CHANGE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Air Traffic Organization Policy

JO 7110.65AA
CHG 3

Effective Date:
September 5, 2024

SUBJ: Air Traffic Control

1. Purpose of This Change. This change transmits revised pages to Federal Aviation Administration Order JO 7110.65AA, Air Traffic Control, and the Briefing Guide.

2. Audience. This change applies to all Air Traffic Organization (ATO) personnel and anyone using ATO directives.

3. Where Can I Find This Change? This change is available on the FAA website at http://faa.gov/air_traffic/publications and https://employees.faa.gov/tools_resources/orders_notices/.

4. Explanation of Policy Change. See the Explanation of Changes attachment that has editorial corrections and changes submitted through normal procedures. The Briefing Guide lists only new or modified material, along with background.

5. Distribution. This change is distributed to select offices in Washington headquarters, service area offices, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, air traffic field facilities, and international aviation offices. This change is distributed electronically to all who subscribe to receive email notification through the FAA's website. All organizations are responsible for viewing, downloading, and subscribing to receive email notifications when changes occur to this order. Subscriptions to air traffic directives can be made through the Air Traffic Plans and Publications website at https://www.faa.gov/air_traffic/publications/ or directly via the following link: https://public.govdelivery.com/accounts/USAFAA/subscriber/new?topic_id=USAFAA_39.

6. Disposition of Transmittal. Retain this transmittal until superseded by a new basic order.

7. Page Control Chart. See the page control chart attachment.

Natasha A. Durkins
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Natasha A. Durkins
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Explanation of Changes
Change 3

Direct questions through appropriate facility/service center office staff to the Office of Primary Interest (OPI)

a. 1–1–12. SAFETY MANAGEMENT SYSTEM (SMS)

This change updates paragraph 1−1−12 of FAA Order JO 7110.65 to align with Safety Management System principles and responsibilities listed in FAA Order JO 1000.37, as well as the available SMS training information.

b. 1–2–6. ABBREVIATIONS
8–7–3. LONGITUDINAL SEPARATION
8–7–4. LATERAL SEPARATION
8–8–4. LATERAL SEPARATION

This change reverts the acronym West Atlantic (WAT) back to West Atlantic Route System (WATRS). This change incorporates and cancels GENOT 24/08 N JO 7110.792, effective March 21, 2024.

c. 2–6–2. PIREP SOLICITATION AND DISSEMINATION

This change adds content providing consistent guidance pertaining to Pilot Weather Report (PIREP) coding contained in FAA Orders JO 7210.3 and JO 7110.10 and new guidance for turbulence reports that better align with the FAA Order JO 7110.10.

d. 3–1–9. USE OF TOWER RADAR DISPLAYS
3–6–1. EQUIPMENT USAGE
3–6–5. RADAR-ONLY MODE
5–14–5. INFORMATION DISPLAYED

This change adds language to paragraphs 3–1–9 and 5–14–5 requiring that the Automatic Dependent Surveillance−Broadcast (ADS−B) indicator (also known as the ADS−B Computer Human Interface (CHI)) be enabled at the affected Local Control position(s) in the Airport Traffic Control Tower (ATCT) when the Airport Surveillance Radar (ASR) supporting the Airport Surface Detection Equipment (ASDE) system is inoperative. Additionally, the language in paragraph 3–6–5, regarding radar-only mode, was moved into a note in paragraph 3–6–1 because the content is informational and is contained in the required national qualification training course, and was updated to include ADS−B. Related procedures are found in FAA Order JO 7210.3, Facility Operation and Administration, paragraph 12–7–1, ASDE System Operation. This change cancels and incorporates Notice JO 7110.790, which was effective January 8, 2024.

e. 4–8–2. CLEARANCE LIMIT

This change amends the paragraph title, amends the paragraph language, and modifies the designated phraseology to accurately reflect the paragraph intent.

f. 5–7–1. APPLICATION
8–8–3. LONGITUDINAL SEPARATION

This change is being made to align International Civil Aviation Organization (ICAO) language with NAS orders and procedures by removing “turbojet” as the only aircraft that can be assigned a Mach number speed.

g. Editorial Changes

Editorial changes include updating a note in paragraph 3−3−6 to allow all arresting systems at United States Air Force (USAF) facilities to remain in the up position as deemed appropriate, replacing references to the decommissioned Weather and Radar Processor (WARP) with broad terms, and the reordering of misplaced subparagraph e in paragraph 4−3−4.

h. Entire publication

Additional editorial/format changes were made where necessary. Revision bars were not used because of the insignificant nature of these changes.

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b. If a request does not require an interpretation but further clarification is needed it must be forwarded to the Service Center Operations Support Group for a response.

1. The Service Center Operations Support Group may consult with the Policy Directorate when preparing their response.

2. The Service Center Operations Support Group must provide a written response to the requestor and forward the response to the Policy Directorate.

c. Interpretation requests from all other sources must be submitted to the Policy Directorate at 9−AJV−P−HQ−Correspondence@faa.gov.

NOTE−
Interpretations can be accessed through the Air Traffic Control Interpretation link at the following website: https://my.faa.gov/org/linebusiness/ato/mission_support/psgroup/atc_interpretations.html.

1−1−10. PROCEDURAL LETTERS OF AGREEMENT (LOA)

Procedures/minima which are applied jointly or otherwise require the cooperation or concurrence of more than one facility/organization must be documented in a letter of agreement. LOAs only supplement this order. Any minima they specify must not be less than that specified herein unless appropriate military authority has authorized application of reduced separation between military aircraft.

REFERENCE−
FAA Order JO 7110.65, Para 2−1−1, ATC Service.
FAA Order JO 7210.3, Para 4−3−1, Letters of Agreement.

1−1−11. CONSTRAINTS GOVERNING SUPPLEMENTS AND PROCEDURAL DEVIATIONS

a. Exceptional or unusual requirements may dictate procedural deviations or supplementary procedures to this order. Prior to implementing supplemental or any procedural deviation that alters the level, quality, or degree of service, obtain prior approval from the Vice President, Mission Support Services.

b. If military operations or facilities are involved, prior approval by the following appropriate headquarters is required for subsequent interface with FAA. (See TBL 1−1−3.)

TBL 1−1−3
Military Operations Interface Offices

Branch	Address
U.S. Navy	Department of the Navy Chief of Naval Operations N980A, NAATSEA 2000 Navy Pentagon (5D453) Washington, D.C. 20350−2000
U.S. Air Force	HQ AFFSA 5316 S. Douglas Blvd Bldg 8400, Room 232 Oklahoma City, OK 73150
U.S. Army	Director USAASA (MOAS−AS) 9325 Gunston Road, Suite N319 Ft. Belvoir, VA 22060−5582

NOTE−
Terminal: Headquarters Air Force Flight Standards Agency is the approval authority for any USAF procedures or minima that differ from those specified herein and that involve military aircraft only.

REFERENCE−
FAA Order JO 7110.65, Para 2−1−12, Military Procedures.
FAA Order JO 7110.65, Para 3−1−3 , Use of Active Runways.

1–1–12. SAFETY MANAGEMENT SYSTEM (SMS)

Safety is fundamental to the provision of air traffic management and communication, navigation, and surveillance services. The ATO develops, implements, and maintains processes, tools, and guiding principles within the framework of a Safety Management System (SMS) to ensure that performance-based NAS safety goals are achieved. The ATO SMS gives the responsibility for owning and executing the SMS to all employees at all levels of the ATO. All ATO employees must strive not only to maintain safety in the NAS for those services they provide but also to continuously improve the ATO SMS. Direction regarding the ATO SMS and its application is found in FAA Order JO 1000.37, Air Traffic Organization Safety Management System. Additional information pertaining to ATO SMS requirements and processes can be obtained by visiting the SMS Toolbox, emailing the Office of Safety and Technical Training (AJI) at 9-AJI-SMS@faa.gov, or contacting the service center Quality Control Group. SMS training is available for all employees via eLMS. Additional courses along with Technical Training for SMS Practitioners and SMS Facilitators are available from AJI.

1–1–13. REFERENCES TO FAA NON-AIR TRAFFIC ORGANIZATIONS

When references are made to regional office organizations that are not part of the Air Traffic Organization (Communications Center, Flight Standards, Airport offices, etc.), the facility should contact the FAA region where the facility is physically located—not the region where the facility's service area office is located.

