13.4 Accelerate−Stop Distance Available: 13400 ft
2.13.5 Landing Distance Available: 13400 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 31R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 13L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 13R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 31L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 17C
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35C
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 17L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 17R
2.14.2 Approach Lighting System: MALSR

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 18L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 36R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 36L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 18R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 31R. Magnetic variation: 4E
2.19.2 ILS Identification: RRA
2.19.5 Coordinates: 32−54−49.6375N / 97−1−18.3123W
2.19.6 Site Elevation: 558.1 ft

2.19.1 ILS Type: Glide Slope for runway 31R. Magnetic variation: 4E
2.19.2 ILS Identification: RRA
2.19.5 Coordinates: 32−53−51.7482N / 97−0−7.9558W
2.19.6 Site Elevation: 509 ft

2.19.1 ILS Type: Localizer for runway 31R. Magnetic variation: 4E
2.19.2 ILS Identification: RRA
2.19.5 Coordinates: 32−54−48.1182N / 97−1−20.7551W
2.19.6 Site Elevation: 551.5 ft

2.19.1 ILS Type: DME for runway 13R. Magnetic variation: 4E
2.19.2 ILS Identification: LWN
2.19.5 Coordinates: 32−53−16.0647N / 97−3−42.7672W
2.19.6 Site Elevation: 588.7 ft

2.19.1 ILS Type: Glide Slope for runway 13R. Magnetic variation: 4E
2.19.2 ILS Identification: LWN

2.19.5 Coordinates: 32−54−24.1329N / 97−4−54.0746W
2.19.6 Site Elevation: 587.6 ft

2.19.1 ILS Type: Localizer for runway 13R. Magnetic variation: 4E
2.19.2 ILS Identification: LWN
2.19.5 Coordinates: 32−53−17.4371N / 97−3−40.0471W
2.19.6 Site Elevation: 575 ft

2.19.1 ILS Type: DME for runway 17C. Magnetic variation: 4E
2.19.2 ILS Identification: FLQ
2.19.5 Coordinates: 32−52−34.123N / 97−1−39.6491W
2.19.6 Site Elevation: 573.6 ft

2.19.1 ILS Type: Glide Slope for runway 17C. Magnetic variation: 4E
2.19.2 ILS Identification: FLQ
2.19.5 Coordinates: 32−54−45.6425N / 97−1−28.781W
2.19.6 Site Elevation: 555.8 ft

2.19.1 ILS Type: Inner Marker for runway 17C. Magnetic variation: 4E
2.19.2 ILS Identification: FLQ
2.19.5 Coordinates: 32−55−4.09N / 97−1−33.46W
2.19.6 Site Elevation: 562 ft

2.19.1 ILS Type: Localizer for runway 17C. Magnetic variation: 4E
2.19.2 ILS Identification: FLQ
2.19.5 Coordinates: 32−52−33.1505N / 97−1−34.2781W
2.19.6 Site Elevation: 562.7 ft

2.19.1 ILS Type: DME for runway 35C. Magnetic variation: 4E
2.19.2 ILS Identification: PKQ
2.19.5 Coordinates: 32−52−34.123N / 97−1−39.6491W
2.19.6 Site Elevation: 573.6 ft

2.19.1 ILS Type: Glide Slope for runway 35C. Magnetic variation: 4E
2.19.2 ILS Identification: PKQ
2.19.5 Coordinates: 32−52−54.3357N / 97−1−29.4713W
2.19.6 Site Elevation: 557.2 ft

2.19.1 ILS Type: Inner Marker for runway 35C. Magnetic variation: 4E
2.19.2 ILS Identification: PKQ
2.19.5 Coordinates: 32−52−35.3015N / 97−1−34.258W
2.19.6 Site Elevation: 562.5 ft

2.19.1 ILS Type: Localizer for runway 35C. Magnetic variation: 4E

2.19.2 ILS Identification: PKQ
2.19.5 Coordinates: 32−55−7.0371N / 97−1−33.452W
2.19.6 Site Elevation: 561.2 ft

2.19.1 ILS Type: DME for runway 17L. Magnetic variation: 4E
2.19.2 ILS Identification: PPZ
2.19.5 Coordinates: 32−52−18.7175N / 97−0−40.2982W
2.19.6 Site Elevation: 591.2 ft

2.19.1 ILS Type: Glide Slope for runway 17L. Magnetic variation: 4E
2.19.2 ILS Identification: PPZ
2.19.5 Coordinates: 32−53−45.2247N / 97−0−31.1329W
2.19.6 Site Elevation: 526.4 ft

2.19.1 ILS Type: Inner Marker for runway 17L. Magnetic variation: 4E
2.19.2 ILS Identification: PPZ
2.19.5 Coordinates: 32−54−5.3333N / 97−0−35.2536W
2.19.6 Site Elevation: 521.7 ft

2.19.1 ILS Type: Localizer for runway 17L. Magnetic variation: 4E
2.19.2 ILS Identification: PPZ
2.19.5 Coordinates: 32−52−19.4359N / 97−0−35.7267W
2.19.6 Site Elevation: 584.2 ft

2.19.1 ILS Type: DME for runway 35R. Magnetic variation: 4E
2.19.2 ILS Identification: AJQ
2.19.5 Coordinates: 32−52−18.7175N / 97−0−40.2982W
2.19.6 Site Elevation: 591.2 ft

2.19.1 ILS Type: Glide Slope for runway 35R. Magnetic variation: 4E
2.19.2 ILS Identification: AJQ
2.19.5 Coordinates: 32−52−43.4402N / 97−0−30.9032W
2.19.6 Site Elevation: 559.2 ft

2.19.1 ILS Type: Inner Marker for runway 35R. Magnetic variation: 4E
2.19.2 ILS Identification: AJQ
2.19.5 Coordinates: 32−52−22.6082N / 97−0−35.7029W
2.19.6 Site Elevation: 581.2 ft

2.19.1 ILS Type: Localizer for runway 35R. Magnetic variation: 4E
2.19.2 ILS Identification: AJQ
2.19.5 Coordinates: 32−54−4.1916N / 97−0−35.1492W
2.19.6 Site Elevation: 519.5 ft

2.19.1 ILS Type: DME for runway 17R. Magnetic variation: 4E
2.19.2 ILS Identification: JHZ
2.19.5 Coordinates: 32−52−33.6523N / 97−1−53.6029W
2.19.6 Site Elevation: 556.9 ft

2.19.1 ILS Type: Glide Slope for runway 17R. Magnetic variation: 4E
2.19.2 ILS Identification: JHZ
2.19.5 Coordinates: 32−54−45.8213N / 97−1−43.0635W
2.19.6 Site Elevation: 561.3 ft

2.19.1 ILS Type: Localizer for runway 17R. Magnetic variation: 4E
2.19.2 ILS Identification: JHZ
2.19.5 Coordinates: 32−52−33.207N / 97−1−48.3488W
2.19.6 Site Elevation: 558.2 ft

2.19.1 ILS Type: DME for runway 35L. Magnetic variation: 4E
2.19.2 ILS Identification: UWX
2.19.5 Coordinates: 32−52−33.6523N / 97−1−53.6029W
2.19.6 Site Elevation: 556.9 ft

2.19.1 ILS Type: Glide Slope for runway 35L. Magnetic variation: 4E
2.19.2 ILS Identification: UWX
2.19.5 Coordinates: 32−52−54.9854N / 97−1−43.5413W
2.19.6 Site Elevation: 559 ft

2.19.1 ILS Type: Localizer for runway 35L. Magnetic variation: 4E
2.19.2 ILS Identification: UWX
2.19.5 Coordinates: 32−55−7.3142N / 97−1−47.5225W
2.19.6 Site Elevation: 567.6 ft

2.19.1 ILS Type: DME for runway 18L. Magnetic variation: 4E
2.19.2 ILS Identification: CIX
2.19.5 Coordinates: 32−55−8.6708N / 97−3−7.2741W
2.19.6 Site Elevation: 594.7 ft

2.19.1 ILS Type: Glide Slope for runway 18L. Magnetic variation: 4E
2.19.2 ILS Identification: CIX
2.19.5 Coordinates: 32−54−45.2198N / 97−3−6.8173W
2.19.6 Site Elevation: 594.3 ft

2.19.1 ILS Type: Localizer for runway 18L. Magnetic variation: 4E
2.19.2 ILS Identification: CIX
2.19.5 Coordinates: 32−52−33.5835N / 97−3−3.3873W
2.19.6 Site Elevation: 570.1 ft

2.19.1 ILS Type: DME for runway 36R. Magnetic variation: 4E
2.19.2 ILS Identification: FJN
2.19.5 Coordinates: 32−55−8.6708N / 97−3−7.2741W
2.19.6 Site Elevation: 594.7 ft

2.19.1 ILS Type: Glide Slope for runway 36R. Magnetic variation: 4E
2.19.2 ILS Identification: FJN
2.19.5 Coordinates: 32−52−54.8518N / 97−3−7.9662W
2.19.6 Site Elevation: 577.2 ft

2.19.1 ILS Type: Localizer for runway 36R. Magnetic variation: 4E
2.19.2 ILS Identification: FJN
2.19.5 Coordinates: 32−55−6.8486N / 97−3−2.5997W
2.19.6 Site Elevation: 597.2 ft

2.19.1 ILS Type: DME for runway 18R. Magnetic variation: 4E
2.19.2 ILS Identification: VYN
2.19.5 Coordinates: 32−52−34.0875N / 97−3−12.5854W
2.19.6 Site Elevation: 582.3 ft

2.19.1 ILS Type: Glide Slope for runway 18R. Magnetic variation: 4E
2.19.2 ILS Identification: VYN
2.19.5 Coordinates: 32−54−45.4683N / 97−3−21.5693W
2.19.6 Site Elevation: 598.5 ft

2.19.1 ILS Type: Inner Marker for runway 18R. Magnetic variation: 4E
2.19.2 ILS Identification: VYN
2.19.5 Coordinates: 32−55−4.5483N / 97−3−16.6916W
2.19.6 Site Elevation: 602.6 ft

2.19.1 ILS Type: Localizer for runway 18R. Magnetic variation: 4E
2.19.2 ILS Identification: VYN
2.19.5 Coordinates: 32−52−33.9326N / 97−3−17.4526W
2.19.6 Site Elevation: 580.4 ft

2.19.1 ILS Type: DME for runway 36L. Magnetic variation: 4E
2.19.2 ILS Identification: BXN
2.19.5 Coordinates: 32−52−34.0875N / 97−3−12.5854W
2.19.6 Site Elevation: 582.3 ft

2.19.1 ILS Type: Glide Slope for runway 36L. Magnetic variation: 4E
2.19.2 ILS Identification: BXN
2.19.5 Coordinates: 32−52−54.4087N / 97−3−22.0405W

2.19.6 Site Elevation: 579.9 ft

2.19.1 ILS Type: Localizer for runway 36L. Magnetic variation: 4E
2.19.2 ILS Identification: BXN
2.19.5 Coordinates: 32−55−6.9002N / 97−3−16.6717W
2.19.6 Site Elevation: 601.9 ft

General Remarks:
TKOF DSTC FOR RY 35L FM TWY EQ IS 13084 FT & FM TWY EP IS 12811 FT.

ARPT UNDER CONSTRUCTION; PAEW IN MOVEMENT AREAS.

PPR ACFT WITH WINGSPAN 215 FT OR GREATER (GROUP VI) CALL ARPT OPNS 972−973−3112 FOR FOLLOW−ME SERVICES WHILE TAXIING TO & FROM RAMP & RYS.

TWY A6 CLSD TO ACFT WITH WINGSPAN 171 FT AND GREATER.

TKOF DSTC FOR RY 18R FM TWY WG IS 13,082 FT.

RY VISUAL SCREEN 20 FT AGL 1180 FT S AER 35C.

ACFT AT EAST AIR FREIGHT MUST CONTACT DFW TWR AT 127.5 PRIOR TO TAXI OUT.

APRON ENTRANCE/EXIT POINTS 22, 24, 105, AND 107 CLSD TO ACFT WITH WINGSPAN GREATER THAN 125 FT.

TKOF DSTC FOR RY 17L FM TWY Q2 IS 8196 FT.

PPR GA OPERATIONS 0000−0500; CALL ARPT OPNS 972−973−3112.

APRON ENTRANCE/EXIT POINT 124 CLSD TO ACFT WITH WINGSPAN GREATER THAN 213 FT.

RY STATUS LGTS IN OPN.

TKOF DSTC FOR RY 35R FM TWY Q9 IS 8196 FT.

ACFT USING TERMINAL D GATES OR APRON ENTRANCE/EXIT POINTS 122 THRU 150 MUST OBTAIN APPROVAL FROM DFW RAMP TOWER 129.825 PRIOR TO ENTERING RAMP AND PRIOR TO PUSHBACK.

TERMINAL B APRON TAXILANE BTN APRON ENTRANCE/EXIT POINT TAXILANES 107 & 117 CLSD TO ACFT WITH WINGSPAN 94 FT AND GREATER.

TKOF DSTC FOR RY 17C FM TWY EG IS 13,082 FT.

APRON ENTRANCE/EXIT POINTS 110, 111, 112, 113, 114, 115, AND 116 CLSD TO ACFT WITH WINGSPAN GREATER THAN 94 FT.

TKOF DSTC FOR RY 18L FM TWY WG IS 13,082; FM TWY WH IS 12,815.

UNLESS OTHERWISE SPECIFIED, ALL APRON ENTRANCE/EXIT POINTS CLSD TO ACFT WITH WINGSPAN GREATER THAN 214 FT EXCEPT PPR.

PPR FROM ARPT OPNS FOR GEN AVN ACFT TO PROCD TO AIRLINE TRML GATE EXCP GEN AVN FAC.

PPR FM THE PRIMARY TENANT AIRLINES TO OPERATE WITHIN THE CENTRAL TERMINAL AREA. PROPER MINIMUM OBJECT FREE AREA DISTANCES MAY NOT BE MAINTAINED FOR RAMP/APRON TAXILANES.

TWY EDGE REFLECTORS ALONG ALL TWYS.

APRON ENTRANCE/EXIT POINTS 1 AND 2 CLSD TO ACFT WITH WINGSPAN GREATER THAN 89' EXCEPT PPR.

APRON ENTRANCE/EXIT POINTS 3 AND 4 CLSD TO ACFT WITH WINGSPAN GREATER THAN 118 FT EXCEPT PPR.

TKOF DSTC FOR RY 36R FM TWY WP IS 12,815 FT; FM TWY WQ IS 13,082 FT.

TKOF DSTC FOR RY 17R FM TWY EG IS 13082 FT & FM TWY EH IS 12816 FT.

LAND & HOLD SHORT SIGNS ON RY 17C AT TWY 'B' 10,460 FT S OF RY 17C THLD; RY 18R AT TWY 'B' 10,100 FT S OF RY 18R THLD; RY 35C AT TWY 'EJ' 9050 FT N OF RY 35C THLD; RY 36L AT TWY 'Z' 10,650 FT N OF RY 36L THLD; LGTD & MKD WITH IN−PAVEMENT PULSATING WHITE LGTS.

ACFT USING TWY HA NORTH OF TWY B MUST OBTAIN APPROVAL FROM RAMP 129.825 PRIOR TO ENTERING RAMP.

APRON ENTRANCE/EXIT POINTS 9, 32, 33, 34, 35, 36, 37, 38, & 53 CLSD TO ACFT WITH WINGSPAN GREATER THAN 135 FT.

APRON ENTRANCE/EXIT POINTS 5, 7, 42, 44, 48, 49, 51, 52, 117, 118 AND 122 CLSD TO ACFT WITH WINGSPAN GREATER THAN 118 FT.

APRON ENTRANCE/EXIT POINTS 31 AND 39 CLSD TO ACFT WITH WINGSPAN GREATER THAN 167 FT.

TWYS MAY REQUIRE JUDGMENTAL OVERSTEERING FOR LARGE ACFT.

STD SAWED GROOVING 160 FT WIDE FULL LENGTH RYS 13L/31R; 18L/36R & 17R/35L. STD GROOVING 130 FTWIDE FULL LENGTH RYS 17L/35R; 18R/36L; 13R/31L & 17C/35C.

BIRDS ON & INVOF ARPT.

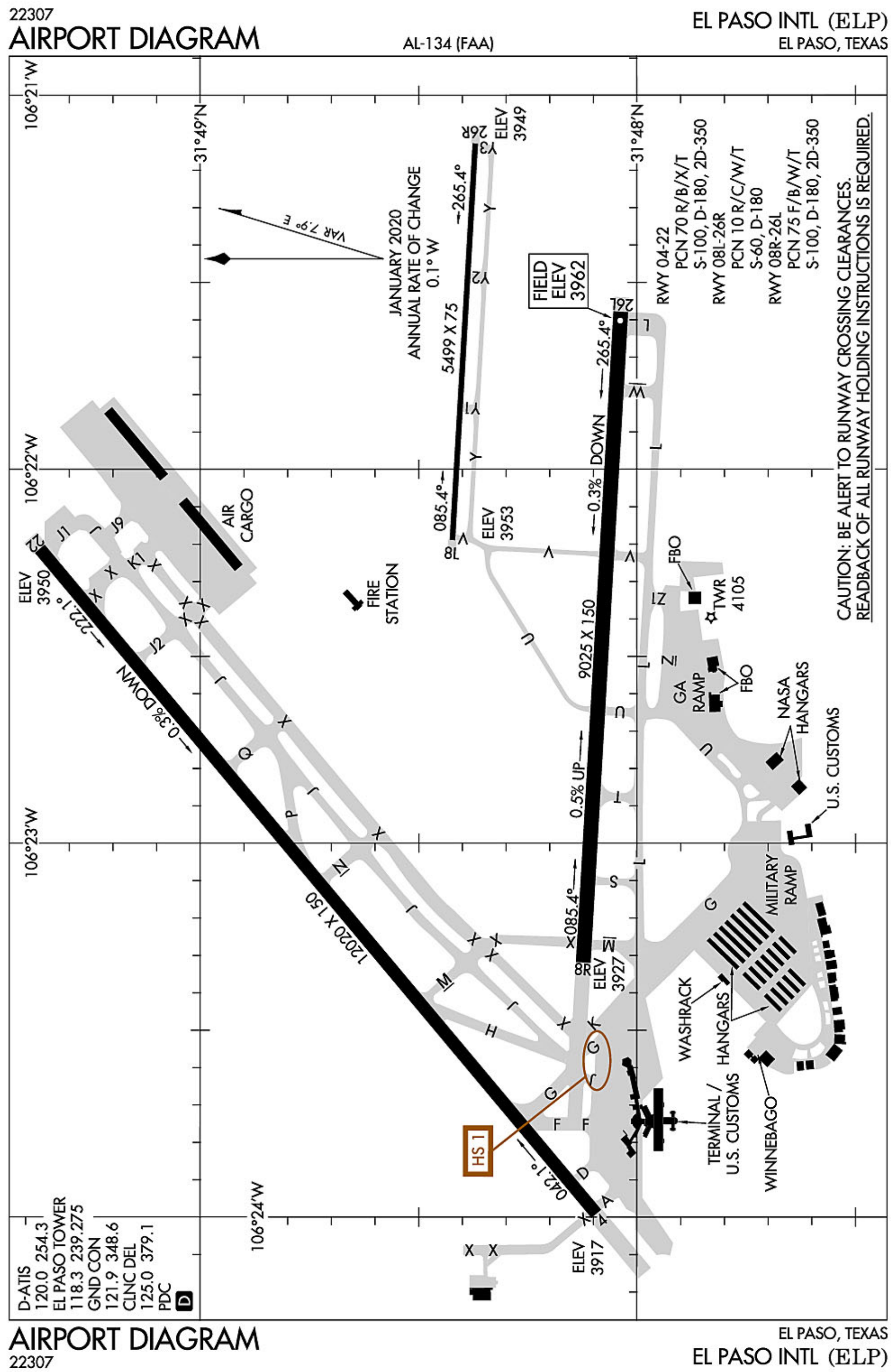
ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

RY VISUAL SCREEN 22 FT AGL 1179 FT S AER 35L.

ACFT USING TERMINAL E GATES E2−E17 MUST OBTAIN APPROVAL FROM RAMP 131.0 PRIOR TO ENTERING RAMP AND PRIOR TO PUSHBACK. ACFT USING TERMINAL E GATES E−18−E38 MUST OBTAIN APPROVAL FROM RAMP 128.825 PRIOR TO ENTERING RAMP AND PRIOR TO PUSHBACK.

A380 OPNS ONLY AUZD ON RWYS 18R/36L AND 18L/36R. B747−8 OPNS ONLY AUZD ON RWYS 18R/36L, 18L/36R AND 17R/35L. CTC ARPT OPNS FOR ADDNL INFO.