1–1–14. DISTRIBUTION

a. This order is distributed to selected offices in Washington headquarters, regional offices, service area offices, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, and to all air traffic field facilities and international aviation field offices.

b. This order is distributed electronically to all who subscribe to receive email notifications through the FAA's website. All organizations are responsible for viewing, downloading, and subscribing to receive email notifications when changes occur to this order. Subscriptions to air traffic directives can be made through the Air Traffic Plans and Publications website at https://www.faa.gov/air_traffic/publications/ or directly via the following link: https://public.govdelivery.com/accounts/USAFAA/subscriber/new?topic_id=USAFAA_39.

Abbreviation	Meaning
SAR	Search and rescue
SATCOM . . .	Satellite Communication
SDP	Surveillance Data Processing
SELCAL	Selective Calling System
SFA	Single frequency approach
SFO	Simulated flameout
SID	Standard Instrument Departure
SIGMET	Significant meteorological information
SPA	Special Posting Area
SPECI	Nonroutine (Special) Aviation Weather Report
STAR	Standard terminal arrival
STARS	Standard Terminal Automation Replacement System
STMC	Supervisory Traffic Management Coordinator
STMCIC	Supervisory Traffic Management Coordinator–in–charge
STOL	Short takeoff and landing
SURPIC	Surface Picture
SVFR	Special Visual Flight Rules
TAA	Terminal arrival area
TAS	Terminal Automation Systems
TACAN	TACAN UHF navigational aid (omnidirectional course and distance information)
TAWS	Terrain Awareness Warning System
TCAS	Traffic Alert and Collision Avoidance System
TCDD	Tower cab digital display
TDLS	Terminal Data Link System
TDW	Tower display workstation
TDWR	Terminal Doppler Weather Radar
TDZL	Touchdown Zone Light System
TF	Track–to–Fix

Abbreviation	Meaning
TFMS	Traffic Flow Management System
TMC	Traffic Management Coordinator
TMU	Traffic Management Unit
TRACON . . .	Terminal Radar Approach Control
TRSA	Terminal radar service area
UFO	Unidentified flying object
UHF	Ultra high frequency
USA	United States Army
USAF	United States Air Force
USN	United States Navy
UTC	Coordinated universal time
UTM	Unsuccessful transmission message
UUA	Urgent pilot weather report
VCI	Voice Communication Indicator
VFR	Visual flight rules
VHF	Very high frequency
VMC	Visual meteorological conditions
VNAV	Vertical Navigation
VOR	VHF navigational aid (omnidirectional course information)
VOR/DME . .	Collocated VOR and DME navigational aids (VHF course and UHF distance information)
VORTAC . . .	Collocated VOR and TACAN navigation aids (VHF and UHF course and UHF distance information)
VR	VFR military training route
VSCS	Voice Switching and Control System
WAAS	Wide Area Augmentation System
WATRS	West Atlantic Route System
WRA	Weather Reconnaissance Area
WSO	Weather Service Office
WSP	Weather System Processor
WST	Convective SIGMET

Section 6. Weather Information

2–6–1. FAMILIARIZATION

Controllers must become familiar with pertinent weather information when coming on duty, and stay aware of current and forecasted weather information needed to perform ATC duties.

NOTE–
Every phase of flight has the potential to be impacted by weather, and emphasis must be placed on gathering, reporting and disseminating weather information.

2–6–2. PIREP SOLICITATION AND DISSEMINATION

Emphasis must be placed on the solicitation and dissemination of Urgent (UUA) and Routine (UA) PIREPs. Timely dissemination of PIREPs alerts pilots to weather conditions and provides information useful to forecasters in the development of aviation forecasts. PIREPs also provide information required by ATC in the provision of safe and efficient use of airspace. This includes 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, braking action, volcanic eruptions and volcanic ash clouds, detection of sulfur gases in the cabin, and other conditions pertinent to flight safety. Controllers must provide the information in sufficient detail to assist pilots in making decisions pertinent to flight safety.

NOTE–
Routine PIREPs indicating a lack of forecasted weather conditions, for example, a lack of icing or turbulence, are also valuable to aviation weather forecasters and pilots. This is especially true when adverse conditions are expected or forecasted but do not develop or no longer exist.

REFERENCE–
FAA Order JO 7110.65, Para 3–1–8, Low Level Wind Shear/Microburst Advisories.
FAA Order JO 7110.65, Para 3–3–4, Braking Action.
P/CG Term– Braking Action.
FAA Order JO 7210.3, Para 6–3–1, Handling of SIGMETs, CWAs, and PIREPs.
AIM, Para 7–5–9, Flight Operations in Volcanic Ash.
FAA Order JO 7210.3, Para 10–3–1, Dissemination of Weather Information.
FAA Order JO 7110.10, Chapter 8, Section 1, Pilot Weather Reports.

a. Solicit PIREPs when requested, deemed necessary or any of the following conditions exists or is forecast for your area of jurisdiction:

1. Ceilings at or below 5,000 feet. These PIREPs must include cloud bases, tops and cloud coverage when available. Additionally, when providing approach control services, ensure that at least one descent/climb–out PIREP and other related phenomena is obtained each hour.

2. Visibility (surface or aloft) at or less than 5 miles.

3. Thunderstorms and related phenomena.

4. Turbulence of moderate degree or greater.

5. Icing of light degree or greater.

6. Wind shear.

7. Braking action reports less than good.

8. Volcanic ash clouds.

9. Detection of sulfur gases (SO_2 or H_2S), associated with volcanic activity, in the cabin.

NOTE–
1. *The smell of sulfur gases in the cockpit may indicate volcanic activity that has not yet been detected or reported and/or*

possible entry into an ash-bearing cloud. SO_2 is identifiable as the sharp, acrid odor of a freshly struck match. H_2S has the odor of rotten eggs.

2. *Pilots may forward PIREPs regarding volcanic activity using the format described in the Volcanic Activity Reporting Form (VAR) as depicted in the AIM, Appendix 2.*

b. Categorize PIREPs as follows:

1. *URGENT*. The following weather phenomena must be classified as an URGENT PIREP (UUA):

(a) Tornadoes, funnel clouds, or waterspouts.

(b) Severe or extreme turbulence (including clear air turbulence).

(c) Severe icing.

(d) Hail.

(e) Low-level wind shear (LLWS). For the safety of light aircraft, classify low-level wind shear PIREPs as UUA if the pilot reports airspeed fluctuations of 10 knots or more. Classify reports of low-level wind shear with airspeed fluctuations less than 10 knots as routine. If airspeed fluctuation is not reported, classify PIREP as UUA.

NOTE–
Low-level wind shear is defined as wind shear within 2,000 feet of the surface.

(f) Volcanic eruption, ash clouds, and/or detection of sulfur gases (H_2S or SO_2) in the cabin, however, if a pilot only reported the smell of H_2S or SO_2 in the cabin and confirmed no volcanic ash clouds were present, classify the report as a ROUTINE PIREP.

(g) Any other weather phenomena reported which in your opinion may be hazardous, or potentially hazardous, to flight operations.

2. *ROUTINE*. Classify as ROUTINE (UA) all PIREPs received except those listed above.

c. Record with the PIREPs:

1. Time.

2. Aircraft position.

3. Type aircraft.

4. Altitude or range of altitudes.

5. When the PIREP involves turbulence, include:

(a) Duration (occasional, intermittent, or continuous).

(b) Intensity (light, moderate, severe, or extreme).

NOTE–
The duration and intensity of turbulence is determined by the pilot.

6. When the PIREP involves icing, include:

(a) Icing type and intensity (trace, light, moderate, or severe).

(b) Air temperature in which icing is occurring.

d. Obtain PIREPs directly from the pilot, or if the PIREP has been requested by another facility, you may instruct the pilot to deliver it directly to that facility.

PHRASEOLOGY–
REQUEST/SAY FLIGHT CONDITIONS. Or if appropriate,
REQUEST/SAY (specific conditions; i.e., ride, cloud, visibility, etc.) CONDITIONS.
If necessary,

OVER (fix),

or

ALONG PRESENT ROUTE,

or

BETWEEN (fix) AND (fix).

e. Disseminate PIREPs as follows:

1. Relay pertinent PIREP information to concerned aircraft in a timely manner.

NOTE–
Use the word gain and/or loss when describing to pilots the effects of wind shear on airspeed.

EXAMPLE–
"Delta Seven Twenty–one, a Boeing Seven Thirty–seven, previously reported wind shear, loss of two five knots at four hundred feet."
"Alaska One, a Boeing Seven Thirty–seven, previously reported wind shear, gain of two–five knots between niner hundred and six hundred feet, followed by a loss of five zero knots between five hundred feet and the surface."

REFERENCE–
AIM, Para 7–1–22, Wind Shear PIREPs.

2. *EN ROUTE.* Relay all operationally significant PIREPs to the facility weather coordinator.

REFERENCE–
FAA Order JO 7210.3, Para 6–3–1, Handling of SIGMETs, CWAs, and PIREPs.

3. *TERMINAL.* Relay all operationally significant PIREPs to:

(a) The appropriate intrafacility positions.

(b) The OS/CIC for long line dissemination via an FAA approved electronic system (for example, AIS–R, or similar systems); or,

(c) Outside Alaska: The overlying ARTCC's Flight Data Unit for long–line dissemination.

(d) Alaska Only: The FSS serving the area in which the report was obtained.

NOTE–
The FSS in Alaska is responsible for long line dissemination.

REFERENCE–
FAA Order JO 7110.65, Para 2–1–2, Duty Priority.

(e) Other concerned terminal or en route ATC facilities, including non–FAA facilities.

2–6–3. REPORTING WEATHER CONDITIONS

a. When the prevailing visibility at the usual point of observation, or at the tower level, is less than 4 miles, tower personnel must take prevailing visibility observations and apply the observations as follows:

1. Use the lower of the two observations (tower or surface) for aircraft operations.

2. Forward tower visibility observations to the weather observer.

3. Notify the weather observer when the tower observes the prevailing visibility decrease to less than 4 miles or increase to 4 miles or more.

b. Describe the wind as calm when the wind velocity is less than three knots.

REFERENCE–
FAA Order JO 7110.65, Para 3–5–3, Tailwind Components.
FAA Order JO 7110.65, Para 3–10–4, Intersecting Runway/Intersecting Flight Path Separation.

c. Forward current weather changes to the appropriate control facility as follows:

1. When the official weather changes to a condition:

(a) Less than a 1,000−foot ceiling or below the highest circling minimum, whichever is greater.

(b) Where the visibility is less than 3 miles.

(c) Where conditions improve to values greater than those listed in (a) and (b).

2. When changes which are classified as special weather observations during the time that weather conditions are below 1,000−foot ceiling or the highest circling minimum, whichever is greater, or less than 3 miles visibility.

d. Towers at airports where military turbo−jet en route descents are routinely conducted must also report the conditions to the ARTCC even if it is not the controlling facility.

e. If the receiving facility informs you that weather reports are not required for a specific time period, discontinue the reports.

f. *EN ROUTE.* When you determine that weather reports for an airport will not be required for a specific time period, inform the FSS or tower of this determination.

REFERENCE−
FAA Order JO 7110.65, Para 3−10−2, Forwarding Approach Information by Nonapproach Control Facilities.

2−6−4. ISSUING WEATHER AND CHAFF AREAS

a. Controllers must issue pertinent information on observed/reported weather and chaff areas to potentially affected aircraft. Define the area of coverage in terms of:

1. Azimuth (by referring to the 12−hour clock) and distance from the aircraft and/or

2. The general width of the area and the area of coverage in terms of fixes or distance and direction from fixes.

NOTE−
Weather significant to the safety of aircraft includes conditions such as funnel cloud activity, lines of thunderstorms, embedded thunderstorms, large hail, wind shear, microbursts, moderate to extreme turbulence (including CAT), and light to severe icing.

REFERENCE−
AIM, Para 7−1−12, ATC Inflight Weather Avoidance Assistance.

PHRASEOLOGY−
WEATHER/CHAFF AREA BETWEEN (number) O'CLOCK AND (number) O'CLOCK (number) MILES, and/or (number) MILE BAND OF WEATHER/CHAFF FROM (fix or number of miles and direction from fix) TO (fix or number of miles and direction from fix).

b. Inform any tower for which you provide approach control services of observed precipitation on radar which is likely to affect their operations.

c. Use the term "precipitation" when describing radar−derived weather. Issue the precipitation intensity from the lowest descriptor (LIGHT) to the highest descriptor (EXTREME) when that information is available. Do not use the word "turbulence" in describing radar−derived weather.

1. LIGHT.

2. MODERATE.

3. HEAVY.

4. EXTREME.

NOTE−
Light precipitation is not displayed in ERAM.

PHRASEOLOGY−
AREA OF (Intensity) PRECIPITATION BETWEEN (number) O'CLOCK AND (number) O'CLOCK, (number) MILES, MOVING (direction) AT (number) KNOTS, TOPS (altitude). AREA IS (number) MILES IN DIAMETER.

EXAMPLE–

1. *"Area of heavy precipitation between ten o'clock and two o'clock, one five miles. Area is two five miles in diameter."*

2. *"Area of heavy to extreme precipitation between ten o'clock and two o'clock, one five miles. Area is two five miles in diameter."*

REFERENCE–

P/CG Term– Precipitation Radar Weather Descriptions.

d. *TERMINAL:* In STARS, correlate precipitation descriptors from subparagraph c as follows:

1. Level 1 = LIGHT

2. Level 2 = MODERATE

3. Levels 3 and 4 = HEAVY

4. Levels 5 and 6 = EXTREME

e. When precipitation intensity information is not available.

PHRASEOLOGY–

AREA OF PRECIPITATION BETWEEN (number) O'CLOCK AND (number) O'CLOCK, (number) MILES. MOVING (direction) AT (number) KNOTS, TOPS (altitude). AREA IS (number) MILES IN DIAMETER, INTENSITY UNKNOWN.

EXAMPLE–

"Area of precipitation between one o'clock and three o'clock, three five miles moving south at one five knots, tops flight level three three zero. Area is three zero miles in diameter, intensity unknown."

NOTE–

Phraseology using precipitation intensity descriptions is only applicable when the radar precipitation intensity information is determined by NWS radar equipment or NAS ground based digitized radar equipment with weather capabilities. This precipitation may not reach the surface.

f. *EN ROUTE.* When issuing Air Route Surveillance Radar (ARSR) precipitation intensity use the following:

1. Describe the lowest displayable precipitation intensity as MODERATE.

2. Describe the highest displayable precipitation intensity as HEAVY to EXTREME.

PHRASEOLOGY–

AREA OF (Intensity) PRECIPITATION BETWEEN (number) O'CLOCK and (number) O'CLOCK, (number) MILES, MOVING (direction) AT (number) KNOTS, TOPS (altitude). If applicable, AREA IS (number) MILES IN DIAMETER.

EXAMPLE–

1. *"Area of moderate precipitation between ten o'clock and one o'clock, three zero miles moving east at two zero knots, tops flight level three seven zero.*

2. *"Area of moderate precipitation between ten o'clock and three o'clock, two zero miles. Area is two five miles in diameter."*

g. Controllers must ensure that the highest available level of precipitation intensity within their area of jurisdiction is displayed unless operational/equipment limitations exist.

h. When requested by the pilot, provide radar navigational guidance and/or approve deviations around weather or chaff areas. In areas of significant weather, plan ahead and be prepared to suggest, upon pilot request, the use of alternative routes/altitudes.

1. An approval for lateral deviation authorizes the pilot to maneuver left or right within the lateral limits specified in the clearance.

REFERENCE–

AIM, Subpara 7–1–12b1(a), ATC Inflight Weather Avoidance Assistance.

2. When approving a weather deviation for an aircraft that had previously been issued a crossing altitude, including climb via or descend via clearances, issue an altitude to maintain and, if necessary, assign a speed along with the clearance to deviate. If you intend on clearing the aircraft to resume the procedure, advise the pilot.

PHRASEOLOGY–

DEVIATION (restrictions, if necessary) APPROVED, MAINTAIN (altitude), (if necessary) MAINTAIN (speed), (if applicable) EXPECT TO RESUME (SID/STAR, etc.) AT (NAVAID, fix/waypoint).