El Paso, Texas
El Paso International
ICAO Identifier KELP



El Paso, TX
El Paso Intl
ICAO Identifier KELP

AD 2.2 Aerodrome geographical and administrative data

2.2.1 Reference Point: 31−48−26.4N / 106−22−34.9W

2.2.2 From City: 4 miles NE of EL PASO, TX

2.2.3 Elevation: 3961.6 ft

2.2.5 Magnetic Variation: 8E (2015)

2.2.6 Airport Contact: SAM RODRIGUEZ
6701 CONVAIR RD
EL PASO, TX 79925 (915−212−0333)

2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule

2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities

2.4.1 Cargo Handling Facilities: YES

2.4.2 Fuel Types: 100LL,A1+

2.4.5 Hangar Space: YES

2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services

2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics

2.12.1 Designation: 04

2.12.2 True Bearing: 50

2.12.3 Dimensions: 12020 ft x 150 ft

2.12.4 PCN: 70 R/B/X/T

2.12.5 Coordinates: 31−48−5.5605N / 106−23−59.4625W

2.12.6 Threshold Elevation: 3916.9 ft

2.12.6 Touchdown Zone Elevation: 3923.2 ft

2.12.1 Designation: 22

2.12.2 True Bearing: 230

2.12.3 Dimensions: 12020 ft x 150 ft

2.12.4 PCN: 70 R/B/X/T

2.12.5 Coordinates: 31−49−22.0112N / 106−22−12.7821W

2.12.6 Threshold Elevation: 3949.5 ft

2.12.6 Touchdown Zone Elevation: 3949.5 ft

2.12.1 Designation: 08L

2.12.2 True Bearing: 93

2.12.3 Dimensions: 5499 ft x 75 ft
2.12.4 PCN: 10 R/C/W/T
2.12.5 Coordinates: 31−48−25.3326N / 106−22−11.3796W
2.12.6 Threshold Elevation: 3952.6 ft
2.12.6 Touchdown Zone Elevation: 3952.7 ft

2.12.1 Designation: 26R
2.12.2 True Bearing: 273
2.12.3 Dimensions: 5499 ft x 75 ft
2.12.4 PCN: 10 R/C/W/T
2.12.5 Coordinates: 31−48−22.1849N / 106−21−7.7768W
2.12.6 Threshold Elevation: 3949.2 ft
2.12.6 Touchdown Zone Elevation: 3949.5 ft

2.12.1 Designation: 08R
2.12.2 True Bearing: 93
2.12.3 Dimensions: 9025 ft x 150 ft
2.12.4 PCN: 75 F/B/W/T
2.12.5 Coordinates: 31−48−7.3509N / 106−23−19.1333W
2.12.6 Threshold Elevation: 3927.1 ft
2.12.6 Touchdown Zone Elevation: 3940.3 ft

2.12.1 Designation: 26L
2.12.2 True Bearing: 273
2.12.3 Dimensions: 9025 ft x 150 ft
2.12.4 PCN: 75 F/B/W/T
2.12.5 Coordinates: 31−48−2.195N / 106−21−34.7505W
2.12.6 Threshold Elevation: 3961.6 ft
2.12.6 Touchdown Zone Elevation: 3961.6 ft

AD 2.13 Declared Distances

2.13.1 Designation: 04
2.13.2 Take−off Run Available: 12020 ft
2.13.3 Take−off Distance Available: 12020 ft
2.13.4 Accelerate−Stop Distance Available: 12020 ft
2.13.5 Landing Distance Available: 12020 ft

2.13.1 Designation: 22
2.13.2 Take−off Run Available: 12020 ft
2.13.3 Take−off Distance Available: 12020 ft
2.13.4 Accelerate−Stop Distance Available: 12020 ft
2.13.5 Landing Distance Available: 12020 ft

2.13.1 Designation: 08L
2.13.2 Take−off Run Available: 5499 ft
2.13.3 Take−off Distance Available: 5499 ft
2.13.4 Accelerate−Stop Distance Available: 5499 ft
2.13.5 Landing Distance Available: 5499 ft

2.13.1 Designation: 26R
2.13.2 Take−off Run Available: 5499 ft
2.13.3 Take−off Distance Available: 5499 ft
2.13.4 Accelerate−Stop Distance Available: 5499 ft
2.13.5 Landing Distance Available: 5499 ft

2.13.1 Designation: 08R
2.13.2 Take−off Run Available: 9025 ft
2.13.3 Take−off Distance Available: 9025 ft
2.13.4 Accelerate−Stop Distance Available: 9025 ft
2.13.5 Landing Distance Available: 9025 ft

2.13.1 Designation: 26L
2.13.2 Take−off Run Available: 9025 ft
2.13.3 Take−off Distance Available: 9025 ft
2.13.4 Accelerate−Stop Distance Available: 9025 ft
2.13.5 Landing Distance Available: 9025 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 04
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 22
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 08L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 26R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 08R
2.14.2 Approach Lighting System:

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P (SOUTH−V16)
2.14.3 Channel: 119.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (SOUTH−V16)
2.14.3 Channel: 353.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (NORTH−V16)
2.14.3 Channel: 124.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (NORTH−V16)
2.14.3 Channel: 298.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD PRE TAXI CLNC
2.14.3 Channel: 125
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 379.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C
2.14.3 Channel: 119.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (SOUTH−V16)
2.14.3 Channel: 119.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (NORTH−V16)
2.14.3 Channel: 124.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (NORTH−V16)
2.14.3 Channel: 298.85
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (SOUTH−V16)
2.14.3 Channel: 353.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 120
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 254.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P
2.14.3 Channel: 119.15
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P
2.14.3 Channel: 263
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 118.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 239.275
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 04. Magnetic variation: 8E
2.19.2 ILS Identification: ETF
2.19.5 Coordinates: 31−47−58.7232N / 106−24−13.5201W
2.19.6 Site Elevation: 3926 ft

2.19.1 ILS Type: Localizer for runway 04. Magnetic variation: 8E
2.19.2 ILS Identification: ETF
2.19.5 Coordinates: 31−49−28.4448N / 106−22−3.7979W
2.19.6 Site Elevation: 3950.4 ft

2.19.1 ILS Type: DME for runway 22. Magnetic variation: 8E
2.19.2 ILS Identification: ELP
2.19.5 Coordinates: 31−47−58.7232N / 106−24−13.5201W
2.19.6 Site Elevation: 3926 ft

2.19.1 ILS Type: Glide Slope for runway 22. Magnetic variation: 8E
2.19.2 ILS Identification: ELP
2.19.5 Coordinates: 31−49−17.2839N / 106−22−26.5917W
2.19.6 Site Elevation: 3940.3 ft

2.19.1 ILS Type: Localizer for runway 22. Magnetic variation: 8E
2.19.2 ILS Identification: ELP
2.19.5 Coordinates: 31−47−55.923N / 106−24−12.9005W
2.19.6 Site Elevation: 3910.9 ft

2.19.1 ILS Type: Outer Marker for runway 22. Magnetic variation: 8E
2.19.2 ILS Identification: ELP
2.19.5 Coordinates: 31−51−37.0342N / 106−19−4.2497W
2.19.6 Site Elevation: 3992.8 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 12E
2.19.2 Navigation Aid Identification: ELP
2.19.5 Coordinates: 31−48−57.277N / 106−16−54.7782W
2.19.6 Site Elevation: 4023 ft

General Remarks:
ENGINE POWER IS RSTRD TO IDLE POWER ON ONE ENGINE AT A TIME FOR MAX 5 MIN ON ANY TERMINAL OR PARKING APRONS, CROSS−BLEED STARTS OR OTHER PRE DEP ACTIVITY ON MOVEMENT AREAS ONLY, MAINT OR OTR RQRMT NEEDING LONGER OR HIGHER POWER CTC TWR FOR DIRECTIONS TO

DESIGNATED RUNUP AREAS.

CTN: BIGGS AAF 2NM NW RWY 22 CAN BE MISTAKEN FOR ELP RWY 22.

COMPASS ROSE CLSD PERMLY.

TWY J NE OF TWY K1; TWY K NE OF TWY K1 BTN TWY J & NORTH CARGO RAMP; TWYS U & V SOUTH OF TWY L; & TWY K2 NOT VISIBLE FM ATCT.

NOISE ABATEMENT PROCEDURES IN EFFECT, CTC ATCT FOR DETAILS.

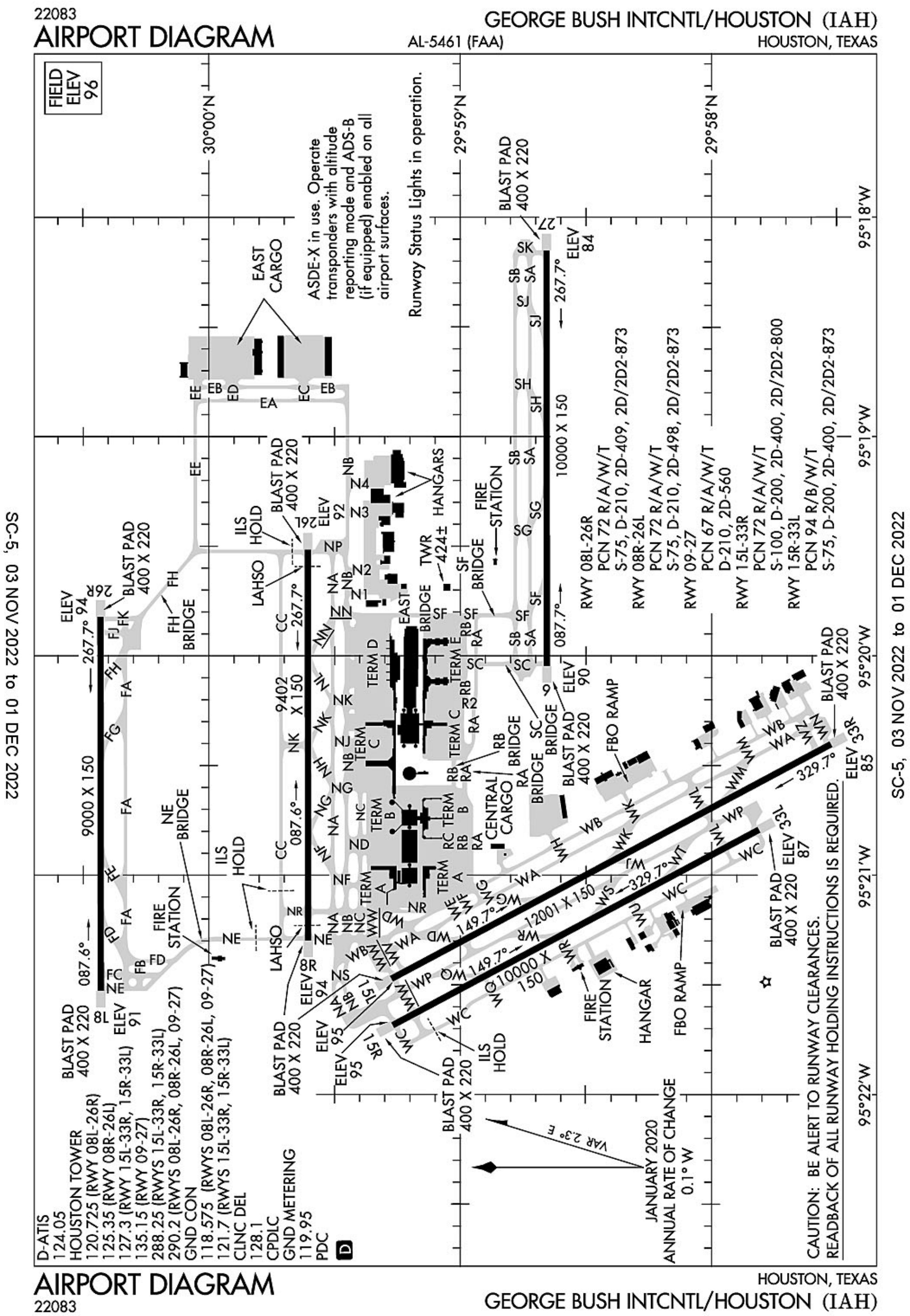
HOLDING POSITION MARKINGS FOR RUNWAY 8R APPROACH AND RUNWAY 4/22 ARE IN CLOSE PROXIMITY TO THE TERMINAL APRON; REVIEW AIRPORT DIAGRAM PRIOR TO PUSHBACK FROM THE GATE.

MILITARY USERS SHOULD REVIEW NOISE ABATEMENT PROCEDURES LISTED FOR BIGGS AAF.

NORTH BOUND TFC PROHIBITED ON TWY F SOUTH OF APCH END RWY 08R.

24 HR PPR CLASS A EXPLOSIVES CTC 915−212−0333.

Houston, Texas
George Bush Intercontinental/Houston
ICAO Identifier KIAH



Houston, TX
George Bush Intercontinental/Houston
ICAO Identifier KIAH

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 29−59−3.967N / 95−20−29.193W
2.2.2 From City: 15 miles N of HOUSTON, TX
2.2.3 Elevation: 95.8 ft
2.2.5 Magnetic Variation: 3E (2015)
2.2.6 Airport Contact: STEVEN RUNGE
PO BOX 60106
HOUSTON, TX 77205 (281−230−3100)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 08L
2.12.2 True Bearing: 90
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 72 R/A/W/T
2.12.5 Coordinates: 30−0−25.7816N / 95−21−31.6473W
2.12.6 Threshold Elevation: 90.6 ft
2.12.6 Touchdown Zone Elevation: 94 ft

2.12.1 Designation: 26R
2.12.2 True Bearing: 270
2.12.3 Dimensions: 9000 ft x 150 ft
2.12.4 PCN: 72 R/A/W/T
2.12.5 Coordinates: 30−0−25.8612N / 95−19−49.2891W
2.12.6 Threshold Elevation: 94.2 ft
2.12.6 Touchdown Zone Elevation: 95.3 ft

2.12.1 Designation: 08R
2.12.2 True Bearing: 90
2.12.3 Dimensions: 9402 ft x 150 ft
2.12.4 PCN: 72 R/A/W/T
2.12.5 Coordinates: 29−59−36.3028N / 95−21−17.8703W
2.12.6 Threshold Elevation: 94.3 ft
2.12.6 Touchdown Zone Elevation: 95.3 ft

2.12.1 Designation: 26L
2.12.2 True Bearing: 270
2.12.3 Dimensions: 9402 ft x 150 ft
2.12.4 PCN: 72 R/A/W/T
2.12.5 Coordinates: 29−59−36.3817N / 95−19−30.9539W
2.12.6 Threshold Elevation: 92.3 ft
2.12.6 Touchdown Zone Elevation: 94.6 ft

2.12.1 Designation: 09
2.12.2 True Bearing: 90
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 67 R/A/W/T
2.12.5 Coordinates: 29−58−39.3363N / 95−20−2.7891W
2.12.6 Threshold Elevation: 89.9 ft
2.12.6 Touchdown Zone Elevation: 90.1 ft

2.12.1 Designation: 27
2.12.2 True Bearing: 270
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 67 R/A/W/T
2.12.5 Coordinates: 29−58−39.4071N / 95−18−9.0948W
2.12.6 Threshold Elevation: 84.3 ft
2.12.6 Touchdown Zone Elevation: 86.2 ft

2.12.1 Designation: 33R
2.12.2 True Bearing: 332
2.12.3 Dimensions: 12001 ft x 150 ft
2.12.4 PCN: 72 R/A/W/T
2.12.5 Coordinates: 29−57−31.5505N / 95−20−24.189W
2.12.6 Threshold Elevation: 84.9 ft
2.12.6 Touchdown Zone Elevation: 88 ft

2.12.1 Designation: 15L
2.12.2 True Bearing: 152
2.12.3 Dimensions: 12001 ft x 150 ft
2.12.4 PCN: 72 R/A/W/T
2.12.5 Coordinates: 29−59−16.4026N / 95−21−28.3335W
2.12.6 Threshold Elevation: 94.6 ft
2.12.6 Touchdown Zone Elevation: 95.2 ft

2.12.1 Designation: 33L
2.12.2 True Bearing: 332
2.12.3 Dimensions: 10000 ft x 150 ft
2.12.4 PCN: 94 R/B/W/T
2.12.5 Coordinates: 29−57−48.7474N / 95−20−47.5811W
2.12.6 Threshold Elevation: 86.5 ft
2.12.6 Touchdown Zone Elevation: 89.3 ft

2.12.1 Designation: 15R
2.12.2 True Bearing: 152
2.12.3 Dimensions: 10000 ft x 150 ft

2.12.4 PCN: 94 R/B/W/T
2.12.5 Coordinates: 29−59−16.1082N / 95−21−41.0384W
2.12.6 Threshold Elevation: 94.8 ft
2.12.6 Touchdown Zone Elevation: 94.8 ft

AD 2.13 Declared Distances
2.13.1 Designation: 08L
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 26R
2.13.2 Take−off Run Available: 9000 ft
2.13.3 Take−off Distance Available: 9000 ft
2.13.4 Accelerate−Stop Distance Available: 9000 ft
2.13.5 Landing Distance Available: 9000 ft

2.13.1 Designation: 08R
2.13.2 Take−off Run Available: 9402 ft
2.13.3 Take−off Distance Available: 9402 ft
2.13.4 Accelerate−Stop Distance Available: 9402 ft
2.13.5 Landing Distance Available: 9402 ft

2.13.1 Designation: 26L
2.13.2 Take−off Run Available: 9402 ft
2.13.3 Take−off Distance Available: 9402 ft
2.13.4 Accelerate−Stop Distance Available: 9402 ft
2.13.5 Landing Distance Available: 9402 ft

2.13.1 Designation: 09
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 27
2.13.2 Take−off Run Available: 10000 ft
2.13.3 Take−off Distance Available: 10000 ft
2.13.4 Accelerate−Stop Distance Available: 10000 ft
2.13.5 Landing Distance Available: 10000 ft

2.13.1 Designation: 33R
2.13.2 Take−off Run Available: 12001 ft
2.13.3 Take−off Distance Available: 12001 ft
2.13.4 Accelerate−Stop Distance Available: 12001 ft
2.13.5 Landing Distance Available: 12001 ft

2.13.1 Designation: 15L
2.13.2 Take−off Run Available: 12001 ft

2.13.3 Take−off Distance Available: 12001 ft
2.13.4 Accelerate−Stop Distance Available: 12001 ft
2.13.5 Landing Distance Available: 12001 ft

2.13.1 Designation: 33L
2.13.2 Take−off Run Available: 9999 ft
2.13.3 Take−off Distance Available: 9999 ft
2.13.4 Accelerate−Stop Distance Available: 9999 ft
2.13.5 Landing Distance Available: 9999 ft

2.13.1 Designation: 15R
2.13.2 Take−off Run Available: 9999 ft
2.13.3 Take−off Distance Available: 9999 ft
2.13.4 Accelerate−Stop Distance Available: 9999 ft
2.13.5 Landing Distance Available: 9999 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 08L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 26R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 08R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 26L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 09
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 27
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 33R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 15L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 33L

2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 15R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 08L. Magnetic variation: 3E
2.19.2 ILS Identification: BZU
2.19.5 Coordinates: 30−0−21.9187N / 95−21−44.0405W
2.19.6 Site Elevation: 87.5 ft

2.19.1 ILS Type: Glide Slope for runway 08L. Magnetic variation: 3E
2.19.2 ILS Identification: BZU
2.19.5 Coordinates: 30−0−29.7528N / 95−21−18.6875W
2.19.6 Site Elevation: 86 ft

2.19.1 ILS Type: Inner Marker for runway 08L. Magnetic variation: 3E
2.19.2 ILS Identification: BZU
2.19.5 Coordinates: 30−0−25.764N / 95−21−40.8592W
2.19.6 Site Elevation: 90.8 ft

2.19.1 ILS Type: Localizer for runway 08L. Magnetic variation: 3E
2.19.2 ILS Identification: BZU
2.19.5 Coordinates: 30−0−25.8701N / 95−19−36.9727W
2.19.6 Site Elevation: 94.4 ft

2.19.1 ILS Type: DME for runway 26R. Magnetic variation: 3E
2.19.2 ILS Identification: OND
2.19.5 Coordinates: 30−0−21.9187N / 95−21−44.0405W
2.19.6 Site Elevation: 87.5 ft

2.19.1 ILS Type: Glide Slope for runway 26R. Magnetic variation: 3E
2.19.2 ILS Identification: OND
2.19.5 Coordinates: 30−0−29.8117N / 95−20−2.26W
2.19.6 Site Elevation: 89.7 ft

2.19.1 ILS Type: Inner Marker for runway 26R. Magnetic variation: 3E
2.19.2 ILS Identification: OND
2.19.5 Coordinates: 30−0−25.8755N / 95−19−40.4195W
2.19.6 Site Elevation: 94.4 ft

2.19.1 ILS Type: Localizer for runway 26R. Magnetic variation: 3E
2.19.2 ILS Identification: OND
2.19.5 Coordinates: 30−0−25.7696N / 95−21−43.9647W
2.19.6 Site Elevation: 90.8 ft

2.19.1 ILS Type: DME for runway 08R. Magnetic variation: 3E
2.19.2 ILS Identification: IAH
2.19.5 Coordinates: 29−59−38.9211N / 95−21−31.3127W
2.19.6 Site Elevation: 92.5 ft

2.19.1 ILS Type: Glide Slope for runway 08R. Magnetic variation: 3E
2.19.2 ILS Identification: IAH
2.19.5 Coordinates: 29−59−40.3184N / 95−21−6.0476W
2.19.6 Site Elevation: 88.8 ft

2.19.1 ILS Type: Localizer for runway 08R. Magnetic variation: 3E
2.19.2 ILS Identification: IAH
2.19.5 Coordinates: 29−59−36.3913N / 95−19−19.5749W
2.19.6 Site Elevation: 89.6 ft

2.19.1 ILS Type: DME for runway 26L. Magnetic variation: 3E
2.19.2 ILS Identification: JYV
2.19.5 Coordinates: 29−59−38.9211N / 95−21−31.3127W
2.19.6 Site Elevation: 92.5 ft

2.19.1 ILS Type: Glide Slope for runway 26L. Magnetic variation: 3E
2.19.2 ILS Identification: JYV
2.19.5 Coordinates: 29−59−39.5388N / 95−19−42.8056W
2.19.6 Site Elevation: 86.8 ft

2.19.1 ILS Type: Inner Marker for runway 26L. Magnetic variation: 3E
2.19.2 ILS Identification: JYV
2.19.5 Coordinates: 29−59−36.3841N / 95−19−20.5992W
2.19.6 Site Elevation: 89.2 ft

2.19.1 ILS Type: Localizer for runway 26L. Magnetic variation: 3E
2.19.2 ILS Identification: JYV
2.19.5 Coordinates: 29−59−36.2865N / 95−21−31.2791W
2.19.6 Site Elevation: 92.2 ft

2.19.1 ILS Type: DME for runway 09. Magnetic variation: 3E
2.19.2 ILS Identification: UYO
2.19.5 Coordinates: 29−58−35.3774N / 95−20−13.5882W
2.19.6 Site Elevation: 87.3 ft

2.19.1 ILS Type: Glide Slope for runway 09. Magnetic variation: 3E
2.19.2 ILS Identification: UYO
2.19.5 Coordinates: 29−58−35.3875N / 95−19−50.679W
2.19.6 Site Elevation: 85.3 ft

2.19.1 ILS Type: Localizer for runway 09. Magnetic variation: 3E
2.19.2 ILS Identification: UYO
2.19.5 Coordinates: 29−58−39.4132N / 95−17−57.578W
2.19.6 Site Elevation: 81 ft

2.19.1 ILS Type: DME for runway 27. Magnetic variation: 3E

2.19.2 ILS Identification: GHI
2.19.5 Coordinates: 29−58−35.3774N / 95−20−13.5882W
2.19.6 Site Elevation: 87.3 ft

2.19.1 ILS Type: Glide Slope for runway 27. Magnetic variation: 3E
2.19.2 ILS Identification: GHI
2.19.5 Coordinates: 29−58−35.4434N / 95−18−20.8578W
2.19.6 Site Elevation: 80 ft

2.19.1 ILS Type: Inner Marker for runway 27. Magnetic variation: 3E
2.19.2 ILS Identification: GHI
2.19.5 Coordinates: 29−58−39.4166N / 95−17−59.1664W
2.19.6 Site Elevation: 81.1 ft

2.19.1 ILS Type: Localizer for runway 27. Magnetic variation: 3E
2.19.2 ILS Identification: GHI
2.19.5 Coordinates: 29−58−39.3268N / 95−20−15.3338W
2.19.6 Site Elevation: 87.4 ft

2.19.1 ILS Type: Glide Slope for runway 33R. Magnetic variation: 3E
2.19.2 ILS Identification: CDG
2.19.5 Coordinates: 29−57−38.8144N / 95−20−33.4594W
2.19.6 Site Elevation: 80.4 ft

2.19.1 ILS Type: Localizer for runway 33R. Magnetic variation: 3E
2.19.2 ILS Identification: CDG
2.19.5 Coordinates: 29−59−31.6238N / 95−21−37.6444W
2.19.6 Site Elevation: 91.9 ft

2.19.1 ILS Type: Glide Slope for runway 15R. Magnetic variation: 3E
2.19.2 ILS Identification: LKM
2.19.5 Coordinates: 29−59−4.4118N / 95−21−39.0331W
2.19.6 Site Elevation: 89.9 ft

2.19.1 ILS Type: Localizer for runway 15R. Magnetic variation: 3E
2.19.2 ILS Identification: LKM
2.19.5 Coordinates: 29−57−39.3739N / 95−20−41.8496W
2.19.6 Site Elevation: 82.7 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 5E
2.19.2 Navigation Aid Identification: IAH
2.19.5 Coordinates: 29−57−24.9013N / 95−20−44.5885W
2.19.6 Site Elevation: 80.6 ft

General Remarks:
THE FLWG MOV AREAS ARE NOT VSB FM THE ATCT: PORTIONS OF TWYS ’WA’ & ’WB’ FM TWY ’WH’ TO THE AER 33R; TWYS ’WA’ & ’WB’ FM TWY ’WD’ NORTH FOR 400 FT; TWY ’WD’ FM TWY ’WA’ TO TWY ’NR’; TWY ’NR’; TWY ’WL’ FM RWY 15L TO TWY ’WB’ & TWY ’WM’.

TXLN ’RA’, ’RB’, ’RC’, ’R2’, AND TWY ’SC’ NORTH OF TWY ’SB’ ARE DSGND NON−MOVEMENT AREAS OPERD BY UAL RAMP CTL.

DUAL TWY OPNS TWY NK BTN TWY NB & NORTH RAMP; WEST CNTRLN RSTRD TO ACFT MAX WING SPANS 125 FT & EAST CNTRLN MAX WING SPANS 214 FT.

NORTH RAMP TAXILANE BTN TWYS NF & NR RSTRD TO ACFT WITH WING SPAN 125 FT & BLO.

RWY STATUS LGTS ARE IN OPN.

TWY WW BTN TWY NR AND TWY WB CLSD TO ACFT WINGSPAN MORE THAN 214 FT.

APRON TERMINAL ALPHA NORTH RAMP EAST−WEST TXL CLSD TO ACFT WINGSPAN MORE THAN 118 FT.

TWY ’SF’ BTN TWY ’NB’ AND TXL ’RA’ IS DSGND NON−MOV AREA.

9 FT AGL UNMKD SECURITY FENCE ADJ TO FBO & CORPORATE BASE OPR RAMPS AND NONMOV AREA TXLS.

TWY SF BTN RWY 09/27 UP TO AND INCLUDING THE EAST BRIDGE CLSD TO ACFT WITH WINGSPAN 215 FT & OVER.

HEL HOVER/TAXI RSTRD TO HARD SFC MOV AREAS ONLY.

APRON TERMINAL ALPHA NORTH RAMP SPOT 5 CLSD TO ACFT WINGSPAN MORE THAN 118 FT.

TWY ’NR’ CLSD TO ACFT WITH WING SPANS GREATER THAN 125 FT BTN TWY ’WD’ & TWY ’WB’.

TWY WC WEST OF RWY 15R/33L RSTRD TO ACFT WITH 118 FT WING SPAN AND BLW.

TWY NR BTN TWY NC AND TWY WW CLSD TO ACFT WINGSPAN MORE THAN 214 FT.

TWY NR BTN WW AND TWY WB DSGND NON−MOVEMENT AREA.

TWY NA LGT ALL BTN TWY WP AND TWY NP NOT STD

APRON TERMINAL ALPHA NORTH RAMP SPOT 6 CLSD TO ACFT WINGSPAN MORE THAN 125 FT.

PILOTS & CREWS SHOULD BE AWARE OF DEP TURNS ON CRS IN EXCESS OF 180 DEGS. PILOT READ BACK OF DRCTN OF TURN IS HIGHLY ENCOURAGED.

TWYS WA & WB MAGNETIC ANOMALIES MAY AFFECT COMPASS HDG.

RWY 15L/33R MAGNETIC ANOMALIES MAY AFFECT COMPASS HDG FOR TKOF.

GBAS APCH SVC VOL 20NM FR THR, ALL GLS APCHS.

TWY WD BTN TWY NR AND TWY WB CLSD TO ACFT WINGSPAN MORE THAN 171 FT.

NORTH RAMP NORTH & SOUTH TAXI LANES CLSD TO ACFT WITH WING SPANS GREATER THAN 125 FT.

RWY 09/27 CLSD TO ACFT WITH WINGSPAN 215 FT & ABOVE.

TXLN RC CLSD TO ACFT WITH WINGSPAN GREATER THAN 135 FT.

BIRDS ON & INVOF ARPT.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

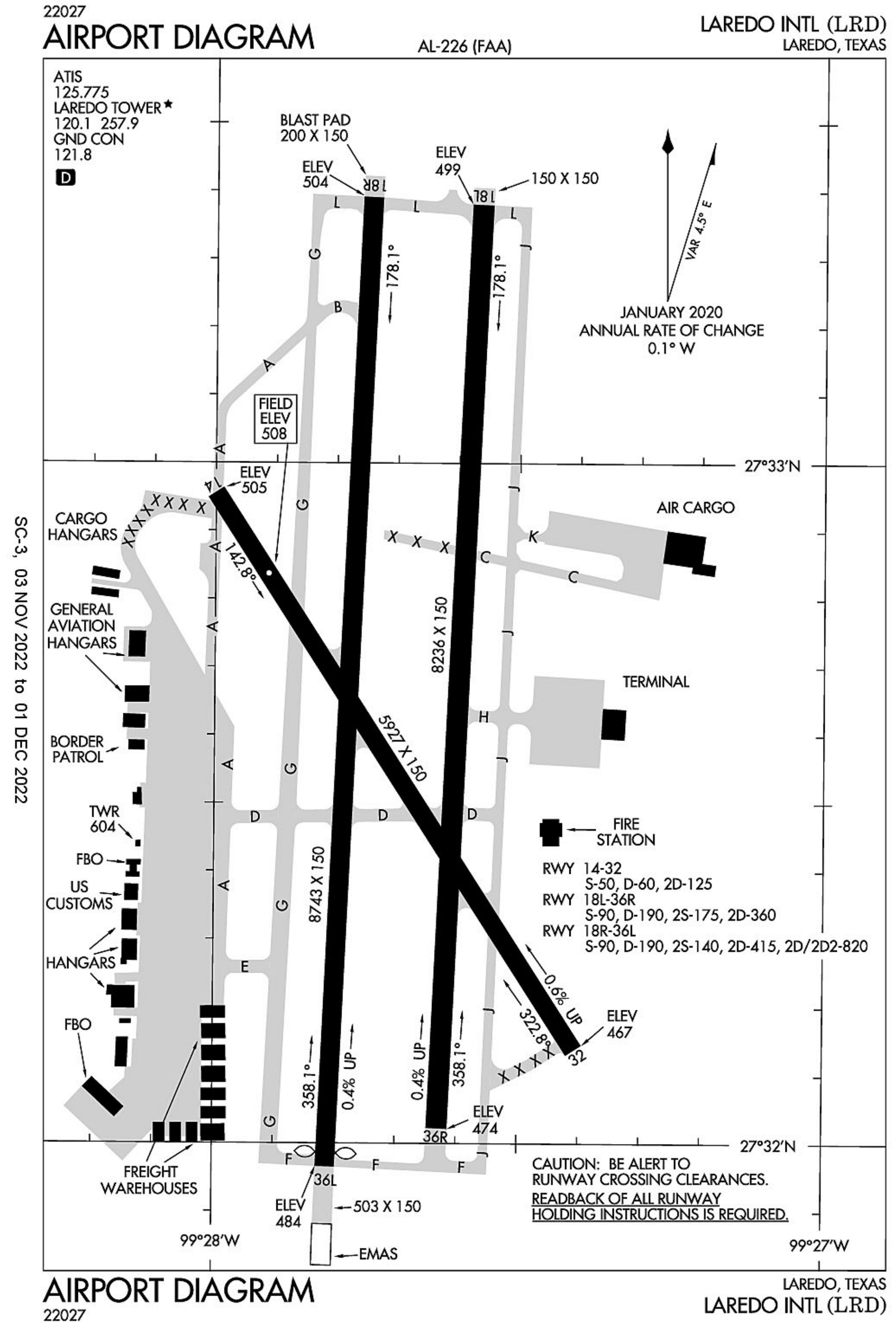
NOISE SENSITIVE AREA N, E AND W OF ARPT.

TWY WW RUN UP PAD FOR RWY 15L CLSD TO ACFT WITH WINGSPAN 135 FT & OVER.

WILDLIFE HAZ BATS INVOF IAH.

TWY NK BTN TWY NB AND TERMINAL D RAMP SIMULTANEOUS ACFT OPS PROHIBITED WHEN MIDDLE TAXILANE IN USE.

Laredo, Texas
Laredo International
ICAO Identifier KLRD



Laredo, TX
Laredo Intl
ICAO Identifier KLRD

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 27−32−39.1N / 99−27−41.7W
2.2.2 From City: 3 miles NE of LAREDO, TX
2.2.3 Elevation: 508 ft
2.2.5 Magnetic Variation: 5E (2020)
2.2.6 Airport Contact: GILBERTO SANCHEZ
5210 BOB BULLOCK LOOP
LAREDO, TX 78041 (956−795−2000)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: None

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I B certified on 7/1/1975

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 32
2.12.2 True Bearing: 327
2.12.3 Dimensions: 5927 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 27−32−8.635N / 99−27−24.668W
2.12.6 Threshold Elevation: 467.4 ft
2.12.6 Touchdown Zone Elevation: 493.6 ft

2.12.1 Designation: 14
2.12.2 True Bearing: 147
2.12.3 Dimensions: 5927 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 27−32−58.0248N / 99−28−0.2242W
2.12.6 Threshold Elevation: 505.4 ft
2.12.6 Touchdown Zone Elevation: 508 ft

2.12.1 Designation: 18L
2.12.2 True Bearing: 183

2.12.3 Dimensions: 8236 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 27−33−22.9267N / 99−27−33.5988W
2.12.6 Threshold Elevation: 499.2 ft
2.12.6 Touchdown Zone Elevation: 499.2 ft

2.12.1 Designation: 36R
2.12.2 True Bearing: 3
2.12.3 Dimensions: 8236 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 27−32−1.4547N / 99−27−37.6934W
2.12.6 Threshold Elevation: 474.2 ft
2.12.6 Touchdown Zone Elevation: 486.7 ft

2.12.1 Designation: 36L
2.12.2 True Bearing: 3
2.12.3 Dimensions: 8743 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 27−31−56.8817N / 99−27−49.0449W
2.12.6 Threshold Elevation: 483.7 ft
2.12.6 Touchdown Zone Elevation: 497 ft

2.12.1 Designation: 18R
2.12.2 True Bearing: 183
2.12.3 Dimensions: 8743 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 27−33−23.3681N / 99−27−44.7128W
2.12.6 Threshold Elevation: 503.7 ft
2.12.6 Touchdown Zone Elevation: 503.7 ft

AD 2.13 Declared Distances
2.13.1 Designation: 32
2.13.2 Take−off Run Available: 5927 ft
2.13.3 Take−off Distance Available: 5927 ft
2.13.4 Accelerate−Stop Distance Available: 5927 ft
2.13.5 Landing Distance Available: 5927 ft

2.13.1 Designation: 14
2.13.2 Take−off Run Available: 5927 ft
2.13.3 Take−off Distance Available: 5927 ft
2.13.4 Accelerate−Stop Distance Available: 5927 ft
2.13.5 Landing Distance Available: 5927 ft

2.13.1 Designation: 18L
2.13.2 Take−off Run Available: 8236 ft
2.13.3 Take−off Distance Available: 8236 ft
2.13.4 Accelerate−Stop Distance Available: 8236 ft
2.13.5 Landing Distance Available: 8236 ft

2.13.1 Designation: 36R
2.13.2 Take−off Run Available: 8236 ft
2.13.3 Take−off Distance Available: 8236 ft
2.13.4 Accelerate−Stop Distance Available: 8236 ft
2.13.5 Landing Distance Available: 8236 ft

2.13.1 Designation: 36L
2.13.2 Take−off Run Available: 8743 ft
2.13.3 Take−off Distance Available: 8743 ft
2.13.4 Accelerate−Stop Distance Available: 8743 ft
2.13.5 Landing Distance Available: 8623 ft

2.13.1 Designation: 18R
2.13.2 Take−off Run Available: 8743 ft
2.13.3 Take−off Distance Available: 8743 ft
2.13.4 Accelerate−Stop Distance Available: 8743 ft
2.13.5 Landing Distance Available: 8743 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 32
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: V4L

2.14.1 Designation: 14
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: V4L

2.14.1 Designation: 18L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 36R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 36L
2.14.2 Approach Lighting System:

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 18R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 18R. Magnetic variation: 5E
2.19.2 ILS Identification: LRD
2.19.5 Coordinates: 27−31−50.8814N / 99−27−46.6673W
2.19.6 Site Elevation: 477 ft

2.19.1 ILS Type: Glide Slope for runway 18R. Magnetic variation: 5E
2.19.2 ILS Identification: LRD
2.19.5 Coordinates: 27−33−12.4993N / 99−27−40.6967W
2.19.6 Site Elevation: 497 ft

2.19.1 ILS Type: Localizer for runway 18R. Magnetic variation: 5E
2.19.2 ILS Identification: LRD
2.19.5 Coordinates: 27−31−51.7421N / 99−27−49.3028W
2.19.6 Site Elevation: 477 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 9E
2.19.2 Navigation Aid Identification: LRD
2.19.5 Coordinates: 27−28−43.4544N / 99−25−3.6441W
2.19.6 Site Elevation: 583 ft

General Remarks:
RWY 14/32 RSTRD TO ACFT LESS THAN 60000 LBS DTW.

BIRDS ON AND INVOF ARPT.

FEDERAL INSPECTION STATION FEE.

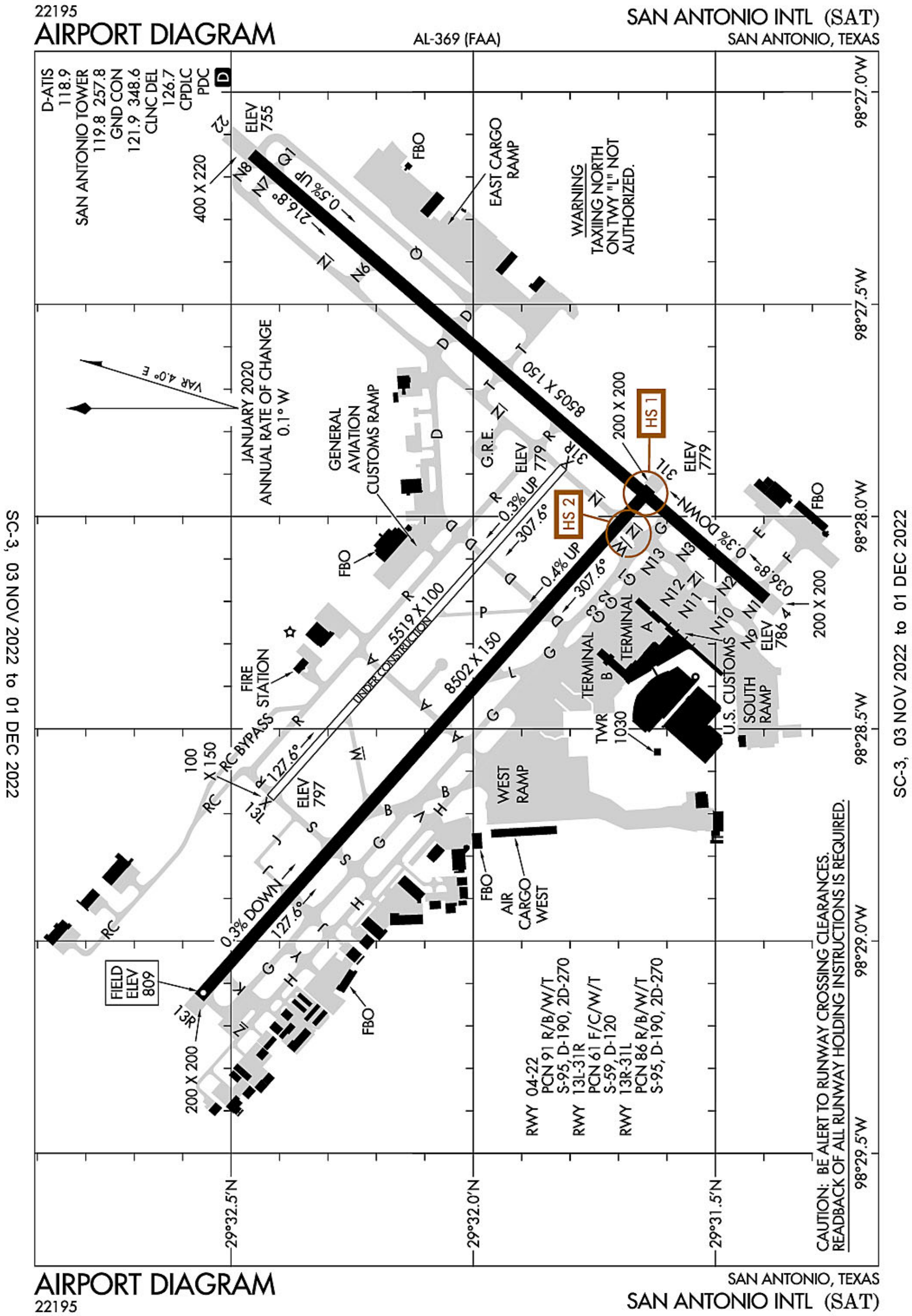
FOR CD IF UNA TO CTC ON FSS FREQ, CTC HOUSTON ARTCC AT 281−230−5622.

TWY C CLSD BTN RWY 18L/36R & RWY 18R INDEFLY.

FEDERAL INSPECTION STATION IS LCTD ON THE WEST GENERAL AVIATION/CARGO APRON.

LNDG FEE ASSESSED FOR ANY ”FOR HIRE” ACFT.

San Antonio, Texas
San Antonio International
ICAO Identifier KSAT



San Antonio, TX
San Antonio Intl
ICAO Identifier KSAT

AD 2.2 Aerodrome geographical and administrative data

2.2.1 Reference Point: 29−32−2.25N / 98−28−8.605W

2.2.2 From City: 7 miles N of SAN ANTONIO, TX

2.2.3 Elevation: 809.1 ft

2.2.5 Magnetic Variation: 4E (2020)

2.2.6 Airport Contact: JESUS H. SAENZ, JR.
9800 AIRPORT BLVD
SAN ANTONIO, TX 78216 (210−207−3444)

2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule

2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities

2.4.1 Cargo Handling Facilities: YES

2.4.2 Fuel Types: 100LL,A

2.4.5 Hangar Space: YES

2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services

2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics

2.12.1 Designation: 04

2.12.2 True Bearing: 41

2.12.3 Dimensions: 8505 ft x 150 ft

2.12.4 PCN: 91 R/B/W/T

2.12.5 Coordinates: 29−31−23.6409N / 98−28−11.6562W

2.12.6 Threshold Elevation: 786 ft

2.12.6 Touchdown Zone Elevation: 786 ft

2.12.1 Designation: 22

2.12.2 True Bearing: 221

2.12.3 Dimensions: 8505 ft x 150 ft

2.12.4 PCN: 91 R/B/W/T

2.12.5 Coordinates: 29−32−27.3928N / 98−27−8.7715W

2.12.6 Threshold Elevation: 754.5 ft

2.12.6 Touchdown Zone Elevation: 770 ft

2.12.1 Designation: 31R

2.12.2 True Bearing: 312

2.12.3 Dimensions: 5519 ft x 100 ft
2.12.4 PCN: 61 F/C/W/T
2.12.5 Coordinates: 29−31−48.7812N / 98−27−53.0202W
2.12.6 Threshold Elevation: 779.2 ft
2.12.6 Touchdown Zone Elevation: 788.1 ft

2.12.1 Designation: 13L
2.12.2 True Bearing: 132
2.12.3 Dimensions: 5519 ft x 100 ft
2.12.4 PCN: 61 F/C/W/T
2.12.5 Coordinates: 29−32−25.0764N / 98−28−39.714W
2.12.6 Threshold Elevation: 797.3 ft
2.12.6 Touchdown Zone Elevation: 797.3 ft

2.12.1 Designation: 31L
2.12.2 True Bearing: 312
2.12.3 Dimensions: 8502 ft x 150 ft
2.12.4 PCN: 86 R/B/W/T
2.12.5 Coordinates: 29−31−38.0038N / 98−27−55.9932W
2.12.6 Threshold Elevation: 778.5 ft
2.12.6 Touchdown Zone Elevation: 790 ft

2.12.1 Designation: 13R
2.12.2 True Bearing: 132
2.12.3 Dimensions: 8502 ft x 150 ft
2.12.4 PCN: 86 R/B/W/T
2.12.5 Coordinates: 29−32−33.8853N / 98−29−7.9481W
2.12.6 Threshold Elevation: 809.1 ft
2.12.6 Touchdown Zone Elevation: 809.1 ft

AD 2.13 Declared Distances
2.13.1 Designation: 04
2.13.2 Take−off Run Available: 8505 ft
2.13.3 Take−off Distance Available: 8505 ft
2.13.4 Accelerate−Stop Distance Available: 8505 ft
2.13.5 Landing Distance Available: 8505 ft

2.13.1 Designation: 22
2.13.2 Take−off Run Available: 8505 ft
2.13.3 Take−off Distance Available: 8505 ft
2.13.4 Accelerate−Stop Distance Available: 8505 ft
2.13.5 Landing Distance Available: 8505 ft

2.13.1 Designation: 31R
2.13.2 Take−off Run Available: 5519 ft
2.13.3 Take−off Distance Available: 5519 ft
2.13.4 Accelerate−Stop Distance Available: 5519 ft
2.13.5 Landing Distance Available: 5519 ft

2.13.1 Designation: 13L
2.13.2 Take−off Run Available: 5519 ft
2.13.3 Take−off Distance Available: 5519 ft
2.13.4 Accelerate−Stop Distance Available: 5519 ft
2.13.5 Landing Distance Available: 5519 ft

2.13.1 Designation: 31L
2.13.2 Take−off Run Available: 8502 ft
2.13.3 Take−off Distance Available: 8502 ft
2.13.4 Accelerate−Stop Distance Available: 8502 ft
2.13.5 Landing Distance Available: 8502 ft

2.13.1 Designation: 13R
2.13.2 Take−off Run Available: 8502 ft
2.13.3 Take−off Distance Available: 8502 ft
2.13.4 Accelerate−Stop Distance Available: 8502 ft
2.13.5 Landing Distance Available: 8502 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 04
2.14.2 Approach Lighting System: MALS
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 22
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 31R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 13L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 31L
2.14.2 Approach Lighting System: MALSR