NOTE–
After a climb via or descend via clearance has been issued, a vector/deviation off of a SID/STAR cancels all published altitude and speed restrictions on the procedure. The aircraft's Flight Management System (FMS) may be unable to process crossing altitude restrictions once the aircraft leaves the SID/STAR lateral path. Without an assigned altitude, the aircraft's FMS may revert to leveling off at the altitude set by the pilot, which may be the SID/STAR published top or bottom altitude.

REFERENCE–
FAA Order JO 7110.65, Para 4–2–5, Route or Altitude Amendments.
FAA Order JO 7110.65, Para 5–6–1, Application.
FAA Order JO 7110.65, Para 5–6–2, Methods.

3. If a pilot enters your area of jurisdiction already deviating for weather, advise the pilot of any additional weather which may affect the route.

NOTE–
When aircraft are deviating around weather and transitioning from sector to sector, unless previously coordinated, the receiving controller should not assume that the transferring controller has issued weather affecting the aircraft's route of flight.

4. If traffic and airspace (i.e., special use airspace boundaries, LOA constraints) permit, combine the approval for weather deviation with a clearance on course.

PHRASEOLOGY–
DEVIATION (restrictions if necessary) APPROVED, WHEN ABLE, PROCEED DIRECT (name of NAVAID/WAYPOINT/FIX)

or

DEVIATION (restrictions if necessary) APPROVED, WHEN ABLE, FLY HEADING (degrees), VECTOR TO JOIN (airway) AND ADVISE.

EXAMPLE–
1. *"Deviation 20 degrees right approved, when able proceed direct O'Neill VORTAC and advise." En Route: The corresponding fourth line entry is "D20R/ONL" or "D20R/F."*

2. *"Deviation 30 degrees left approved, when able fly heading zero niner zero, vector to join J324 and advise." En Route: In this case the free text character limitation prevents use of fourth line coordination and verbal coordination is required.*

5. If traffic or airspace prevents you from clearing the aircraft on course at the time of the approval for a weather deviation, instruct the pilot to advise when clear of weather.

PHRASEOLOGY–
DEVIATION (restrictions if necessary) APPROVED, ADVISE CLEAR OF WEATHER.

EXAMPLE–
"Deviation North of course approved, advise clear of weather."
En Route: In this case the corresponding fourth line entry is "DN," and the receiving controller must provide a clearance to rejoin the route in accordance with paragraph 2–1–15c.

i. When a deviation cannot be approved as requested because of traffic, take an alternate course of action that provides positive control for traffic resolution and satisfies the pilot's need to avoid weather.

PHRASEOLOGY–
UNABLE REQUESTED DEVIATION, FLY HEADING (heading), ADVISE CLEAR OF WEATHER

or

UNABLE REQUESTED DEVIATION, TURN (number of degrees) DEGREES (left or right) VECTOR FOR TRAFFIC, ADVISE CLEAR OF WEATHER,

EXAMPLE–
"Unable requested deviation, turn thirty degrees right vector for traffic, advise clear of weather."

j. When forwarding weather deviation information, the transferring controller must clearly coordinate the nature of the route guidance service being provided. This coordination should include, but is not limited to:

assigned headings, suggested headings, pilot–initiated deviations. Coordination can be accomplished by: verbal, automated, or predetermined procedures. Emphasis should be made between: controller assigned headings, suggested headings, or pilot initiated deviations.

EXAMPLE–
"(call sign) assigned heading three three zero for weather avoidance"
"(call sign) deviating west, pilot requested…"

REFERENCE–
FAA Order JO 7110.65, Para 2–1–14, Coordinate Use Of Airspace.
FAA Order JO 7110.65, Para 5–4–5, Transferring Controller Handoff.
FAA Order JO 7110.65, Para 5–4–6, Receiving Controller Handoff.
FAA Order JO 7110.65, Para 5–4–9, Prearranged Coordination.
FAA Order JO 7110.65, Para 5–4–10, En Route Fourth Line Data Block Usage.

k. En Route Fourth Line Data Transfer

1. The inclusion of /(NAVAID) or /(waypoint), when preceded by the designated characters for weather deviations, indicates that a pilot has been authorized to deviate for weather and rejoin the route at the specified NAVAID or waypoint. The use of /F, following the designated weather deviation characters, indicates that a pilot has been authorized to deviate and rejoin the route of flight at the next NAVAID or waypoint in the flight plan.

REFERENCE–
FAA Order JO 7110.65, Para 5–4–10, En Route Fourth Line Data Block Usage.

EXAMPLE–
"Deviation twenty degrees right approved, when able proceed direct O'Neill VORTAC and advise." In this case, the corresponding fourth line entry is "D20R/ONL," or "D20R/F" if O'Neill is the next NAVAID in the flight plan.

2. The absence of a NAVAID, waypoint, or /F in the fourth line indicates that:

(a) The pilot has been authorized to deviate for weather only, and the receiving controller must provide a clearance to rejoin the route in accordance with paragraph 2–1–15c.

EXAMPLE–
"Deviation twenty degrees right approved, advise clear of weather."

(b) The free text character limitation prevents the use of fourth line coordination. Verbal coordination is required.

EXAMPLE–
"Deviation 30 degrees left approved, when able fly heading zero niner zero, vector to join J324 and advise."

l. The supervisory traffic management coordinator–in–charge/operations supervisor/ controller–in–charge must verify the digitized radar weather information by the best means available (e.g., pilot reports, local tower personnel, etc.) if the weather data displayed by digitized radar is reported as questionable or erroneous. Errors in weather radar presentation must be reported to the technical operations technician and the air traffic supervisor must determine if the digitized radar derived weather data is to be displayed and a NOTAM distributed.

NOTE–
Anomalous propagation (AP) is a natural occurrence affecting radar and does not in itself constitute a weather circuit failure.

2–6–5. DISSEMINATING OFFICIAL WEATHER INFORMATION

TERMINAL. Observed elements of weather information must be disseminated as follows:

a. General weather information, such as "large breaks in the overcast," "visibility lowering to the south," or similar statements which do not include specific values, and any elements derived directly from instruments, pilots, or radar may be transmitted to pilots or other ATC facilities without consulting the weather reporting station.

b. Specific values, such as ceiling and visibility, may be transmitted if obtained by one of the following means:

1. You are properly certificated and acting as official weather observer for the elements being reported.

NOTE–
USAF controllers do not serve as official weather observers.

2. You have obtained the information from the official observer for the elements being reported.

3. The weather report was composed or verified by the weather station.

4. The information is obtained from a FAA approved automation surface weather system.

c. Differences between weather elements observed from the tower and those reported by the weather station must be reported to the official observer for the element concerned.

2–6–6. HAZARDOUS INFLIGHT WEATHER ADVISORY

Controllers must advise pilots of hazardous weather that may impact operations within 150 NM of their sector or area of jurisdiction. Hazardous weather information contained in the advisories includes Airmen's Meteorological Information (AIRMET) (except over the CONUS), Significant Meteorological Information (SIGMET), Convective SIGMET (WST), Urgent Pilot Weather Reports (UUA), and Center Weather Advisories (CWA). Facilities must review alert messages to determine the geographical area and operational impact of hazardous weather information. Advisories are not required if aircraft on your frequency(s) will not be affected.

NOTE–
In recognition that there are several uses/definitions for the acronym CONUS, references herein to CONUS are specific to the contiguous United States (i.e., "lower 48").

a. Controllers must broadcast a hazardous inflight weather advisory on all frequencies, except emergency frequency, upon receipt of hazardous weather information. Controllers are required to disseminate data based on the operational impact on the sector or area of control jurisdiction. Pilots requesting additional information must be directed to contact the nearest Flight Service.

PHRASEOLOGY–
ATTENTION ALL AIRCRAFT. HAZARDOUS WEATHER INFORMATION (SIGMET, Convective SIGMET, AIRMET, Urgent Pilot Weather Report (UUA), or Center Weather Advisory (CWA), Number or Numbers) FOR (specific weather phenomenon) WITHIN (geographical area), AVAILABLE ON FLIGHT SERVICE FREQUENCIES.

b. Terminal facilities have the option to limit hazardous weather information broadcasts as follows: Tower cab and approach control facilities may opt to broadcast hazardous weather information alerts only when any part of the area described is within 50 NM of the airspace under their jurisdiction.

REFERENCE–
AIM, Chapter 7, Section 1, Meteorology, Para 7–1–5 through Para 7–1–7.

c. *EN ROUTE*. ERAM. Controllers must electronically acknowledge hazardous weather information messages after appropriate action has been taken.

NOTE–
EN ROUTE. While hazardous weather information is commonly distributed via the SIGMET View, it is possible to receive the information via the GI View.

NOTE–
Unless otherwise authorized, tower radar displays are intended to be an aid to local controllers in meeting their responsibilities to the aircraft operating on the runways or within the surface area. They are not intended to provide radar benefits to pilots except for those accrued through a more efficient and effective local control position. In addition, local controllers at nonapproach control towers must devote the majority of their time to visually scanning the runways and local area; an assurance of continued positive radar identification could place distracting and operationally inefficient requirements upon the local controller. Therefore, since the requirements of paragraph 5−3−1, Application, cannot be assured, the radar functions prescribed above are not considered to be radar services and pilots should not be advised of being in "radar contact."

c. Additional functions may be performed provided the procedures have been reviewed and authorized by appropriate management levels.

REFERENCE–
FAA Order JO 7110.65, Para 5−5−4, Minima.

d. If there is an outage of the ASR supporting the ASDE system and Multilateration (MLAT) is inoperative or is not present at airports with an ASDE system, the tower position(s) responsible for aircraft on approach to the airport must enable the ADS−B indicator on the tower display workstation(s) (TDW(s)).

NOTE–
The ADS−B indicator will only display if the TDW is operating in Fused Display Mode.

REFERENCE–
FAA Order JO 7110.65, Para 3−6−2, Identification.
FAA Order JO 7110.65, Para 5−14−5, Information Displayed.

3−1−10. OBSERVED ABNORMALITIES

When requested by a pilot or when you deem it necessary, inform an aircraft of any observed abnormal aircraft condition.

PHRASEOLOGY–
(Item) APPEAR/S (observed condition).

EXAMPLE–
"Landing gear appears up."
"Landing gear appears down and in place."
"Rear baggage door appears open."

3−1−11. SURFACE AREA RESTRICTIONS

a. If traffic conditions permit, approve a pilot's request to cross Class C or Class D surface areas or exceed the Class C or Class D airspace speed limit. Do not, however, approve a speed in excess of 250 knots (288 mph) unless the pilot informs you a higher minimum speed is required.

NOTE–
14 CFR Section 91.117 permits speeds in excess of 250 knots (288 mph) when so required or recommended in the airplane flight manual or required by normal military operating procedures.

REFERENCE–
FAA Order JO 7110.65, Para 2−1−16, Surface Areas.

b. Do not approve a pilot's request or ask a pilot to conduct unusual maneuvers within surface areas of Class B, C, or D airspace if they are not essential to the performance of the flight.

EXCEPTION. A pilot's request to conduct aerobatic practice activities may be approved, when operating in accordance with a letter of agreement, and the activity will have no adverse effect on safety of the air traffic operation or result in a reduction of service to other users.

REFERENCE–
FAA Order JO 7210.3, Para 5−4−8, Aerobatic Practice Areas.

NOTE–
These unusual maneuvers include unnecessary low passes, unscheduled flybys, practice instrument approaches to altitudes

below specified minima (unless a landing or touch-and-go is to be made), or any so-called "buzz jobs" wherein a flight is conducted at a low altitude and/or a high rate of speed for thrill purposes. Such maneuvers increase hazards to persons and property and contribute to noise complaints.

3–1–12. VISUALLY SCANNING RUNWAYS

a. Local controllers must visually scan runways to the maximum extent possible.

b. Ground control must assist local control in visually scanning runways, especially when runways are in close proximity to other movement areas.

3–1–13. ESTABLISHING TWO–WAY COMMUNICATIONS

Pilots are required to establish two–way radio communications before entering the Class D airspace. If the controller responds to a radio call with, "(a/c call sign) standby," radio communications have been established and the pilot can enter the Class D airspace. If workload or traffic conditions prevent immediate provision of airport traffic control services, inform the pilot to remain outside the Class D airspace until conditions permit the services to be provided.

PHRASEOLOGY–
(A/c call sign) REMAIN OUTSIDE DELTA AIRSPACE AND STANDBY.

REFERENCE–
FAA Order JO 7110.65, Para 7–2–1, Visual Separation.

3–1–14. GROUND OPERATIONS WHEN VOLCANIC ASH IS PRESENT

When volcanic ash is present on the airport surface, and to the extent possible:

a. Avoid requiring aircraft to come to a full stop while taxiing.

b. Provide for a rolling takeoff for all departures.

NOTE–
When aircraft begin a taxi or takeoff roll on ash contaminated surfaces, large amounts of volcanic ash will again become airborne. This newly airborne ash will significantly reduce visibility and will be ingested by the engines of following aircraft.

REFERENCE–
AIM, Para 7–5–9, Flight Operations in Volcanic Ash.

3–1–15. GROUND OPERATIONS RELATED TO THREE/FOUR–HOUR TARMAC RULE

When a request is made by the pilot–in–command of an aircraft to return to the ramp, gate, or alternate deplaning area due to the Three/Four–Hour Tarmac Rule:

a. Provide the requested services as soon as operationally practical, or

b. Advise the pilot-in-command that the requested service cannot be accommodated because it would create a significant disruption to air traffic operations.

NOTE–
Facility procedures, including actions that constitute a significant disruption, vary by airport and must be identified in the facility directive pertaining to the Three/Four–Hour Tarmac Rule.

PHRASEOLOGY–
(Identification) TAXI TO (ramp, gate, or alternate deplaning area) VIA (route).

or

(Identification) EXPECT A (number) MINUTE DELAY DUE TO (ground and/or landing and/or departing) TRAFFIC,

or

(Identification) UNABLE DUE TO OPERATIONAL DISRUPTION.

REFERENCE–
DOT Rule, Enhancing Airline Passenger Protections, 14 CFR, Part 259, commonly referred to as the Three/Four–Hour Tarmac Rule.

NOTE–
The term "nil" is used to indicate bad or no braking action.

b. Include type of aircraft from which the report is received.

EXAMPLE–
"Braking action medium, reported by a heavy Boeing Seven Sixty–Seven."
"Braking action poor, reported by a Boeing Seven Thirty–Seven."

c. If the braking action report affects only a portion of a runway, obtain enough information from the pilot to describe the braking action in terms easily understood by other pilots.

EXAMPLE–
"Braking action poor first half of runway, reported by a Boeing Seven Fifty–Seven."
"Braking action good to medium beyond the intersection of Runway Two Seven, reported by an Airbus Three Twenty–One."

NOTE–
Descriptive terms, such as the first or the last half of the runway, should normally be used rather than landmark descriptions, such as opposite the fire station, south of a taxiway, etc. Landmarks extraneous to the landing runway are difficult to distinguish during low visibility, at night, or anytime a pilot is busy landing an aircraft.

d. Issue the runway surface condition and/or the Runway Condition Reading (RCR), if provided, to all USAF and ANG aircraft. Issue the RCR to other aircraft upon pilot request.

EXAMPLE–
"Ice on runway, RCR zero five, patchy."

NOTE–
USAF offices furnish RCR information at airports serving USAF and ANG aircraft.

REFERENCE–
FAA Order JO 7110.65, Para 4–7–12, Airport Conditions.
FAA Order JO 7110.65, Para 3–3–5, Braking Action Advisories.

3–3–5. BRAKING ACTION ADVISORIES

a. When runway braking action reports are received from pilots which include the terms "medium," "poor," or "nil**,**" or whenever weather conditions are conducive to deteriorating or rapidly changing runway conditions, include on the ATIS broadcast the statement "Braking Action Advisories are in effect."

REFERENCE–
FAA Order JO 7210.3, Para 10–4–1, Automatic Terminal Information Service (ATIS).

b. During the time Braking Action Advisories are in effect, take the following action:

1. Issue the latest braking action report for the runway in use to each arriving and departing aircraft early enough to be of benefit to the pilot. When possible, include reports from super or heavy aircraft when the arriving or departing aircraft is a super or heavy.