2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 13R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: ALAMO DP (RWY 04, 22, 31)
2.14.3 Channel: 125.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ALAMO DP (RWY 13)
2.14.3 Channel: 127.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ALAMO DP (RWY 13)
2.14.3 Channel: 269.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ALAMO DP (RWY 04, 22, 31)
2.14.3 Channel: 307
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ALISS DP (RWY 04, 22, 31)
2.14.3 Channel: 125.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ALISS DP (RWY 13)
2.14.3 Channel: 125.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ALISS DP (RWY 13)
2.14.3 Channel: 290.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P
2.14.3 Channel: 121.375
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P (115−154/35−56 SAT)
2.14.3 Channel: 257.625
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (141−270)
2.14.3 Channel: 118.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (360−090)
2.14.3 Channel: 124.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (091−140)
2.14.3 Channel: 128.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (091−140)
2.14.3 Channel: 318.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (360−090)
2.14.3 Channel: 335.625
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (141−270)
2.14.3 Channel: 353.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (271−359)
2.14.3 Channel: 125.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (271−359)
2.14.3 Channel: 307
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S DEP/S
2.14.3 Channel: 125.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S DEP/S
2.14.3 Channel: 127.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S DEP/S
2.14.3 Channel: 251.125
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S DEP/S
2.14.3 Channel: 290.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BOWIE DP (RWY 04 LRD TRANSITION)
2.14.3 Channel: 125.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BOWIE DP (RWY 13, 22, 31)
2.14.3 Channel: 125.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BOWIE DP (RWY 04 CRP TRANSITION)
2.14.3 Channel: 127.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BOWIE DP (RWY 04 CRP TRANSITION)
2.14.3 Channel: 269.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BOWIE DP (RWY 04, 13, 31)
2.14.3 Channel: 290.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BOWIE DP (RWY 04 LRD TRANSITION)
2.14.3 Channel: 307
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BRAUN STAR
2.14.3 Channel: 127.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: BRAUN STAR
2.14.3 Channel: 269.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 126.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CENTERPOINT STAR (RWY 13R, 22)
2.14.3 Channel: 125.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CENTERPOINT STAR (RWY 04, 31L)
2.14.3 Channel: 125.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CENTERPOINT STAR (RWY 04, 31L)
2.14.3 Channel: 290.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CENTERPOINT STAR (RWY 13R, 22)
2.14.3 Channel: 307
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (141−270)
2.14.3 Channel: 118.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (360−090)
2.14.3 Channel: 124.45
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (271−359)
2.14.3 Channel: 125.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (091−140)
2.14.3 Channel: 128.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (271−359)
2.14.3 Channel: 307
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (091−140)
2.14.3 Channel: 318.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (360−090)
2.14.3 Channel: 335.625
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (141−270)
2.14.3 Channel: 353.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 118.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 119.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 257.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LEJON DP (RWY 04, 22, 31)
2.14.3 Channel: 125.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LEJON DP (RWY 13)
2.14.3 Channel: 125.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LEJON DP (RWY 12)
2.14.3 Channel: 290.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LEJON DP (RWY 13)
2.14.3 Channel: 290.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LEJON DP (RWY 04, 22, 31)
2.14.3 Channel: 307
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LEMIG STAR
2.14.3 Channel: 125.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LEMIG STAR
2.14.3 Channel: 290.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MARCS STAR
2.14.3 Channel: 127.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MARCS STAR
2.14.3 Channel: 269.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MILET DP (RWY 04)
2.14.3 Channel: 125.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MILET DP (RWY 13, 22, 31)
2.14.3 Channel: 125.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MILET DP (RWY 13, 22, 31)
2.14.3 Channel: 290.225
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: MILET DP (RWY 04)
2.14.3 Channel: 307
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: STONEWALL STAR
2.14.3 Channel: 125.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: STONEWALL STAR
2.14.3 Channel: 307
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: THREE RIVERS DP (RWY 13, 22, 31)
2.14.3 Channel: 125.7
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: THREE RIVERS DP (RWY 04)
2.14.3 Channel: 127.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: THREE RIVERS DP (RWY 04)
2.14.3 Channel: 269.1
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: THREE RIVERS DP (RWY 13, 22, 31)
2.14.3 Channel: 290.225
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 04. Magnetic variation: 4E
2.19.2 ILS Identification: SAT
2.19.5 Coordinates: 29−32−32.9486N / 98−26−58.6881W
2.19.6 Site Elevation: 746.3 ft

2.19.1 ILS Type: Glide Slope for runway 04. Magnetic variation: 4E
2.19.2 ILS Identification: SAT
2.19.5 Coordinates: 29−31−30.2202N / 98−27−58.0715W
2.19.6 Site Elevation: 774.8 ft

2.19.1 ILS Type: Localizer for runway 04. Magnetic variation: 4E
2.19.2 ILS Identification: SAT
2.19.5 Coordinates: 29−32−35.0937N / 98−27−1.1714W
2.19.6 Site Elevation: 748.9 ft

2.19.1 ILS Type: DME for runway 13R. Magnetic variation: 4E
2.19.2 ILS Identification: ANT
2.19.5 Coordinates: 29−31−29.0932N / 98−27−49.9584W
2.19.6 Site Elevation: 790.7 ft

2.19.1 ILS Type: Glide Slope for runway 13R. Magnetic variation: 4E
2.19.2 ILS Identification: ANT
2.19.5 Coordinates: 29−32−28.9928N / 98−28−54.8202W
2.19.6 Site Elevation: 801.3 ft

2.19.1 ILS Type: Inner Marker for runway 13R. Magnetic variation: 4E

2.19.2 ILS Identification: ANT
2.19.5 Coordinates: 29−32−39.0383N / 98−29−14.595W
2.19.6 Site Elevation: 807.6 ft

2.19.1 ILS Type: Localizer for runway 13R. Magnetic variation: 4E
2.19.2 ILS Identification: ANT
2.19.5 Coordinates: 29−31−31.3122N / 98−27−47.3799W
2.19.6 Site Elevation: 771 ft

2.19.1 ILS Type: Outer Marker for runway 13R. Magnetic variation: 4E
2.19.2 ILS Identification: ANT
2.19.5 Coordinates: 29−36−27.2991N / 98−34−11.0119W
2.19.6 Site Elevation: 1054.4 ft

2.19.1 ILS Type: DME for runway 31L. Magnetic variation: 4E
2.19.2 ILS Identification: IZR
2.19.5 Coordinates: 29−31−29.0932N / 98−27−49.9584W
2.19.6 Site Elevation: 790.7 ft

2.19.1 ILS Type: Glide Slope for runway 31L. Magnetic variation: 4E
2.19.2 ILS Identification: IZR
2.19.5 Coordinates: 29−31−47.9039N / 98−28−1.9173W
2.19.6 Site Elevation: 777.5 ft

2.19.1 ILS Type: Localizer for runway 31L. Magnetic variation: 4E
2.19.2 ILS Identification: IZR
2.19.5 Coordinates: 29−32−43.1182N / 98−29−19.835W
2.19.6 Site Elevation: 813.4 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 8E
2.19.2 Navigation Aid Identification: SAT
2.19.5 Coordinates: 29−38−38.508N / 98−27−40.7369W
2.19.6 Site Elevation: 1158.8 ft

General Remarks:

TWY L CLSD NORTHBOUND.

FREQUENT RUBBER ACCUMULATION NW 2500 RY 13R/31L.

GLIDER/SOARING OPNS APRXLY 17 MILES NW OF ARPT DURG VFR.

ARPT RSTD TO ACFT WITH WINGSPAN GTR THAN 171 FT, PPR WITH 24HR OPS 210−207−3433. RQRD FOR AUTH.

ALL INTL GENERAL AVIATION CLEAR U.S. CSTMS AT NORTH FIXED BASE OPERATOR RAMP EAST SIDE, CALL U.S. CSTMS 210−821−6965 UPON ARR.

TWY S BTN APCH END RWY 13L AND RWY 13R/31L CLSD TO ACFT WITH WINGSPAN MORE THAN 100 FT. TWY R BTN APCH END RWY 13L AND TWY D CLSD TO ACFT WINGSPAN MORE THAN 100 FT.

NOISE SENSITIVE AREAS EXIST ON ALL SIDES OF ARPT, AT PILOTS DISCRETION CLIMB AS QUICKLY AND QUIETLY AS SAFELY POSSIBLE ON DEPARTURE AND USE CONSIDERATION WHEN FLYING OVER POPULATED AREAS BY MINIMIZING FLT AND HIGH PWR SETTINGS. MILITARY AIRCRAFT: DEPARTING AND ARRIVING AIRCRAFT WILL USE MINIMUM POWER SETTINGS CONSISTENT WITH AIRCRAFT FLIGHT MANUALS, AFTERBURNER TAKEOFF IS PROHIBITED UNLESS REQUIRED FOR SAFETY OF FLIGHT. ENGINE−UPS ARE PERMITTED BTN 0600−2300.

ACFT TAXIING ON RY 04 NE BOUND LOOK FOR HOLD SHORT TO RY 31L.

INNER RAMP TAXILANE NORTH OF TRML A AND B IS CLSD TO ACFT WITH WINGSPAN GTR THAN 135 FT.

TWY D NON−MOVEMENT AREA FM TWY N TO 500 FT W OF TWY N.

PPR WITH ARPT OPNS FOR ACFT POWERING BACK FM TERMINAL GATES.

COMPASS DEVIATION MAY OCCUR AT THE NW PORTION OF TWY R DUE TO REBAR RE−ENFORCED CONC BRIDGE LCTD UNDER THE TWY.

WORK IN PROGRESS SCHEDULED MAINTENANCE ON & ALONG TWYS AND RAMPS AREAS AT VARIOUS TIMES.

GROUND RUN−UP ENCLOSURE AVBL 24 HRS.

A BARRICADED PAVEMENT ELEVATION CHANGE EXISTS ALONG THE EASTERN SIDE OF THE WEST RAMP.

NUMEROUS FLOCKS OF BIRDS INVOF ARPT.

FOREIGN MIL ACFT WITH WINGSPAN LESS THAN 100 FT MUST REP TO GA RAMP FED INSPECTION STATION FOR CUST PROCESSING, CTC AP MANAGEMENT AT 210−207−3433.

RY 13L/31R NOT AVBL FOR PART 121 ACR OPNS.

TERMINAL GATES A1, A5, A6, A7 & A8 USE ONLY WITH PPR CALL OPNS 210−207−3433.

ALL ACFT AFTER LDG ON RWY 13R/31L EXITING SOUTHWEST BOUND ON TWY DELTA TO MAKE 90 DEG TURN ON TWY GOLF TO AVOID UNUSBL SFC.

C130 AND C17 TYPE ACFT MUST PARK ON WEST RAMP TO CLR CUST.

ACFT TAXIING ON TWY N SW BOUND LOOK FOR HOLD SHORT TO RY 31R.

TWY Z CLSD TO ACFT WITH WINGSPAN GREATER THAN 118 FT.

AERODROME ALL SFC WIP CONST FOR CURRENT INFO CTC OPS. 210−207−3433.

APRON EAST CARGO RAMP INT OF RWY 04/22 AND TWY DELTA ACFT ARE REQ TO APPLY THE MNM

THRUST WHEN XNG THE RWY TO AVOID DMG DUE TO JET BLAST.

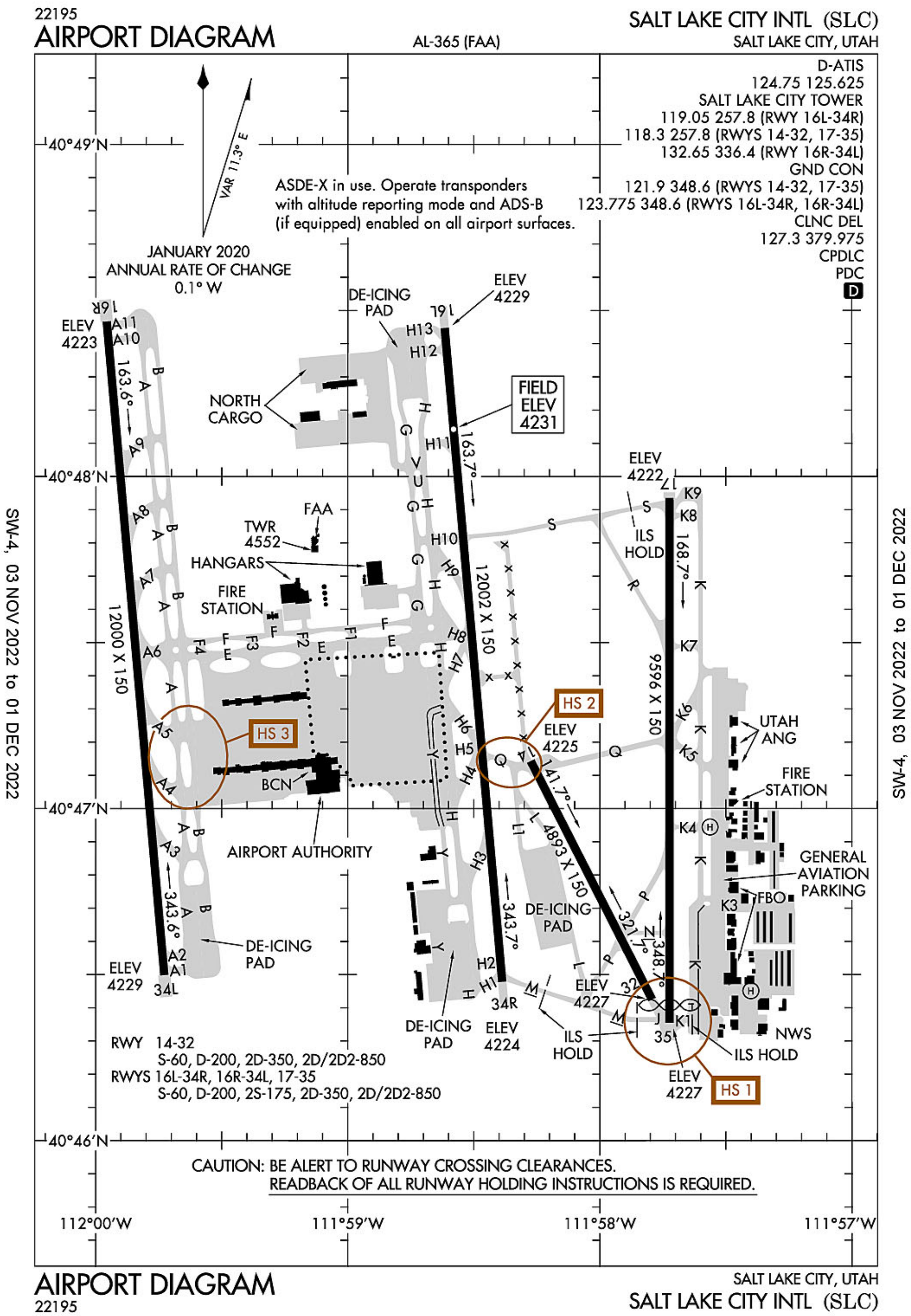
THE FOLLOWING TWYS ARE NOT AVBL FOR ACFT 59,000 LBS OR OVER: TWY A & TWY J NORTH OF RY 13R−31L, TWY M & TWY P, TWY H NORTHWEST OF TWY Z AND TWY E EAST OF RY 04/22.

SAT TWY R BTN APCH END RWY 13L AND TWY D CLSD TO ACFT MORE THAN 99600 LB.

TWYS L & B CLSD TO ACFT WITH WINGSPANS GREATER THAN 118 FT EXITING RY 31L.

ACFT AT TERMINAL A & B ADVISE GND CTL PRIOR TO PUSH.

Salt Lake City, Utah
Salt Lake City International
ICAO Identifier KSLC



Salt Lake City, UT
Salt Lake City Intl
ICAO Identifier KSLC

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 40−47−18.216N / 111−58−39.984W
2.2.2 From City: 3 miles W of SALT LAKE CITY, UT
2.2.3 Elevation: 4230.9 ft
2.2.5 Magnetic Variation: 11E (2020)
2.2.6 Airport Contact: MATTHEW BROWN
P.O. BOX 145550
SALT LAKE CITY, UT 84114 (801−575−2244)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A1+
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 14
2.12.2 True Bearing: 153
2.12.3 Dimensions: 4893 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 40−47−8.5848N / 111−58−16.4661W
2.12.6 Threshold Elevation: 4224.7 ft
2.12.6 Touchdown Zone Elevation: 4224.8 ft

2.12.1 Designation: 32
2.12.2 True Bearing: 333
2.12.3 Dimensions: 4893 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 40−46−25.5192N / 111−57−47.5915W
2.12.6 Threshold Elevation: 4226.8 ft
2.12.6 Touchdown Zone Elevation: 4226.8 ft

2.12.1 Designation: 34R
2.12.2 True Bearing: 355
2.12.3 Dimensions: 12002 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 40−46−28.7185N / 111−58−23.2566W
2.12.6 Threshold Elevation: 4224.3 ft
2.12.6 Touchdown Zone Elevation: 4224.7 ft

2.12.1 Designation: 16L
2.12.2 True Bearing: 175
2.12.3 Dimensions: 12002 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 40−48−26.8298N / 111−58−36.9557W
2.12.6 Threshold Elevation: 4229.1 ft
2.12.6 Touchdown Zone Elevation: 4230.9 ft

2.12.1 Designation: 16R
2.12.2 True Bearing: 175
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 40−48−28.0035N / 111−59−57.4282W
2.12.6 Threshold Elevation: 4223.4 ft
2.12.6 Touchdown Zone Elevation: 4225.8 ft

2.12.1 Designation: 34L
2.12.2 True Bearing: 355
2.12.3 Dimensions: 12000 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 40−46−29.9171N / 111−59−43.6913W
2.12.6 Threshold Elevation: 4228.8 ft
2.12.6 Touchdown Zone Elevation: 4228.8 ft

2.12.1 Designation: 35
2.12.2 True Bearing: 360
2.12.3 Dimensions: 9596 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 40−46−21.3022N / 111−57−43.4496W
2.12.6 Threshold Elevation: 4226.8 ft
2.12.6 Touchdown Zone Elevation: 4226.9 ft

2.12.1 Designation: 17
2.12.2 True Bearing: 180
2.12.3 Dimensions: 9596 ft x 150 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 40−47−56.1043N / 111−57−43.4552W
2.12.6 Threshold Elevation: 4221.7 ft
2.12.6 Touchdown Zone Elevation: 4222.2 ft

2.12.1 Designation: HB
2.12.2 True Bearing:
2.12.3 Dimensions: 60 ft x 60 ft
2.12.4 PCN: ///
2.12.5 Coordinates: 40−46−27.0827N / 111−57−24.0562W
2.12.6 Threshold Elevation: 4220.4 ft
2.12.6 Touchdown Zone Elevation: ft

2.12.1 Designation: HF
2.12.2 True Bearing:
2.12.3 Dimensions: 60 ft x 60 ft

2.12.4 PCN: ///
2.12.5 Coordinates: −− / −−
2.12.6 Threshold Elevation: ft
2.12.6 Touchdown Zone Elevation: ft

AD 2.13 Declared Distances
2.13.1 Designation: 14
2.13.2 Take−off Run Available: 4892 ft
2.13.3 Take−off Distance Available: 4892 ft
2.13.4 Accelerate−Stop Distance Available: 4892 ft
2.13.5 Landing Distance Available: 4892 ft

2.13.1 Designation: 32
2.13.2 Take−off Run Available: 4892 ft
2.13.3 Take−off Distance Available: 4892 ft
2.13.4 Accelerate−Stop Distance Available: 4892 ft
2.13.5 Landing Distance Available: 4892 ft

2.13.1 Designation: 34R
2.13.2 Take−off Run Available: 12002 ft
2.13.3 Take−off Distance Available: 12002 ft
2.13.4 Accelerate−Stop Distance Available: 12002 ft
2.13.5 Landing Distance Available: 12002 ft

2.13.1 Designation: 16L
2.13.2 Take−off Run Available: 12002 ft
2.13.3 Take−off Distance Available: 12002 ft
2.13.4 Accelerate−Stop Distance Available: 12002 ft
2.13.5 Landing Distance Available: 12002 ft

2.13.1 Designation: 16R
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 34L
2.13.2 Take−off Run Available: 12000 ft
2.13.3 Take−off Distance Available: 12000 ft
2.13.4 Accelerate−Stop Distance Available: 12000 ft
2.13.5 Landing Distance Available: 12000 ft

2.13.1 Designation: 35
2.13.2 Take−off Run Available: 9596 ft
2.13.3 Take−off Distance Available: 9596 ft
2.13.4 Accelerate−Stop Distance Available: 9596 ft
2.13.5 Landing Distance Available: 9272 ft

2.13.1 Designation: 17
2.13.2 Take−off Run Available: 9596 ft

2.13.3 Take−off Distance Available: 9596 ft
2.13.4 Accelerate−Stop Distance Available: 9596 ft
2.13.5 Landing Distance Available: 9596 ft

2.13.1 Designation: HB
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

2.13.1 Designation: HF
2.13.2 Take−off Run Available: ft
2.13.3 Take−off Distance Available: ft
2.13.4 Accelerate−Stop Distance Available: ft
2.13.5 Landing Distance Available: ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 14
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 32
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 34R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 16L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 16R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 34L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 35
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 17
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: HB

2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: HF
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 16L. Magnetic variation: 11E
2.19.2 ILS Identification: MOY
2.19.5 Coordinates: 40−46−18.724N / 111−58−18.1254W
2.19.6 Site Elevation: 4239.9 ft

2.19.1 ILS Type: Glide Slope for runway 16L. Magnetic variation: 11E
2.19.2 ILS Identification: MOY
2.19.5 Coordinates: 40−48−17.0756N / 111−58−30.6172W
2.19.6 Site Elevation: 4225 ft

2.19.1 ILS Type: Inner Marker for runway 16L. Magnetic variation: 11E
2.19.2 ILS Identification: MOY
2.19.5 Coordinates: 40−48−35.7038N / 111−58−38.0115W
2.19.6 Site Elevation: 4222.8 ft

2.19.1 ILS Type: Localizer for runway 16L. Magnetic variation: 11E
2.19.2 ILS Identification: MOY
2.19.5 Coordinates: 40−46−18.5061N / 111−58−22.0717W
2.19.6 Site Elevation: 4226.5 ft

2.19.1 ILS Type: DME for runway 34R. Magnetic variation: 11E
2.19.2 ILS Identification: SLC
2.19.5 Coordinates: 40−46−18.724N / 111−58−18.1254W
2.19.6 Site Elevation: 4239.9 ft

2.19.1 ILS Type: Glide Slope for runway 34R. Magnetic variation: 11E
2.19.2 ILS Identification: SLC
2.19.5 Coordinates: 40−46−39.3436N / 111−58−19.2908W
2.19.6 Site Elevation: 4220 ft

2.19.1 ILS Type: Inner Marker for runway 34R. Magnetic variation: 11E
2.19.2 ILS Identification: SLC
2.19.5 Coordinates: 40−46−20.3855N / 111−58−22.2947W
2.19.6 Site Elevation: 4225.1 ft

2.19.1 ILS Type: Localizer for runway 34R. Magnetic variation: 11E
2.19.2 ILS Identification: SLC
2.19.5 Coordinates: 40−48−37.6811N / 111−58−38.2145W
2.19.6 Site Elevation: 4224.5 ft

2.19.1 ILS Type: DME for runway 16R. Magnetic variation: 11E
2.19.2 ILS Identification: UAT
2.19.5 Coordinates: 40−46−19.627N / 111−59−46.3581W
2.19.6 Site Elevation: 4233.6 ft

2.19.1 ILS Type: Glide Slope for runway 16R. Magnetic variation: 11E
2.19.2 ILS Identification: UAT
2.19.5 Coordinates: 40−48−17.3028N / 112−0−1.6005W
2.19.6 Site Elevation: 4218.7 ft

2.19.1 ILS Type: Localizer for runway 16R. Magnetic variation: 11E
2.19.2 ILS Identification: UAT
2.19.5 Coordinates: 40−46−19.9476N / 111−59−42.5324W
2.19.6 Site Elevation: 4227.2 ft

2.19.1 ILS Type: DME for runway 34L. Magnetic variation: 11E
2.19.2 ILS Identification: UUH
2.19.5 Coordinates: 40−46−19.627N / 111−59−46.3581W
2.19.6 Site Elevation: 4233.6 ft

2.19.1 ILS Type: Glide Slope for runway 34L. Magnetic variation: 11E
2.19.2 ILS Identification: UUH
2.19.5 Coordinates: 40−46−39.8998N / 111−59−50.2673W
2.19.6 Site Elevation: 4222.6 ft

2.19.1 ILS Type: Localizer for runway 34L. Magnetic variation: 11E
2.19.2 ILS Identification: UUH
2.19.5 Coordinates: 40−48−37.9731N / 111−59−58.5893W
2.19.6 Site Elevation: 4220 ft

2.19.1 ILS Type: DME for runway 17. Magnetic variation: 11E
2.19.2 ILS Identification: BNT
2.19.5 Coordinates: 40−46−9.7838N / 111−57−47.5356W
2.19.6 Site Elevation: 4242.7 ft

2.19.1 ILS Type: Glide Slope for runway 17. Magnetic variation: 11E
2.19.2 ILS Identification: BNT
2.19.5 Coordinates: 40−47−45.7497N / 111−57−50.0372W
2.19.6 Site Elevation: 4216.4 ft

2.19.1 ILS Type: Localizer for runway 17. Magnetic variation: 11E
2.19.2 ILS Identification: BNT
2.19.5 Coordinates: 40−46−10.0541N / 111−57−43.4502W
2.19.6 Site Elevation: 4227.9 ft

2.19.1 ILS Type: DME for runway 35. Magnetic variation: 11E
2.19.2 ILS Identification: UTJ
2.19.5 Coordinates: 40−46−9.7838N / 111−57−47.5356W
2.19.6 Site Elevation: 4242.7 ft

2.19.1 ILS Type: Glide Slope for runway 35. Magnetic variation: 11E

2.19.2 ILS Identification: UTJ
2.19.5 Coordinates: 40−46−35.1583N / 111−57−48.6413W
2.19.6 Site Elevation: 4229.2 ft

2.19.1 ILS Type: Localizer for runway 35. Magnetic variation: 11E
2.19.2 ILS Identification: UTJ
2.19.5 Coordinates: 40−47−8.3329N / 111−57−51.5557W
2.19.6 Site Elevation: 4220.8 ft

General Remarks:

SEE CURRENT NOTAMS FOR DATES AND ADDITIONAL INFO.

MILITARY: ANG RAMP: NSTD PAVEMENT MARK ON RAMP.

SVFR IS NOT RCMD AT THE ARPT, IF REQD, EXPT DLAS.

TWY Y RSTD TO WINGSPANS LESS THAN 171 FT BTWN TWY H3 AND H4.

MILITARY: ANG RAMP: OPR 1430−2230Z++ MON−THU. CLSD FRI−SUN AND HOL. OFFL BUS ONLY. PPR REQ 48 HR ALL ACFT, VALID 1 HR +/− ETA. TRAN PRK/SVC EXTREMELY LTD. BASE OPS DSN 245−2274, C801−245−2274. MIL ALT HILL AFB (KHIF) 25 NM N. ALL ACFT CTC UTAH CTL (COMD POST) 20 MIN OUT WITH ETA AND REQ.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

SURFACE MOVEMENT GUIDANCE CONTROL SYSTEM & LOW VISIBILITY TAXI PROCEDURES.

HELIPADS B AND F LOCATED ON GENERAL AVIATION APRONS.

USE CAUTION FOR EXTENSIVE PARAGLIDING OPS INVOF POINT OF THE MOUNTAIN.

SEE FLIP AP/1 SUPPLEMENTARY ARPT INFO.

MILITARY: COMMUNICATIONS: ANG COMD POST − CALL UTAH CONTROL.

USE MINIMUM THRUST IN CONSTRUCTION AREAS.

CONTACT GROUND ON 123.775 BEFORE TAXIING OUT OF NORTH CARGO.

DUE TO TFC VOL, LCL DEPARTURE AND ARR OPNS ARE DISCOURAGED AND DLAS CAN BE EXPCD BTN 1500−1730Z++ AND 0130−0300Z++.

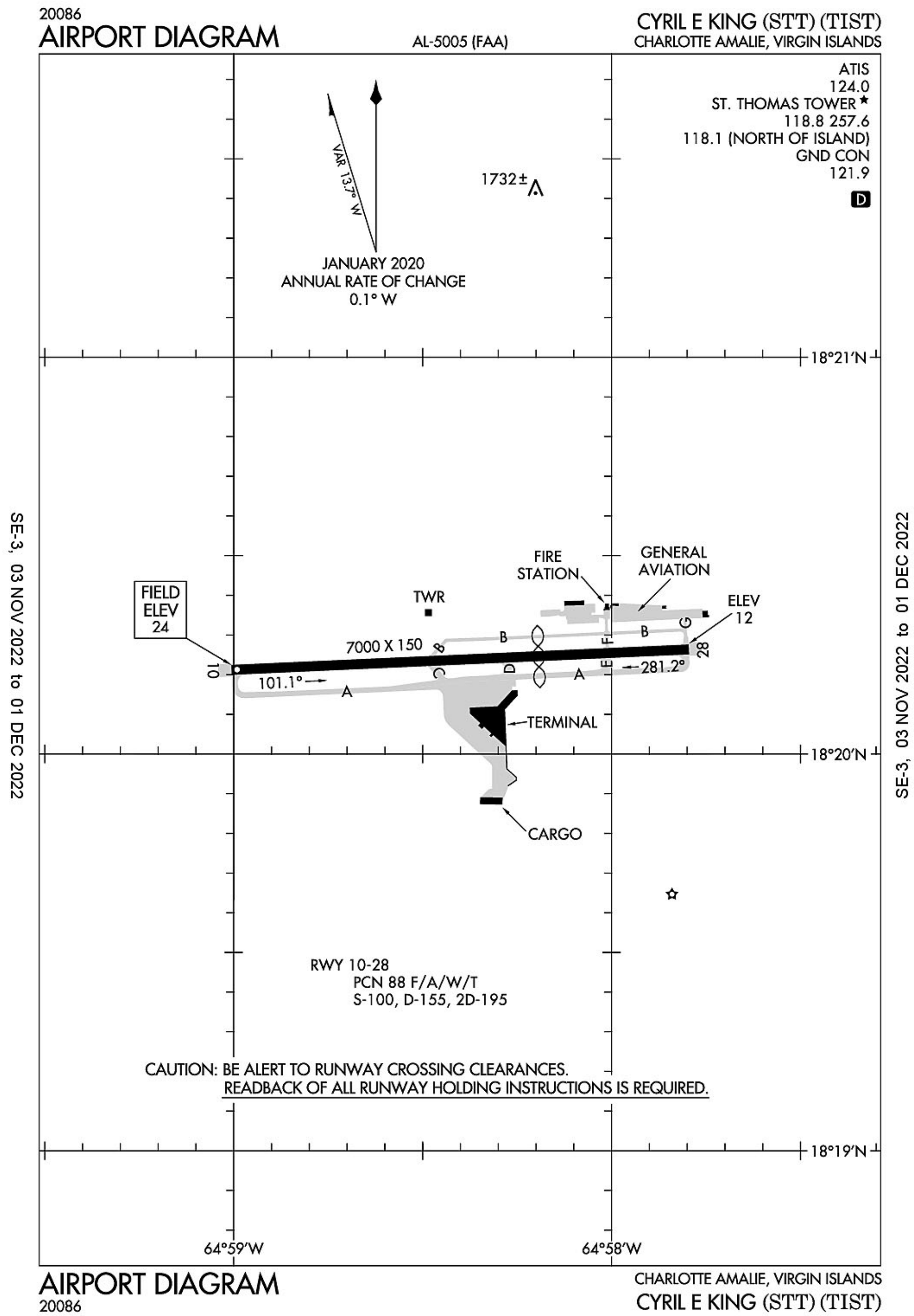
MILITARY: SVC: FUEL A++.

TWY K RSTRD TO ACFT WITH WINGSPAN LESS THAN 171 FT.

FLOCK OF BIRDS ON AND IN VICINITY OF ARPT.

MILITARY: ANG RAMP: ALL ACFT CTC UTAH CONTROL WITH LDG & DEP TIMES. COMD POST DSN: 245−2416/2417; C801−245−2416/2417. PHASE II WILDLIFE ACT DURING MIGRATION/MORNING/EVENING HRS FR OCT−APR. CTC UTAH CTL FOR CURRENT BIRD−WATCH COND.

Charlotte Amalie St. Thomas, Virgin Islands
Cyril E King
ICAO Identifier TIST



Charlotte Amalie, VI
Cyril E King
ICAO Identifier TIST

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 18−20−14.3N / 64−58−24W

2.2.2 From City: 2 miles W of CHARLOTTE AMALIE, VI

2.2.3 Elevation: 23.6 ft

2.2.5 Magnetic Variation: 13W (2000)

2.2.6 Airport Contact: JEROME SHERIDAN
CYRIL E. KING AIRPORT
ST THOMAS, VI 802 ((340) 714−6667)

2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, 0700−2300 Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES

2.4.2 Fuel Types: 100LL,A

2.4.5 Hangar Space: YES

2.4.6 Repair Facilities: MINOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 28

2.12.2 True Bearing: 267

2.12.3 Dimensions: 7000 ft x 150 ft

2.12.4 PCN: 88 F/A/W/T

2.12.5 Coordinates: 18−20−15.8124N / 64−57−47.7382W

2.12.6 Threshold Elevation: 11.7 ft

2.12.6 Touchdown Zone Elevation: 16.5 ft

2.12.1 Designation: 10

2.12.2 True Bearing: 87

2.12.3 Dimensions: 7000 ft x 150 ft

2.12.4 PCN: 88 F/A/W/T

2.12.5 Coordinates: 18−20−12.7247N / 64−59−0.3371W

2.12.6 Threshold Elevation: 23.5 ft

2.12.6 Touchdown Zone Elevation: 23.6 ft

AD 2.13 Declared Distances

2.13.1 Designation: 28
2.13.2 Take−off Run Available: 7000 ft
2.13.3 Take−off Distance Available: 7000 ft
2.13.4 Accelerate−Stop Distance Available: 6170 ft
2.13.5 Landing Distance Available: 3870 ft

2.13.1 Designation: 10
2.13.2 Take−off Run Available: 7000 ft
2.13.3 Take−off Distance Available: 7000 ft
2.13.4 Accelerate−Stop Distance Available: 6892 ft
2.13.5 Landing Distance Available: 6892 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 28
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 10
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 10. Magnetic variation: 13W
2.19.2 ILS Identification: TMN
2.19.5 Coordinates: 18−20−18.78N / 64−57−39.88W
2.19.6 Site Elevation: 22.6 ft

2.19.1 ILS Type: Glide Slope for runway 10. Magnetic variation: 13W
2.19.2 ILS Identification: TMN
2.19.5 Coordinates: 18−20−10.62N / 64−58−48.29W
2.19.6 Site Elevation: 15.1 ft

2.19.1 ILS Type: Localizer for runway 10. Magnetic variation: 13W
2.19.2 ILS Identification: TMN
2.19.5 Coordinates: 18−20−16.26N / 64−57−37.22W
2.19.6 Site Elevation: 17 ft

2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 10W
2.19.2 Navigation Aid Identification: STT

2.19.5 Coordinates: 18−21−20.9431N / 65−1−28.3968W

2.19.6 Site Elevation: 679.2 ft

General Remarks:
LGTS ON HILL 4 NM SE OF ARPT MAY BE MISTAKEN FOR RY 10/28 WHEN MAKING A VISUAL APCH FROM THE SOUTH.

ACFT THAT BACK TAXI FOR DEP ON RY 28 SHALL MAKE THEIR 180 DEG TURN CCLKWS.

NOISE SENSITIVE AREA: AVOID OVERFLIGHTS OF WATER ISLAND LOCATED 2 MI SE OF ARPT.

ARFF UNAVBL 2300−0630.

RY 10 DEPS MAINTAIN RY HDG UNTIL REACHING DEP END OF RY BFR TURNING ON COURSE OR ASSIGNED HDG UNLESS OTRW AUZD BY ATCT.

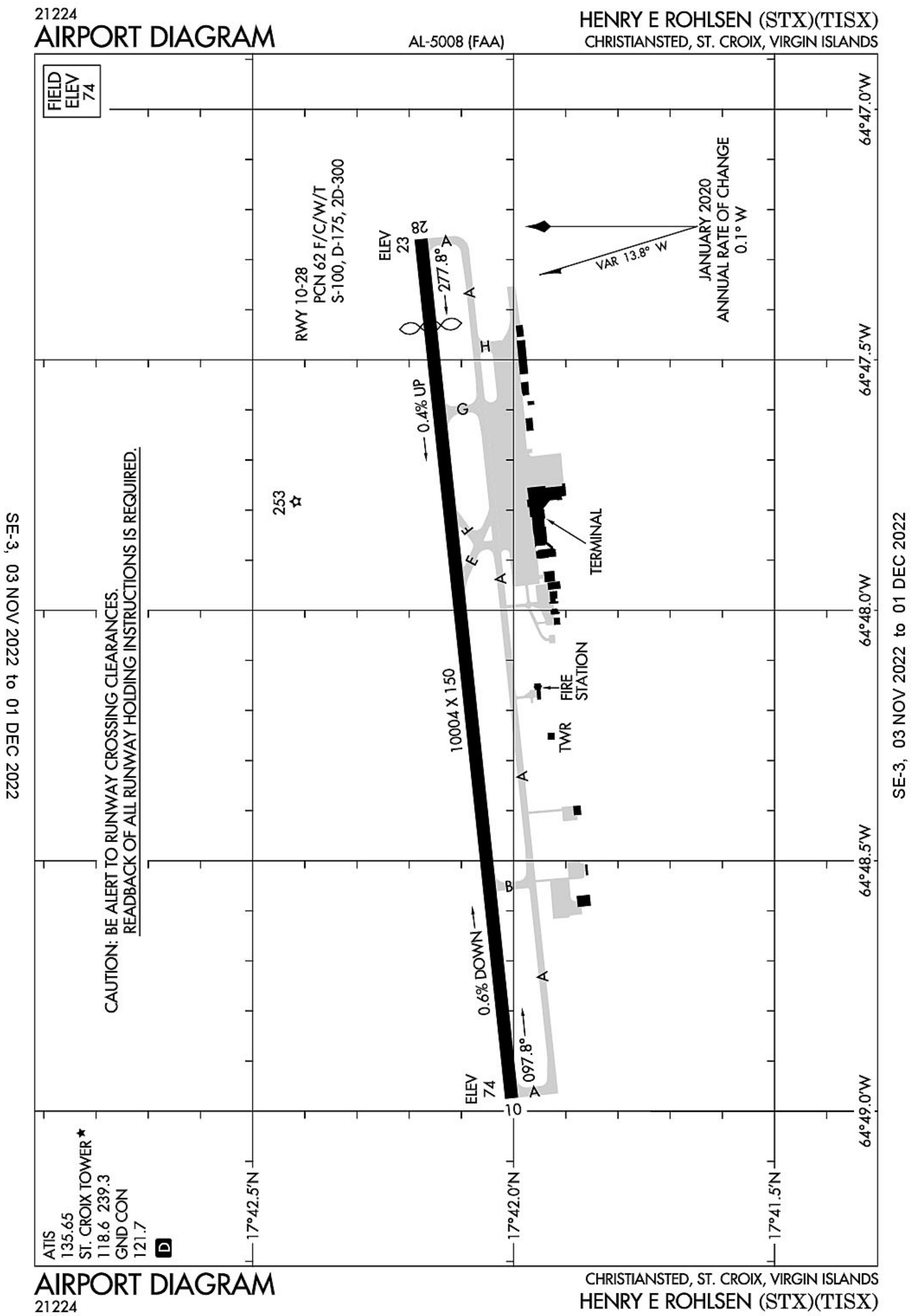
WHEN TWR CLSD CTC SAN JUAN CERAP AT 787−253−8664/8665

PILOTS CTC GND CTL PRIOR TO PUSHBACK.

PILOTS MAY ENCTR FALSE ILLUSORY INDICATIONS DURG NGT VISUAL APCHS TO RY 10 WHEN USING VISUAL CUES FOR VERTICAL GUIDANCE; RCMD USE OF THE ILS GS & FQT CROSS REF WITH THE ACFT ALTM TO MAINT THE PROPER APCH PROFILE.

OBSTRUCTION SAILBOAT MAST 100FT WEST OF APPROACH END OF RWY 10 50FT AGL

Christiansted St. Croix
Henry E Rohlsen
ICAO Identifier TISX



Christiansted, VI
Henry E Rohlsen
ICAO Identifier TISX

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 17−42−5.416N / 64−48−6.9945W
2.2.2 From City: 6 miles SW of CHRISTIANSTED, VI
2.2.3 Elevation: 74.1 ft
2.2.5 Magnetic Variation: 13W (2000)
2.2.6 Airport Contact: JEROME SHERIDAN
P.O. BOX 1134
ST CROIX, VI 821 (340−714−6662)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, 0500−2300 Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: NO
2.4.2 Fuel Types: 100LL,A1+
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 28
2.12.2 True Bearing: 264
2.12.3 Dimensions: 10004 ft x 150 ft
2.12.4 PCN: 62 F/C/W/T
2.12.5 Coordinates: 17−42−10.62N / 64−47−15.544W
2.12.6 Threshold Elevation: 22.5 ft
2.12.6 Touchdown Zone Elevation: 40 ft

2.12.1 Designation: 10
2.12.2 True Bearing: 84
2.12.3 Dimensions: 10004 ft x 150 ft
2.12.4 PCN: 62 F/C/W/T
2.12.5 Coordinates: 17−42−0.212N / 64−48−58.445W
2.12.6 Threshold Elevation: 73.7 ft
2.12.6 Touchdown Zone Elevation: 74.1 ft

AD 2.13 Declared Distances
2.13.1 Designation: 28
2.13.2 Take−off Run Available: 10004 ft
2.13.3 Take−off Distance Available: 10004 ft
2.13.4 Accelerate−Stop Distance Available: 10004 ft
2.13.5 Landing Distance Available: 8998 ft

2.13.1 Designation: 10
2.13.2 Take−off Run Available: 10004 ft
2.13.3 Take−off Distance Available: 10004 ft
2.13.4 Accelerate−Stop Distance Available: 9003 ft
2.13.5 Landing Distance Available: 9003 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 28
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 10
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 10. Magnetic variation: 13W
2.19.2 ILS Identification: STX
2.19.5 Coordinates: 17−41−58.77N / 64−48−45.5W
2.19.6 Site Elevation: 63.5 ft

2.19.1 ILS Type: Localizer for runway 10. Magnetic variation: 13W
2.19.2 ILS Identification: STX
2.19.5 Coordinates: 17−42−11.36N / 64−47−8.28W
2.19.6 Site Elevation: 26.4 ft

2.19.1 ILS Type: Outer Marker for runway 10. Magnetic variation: 13W
2.19.2 ILS Identification: STX
2.19.5 Coordinates: 17−41−30.92N / 64−53−4.74W
2.19.6 Site Elevation: 40 ft

General Remarks:
APCH TO RY 28 SMTMS OBSCD BY SMOKE FM LANDFILL LCTD E OF ARPT.

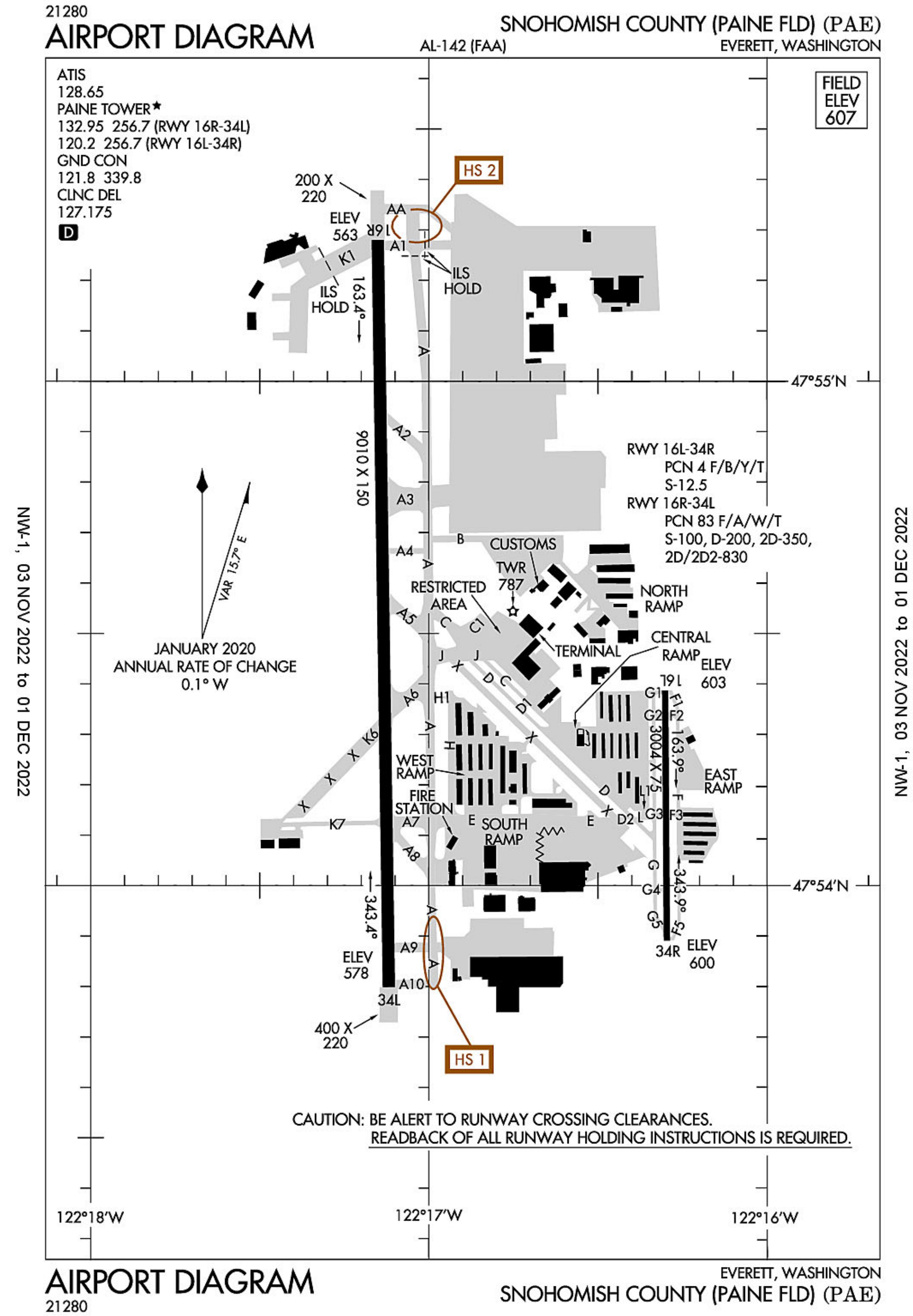
TAXI INTO POSITION AND HOLD PROCEDURES NO LONGER IN EFFECT.

BIRDS & WILDLIFE ON & INVOF ARPT.

AP SFC COND UNMON DLY 2300 − 0600 AST.