2. If no report has been received for the runway of intended use, issue an advisory to that effect.

PHRASEOLOGY–
NO BRAKING ACTION REPORTS RECEIVED FOR RUNWAY (runway number).

3. Advise the Airport Operator that runway braking action reports of "good to medium," "medium," "medium to poor," "poor," or "nil" have been received.

REFERENCE–
FAA Order JO 7210.3, Para 4–3–1, Letters of Agreement.

4. Solicit PIREPs of runway braking action.

REFERENCE–
FAA Order JO 7110.65, Para, 2–9–3, Content.
FAA Order JO 7110.65, Para 3–9–1, Departure Information.
FAA Order JO 7110.65, Para 3–10–1, Landing Information.
FAA Order JO 7110.65, Para 4–7–12, Airport Conditions.
FAA Order JO 7110.65, Para 2–6–2, PIREP Solicitation and Dissemination.

3–3–6. ARRESTING SYSTEM OPERATION

a. For normal operations, arresting systems remotely controlled by ATC must remain in the retracted or down position.

NOTE–

1. *USN– Runway Arresting Gear– barriers are not operated by ATC personnel. Readiness/rigging of the equipment is the responsibility of the operations department.*

2. *A request to raise a barrier or hook cable means the barrier or cable on the departure end of the runway. If an approach end engagement is required, the pilot or military authority will specifically request that the approach end cable be raised.*

REFERENCE–

FAA Order JO 7610.14, Chapter 7, Section 1, Aircraft Arresting System, Single Frequency Approach (SFA), Simulated Flameout (SFO)/Emergency Landing Pattern (ELP) Operations, Celestial Navigation (CELNAV) Training.

b. Raise aircraft arresting systems whenever:

1. Requested by a pilot.

NOTE–

The standard emergency phraseology for a pilot requesting an arresting system to be raised for immediate engagement is:

"BARRIER – BARRIER – BARRIER"

or

"CABLE – CABLE – CABLE."

2. Requested by military authority; e.g., airfield manager, supervisor of flying, mobile control officer, etc.

NOTE–

USAF. Arresting Systems at the departure end of the runway may remain in the up position when requested by the senior operational commander. The IFR Enroute Supplement and AP-1 will describe specific barrier configuration. ATC will advise transient aircraft of the barrier configuration using the phraseology in subparagraph c, below.

3. A military jet aircraft is landing with known or suspected radio failure or conditions (drag chute/hydraulic/electrical failure, etc.) that indicate an arresting system may be needed. Exceptions are authorized for military aircraft which cannot engage an arresting system (C–9, C–141, C–5, T–39, etc.) and should be identified in a letter of agreement and/or appropriate military directive.

c. When requested by military authority due to freezing weather conditions or malfunction of the activating mechanism, the barrier/cable may remain in a raised position provided aircraft are advised.

PHRASEOLOGY–

YOUR DEPARTURE/LANDING WILL BE TOWARD/OVER A RAISED BARRIER/CABLE ON RUNWAY (number), (location, distance, as appropriate).

d. Inform civil and U.S. Army aircraft whenever rubber supported cables are in place at the approach end of the landing runway, and include the distance of the cables from the threshold. This information may be omitted if it is published in the Domestic Notices webpage, International Notices webpage, or the DoD FLIP.

EXAMPLE–

"Runway One Four arresting cable one thousand feet from threshold."

e. When arresting system operation has been requested, inform the pilot of the indicated barrier/cable position.

PHRASEOLOGY–

(Identification), BARRIER/CABLE INDICATES UP/DOWN. CLEARED FOR TAKEOFF/TO LAND.

f. Time permitting, advise pilots of the availability of all arresting systems on the runway in question when a pilot requests barrier information.

g. If an aircraft engages a raised barrier/cable, initiate crash alarm procedures immediately.

h. For preplanned practice engagements not associated with emergencies, crash alarm systems need not be activated if, in accordance with local military operating procedures, all required notifications are made before the practice engagement.

Section 6. Airport Surface Detection Procedures

3–6–1. EQUIPMENT USAGE

a. The operational status of ASDE systems must be determined during the relief briefing, or as soon as possible after assuming responsibility for the associated position.

b. Use ASDE systems to augment visual observation of aircraft landing or departing, and aircraft or vehicular movements on runways and taxiways, or other parts of the movement area.

1. ASDE systems with safety logic must be operated continuously.

2. ASDE systems without safety logic must be operated:

(a) Continuously between sunset and sunrise.

(b) When visibility is less than the most distant point in the active movement area, or

(c) When, in your judgment, its use will assist you in the performance of your duties at any time.

NOTE–
Radar-only mode is an enhancement of the ASDE–X and ASSC systems that allows the system to stay operational with safety logic processing during a simultaneous loss of the Multilateration (MLAT) subsystem and ADS–B data or loss of ADS–B data when MLAT is not present. The system stays in full core alert status under radar-only mode but without automatic data block capability.

3–6–2. IDENTIFICATION

a. To identify an observed target/track on an ASDE system display, correlate its position with one or more of the following:

1. Pilot/vehicle operator position report.

2. Controller's visual observation.

3. An identified target observed on the ASR or CTRD.

b. An observed target/track on an ASDE system display may be identified as a false target by visual observation. If the area containing a suspected false target is not visible from the tower, an airport operations vehicle or pilots of aircraft operating in the area may be used to conduct the visual observation.

c. After positive verification that a target is false, through pilot/vehicle operator position report or controller visual observation, the track may be temporarily dropped, which will remove the target from the display and safety logic processing. A notation must be made to FAA Form 7230–4, Daily Record of Facility Operation, when a track is temporarily dropped.

3–6–3. INFORMATION USAGE

a. ASDE system derived information may be used to:

1. Formulate clearances and control instructions to aircraft and vehicles on the movement area.

REFERENCE–
FAA Order JO 7210.3, Para 3–6–2, ATC Surveillance Source Use.

2. Position aircraft and vehicles using the movement area.

3. Determine the exact location of aircraft and vehicles, or spatial relationship to other aircraft/vehicles on the movement area.

4. Monitor compliance with control instructions by aircraft and vehicles on taxiways and runways.

5. Confirm pilot reported positions.

6. Provide directional taxi information, as appropriate.

PHRASEOLOGY–
TURN (left/right) ON THE TAXIWAY/RUNWAY YOU ARE APPROACHING.

b. Do not provide specific navigational guidance (exact headings to be followed) unless an emergency exists or by mutual agreement with the pilot.

NOTE–
It remains the pilot's responsibility to navigate visually via routes to the clearance limit specified by the controller and to avoid other parked or taxiing aircraft, vehicles, or persons in the movement area.

c. Do not allow an aircraft to begin departure roll or cross the landing threshold whenever there is an unidentified target/track displayed on the runway.

3–6–4. SAFETY LOGIC ALERT RESPONSES

When the system generates an alert, the controller must immediately assess the situation visually and as presented on the ASDE system display, then take appropriate action as follows:

a. When an arrival aircraft (still airborne, prior to the landing threshold) activates a warning alert, the controller must issue go-around instructions. (Exception: Alerts involving known formation flights, as they cross the landing threshold, may be disregarded if all other factors are acceptable.)

NOTE–
The intent of this paragraph is that an aircraft does not land on the runway, on that approach, when the safety logic system has generated a warning alert. A side−step maneuver or circle to land on another runway satisfies this requirement.

REFERENCE–
FAA Order JO 7110.65, Para 3–8–1, Sequence/Spacing Application.
FAA Order JO 7110.65, Para 3–9–6, Same Runway Separation.
FAA Order JO 7110.65, Para 3–10–3, Same Runway Separation.
P/CG Term– Go Around.

b. When an arrival aircraft activates a warning alert to a taxiway, the controller must issue go−around instructions.

c. When two arrival aircraft, or an arrival aircraft and a departing aircraft activate an alert, the controller will issue go−around instructions or take appropriate action to ensure intersecting runway separation is maintained.

REFERENCE–
FAA Order JO 7110.65, Para 3–9–8, Intersecting Runway/Intersecting Flight Path Operations.
FAA Order JO 7110.65, Para 3–10–4, Intersecting Runway/Intersecting Flight Path Separation.

d. For other safety logic system alerts, issue instructions/clearances based on good judgment and evaluation of the situation at hand.

NOTE–
Departure clearance procedures and phraseology for military operations within approved altitude reservations, military operations above FL 600, and other military operations requiring special handling are contained in separate procedures in this order or in a LOA, as appropriate.

REFERENCE–
FAA Order JO 7110.65, Para 4–2–7, ALTRV Clearance.
FAA Order JO 7110.65, Para 9–2–14, Military Operations Above FL 600.

4–3–4. DEPARTURE RELEASE, HOLD FOR RELEASE, RELEASE TIMES, DEPARTURE RESTRICTIONS, AND CLEARANCE VOID TIMES

Assign departure restrictions, clearance void times, or release times to separate departures from other traffic or to restrict or regulate the departure flow. Departures from an airport without an operating control tower must be issued either a departure release, a hold for release, or a release time.

REFERENCE–
FAA Order JO 7110.65, Para 10–3–1, Overdue Aircraft.
FAA Order JO 7110.65, Para 10–4–1, Traffic Restrictions.
FAA Order JO 7110.65, Para 10–4–3, Traffic Resumption.

a. Departure Release. When conditions allow, release the aircraft as soon as possible.

PHRASEOLOGY–
To another controller,
(aircraft identification) RELEASED.

To a flight service specialist, or Flight Data Communication Specialist (FDCS).

ADVISE (aircraft identification) RELEASED FOR DEPARTURE.

To a pilot at an airport without an operating control tower,
(aircraft identification) RELEASED FOR DEPARTURE.

b. Hold For Release (HFR).

1. “Hold for release” instructions must be used to inform a pilot or a controller that a departure clearance is not valid until additional instructions are received.

REFERENCE–
P/CG Term – Hold for Release.

2. When issuing hold for release instructions, include departure delay information.

PHRASEOLOGY–
(aircraft identification) HOLD FOR RELEASE, EXPECT (time in hours and/or minutes) DEPARTURE DELAY.

c. Release Times.

1. Release times must be issued to pilots when necessary to specify the earliest time an aircraft may depart.

NOTE–
A release time is a departure restriction issued to a pilot (either directly or through authorized relay) to separate a departing aircraft from other traffic.

2. The facility issuing a release time to a pilot must issue a time check. A release time using a specified number of minutes does not require a time check.

PHRASEOLOGY–
(aircraft identification) RELEASED FOR DEPARTURE AT (time in hours and/or minutes),

and if required,

IF NOT OFF BY (time), ADVISE (facility) NOT LATER THAN (time) OF INTENTIONS.

TIME (time in hours, minutes, and nearest quarter minute).

(aircraft identification) RELEASED FOR DEPARTURE IN (number of minutes) MINUTES

and if required,

IF NOT OFF IN (number of minutes) MINUTES, ADVISE (facility) OF INTENTIONS WITHIN (number of minutes) MINUTES.

d. When expect departure clearance times (EDCT) are assigned through traffic management programs, excluding overriding call for release (CFR) operations as described in subparagraph e, the departure terminal must, to the extent possible, plan ground movement of aircraft destined to the affected airport(s) so that flights are sequenced to depart no earlier than 5 minutes before, and no later than 5 minutes after the EDCT. Do not release aircraft on their assigned EDCT if a ground stop (GS) applicable to that aircraft is in effect, unless approval has been received from the originator of the GS.

1. If an aircraft has begun to taxi or requests taxi in a manner consistent with meeting the EDCT, the aircraft must be released. Additional coordination is not required.

2. If an aircraft requests taxi or clearance for departure inconsistent with meeting the EDCT window, ask the pilot to verify the EDCT.

(a) If the pilot's EDCT is the same as the FAA EDCT, the aircraft is released consistent with the EDCT.

(b) If the pilot's EDCT is not the same as the FAA EDCT, refer to Trust and Verify note below.

3. If an aircraft requests taxi too late to meet the EDCT, contact the ATCSCC through the appropriate TMU.

NOTE–
(Trust & Verify) EDCTs are revised by Air Carriers and Traffic Management for changing conditions en route or at affected airport(s). Terminal controllers' use of aircraft reported EDCT for departure sequencing should be verified with the appropriate TMU prior to departure if this can be accomplished without the aircraft incurring delay beyond the EDCT reported by the aircraft. The preferred method for verification is the Flight Schedule Monitor (FSM). If the EDCT cannot be verified without incurring additional delay, the aircraft should be released based on the pilot reported EDCT. The aircraft operator is responsible for operating in a manner consistent to meet the EDCT.

e. Call for Release (CFR). When CFR is in effect, release aircraft so they are airborne within a window that extends from 2 minutes prior and ends 1 minute after the assigned time, unless otherwise coordinated.

NOTE–
1. *Subparagraph e applies to all facilities.*

2. *Coordination may be verbal, electronic, or written.*

f. Clearance Void Times.

1. When issuing clearance void times at airports without an operating control tower, provide alternative instructions requiring the pilots to advise ATC of their intentions no later than 30 minutes after the clearance void time if not airborne.

2. The facility delivering a clearance void time to a pilot must issue a time check. A void time issued using a specified number of minutes does not require a time check.

NOTE–
If the clearance void time expires, it does not cancel the departure clearance or IFR flight plan. It withdraws the pilot's authority to depart IFR until a new departure release/release time has been issued by ATC and acknowledged by the pilot.

PHRASEOLOGY–
CLEARANCE VOID IF NOT OFF BY (clearance void time),

and if required,
IF NOT OFF BY (clearance void time), ADVISE (facility) NOT LATER THAN (time) OF INTENTIONS.

1. Published name; or

2. Degree−distance from NAVAIDs; or

3. Latitude/longitude coordinates, state the latitude and longitude in degrees and minutes including the direction from the axis such as North or West; or

4. Offset from published or established ATS route at a specified distance and direction for random (impromptu) RNAV Routes.

PHRASEOLOGY−
DIRECT (fix/waypoint)

DIRECT TO THE (facility) (radial) (distance) FIX.

DIRECT (number degrees) DEGREES, (number minutes) MINUTES (north or south), (number degrees) DEGREES, (number minutes) MINUTES (east or west).

OFFSET (distance) RIGHT/LEFT OF (route).

EXAMPLE−
"Direct SUNOL."
"Direct to the Appleton three one zero radial two five mile fix."
"Direct 32 degrees, 45 minutes north, 105 degrees, 37 minutes west."
"Offset eight miles right of Victor six."

REFERENCE−
FAA Order JO 7110.65, Para 2−3−8, Aircraft Equipment Suffix.
FAA Order JO 7110.65, Para 2−5−3, NAVAID Fixes.
FAA Order JO 7110.65, Para 4−1−2, Exceptions.
FAA Order JO 7110.65, Para 5−5−1, Application.
FAA Order JO 7110.65, Para 6−5−4, Minima Along Other Than Established Airways or Routes.
P/CG Term - Global Navigation Satellite System (GNSS)[ICAO].

4−4−2. ROUTE STRUCTURE TRANSITIONS

To effect transition within or between route structures, clear an aircraft by one or more of the following methods, based on NAVAIDs or RNAV:

a. Vector aircraft to or from radials, courses, or azimuths of the ATS route assigned.

b. Assign a SID/STAR.

c. Clear departing or arriving aircraft to climb or descend via radials, courses, or azimuths of the ATS route assigned.

d. Clear departing or arriving aircraft directly to or between the NAVAIDs forming the ATS route assigned.

e. Clear aircraft to climb or descend via the ATS route on which flight will be conducted.

f. Clear aircraft to climb or descend on specified radials, courses, or azimuths of NAVAIDs.

g. Clear RNAV aircraft between designated or established ATS routes via random RNAV routes to a NAVAID, waypoint, airport or fix on the new route. Provide radar monitoring to aircraft transitioning via random RNAV routes.

EXCEPTION. GNSS−equipped aircraft /G, /L, /S, and /V on point−to−point routes, or transitioning between two point−to−point routes via an impromptu route.