WHEN TWR CLSD CTC SAN JUAN CERAP AT 787−253−8664/8665

Everett, Washington
Snohomish County (Paine Field)
ICAO Identifier KPAE



Everett, WA
Snohomish County (Paine Fld)
ICAO Identifier KPAE

AD 2.2 Aerodrome geographical and administrative data

2.2.1 Reference Point: 47−54−26.345N / 122−16−55.538W

2.2.2 From City: 6 miles SW of EVERETT, WA

2.2.3 Elevation: 606.9 ft

2.2.5 Magnetic Variation: 16E (2020)

2.2.6 Airport Contact: ARIF GHOUSE
3220 100TH ST SW
EVERETT, WA 98204 ((425) 388−5100)

2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule

2.3.1 MAY−OCT Months, All Days, 0700−2100 Hours

AD 2.4 Handling Services and Facilities

2.4.1 Cargo Handling Facilities: NO

2.4.2 Fuel Types: 100LL,A

2.4.5 Hangar Space: YES

2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services

2.6.1 Aerodrome Category for Firefighting: ARFF Index I B certified on 11/1/1974

AD 2.12 Runway Physical Characteristics

2.12.1 Designation: 16L

2.12.2 True Bearing: 180

2.12.3 Dimensions: 3004 ft x 75 ft

2.12.4 PCN: 4 F/B/Y/T

2.12.5 Coordinates: 47−54−23.129N / 122−16−18.0936W

2.12.6 Threshold Elevation: 602.9 ft

2.12.6 Touchdown Zone Elevation: 606.9 ft

2.12.1 Designation: 34R

2.12.2 True Bearing: 360

2.12.3 Dimensions: 3004 ft x 75 ft

2.12.4 PCN: 4 F/B/Y/T

2.12.5 Coordinates: 47−53−53.4898N / 122−16−17.7647W

2.12.6 Threshold Elevation: 599.8 ft

2.12.6 Touchdown Zone Elevation: 606.9 ft

2.12.1 Designation: 16R

2.12.2 True Bearing: 179

2.12.3 Dimensions: 9010 ft x 150 ft
2.12.4 PCN: 83 F/A/W/T
2.12.5 Coordinates: 47−55−16.8088N / 122−17−9.0632W
2.12.6 Threshold Elevation: 562.7 ft
2.12.6 Touchdown Zone Elevation: 569.8 ft

2.12.1 Designation: 34L
2.12.2 True Bearing: 359
2.12.3 Dimensions: 9010 ft x 150 ft
2.12.4 PCN: 83 F/A/W/T
2.12.5 Coordinates: 47−53−47.904N / 122−17−7.0916W
2.12.6 Threshold Elevation: 577.6 ft
2.12.6 Touchdown Zone Elevation: 583.4 ft

AD 2.13 Declared Distances
2.13.1 Designation: 16L
2.13.2 Take−off Run Available: 3004 ft
2.13.3 Take−off Distance Available: 3004 ft
2.13.4 Accelerate−Stop Distance Available: 3004 ft
2.13.5 Landing Distance Available: 3004 ft

2.13.1 Designation: 34R
2.13.2 Take−off Run Available: 3004 ft
2.13.3 Take−off Distance Available: 3004 ft
2.13.4 Accelerate−Stop Distance Available: 3004 ft
2.13.5 Landing Distance Available: 3004 ft

2.13.1 Designation: 16R
2.13.2 Take−off Run Available: 9010 ft
2.13.3 Take−off Distance Available: 9010 ft
2.13.4 Accelerate−Stop Distance Available: 9010 ft
2.13.5 Landing Distance Available: 9010 ft

2.13.1 Designation: 34L
2.13.2 Take−off Run Available: 9010 ft
2.13.3 Take−off Distance Available: 9010 ft
2.13.4 Accelerate−Stop Distance Available: 9010 ft
2.13.5 Landing Distance Available: 9010 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 16L
2.14.2 Approach Lighting System:

2.14.4 Visual Approach Slope Indicator System: P2L

2.14.1 Designation: 34R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P2L

2.14.1 Designation: 16R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 34L
2.14.2 Approach Lighting System: MALSF
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: Glide Slope for runway 16R. Magnetic variation: 16E
2.19.2 ILS Identification: PAE
2.19.5 Coordinates: 47−55−7.3456N / 122−17−13.6246W
2.19.6 Site Elevation: 566.4 ft

2.19.1 ILS Type: Localizer for runway 16R. Magnetic variation: 16E
2.19.2 ILS Identification: PAE
2.19.5 Coordinates: 47−53−34.031N / 122−17−6.7829W
2.19.6 Site Elevation: 569.7 ft

2.19.1 Navigation Aid Type: VOR/DME. Magnetic variation: 20E
2.19.2 Navigation Aid Identification: PAE
2.19.5 Coordinates: 47−55−11.3996N / 122−16−40.0864W
2.19.6 Site Elevation: 669.2 ft

General Remarks:
RWY 16L/34R LTD TO HEL 8000 LBS OR LESS.

AVOID INT DEPS FM RWY 16L/34R

IT IS REQ THAT PILOTS ADHERE TO THE FLW NOISE ABATEMENT PROC UNLESS OTRW INSTRD BY ATCT, ITNRNT ARR AND LOW APCH OF SML ACFT OVER 250 HORSEPOWER AUZ ON RWYS 16L AND 34R.

NOISE SENSITIVE ARPT; FOR NOISE ABATEMENT PROC & TFC PROC CALL ARPT OPS 425−388−5125.

TSNT HEL EXP LNDG/TKOF ON TWY B.

RWY 16R/34 TGL PROHIBITED MON−FRI FM 0700−0900.

ITNRNT DEP OF SML ACFT OVER 250 HORSEPOWER ON RWY 34R.

TRNG FLTS DISCOURAGED AFT 2200.

FOR NOISE ABATEMENT FROM 0500−1500Z++ IF ACFT PERFORMANCE/WIND ALLOWS, USE RY 16R FOR ARRIVALS AND RY 34L FOR DEPARTURES.

TWY C BTN TRML RAMP AND CNTRL RAMP RSTRD TO WINGSPAN OF 68 FT OR LESS. TWY D, F, G AND L RSTRD TO WINGSPAN LESS THAN 49 FT. TWY A4, A5, K7 & B RSTRD TO WINGSPAN LESS THAN 118 FT. TAXILANE H RSTRD TO WINGSPAN LESS THAN 49 FT.

LRG ACFT FLY W PAT OVR WTR; SML ACFT FLY E PAT OVR ARPT.

AVOID LOW LVL OVRFLT OF BOEING RAMP; NE CORNER OF ARPT DUE TO JET BLAST.

FLOCKS OF LRG & SML BIRDS INVOF ARPT.

BE ALERT TO CNVG TFC ON BASE TO FINAL LEGS RWY 16R/34L 2100−0700.

FOR CD WHEN ATCT IS CLSD CTC SEATTLE APCH AT 206−214−4722.

PAE HAS FAC CONSTRAINTS THAT LMT ITS ABILITY TO ACCOMMODATE DIVD FLTS AND MNTN THE ARPTS SAFE OPN DUR IREG OPS. ACFT OPR SHOULD CTCT THE ON−DUTY ARPT OPS PSNL (425−388−5125) TO COORD DIVD FLTS EXC IN THE CASE OF A DECLARED IN−FLT EMERG.

PPR RQRD FOR ACES ON BOEING RAMP. CTC BOEING FLT DISPATCH 206−544−5900 FOR APVL. PRIOR TO TAXI ONTO BOEING RAMP CTC BOEING RADIO TWR 123.475 OR CALL 425−342−5900.

TWY K1 CLSD TO ACFT UNDER 30000 LBS.

TKOF CLNC RWY 16R FULL LEN; ENT RWY VIA TWY A1 UNLESS TWY AA SPECIFIED.

USE CTN FOR 80 FT AGL LGT POLES SW EDGE OF BRAVO RAMP.

RWY 16L/34R CLSD BTN 0500−1500Z.

TWY A−2 RSTRD TO 30000 LBS.

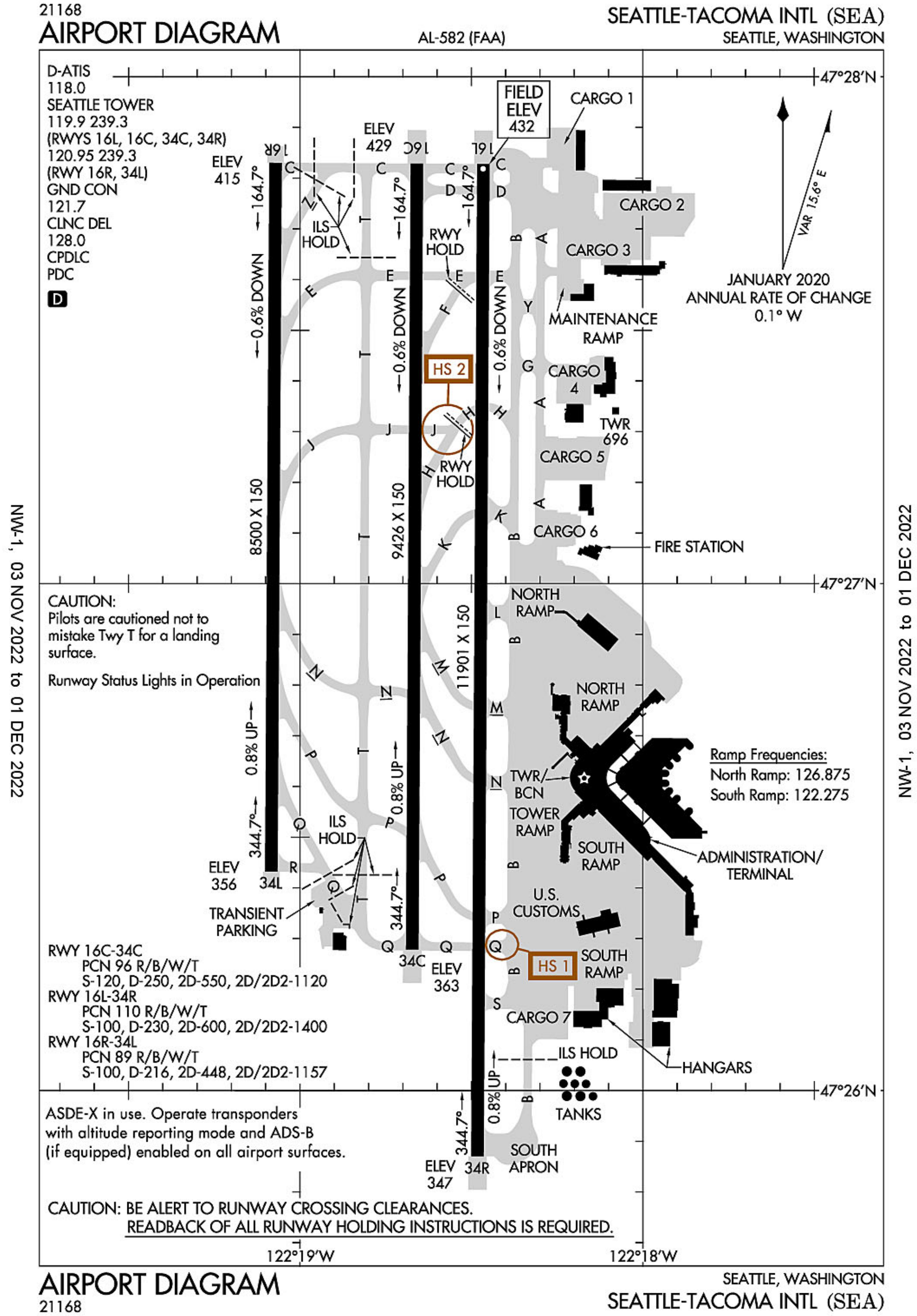
EMERG FREQ 121.5 NOT MNT AT TWR. SEATTLE APP CON−TRACON MNT 121.5 FOR EVERETT (PAE).

AREAS NOT VSB FM ATCT INCL E EDGE OF S 1200 FT OF TWY A, TAXILANE E FM SE CORNER OF W HNGRS TO TWY A, TAXILANE H FROM NW EDGE OF W HNGRS TO TAXILANE E.

TAXILANE E RSTD TO WINGSPAN LESS THAN 171 FT. ACFT WINGSPAN OF 171 FT OR GREATER ON TAXILANE E, TUG OPS ONLY. EAST 500 FT OF TAXILANE E RSTD TO WINGSPAN LESS THAN 49 FT.

AIRFIELD CONDS NOT MNTD BTN 0000−0630.

Seattle, Washington
Seattle−Tacoma International
ICAO Identifier KSEA



Seattle, WA
Seattle−Tacoma Intl
ICAO Identifier KSEA

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 47−26−59.6N / 122−18−42.4W
2.2.2 From City: 10 miles S of SEATTLE, WA
2.2.3 Elevation: 432.3 ft
2.2.5 Magnetic Variation: 16E (2020)
2.2.6 Airport Contact: LANCE LYTTLE
BOX 68727
SEATTLE, WA 98168 ((206) 787−5229)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: A,A1
2.4.5 Hangar Space:
2.4.6 Repair Facilities: NONE

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I E certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 16C
2.12.2 True Bearing: 180
2.12.3 Dimensions: 9426 ft x 150 ft
2.12.4 PCN: 96 R/B/W/T
2.12.5 Coordinates: 47−27−49.7155N / 122−18−39.5415W
2.12.6 Threshold Elevation: 429.4 ft
2.12.6 Touchdown Zone Elevation: 429.5 ft

2.12.1 Designation: 34C
2.12.2 True Bearing: 0
2.12.3 Dimensions: 9426 ft x 150 ft
2.12.4 PCN: 96 R/B/W/T
2.12.5 Coordinates: 47−26−16.6966N / 122−18−40.3554W
2.12.6 Threshold Elevation: 362.9 ft
2.12.6 Touchdown Zone Elevation: 387 ft

2.12.1 Designation: 16L
2.12.2 True Bearing: 180
2.12.3 Dimensions: 11901 ft x 150 ft
2.12.4 PCN: 110 R/B/W/T
2.12.5 Coordinates: 47−27−49.6628N / 122−18−27.9008W
2.12.6 Threshold Elevation: 432.3 ft
2.12.6 Touchdown Zone Elevation: 432.3 ft

2.12.1 Designation: 34R
2.12.2 True Bearing: 0
2.12.3 Dimensions: 11901 ft x 150 ft
2.12.4 PCN: 110 R/B/W/T
2.12.5 Coordinates: 47−25−52.2202N / 122−18−28.9377W
2.12.6 Threshold Elevation: 346.7 ft
2.12.6 Touchdown Zone Elevation: 371.5 ft

2.12.1 Designation: 16R
2.12.2 True Bearing: 180
2.12.3 Dimensions: 8500 ft x 150 ft
2.12.4 PCN: 89 R/B/W/T
2.12.5 Coordinates: 47−27−49.8109N / 122−19−4.2846W
2.12.6 Threshold Elevation: 414.8 ft
2.12.6 Touchdown Zone Elevation: 414.8 ft

2.12.1 Designation: 34L
2.12.2 True Bearing: 0
2.12.3 Dimensions: 8500 ft x 150 ft
2.12.4 PCN: 89 R/B/W/T
2.12.5 Coordinates: 47−26−25.9217N / 122−19−5.009W
2.12.6 Threshold Elevation: 356.2 ft
2.12.6 Touchdown Zone Elevation: 379.3 ft

AD 2.13 Declared Distances
2.13.1 Designation: 16C
2.13.2 Take−off Run Available: 9426 ft
2.13.3 Take−off Distance Available: 9426 ft
2.13.4 Accelerate−Stop Distance Available: 9426 ft
2.13.5 Landing Distance Available: 9426 ft

2.13.1 Designation: 34C
2.13.2 Take−off Run Available: 9426 ft
2.13.3 Take−off Distance Available: 9426 ft
2.13.4 Accelerate−Stop Distance Available: 9426 ft
2.13.5 Landing Distance Available: 9426 ft

2.13.1 Designation: 16L
2.13.2 Take−off Run Available: 11901 ft
2.13.3 Take−off Distance Available: 11901 ft
2.13.4 Accelerate−Stop Distance Available: 11901 ft
2.13.5 Landing Distance Available: 11901 ft

2.13.1 Designation: 34R
2.13.2 Take−off Run Available: 11901 ft
2.13.3 Take−off Distance Available: 11901 ft
2.13.4 Accelerate−Stop Distance Available: 11901 ft
2.13.5 Landing Distance Available: 11901 ft

2.13.1 Designation: 16R

2.13.2 Take−off Run Available: 8500 ft
2.13.3 Take−off Distance Available: 8500 ft
2.13.4 Accelerate−Stop Distance Available: 8500 ft
2.13.5 Landing Distance Available: 8500 ft

2.13.1 Designation: 34L
2.13.2 Take−off Run Available: 8500 ft
2.13.3 Take−off Distance Available: 8500 ft
2.13.4 Accelerate−Stop Distance Available: 8500 ft
2.13.5 Landing Distance Available: 8500 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 16C
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 34C
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 16L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 34R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 16R
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 34L
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 16C. Magnetic variation: 16E
2.19.2 ILS Identification: SZI
2.19.5 Coordinates: 47−26−6.28N / 122−18−39.51W
2.19.6 Site Elevation: 359 ft

2.19.1 ILS Type: Glide Slope for runway 16C. Magnetic variation: 16E
2.19.2 ILS Identification: SZI
2.19.5 Coordinates: 47−27−38.687N / 122−18−45.462W
2.19.6 Site Elevation: 417.6 ft

2.19.1 ILS Type: Localizer for runway 16C. Magnetic variation: 16E
2.19.2 ILS Identification: SZI
2.19.5 Coordinates: 47−26−6.703N / 122−18−40.4438W
2.19.6 Site Elevation: 355.7 ft

2.19.1 ILS Type: DME for runway 34C. Magnetic variation: 16E
2.19.2 ILS Identification: TUC
2.19.5 Coordinates: 47−26−6.28N / 122−18−39.51W
2.19.6 Site Elevation: 359 ft

2.19.1 ILS Type: Glide Slope for runway 34C. Magnetic variation: 16E
2.19.2 ILS Identification: TUC
2.19.5 Coordinates: 47−26−25.6028N / 122−18−46.1679W
2.19.6 Site Elevation: 366.8 ft

2.19.1 ILS Type: Localizer for runway 34C. Magnetic variation: 16E
2.19.2 ILS Identification: TUC
2.19.5 Coordinates: 47−27−54.3525N / 122−18−39.5018W
2.19.6 Site Elevation: 421.8 ft

2.19.1 ILS Type: DME for runway 16L. Magnetic variation: 16E
2.19.2 ILS Identification: SNQ
2.19.5 Coordinates: 47−26−3.5974N / 122−18−22.6779W
2.19.6 Site Elevation: 369.4 ft

2.19.1 ILS Type: Glide Slope for runway 16L. Magnetic variation: 16E
2.19.2 ILS Identification: SNQ
2.19.5 Coordinates: 47−27−38.9362N / 122−18−33.8193W
2.19.6 Site Elevation: 425.2 ft

2.19.1 ILS Type: Localizer for runway 16L. Magnetic variation: 16E
2.19.2 ILS Identification: SNQ
2.19.5 Coordinates: 47−25−42.224N / 122−18−29.0263W
2.19.6 Site Elevation: 335.5 ft

2.19.1 ILS Type: DME for runway 34R. Magnetic variation: 16E
2.19.2 ILS Identification: SEA
2.19.5 Coordinates: 47−26−3.5974N / 122−18−22.6779W
2.19.6 Site Elevation: 369.4 ft

2.19.1 ILS Type: Glide Slope for runway 34R. Magnetic variation: 16E
2.19.2 ILS Identification: SEA
2.19.5 Coordinates: 47−26−3.3996N / 122−18−23.0248W
2.19.6 Site Elevation: 355.1 ft

2.19.1 ILS Type: Localizer for runway 34R. Magnetic variation: 16E
2.19.2 ILS Identification: SEA
2.19.5 Coordinates: 47−27−54.2762N / 122−18−27.8613W
2.19.6 Site Elevation: 428.1 ft

2.19.1 ILS Type: DME for runway 16R. Magnetic variation: 16E

2.19.2 ILS Identification: CJL
2.19.5 Coordinates: 47−26−15.6195N / 122−18−59.9408W
2.19.6 Site Elevation: 344.8 ft

2.19.1 ILS Type: Glide Slope for runway 16R. Magnetic variation: 16E
2.19.2 ILS Identification: CJL
2.19.5 Coordinates: 47−27−38.4647N / 122−19−0.5973W
2.19.6 Site Elevation: 405.5 ft

2.19.1 ILS Type: Localizer for runway 16R. Magnetic variation: 16E
2.19.2 ILS Identification: CJL
2.19.5 Coordinates: 47−26−15.9249N / 122−19−5.0962W
2.19.6 Site Elevation: 343.7 ft

2.19.1 ILS Type: DME for runway 34L. Magnetic variation: 16E
2.19.2 ILS Identification: BEJ
2.19.5 Coordinates: 47−26−15.6195N / 122−18−59.9408W
2.19.6 Site Elevation: 344.8 ft

2.19.1 ILS Type: Glide Slope for runway 34L. Magnetic variation: 16E
2.19.2 ILS Identification: BEJ
2.19.5 Coordinates: 47−26−34.9351N / 122−18−59.9836W
2.19.6 Site Elevation: 358.5 ft

2.19.1 ILS Type: Localizer for runway 34L. Magnetic variation: 16E
2.19.2 ILS Identification: BEJ
2.19.5 Coordinates: 47−27−59.7764N / 122−19−4.1986W
2.19.6 Site Elevation: 409.5 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 19E
2.19.2 Navigation Aid Identification: SEA
2.19.5 Coordinates: 47−26−7.3434N / 122−18−34.618W
2.19.6 Site Elevation: 348.4 ft

General Remarks:
(E94) WSO/WSFO.

RWY 16L/34R RSTD TO ACFT WITH WINGSPAN 260 FT OR LESS.

TAXILANE W RSTD TO ACFT WITH WINGSPAN 135 FT OR LESS N OF TWY N AND 167 FT OR LESS SOUTH OF TWY N. SEATTLE RAMP TWR PRVDS ADZY CTL ONLY.

AIR CARGO 5 RAMP DUAL ENG TAX ONLY

TWYS J & H E OF TWY T RSTD TO ACFT WITH WINGSPAN 167 FT OR LESS.

BTN THE HRS OF 2200−0700 THE USE OF EXTDD REVERSE THRUST IS DISCOURAGED BYD WHAT IS NECCESSARY FOR OPNL OR SAFETY REASONS. NOISE ABATEMENT PROCEDURES IN EFFECT BTN 2200−0600. FOR FURTHER INFO CONTACT SEA NOISE ABATEMENT OFFICE AT 206−787−7496.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

TWY H E OF RWY 16L/34R RSTD TO ACFT WITH WINGSPAN 118 FT OR LESS WHEN EXITING RWY 16L/34R.

HELICOPTERS LANDING & DEPARTING AVOID OVERFLYING FUEL FARM LCTD AT THE SE CORNER OF THE ARPT.

DO NOT MISTAKE TWY T FOR LNDG SFC.

ACES TO AIR CARGO 4 PRKG AND CARGO AREAS RSTD TO ACFT WITH WINGSPAN 170 FT OR LESS.

(E110) CONTINUOUS POWER ARPT.

PPR FOR ALL GA PRKG & SVCS, CTC 206−433−5481. OP HRS 0530L − 2100L, WITH A CALL OUT AVBL UPON REQ.

TWY B SOUTH OF AIR CARGO 7 RAMP RSTD TO ACFT WITH WINGSPAN 260 FT OR LESS.

TWY FOR CORPORATE HNGR RAMP RSTD TO ACFT WITH WINGSPAN 62 FT OR LESS FOR TAXI OPS. GA CUST PKNG IS VERY LTD.

RY STATUS LGTS ARE IN OPN.

TWY A SOUTH OF TWY G RSTD TO ACFT WITH WINGSPAN 225 FT OR LESS.

100LL FUEL NOT AVBL.

TWY B S OF TWY Q RSTD TO ACFT WITH WINGSPAN 260 FT OR LESS.

BIRD FLOCKS WITHIN ARPT VCNTY − CHECK LCL ADZYS.

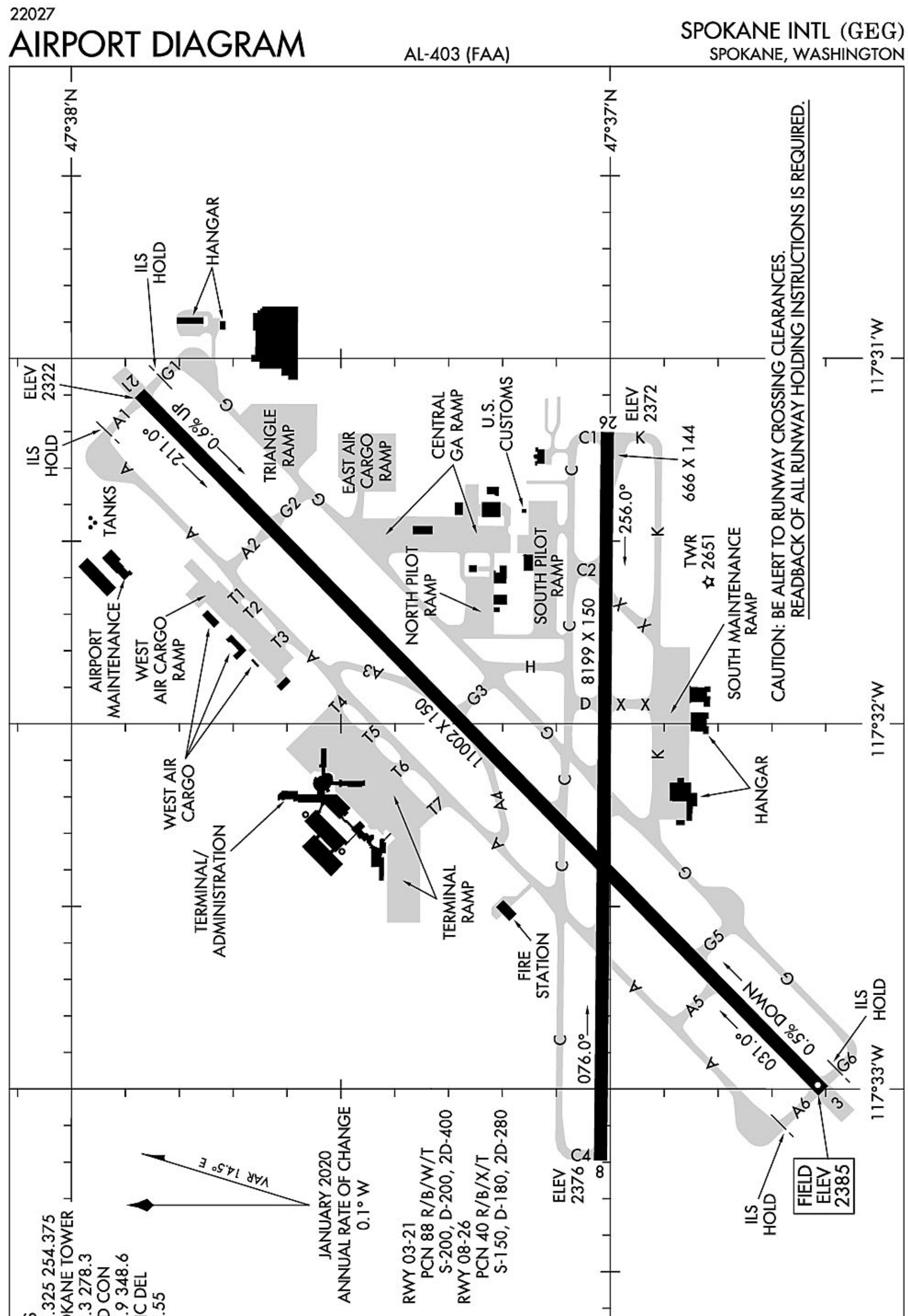
TAXILANE ON N SIDE OF N STLT RSTD TO ACFT WITH WINGSPAN 118 FT OR LESS. TRI−TAXILANES AT N STLT: CNTR (GREEN) TAXILANE RSTD TO ACFT WITH WINGSPAN 135 FT OR LESS. WHEN AN ACFT IS ON THE CNTR (GREEN) OR OTR (ORANGE/BLUE) TAXILANES, NO OTR ACFT CAN SIMUL USE THE ADJ TAXILANE(S). ORANGE & BLUE TAXILANES ARE RSTD TO ACFT WITH WINGSPAN 118 FT OR LESS. TWO ACFT CAN SIMUL USE THE OUTER TAXILANES.

GA LANDING FEES PAYABLE BY MAJOR CREDIT CARDS ONLY.

ACFT WITH WINGSPANS OF 171 FT. OR MORE PARKED AT PAX GATES OR CARGO 7 MUST PROVIDE 30 MIN PPR PRIOR TO PUSHBACK TO SEATTLE RAMP TWR WHEN VSBY LESS THAN 2400 RVR

FLIGHT NOTIFICATION SERVICE (ADCUS) AVBL.

Spokane, Washington
Spokane International
ICAO Identifier KGEG



Spokane, WA
Spokane Intl
ICAO Identifier KGEG

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 47−37−8.5N / 117−32−6.8W
2.2.2 From City: 5 miles SW of SPOKANE, WA
2.2.3 Elevation: 2385 ft
2.2.5 Magnetic Variation: 14E (2020)
2.2.6 Airport Contact: LAWRENCE J KRAUTER
9000 W AIRPORT DR.
SPOKANE, WA 99224 ((509) 455−6418)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100,100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 03
2.12.2 True Bearing: 45
2.12.3 Dimensions: 11002 ft x 150 ft
2.12.4 PCN: 88 R/B/W/T
2.12.5 Coordinates: 47−36−36.2909N / 117−33−0.2876W
2.12.6 Threshold Elevation: 2385 ft
2.12.6 Touchdown Zone Elevation: 2385 ft

2.12.1 Designation: 21
2.12.2 True Bearing: 225
2.12.3 Dimensions: 11002 ft x 150 ft
2.12.4 PCN: 88 R/B/W/T
2.12.5 Coordinates: 47−37−52.3811N / 117−31−5.7573W
2.12.6 Threshold Elevation: 2322.4 ft
2.12.6 Touchdown Zone Elevation: 2346.1 ft

2.12.1 Designation: 08
2.12.2 True Bearing: 90
2.12.3 Dimensions: 8199 ft x 150 ft
2.12.4 PCN: 40 R/B/X/T
2.12.5 Coordinates: 47−37−1.0687N / 117−33−11.7639W
2.12.6 Threshold Elevation: 2376.2 ft
2.12.6 Touchdown Zone Elevation: 2376.2 ft

2.12.1 Designation: 26
2.12.2 True Bearing: 270
2.12.3 Dimensions: 8199 ft x 150 ft
2.12.4 PCN: 40 R/B/X/T
2.12.5 Coordinates: 47−37−0.3642N / 117−31−12.1045W
2.12.6 Threshold Elevation: 2371.5 ft
2.12.6 Touchdown Zone Elevation: 2371.5 ft

AD 2.13 Declared Distances
2.13.1 Designation: 03
2.13.2 Take−off Run Available: 11002 ft
2.13.3 Take−off Distance Available: 11002 ft
2.13.4 Accelerate−Stop Distance Available: 11002 ft
2.13.5 Landing Distance Available: 11002 ft

2.13.1 Designation: 21
2.13.2 Take−off Run Available: 11002 ft
2.13.3 Take−off Distance Available: 11002 ft
2.13.4 Accelerate−Stop Distance Available: 11002 ft
2.13.5 Landing Distance Available: 11002 ft

2.13.1 Designation: 08
2.13.2 Take−off Run Available: 8199 ft
2.13.3 Take−off Distance Available: 8199 ft
2.13.4 Accelerate−Stop Distance Available: 8199 ft
2.13.5 Landing Distance Available: 8199 ft

2.13.1 Designation: 26
2.13.2 Take−off Run Available: 8199 ft
2.13.3 Take−off Distance Available: 8199 ft
2.13.4 Accelerate−Stop Distance Available: 8199 ft
2.13.5 Landing Distance Available: 8199 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 03
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 21
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 08
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 26
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P DEP/P IC (205−025)
2.14.3 Channel: 123.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (026−204)
2.14.3 Channel: 133.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (026−204)
2.14.3 Channel: 263
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (205−025)
2.14.3 Channel: 282.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/S DEP/S
2.14.3 Channel: 372.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ATIS
2.14.3 Channel: 124.325
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: ATIS
2.14.3 Channel: 254.375
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 127.55
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (205−025)
2.14.3 Channel: 123.75
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (026−204)
2.14.3 Channel: 133.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (026−204)
2.14.3 Channel: 263
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (205−025)
2.14.3 Channel: 282.25
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.9
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 348.6
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 118.3
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 278.3
2.14.5 Hours of Operation: 24

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 03. Magnetic variation: 14E
2.19.2 ILS Identification: OLJ
2.19.5 Coordinates: 47−36−32.05N / 117−33−15.1W
2.19.6 Site Elevation: 2380.2 ft

2.19.1 ILS Type: Glide Slope for runway 03. Magnetic variation: 14E
2.19.2 ILS Identification: OLJ
2.19.5 Coordinates: 47−36−47.5569N / 117−32−51.8755W
2.19.6 Site Elevation: 2372 ft

2.19.1 ILS Type: Localizer for runway 03. Magnetic variation: 14E
2.19.2 ILS Identification: OLJ
2.19.5 Coordinates: 47−37−59.6757N / 117−30−54.7682W
2.19.6 Site Elevation: 2315.7 ft

2.19.1 ILS Type: DME for runway 21. Magnetic variation: 14E
2.19.2 ILS Identification: GEG
2.19.5 Coordinates: 47−36−32.05N / 117−33−15.1W
2.19.6 Site Elevation: 2380.2 ft

2.19.1 ILS Type: Glide Slope for runway 21. Magnetic variation: 14E
2.19.2 ILS Identification: GEG
2.19.5 Coordinates: 47−37−48.959N / 117−31−19.4519W
2.19.6 Site Elevation: 2324.3 ft

2.19.1 ILS Type: Localizer for runway 21. Magnetic variation: 14E
2.19.2 ILS Identification: GEG
2.19.5 Coordinates: 47−36−29.2008N / 117−33−10.9524W
2.19.6 Site Elevation: 2380.1 ft

2.19.1 Navigation Aid Type: VORTAC. Magnetic variation: 21E
2.19.2 Navigation Aid Identification: GEG
2.19.5 Coordinates: 47−33−53.805N / 117−37−36.789W
2.19.6 Site Elevation: 2756.3 ft

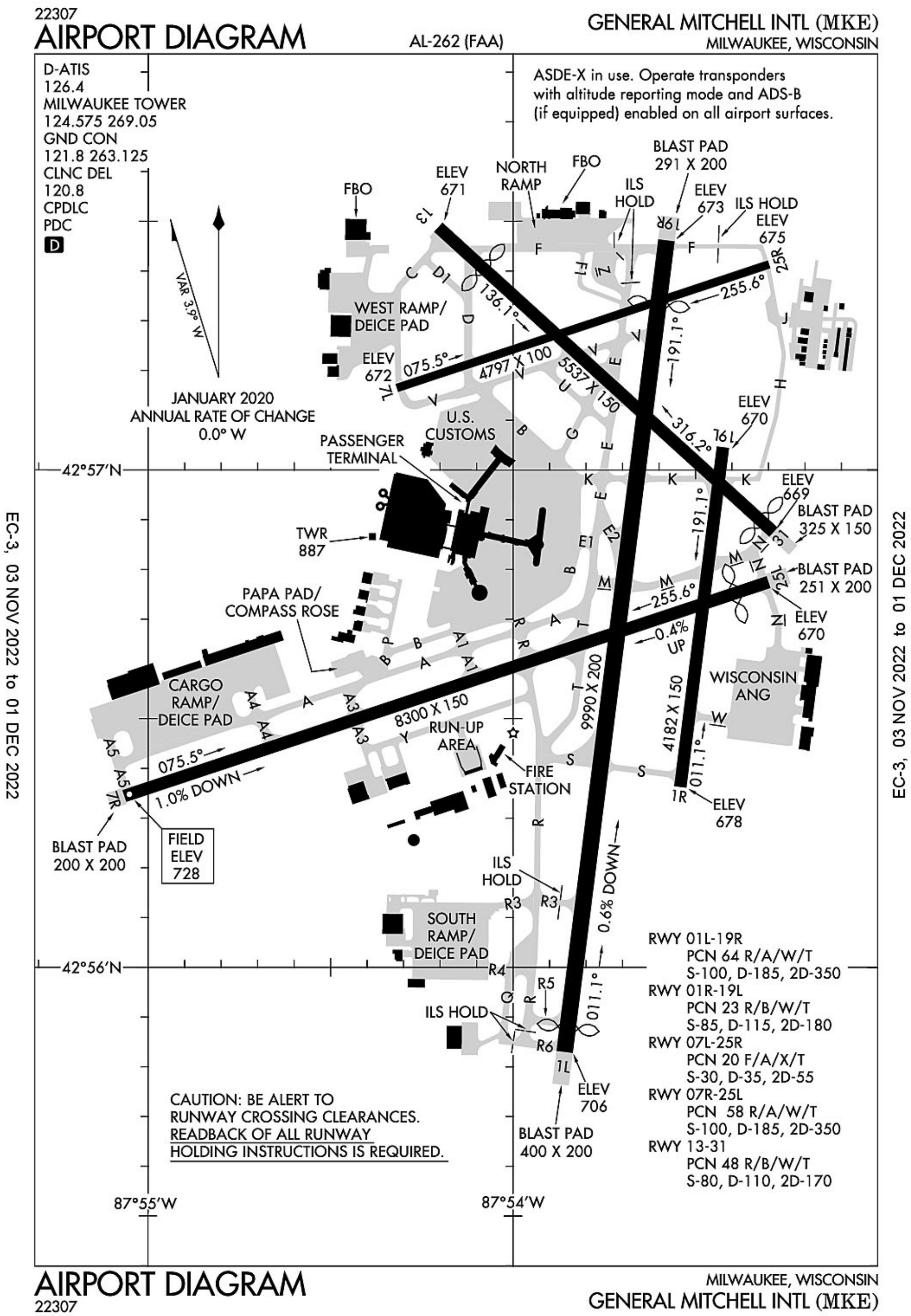
General Remarks:
PORTIONS OF TWY K NOT VISIBLE FM ATCT.

TWY K UNLGTD ON RAMP SIDE ALONG MAINTENANCE RAMP AND IS UNAVBL BELOW 1200 RVR UNLESS UNDER ESCORT BY ”FOLLOW ME”.

BE ALERT TO TURBULENCE OVER SMOKE STACKS 1 MILE EAST OF ARPT.

WATERFOWL & BIRDS ON & INVOF ARPT.

Milwaukee, Wisconsin
General Mitchell International
ICAO Identifier KMKE



Milwaukee, WI
General Mitchell Intl
ICAO Identifier KMKE

AD 2.2 Aerodrome geographical and administrative data
2.2.1 Reference Point: 42−56−48.955N / 87−53−49.432W
2.2.2 From City: 5 miles S of MILWAUKEE, WI
2.2.3 Elevation: 728.4 ft
2.2.5 Magnetic Variation: 4W (2020)
2.2.6 Airport Contact: BRIAN DRANZIK
5300 S HOWELL AVE
MILWAUKEE, WI 53207 (414−747−5300)
2.2.7 Traffic: IFR/VFR

AD 2.3 Attendance Schedule
2.3.1 All Months, All Days, All Hours

AD 2.4 Handling Services and Facilities
2.4.1 Cargo Handling Facilities: YES
2.4.2 Fuel Types: 100LL,A
2.4.5 Hangar Space: YES
2.4.6 Repair Facilities: MAJOR

AD 2.6 Rescue and Firefighting Services
2.6.1 Aerodrome Category for Firefighting: ARFF Index I C certified on 5/1/1973

AD 2.12 Runway Physical Characteristics
2.12.1 Designation: 19R
2.12.2 True Bearing: 187
2.12.3 Dimensions: 9990 ft x 200 ft
2.12.4 PCN: 64 R/A/W/T
2.12.5 Coordinates: 42−57−27.699N / 87−53−34.7753W
2.12.6 Threshold Elevation: 672.7 ft
2.12.6 Touchdown Zone Elevation: 671.9 ft

2.12.1 Designation: 01L
2.12.2 True Bearing: 7
2.12.3 Dimensions: 9990 ft x 200 ft
2.12.4 PCN: 64 R/A/W/T
2.12.5 Coordinates: 42−55−49.7963N / 87−53−51.516W
2.12.6 Threshold Elevation: 705.8 ft
2.12.6 Touchdown Zone Elevation: 703.5 ft

2.12.1 Designation: 01R
2.12.2 True Bearing: 7
2.12.3 Dimensions: 4182 ft x 150 ft
2.12.4 PCN: 23 R/B/W/T
2.12.5 Coordinates: 42−56−21.766N / 87−53−32.5016W
2.12.6 Threshold Elevation: 677.7 ft
2.12.6 Touchdown Zone Elevation: 677.7 ft

2.12.1 Designation: 19L
2.12.2 True Bearing: 187
2.12.3 Dimensions: 4182 ft x 150 ft
2.12.4 PCN: 23 R/B/W/T
2.12.5 Coordinates: 42−57−2.7448N / 87−53−25.4878W
2.12.6 Threshold Elevation: 669.6 ft
2.12.6 Touchdown Zone Elevation: 674.2 ft

2.12.1 Designation: 07L
2.12.2 True Bearing: 72
2.12.3 Dimensions: 4797 ft x 100 ft
2.12.4 PCN: 20 F/A/X/T
2.12.5 Coordinates: 42−57−9.8896N / 87−54−19.1101W
2.12.6 Threshold Elevation: 671.5 ft
2.12.6 Touchdown Zone Elevation: 672 ft

2.12.1 Designation: 25R
2.12.2 True Bearing: 252
2.12.3 Dimensions: 4797 ft x 100 ft
2.12.4 PCN: 20 F/A/X/T
2.12.5 Coordinates: 42−57−24.8031N / 87−53−17.893W
2.12.6 Threshold Elevation: 674.6 ft
2.12.6 Touchdown Zone Elevation: 674.6 ft

2.12.1 Designation: 25L
2.12.2 True Bearing: 252
2.12.3 Dimensions: 8300 ft x 150 ft
2.12.4 PCN: 58 R/A/W/T
2.12.5 Coordinates: 42−56−46.473N / 87−53−18.0003W
2.12.6 Threshold Elevation: 669.9 ft
2.12.6 Touchdown Zone Elevation: 683.1 ft

2.12.1 Designation: 07R
2.12.2 True Bearing: 72
2.12.3 Dimensions: 8300 ft x 150 ft
2.12.4 PCN: 58 R/A/W/T
2.12.5 Coordinates: 42−56−20.6652N / 87−55−3.9117W
2.12.6 Threshold Elevation: 728.4 ft
2.12.6 Touchdown Zone Elevation: 728.4 ft

2.12.1 Designation: 13
2.12.2 True Bearing: 132
2.12.3 Dimensions: 5537 ft x 150 ft
2.12.4 PCN: 48 R/B/W/T
2.12.5 Coordinates: 42−57−29.2767N / 87−54−12.2946W
2.12.6 Threshold Elevation: 671.4 ft
2.12.6 Touchdown Zone Elevation: 670.5 ft

2.12.1 Designation: 31
2.12.2 True Bearing: 312
2.12.3 Dimensions: 5537 ft x 150 ft

2.12.4 PCN: 48 R/B/W/T
2.12.5 Coordinates: 42−56−52.5074N / 87−53−17.1839W
2.12.6 Threshold Elevation: 668.6 ft
2.12.6 Touchdown Zone Elevation: 670.1 ft

AD 2.13 Declared Distances
2.13.1 Designation: 19R
2.13.2 Take−off Run Available: 9990 ft
2.13.3 Take−off Distance Available: 9990 ft
2.13.4 Accelerate−Stop Distance Available: 9990 ft
2.13.5 Landing Distance Available: 9205 ft

2.13.1 Designation: 01L
2.13.2 Take−off Run Available: 9990 ft
2.13.3 Take−off Distance Available: 9990 ft
2.13.4 Accelerate−Stop Distance Available: 9380 ft
2.13.5 Landing Distance Available: 9080 ft

2.13.1 Designation: 01R
2.13.2 Take−off Run Available: 4182 ft
2.13.3 Take−off Distance Available: 4182 ft
2.13.4 Accelerate−Stop Distance Available: 4182 ft
2.13.5 Landing Distance Available: 4182 ft

2.13.1 Designation: 19L
2.13.2 Take−off Run Available: 4182 ft
2.13.3 Take−off Distance Available: 4182 ft
2.13.4 Accelerate−Stop Distance Available: 4182 ft
2.13.5 Landing Distance Available: 4182 ft

2.13.1 Designation: 07L
2.13.2 Take−off Run Available: 4797 ft
2.13.3 Take−off Distance Available: 4797 ft
2.13.4 Accelerate−Stop Distance Available: 4797 ft
2.13.5 Landing Distance Available: 4797 ft

2.13.1 Designation: 25R
2.13.2 Take−off Run Available: 4797 ft
2.13.3 Take−off Distance Available: 4797 ft
2.13.4 Accelerate−Stop Distance Available: 4797 ft
2.13.5 Landing Distance Available: 4797 ft

2.13.1 Designation: 25L
2.13.2 Take−off Run Available: 8300 ft
2.13.3 Take−off Distance Available: 8300 ft
2.13.4 Accelerate−Stop Distance Available: 8300 ft
2.13.5 Landing Distance Available: 7867 ft

2.13.1 Designation: 07R
2.13.2 Take−off Run Available: 8300 ft

2.13.3 Take−off Distance Available: 8300 ft
2.13.4 Accelerate−Stop Distance Available: 8012 ft
2.13.5 Landing Distance Available: 8012 ft

2.13.1 Designation: 13
2.13.2 Take−off Run Available: 5537 ft
2.13.3 Take−off Distance Available: 5537 ft
2.13.4 Accelerate−Stop Distance Available: 5537 ft
2.13.5 Landing Distance Available: 4797 ft

2.13.1 Designation: 31
2.13.2 Take−off Run Available: 5537 ft
2.13.3 Take−off Distance Available: 5537 ft
2.13.4 Accelerate−Stop Distance Available: 5537 ft
2.13.5 Landing Distance Available: 5152 ft

AD 2.14 Approach and Runway Lighting
2.14.1 Designation: 19R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 01L
2.14.2 Approach Lighting System: ALSF2
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 01R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 19L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System:

2.14.1 Designation: 07L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 25R
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

2.14.1 Designation: 25L
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 07R
2.14.2 Approach Lighting System: MALSR
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 13

2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4L

2.14.1 Designation: 31
2.14.2 Approach Lighting System:
2.14.4 Visual Approach Slope Indicator System: P4R

AD 2.18 Air Traffic Services Communication Facilities
2.14.1 Service Designation: APCH/P (B SE)
2.14.3 Channel: 118
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P (B SE)
2.14.3 Channel: 317.725
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P DEP/P IC (A NW)
2.14.3 Channel: 307
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: APCH/P IC (A NW)
2.14.3 Channel: 126.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CD/P
2.14.3 Channel: 120.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (B SE)
2.14.3 Channel: 118
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (A NW)
2.14.3 Channel: 126.5
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (A NW)
2.14.3 Channel: 307
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: CLASS C (B SE)
2.14.3 Channel: 317.725
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: COMD POST (128 ARW ANG UPSET CTL)
2.14.3 Channel: 321
2.14.5 Hours of Operation:

2.14.1 Service Designation: COMD POST (28 ARW ANG UPSET CON)
2.14.3 Channel: 6761

2.14.5 Hours of Operation:

2.14.1 Service Designation: D−ATIS
2.14.3 Channel: 126.4
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (A NW)
2.14.3 Channel: 125.35
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: DEP/P (B SE)
2.14.3 Channel: 135.875
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: EMERG
2.14.3 Channel: 121.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: EMERG
2.14.3 Channel: 243
2.14.5 Hours of Operation:

2.14.1 Service Designation: GND/P
2.14.3 Channel: 121.8
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: GND/P
2.14.3 Channel: 263.125
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 124.575
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: LCL/P
2.14.3 Channel: 269.05
2.14.5 Hours of Operation: 24

2.14.1 Service Designation: OPS
2.14.3 Channel: 139.5
2.14.5 Hours of Operation:

2.14.1 Service Designation: OPS
2.14.3 Channel: 311
2.14.5 Hours of Operation:

AD 2.19 Radio Navigation and Landing Aids
2.19.1 ILS Type: DME for runway 01L. Magnetic variation: 4W
2.19.2 ILS Identification: MKE
2.19.5 Coordinates: 42−57−50.9407N / 87−53−27.4465W

2.19.6 Site Elevation: 725 ft

2.19.1 ILS Type: Glide Slope for runway 01L. Magnetic variation: 4W
2.19.2 ILS Identification: MKE
2.19.5 Coordinates: 42−56−4.4522N / 87−53−43.0463W
2.19.6 Site Elevation: 691.4 ft

2.19.1 ILS Type: Inner Marker for runway 01L. Magnetic variation: 4W
2.19.2 ILS Identification: MKE
2.19.5 Coordinates: 42−55−44.6539N / 87−53−52.3948W
2.19.6 Site Elevation: 706 ft

2.19.1 ILS Type: Localizer for runway 01L. Magnetic variation: 4W
2.19.2 ILS Identification: MKE
2.19.5 Coordinates: 42−57−49.9549N / 87−53−30.968W
2.19.6 Site Elevation: 713 ft

2.19.1 ILS Type: DME for runway 19R. Magnetic variation: 4W
2.19.2 ILS Identification: BLY
2.19.5 Coordinates: 42−57−50.9407N / 87−53−27.4465W
2.19.6 Site Elevation: 725 ft

2.19.1 ILS Type: Glide Slope for runway 19R. Magnetic variation: 4W
2.19.2 ILS Identification: BLY
2.19.5 Coordinates: 42−57−9.1784N / 87−53−32.5226W
2.19.6 Site Elevation: 666.4 ft

2.19.1 ILS Type: Localizer for runway 19R. Magnetic variation: 4W
2.19.2 ILS Identification: BLY
2.19.5 Coordinates: 42−55−38.3041N / 87−53−53.4819W
2.19.6 Site Elevation: 709.2 ft

2.19.1 ILS Type: DME for runway 07R. Magnetic variation: 4W
2.19.2 ILS Identification: GMF
2.19.5 Coordinates: 42−56−18.5074N / 87−55−23.6562W
2.19.6 Site Elevation: 743.1 ft

2.19.1 ILS Type: Glide Slope for runway 07R. Magnetic variation: 4W
2.19.2 ILS Identification: GMF
2.19.5 Coordinates: 42−56−20.4936N / 87−54−47.1205W
2.19.6 Site Elevation: 707.3 ft

2.19.1 ILS Type: Localizer for runway 07R. Magnetic variation: 4W
2.19.2 ILS Identification: GMF
2.19.5 Coordinates: 42−56−49.0824N / 87−53−7.2728W
2.19.6 Site Elevation: 669.1 ft

2.19.1 ILS Type: DME for runway 25L. Magnetic variation: 4W
2.19.2 ILS Identification: PXY
2.19.5 Coordinates: 42−56−18.5074N / 87−55−23.6562W
2.19.6 Site Elevation: 743.1 ft

2.19.1 ILS Type: Localizer for runway 25L. Magnetic variation: 4W
2.19.2 ILS Identification: PXY
2.19.5 Coordinates: 42−56−16.0665N / 87−55−22.7833W
2.19.6 Site Elevation: 728 ft

General Remarks:
TWY B BTN TWY V AND TWY P CLSD TO AFCT WITH WINGSPAN GREATER THAN 170 FT.

ANG: PPR ALL ACFT, 48HR PN, CTC AFLD OPS DSN 580−8241, C414−944−8241. 128 ARW IS A FULLY OPERATIONAL KC−135R BASE WITH HRS OF OPERATION MON−FRI 1200Z−1930Z++ TUE−FRI, CLSD HOL, SAT−SUN EXC UNIT TMG, CALL FOR AVBL.

RY 19R TODA 8,750 FT FROM INT TWY V.

RY 07L/25R NO ACFT 65,000 LBS OR GREATER ALLOWED TO TAXI BTN TWY D & RY 13/31 AND EAST OF RY 19R.

TWY C CLSD BTWN APCH END OF RWY 7L AND TWY D1 TO ACFT WITH WINGSPAN GTR THAN OR EQUAL TO 118 FT UNLESS PMSN FM ARPT MGR 414−747−5325.

ANG: END OF RUNWAY FACILITIES, AIRCRAFT SHELTERS/REVETMENTS, AND ALERT FACILITIES ARE NOT AVAILABLE. AFLD/ACFT PARKING CONCERNS INCLUDE: LIMITED STATIC GROUNDING POINTS AND NO AIRCRAFT TIE DOWN POINTS.

TWY A CLSD BTN TWY A4 AND TWY A5 TO ACFT WITH WINGSPAN GREATER THAN OR EQUAL TO 214' UNLESS PERMISSION FROM ARPT MGR 414−747−5325

ALL AIRCRAFT PUSHBACKS FROM GATES C20, C21, C22, C23, D39 D41 D43, D45, D48, D51, D53, D54, D55, E65, E66, & E67 REQUIRE CLEARANCE FROM GROUND CONTROL. PUSHBACKS FROM ALL OTHER GATES ARE AT RAMP/ PILOT DISCRETION; CONTACT GROUND CONTROL WHEN READY TO TAXI.

TWY S & TWY T BTN TWY R & RY 07R/25L AND RY 07R/25L BTN RY 1R/19L & TWY R CLSD DURG CAT II & III OPNS.

ANG: ANY MDS'S (OTHER THAN KC−135) IS LIMITED TO STANDARD TRANSIENT MARSHALLING AND PARKING. NO TECHNICAL DATA AVAILABLE FOR TRANSIENT MAINTENANCE. FUEL AND AGE EQUIPMENT SUPPORT AVAILABLE FOR SELF−SERVICE. THERE ARE NO ADDITIONAL CONFIGURATION ITEMS SUPPORTED SUCH AS LANTIRN PODS, EDM PODS, ETC.

HOLDING BAY AT RY 01L CLSD EXCP ACFT WITH WINGSPAN LESS THAN 118 FT.

TWY A BTN TWY R AND TWY A1 CLSD TO ACFT WINGSPAN MORE THAN 171 FT EXC PPR 414−747−5325.

PREFERRED USAGE BY ACFT BTN 2200−0600 IS TKOF RY 19R & LNDG RY 01L.

RY 07L/25R CLSD TO ALL JET ACFT.

DEICE PAD FOR RWY 07R NOT AUTH FOR THRU TAXI.

TRNG FLGTS INVOLVING SUCCESSIVE USE OF ANY RY PROHIBITED 2200−0600.

ANG: NSTD MRK ON PRK APRON FOR WINGTIP CLNC; SEE AFLD MGT FOR DETAILED MAP.

ACFT WITH WINGSPAN GREATER THAN 175 FT CANNOT PASS SIMULTANEOUSLY ON TWY 'E' & TWY 'Z'.

HOLDING BAY AT RY 19R WHEN IN USE, TWY Z ADJACENT TO BAY IS LIMITED TO ACFT WITH WINGSPAN UP TO 170 FT.

RY 13/31 CLSD JET ACFT, UNLESS PMSN FROM TWR OR AMGR 414−747−5325.

TWY A CLSD FROM TWY R TO TWY E AND TWY E CLSD FROM TWY T TO TWY M AND TWY T NORTH OF RWY 07R−25L CLSD TO ACFT WITH TAIL HEIGHT GREATER THAN 54.5 FT DURING CAT II AND CAT III OPS.

RY 01R−19L AVAILABLE TO AIR CARRIERS FOR TAXI ONLY.

TWYS D1, F2, H, J, F1, P AND F (EAST OF RWY 19R) AND TWY K (EAST OF RWY 19L) CLSD TO ACFT WTIH WINGSPAN GREATER THAN 78 FT.

TWY F (WEST OF TWY Z) CLSD TO ACFT WITH WINGSPAN GREATER THAN OR EQUAL TO 118 FT UNLESS PERMISSION FROM ARPT DIR AT 414−747−5325.

ANG: NO FLEET SVC/HOT CARGO PARKING AVAILABLE. CTC UPSET CTRL 20 MIN PRIOR TO ARR TO RCV CURRENT BIRD WATCH COND AND PARKING INFO.

ALL APCHS ARE OVER NOISE SENSITIVE AREAS; ALL TURBOJET ACFT SHOULD REFRAIN FM CONDUCTING MULTI VFR TFC PATTERN APCHS & DEPS WO PRIOR APVL FM AMGR CALL C414−747−5325.

BIRDS ON & INVOF ARPT.

RYS 13/31 & 01R/19L & 07L/25R CLSD EXCP LGT WT SINGLE ENG ACFT 0400−1200Z DLY.

TWY V BTN TWY D AND RY 7L/25R CLSD TO ACFT WITH WINGSPAN GREATER THAN 170 FT WHEN RY 7L/25R IN USE.

ASDE−X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS−B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES.

TWY B BTN TWY R AND TWY A1 CLSD TO ACFT WINGSPAN MORE THAN 118 FT EXC PPR 414−747−5325.

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TBL 2−3

Item 10b Surveillance Capabilities

ENTER "N" if no surveillance equipment for the route to be flown is carried, or the equipment is unserviceable,

or

ENTER One or more of the following descriptors, to a maximum of 20 characters, to describe the serviceable surveillance equipment and/or capabilities on board.

ENTER no more than one transponder code (Modes A, C, or S)

SSR Modes A and C:

A	Transponder	Mode A (4 digits – 4096 codes)
C	Transponder	Mode A (4 digits – 4096 codes) and Mode C

SSR Mode S:

E	Transponder	Mode S, including aircraft identification, pressure−altitude, and extended squitter (ADS−B) capability
H	Transponder	Mode S, including aircraft identification, pressure−altitude, and enhanced surveillance capability
I	Transponder	Mode S, including aircraft identification, but no pressure−altitude capability
L	Transponder	Mode S, including aircraft identification, pressure−altitude, extended squitter (ADS−B),

and enhanced surveillance capability

P	Transponder	Mode S, including pressure−altitude, but no aircraft identification capability
S	Transponder	Mode S, including both pressure−altitude and aircraft identification capability
X	Transponder	Mode S, with neither aircraft identification nor pressure−altitude

NOTE−

Enhanced surveillance capability is the ability of the aircraft to down−link aircraft derived data via Mode S transponder.

ADS−B:

B1	ADS−B with dedicated 1090 MHz ADS−B "out" capability
B2	ADS−B with dedicated 1090 MHz ADS−B "out" and "in" capability
U1	ADS−B with "out" capability using UAT
U2	ADS−B with "out" and "in" capability using UAT
V1	ADS−B with "out" capability using VDL Mode 4
V2	ADS−B with "out" and "in" capability using VDL Mode 4

NOTE−

File no more than one code for each type of capability, e.g., file B1 or B2 and not both

ADS−C:

D1	ADS−C with FANS 1/A capabilities
G1	ADS−C with ATN capabilities

Alphanumeric characters not included above are reserved.

EXAMPLE−
ADE3RV/HB2U2V2G1

NOTE−

1. *The RSP specification(s), if applicable, will be listed in Item 18 following the indicator SUR/, using the characters "RSP" followed by the specifications value. Currently RSP180 and RSP400 are in use.*

2. *List additional surveillance equipment or capabilities in Item 18 following the indicator SUR/.*

TBL 2−4

Item 18 NAV/, COM/, DAT/, and SUR/ capabilities used by FAA

Item	Purpose	Entry	Explanation
NAV/ entries used by FAA	Radius−to−Fix (RF) capability	Z1	RNP−capable flight is authorized for Radius to Fix operations.
	Fixed Radius Transitions (FRT)	Z2	RNP−capable flight is authorized for Fixed Radius Transitions.
	Time of Arrival Control (TOAC)	Z5	RNP−capable flight is authorized for Time of Arrival Control.
	Advanced RNP (A−RNP)	P1	Flight is authorized for A−RNP operations.
	Helicopter RNP 0.3	R1	Flight is authorized for RNP 0.3 operations (pertains to helicopters only).
	RNP 2 Continental	M1	Flight is authorized for RNP 2 continental operations.
	RNP 2 Oceanic/Remote	M2	Flight is authorized for RNP 2 oceanic/remote operations.
COM/ entries used by FAA	N/A	N/A	The FAA currently does not use any entries in COM/.
DAT/ entries used by FAA	Capability and preference for delivery of pre−departure clearance	Priority number followed by: • FANS • FANSP • PDC • VOICE	Entries are combined with a priority number, for example; 1FANS2PDC means a preference for departure clearance delivered via FANS 1/A; with capability to also receive the clearance via ACARS PDC. FANS = FANS 1/A DCL FANSP = FANS 1/A+ DCL PDC = ACARS PDC VOICE = PDC via voice (no automated delivery)
SUR/ entries used by FAA	Req. Surveillance Performance	RSP180	Aircraft is authorized for Required Surveillance Performance RSP180
		RSP400	Aircraft is authorized for Required Surveillance Performance RSP400
	ADS−B	260B	Aircraft has 1090 MHz Extended Squitter ADS−B compliant with RTCA DO−260B (complies with FAA requirements)
		282B	Aircraft has 978 MHz UAT ADS−B compliant with RTCA DO−282B (complies with FAA requirements)

NOTE−

1. *Other entries in NAV/, COM/, DAT/, and SUR/ are permitted for international flights when instructed by other service providers. Direction on use of these capabilities by the FAA is detailed in the following sections.*

2. *In NAV/, descriptors for advanced capabilities (Z1, P1, R1, M1, and M2) should be entered as a single character string with no intervening spaces, and separated from any other entries in NAV/ by a space.*

EXAMPLE−

NAV/Z1P1M2 SBAS

TBL 2−13

Filing for Performance Based Navigation (PBN) Routes

Type of Routing	Capability Required	Item 10a	Item 18 PBN/ See NOTE 2	Item 18 NAV/ See NOTE 3	Notes
RNAV SID or STAR (See NOTE 1)	RNAV 1	GR	D2		If GNSS
		DIR	D4		If DME/DME/IRU
RNP SID or STAR (See NOTE 2)	RNP 1 GNSS	GR	O2		If GNSS only
	RNP 1 GNSS	DGIR	O1		If GNSS primary and DME/DME/IRU backup
RNP SID or STAR with RF required (See NOTE 2)	RNP 1 GNSS	GRZ	O2	Z1	If GNSS only
	RNP 1 GNSS	DGIRZ	O1	Z1	If GNSS primary and DME/DME/IRU backup
Domestic Q−Route (see separate requirements for Gulf of Mexico Q−Routes)	RNAV 2	GR	C2		If GNSS
		DIR	C4		If DME/DME/IRU
T−Route	RNAV 2	GR	C2		GNSS is required for T−Routes
RNAV (GPS) Approach	RNP Approach, GPS	GR	S1		*Domestic arrivals do not need to file PBN approach capabilities to request the approach.*
RNAV (GPS) Approach	RNP Approach, GPS Baro−VNAV	GR	S2		
RNAV (GPS) Approach with RF required	RNP Approach, GPS RF Capability	GRZ	S2	Z1	
RNP AR Approach with RF	RNP (Special Authorization Required) RF Leg Capability	GR	T1		
RNP AR Approach without RF	RNP (Special Authorization Required)	GR	T2		

NOTE−

1. *If the flight is requesting an RNAV SID only (no RNAV STAR) or RNAV STAR only (no RNAV SID) then consult guidance on the FAA website at https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/air_traffic_services/flight_plan_filing.*

2. *PBN descriptor D1 includes the capabilities of D2, D3, and D4. PBN descriptor B1 includes the capabilities of B2, B3, B4, and B5. PBN descriptor C1 includes the capabilities of C2, C3, and C4.*

3. *In NAV/, descriptors for advanced capabilities (Z1, P1, R1, M1, and M2) should be entered as a single character string with no intervening spaces, and separated from any other entries in NAV/ by a space.*

EXAMPLE−

NAV/Z1P1M2 SBAS

7. Automated Departure Clearance Delivery (DCL or PDC). When planning to use automated pre−departure clearance delivery capability, file as indicated below.

(a) PDC provides pre−departure clearances from the FAA to the operator's designated flight operations center, which then delivers the clearance to the pilot by various means. Use of PDC does not require any special flight plan entry.

(b) DCL provides pre−departure clearances from the FAA directly to the cockpit/FMS via Controller Pilot Datalink Communications (CPDLC). Use of DCL requires flight plan entries as follows:

- Include CPDLC codes in Item 10a only if the flight is capable of en route/oceanic CPDLC, the codes are not required for DCL.
- Include Z in Item 10a to indicate there is information provided in Item 18 DAT/.
- Include the clearance delivery methods of which the flight is capable, and order of preference in Item 18 DAT/. (See AIM 5−2−2)
  - VOICE − deliver clearance via Voice
  - PDC − deliver clearance via PDC
  - FANS − deliver clearance via FANS 1/A
  - FANSP − deliver clearance via FANS 1/A+

EXAMPLE−
DAT/1FANS2PDC
DAT/1FANSP2VOICE

8. Operating in Reduced Vertical Separation Minima (RVSM) Airspace (Item 10a). When planning to fly in RVSM airspace (FL 290 up to and including FL 410) then file as indicated below.

(a) If capable and approved for RVSM operations, per AIM 4−6−1, Applicability and RVSM Mandate (Date/Time and Area), file a W in Item 10a. Include the aircraft registration mark in Item 18 REG/, which is used to post−operationally monitor the safety of RVSM operations.

- Do not file a "W" in Item 10a if the aircraft is capable of RVSM operations, but is not approved to operate in RVSM airspace.
- If RVSM capability is lost after the flight plan is filed, request that ATC remove the 'W' from Item 10a.

(b) When requesting to operate non−RVSM in RVSM airspace, using one of the exceptions identified in AIM 4−6−10, do not include a "W" in Item 10a. Include STS/NONRVSM in Item 18. STS/NONRVSM is used only as part of a request to operate non−RVSM in RVSM airspace.

9. Eligibility for Reduced Oceanic Separation. Indicate eligibility for the listed reduced separation minima as indicated in the tables below. Full Operational Requirements for these services are found in the U.S. Aeronautical Information Publication (AIP) ENR 7, Oceanic Operations, available at http://www.faa.gov/air_traffic/publications/atpubs/aip_html/index.html.

TBL 2−14
Filing for Gulf of Mexico CTA

Dimension of Separation	Separation Minima	ADS−C Surveillance Requirements	Comm. Requirement	PBN Requirement	Flight Plan Entries			
					ADS−C in Item 10b	CPDLC in Item 10a	PBN in Item 18 PBN/ (also File 'R' in Item 10a)	PBN in Item 18 NAV/
Lateral	50 NM	N/A (ADS−C not required)	Voice comm− HF or VHF as required to maintain contact over the entire route to be flown.	RNP10 or RNP4	N/A	N/A	A1 or L1	N/A

NOTE−
If not RNAV10/RNP10 capable and planning to operate in the Gulf of Mexico CTA, then put the notation NONRNP10 in Item 18 RMK/, preferably first.

TBL 2−15

Filing for 50 NM Lateral Separation in Anchorage Arctic FIR

Dimension of Separation	Separation Minima	ADS−C Surveillance Requirements	Comm. Requirement	PBN Requirement	Flight Plan Entries			
					ADS−C in Item 10b	CPDLC in Item 10a	PBN in Item 18 PBN/ (also File 'R' in Item 10a)	PBN in Item 18 NAV/
Lateral	50 NM	N/A (ADS−C not required)	None beyond normal requirements for the airspace	RNP10 or RNP4	N/A	N/A	A1 or L1	N/A

TBL 2−16

Filing for 30 NM Lateral, 30 NM Longitudinal, and 50 NM Longitudinal Oceanic Separation in Anchorage, Oakland, and New York Oceanic CTAs

Dimension of Separation	Separation Minima	ADS−C Surveillance Requirements	Comm. Requirement	PBN Requirement	Flight Plan Entries			
					ADS−C in Item 10b	CPDLC in Item 10a	PBN in Item 18 PBN/ (also File 'R' in Item 10a)	PBN in Item 18 NAV/
Longitudinal	50 NM	Position report at least every 27 minutes (at least every 32 minutes if both aircraft are approved for RNP−4 operations)	CPDLC	RNP10	D1	J5 and/or J7	A1	N/A
Longitudinal	30 NM	ADS−C position report at least every 10 minutes	CPDLC	RNP4	D1	J5 and/or J7	L1	N/A
Lateral	30 NM	ADS−C−based lateral deviation event contract with 5NM lateral deviation from planned routing set as threshold for triggering ADS report of lateral deviation event	CPDLC	RNP4	D1	J5 and/or J7	L1	N/A

TBL 2−17

Filing for Reduced Oceanic Separation when RSP/RCP Required on March 29, 2018

Dimension of Separation	Separation Minima	RSP Requirement	RCP Requirement	PBN Requirement	Flight Plan Entries				
					RSP in Item 18 SUR/	RCP in Item 10a	CDPLC in Item10a	PBN in Item 18 PBN/ (also File 'R' in Item 10a)	PBN in Item 18 NAV/
Lateral	55.5 km 30 NM	180	240	RNP 2 or RNP 4	RSP180	P2	J5, and/or J6, and/or J7	L1	
Perfor-mance−based Longitudinal	5 Minutes	180	240	RNAV 10 (RNP 10) RNP 4, or RNP 2 oceanic/ remote	RSP180	P2	J5, and/or J6, and/or J7	A1 or L1	M2
Perfor-mance−based Longitudinal	55.5 km 30 NM	180	240	RNP 4 or RNP 2 oceanic/ remote	RSP180	P2	J5, and/or J6, and/or J7	L1	M2
Perfor-mance−based Longitudinal	93 km 50 NM	180	240	RNAV 10 (RNP 10) or RNP 4	RSP180	P2	J5, and/or J6, and/or J7	A1 or L1	

NOTE−

1. *Filing of RNP 2 alone is not supported in FAA controlled airspace; PBN/L1 (for RNP 4) or PBN/A1 (for RNP 10) must be filed to obtain the indicated separation.*

2. *Use of "RNP 2" in NAV/ signifies continental RNP 2 (and means the same as M1). Continental RNP 2 is not adequate for reduced oceanic separation. Descriptor M2 indicates RNP 2 global/oceanic RNP 2 capability.*

10. Date of Flight (Item 18 DOF/)

Flights planned more than 23 hours after the time the flight plan is filed, must include the date of flight in DOF/ expressed in a six−digit format YYMMDD, where YY equals the year (Y), MM equals the month, and DD equals the day.

NOTE−
FAA ATC systems will not accept flight plans more than 23 hours prior to their proposed departure time. FAA Flight Service and commercial flight planning services generally accept flight plans earlier and forward to ATC at an appropriate time, typically 2 to 4 hours before the flight.

EXAMPLE−
DOF/171130

11. Reasons for Special Handling (Item 18 STS/)

(a) Indicate the applicable Special Handling in Item 18 STS/ as shown in TBL 2−18.

NOTE−
Priority for a flight is not automatically granted based on filing one of these codes but is based on documented procedures. In some cases, additional information may also be required in remarks; follow all such instructions as well.