REFERENCE−
FAA Order JO 7110.65, Para 4−1−2, Exceptions.
FAA Order JO 7110.65, Para 4−4−1, Route Use.
FAA Order JO 7110.65, Para 5−5−1, Application.
FAA Order JO 7110.65, Para 6−5−4, Minima Along Other Than Established Airways Or Routes.
P/CG Term − Global Navigation Satellite System (GNSS)[ICAO].

4–4–3. DEGREE–DISTANCE ROUTE DEFINITION FOR MILITARY OPERATIONS

EN ROUTE

a. Do not accept a military flight plan whose route or route segments do not coincide with designated Air Traffic Service routes or with a direct course between NAVAIDs unless it is authorized in subparagraph b and meets the following degree–distance route definition and procedural requirements:

1. The route or route segments must be defined in the flight plan by degree–distance fixes composed of:

(a) A location identifier;

(b) Azimuth in degrees magnetic; and

(c) Distance in miles from the NAVAID used.

EXAMPLE–
"MKE 030025."

2. The NAVAIDs selected to define the degree–distance fixes must be those authorized for use at the altitude being flown and at a distance within the published service volume area.

3. The distance between the fixes used to define the route must not exceed:

(a) Below FL 180– 80 miles;

(b) FL 180 and above– 260 miles; and

(c) For celestial navigation routes, all altitudes– 260 miles.

4. Degree–distance fixes used to define a route must be considered compulsory reporting points except that an aircraft may be authorized by ATC to omit reports when traffic conditions permit.

5. Military aircraft using degree–distance route definition procedures must conduct operations in accordance with the following:

(a) Unless prior coordination has been effected with the appropriate air traffic control facility, flight plan the departure and the arrival phases to conform with the routine flow of traffic when operating within 75 miles of the departure and the arrival airport. Use defined routes or airways or direct courses between NAVAIDs or as otherwise required to conform to the normal flow of traffic.

(b) Flight plans must be filed at least 2 hours before the estimated time of departure.

b. The following special military operations are authorized to define routes, or portions of routes, by degree–distance fixes:

1. Airborne radar navigation, radar bomb scoring (RBS), and airborne missile programming conducted by the USAF, USN, and RAF.

2. Celestial navigation conducted by the USAF, USN, and RAF.

3. Target aircraft operating in conjunction with air defense interceptors, and air defense interceptors while en route to and from assigned airspace.

4. Missions conducted above FL 450.

5. USN fighter and attack aircraft operating in positive control airspace.

6. USN/USMC aircraft, TACAN equipped, operating within the Honolulu FIR/Hawaiian airways area.

7. USAF/USN/USMC aircraft flight planned to operate on MTRs.

8. USAF Air Mobility Command (AMC) aircraft operating on approved station-keeping equipment (SKE) routes in accordance with the conditions and limitations listed in FAA Exemption No. 4371 to 14 CFR Section 91.177(a)(2) and 14 CFR Section 91.179(b)(1).

NOTE–
WAAS UNAVAILABLE NOTAMs are published to indicate a failure of a WAAS system component. Airborne GPS/WAAS equipment may revert to GPS-only operation which satisfies the requirements for basic RNAV (GPS) approaches to the airport of intended landing or filed alternate airport, if airborne equipment is approved for such operations.

4–8–2. APPROACH CLEARANCE TO UNCONTROLLED AIRPORTS

When issuing an approach clearance at locations without an operating control tower or where part-time towers are closed, state the name of the airport.

PHRASEOLOGY–
CLEARED (type) APPROACH TO (airport name)

or

CLEARED APPROACH TO (airport name)

(To authorize a pilot to execute his/her choice of instrument approach)

4–8–3. RELAYED APPROACH CLEARANCE

TERMINAL

Include the weather report, when it is required and available, when an approach clearance is relayed through a communication station other than an air carrier company radio. You may do this by telling the station to issue current weather.

4–8–4. ALTITUDE ASSIGNMENT FOR MILITARY HIGH ALTITUDE INSTRUMENT APPROACHES

Altitudes above those shown on the high altitude instrument approach procedures chart may be specified when required for separation.

NOTE–
To preclude the possibility of aircraft exceeding rate-of-descent or airspeed limitations, the maximum altitudes which may be assigned for any portion of the high altitude instrument approach procedure will be determined through coordination between the ATC facility concerned and the military authority which originated the high altitude instrument approach procedure.

REFERENCE–
FAA Order JO 7110.65, Para 4–7–5, Military Turbojet En Route Descent.

4–8–5. SPECIFYING ALTITUDE

Specify in the approach clearance the altitude shown in the approach procedures when adherence to that altitude is required for separation. When vertical separation will be provided from other aircraft by pilot adherence to the prescribed maximum, minimum, or mandatory altitudes, the controller may omit specifying the altitude in the approach clearance.

NOTE–
Use FAA or NGA instrument approach procedures charts appropriate for the aircraft executing the approach.

4–8–6. CIRCLING APPROACH

a. Circling approach instructions may only be given for aircraft landing at airports with operational control towers.

b. Include in the approach clearance instructions to circle to the runway in use if landing will be made on a runway other than that aligned with the direction of instrument approach. When the direction of the circling

maneuver in relation to the airport/runway is required, state the direction (eight cardinal compass points) and specify a left or right base/downwind leg as appropriate.

PHRASEOLOGY–
CIRCLE TO RUNWAY (number),

or

CIRCLE (direction using eight cardinal compass points) OF THE AIRPORT/RUNWAY FOR A LEFT/RIGHT BASE/DOWNWIND TO RUNWAY (number).

NOTE–
Where standard instrument approach procedures (SIAPs) authorize circling approaches, they provide a basic minimum of 300 feet of obstacle clearance at the MDA within the circling area considered. The dimensions of these areas, expressed in distances from the runways, vary for the different approach categories of aircraft. In some cases a SIAP may otherwise restrict circling approach maneuvers.

c. Do not issue clearances, such as "extend downwind leg," which might cause an aircraft to exceed the circling approach area distance from the runways within which required circling approach obstacle clearance is assured.

4–8–7. SIDE–STEP MANEUVER

TERMINAL

Side-step Maneuver. When authorized by an instrument approach procedure, you may clear an aircraft for an approach to one runway and inform the aircraft that landing will be made on a parallel runway.

EXAMPLE–
"Cleared I–L–S Runway seven left approach. Side-step to runway seven right."

NOTE–
Side-step maneuvers require higher weather minima/MDA. These higher minima/MDA are published on the instrument approach charts.

REFERENCE–
FAA Order JO 7110.65, Para 3–3–2, Closed/Unsafe Runway Information.
P/CG Term – Side–step Maneuver.

4–8–8. COMMUNICATIONS RELEASE

If an IFR aircraft intends to land at an airport not served by a tower or FSS, approve a change to the advisory service frequency when you no longer require direct communications.

PHRASEOLOGY–
CHANGE TO ADVISORY FREQUENCY APPROVED.

NOTE–
An expeditious frequency change permits the aircraft to receive timely local airport traffic information in accordance with AC 90–66, Non-Towered Airport Flight Operations.

INTERPRETATION–
7110.65, 4–8–8, Communication Release and Applicability to Special VFR Aircraft (9–24–2014)

4–8–9. MISSED APPROACH

Except in the case of a VFR aircraft practicing an instrument approach, an approach clearance automatically authorizes the aircraft to execute the missed approach procedure depicted for the instrument approach being flown. An alternate missed approach procedure as published on the appropriate FAA Form 8260 or appropriate military form may be assigned when necessary. After an aircraft commences a missed approach, it may be vectored at or above the MVA/MIA, or follow the provisions of paragraph 5–6–3, Vectors Below Minimum Altitude.

NOTE–

1. *Alternate missed approach procedures are published on the appropriate FAA Form 8260 or appropriate military form and require a detailed clearance when they are issued to the pilot.*

2. *In the event of a missed approach involving a turn, unless otherwise cleared, the pilot will proceed to the missed approach point before starting that turn.*

3. *Pilots must advise ATC when intending to apply cold temperature compensation and of the amount of compensation required. Pilots will not apply altitude compensation, unless authorized, when assigned an altitude if provided an initial heading to fly or radar vectors in lieu of published missed approach procedures. Consideration should be given to vectoring aircraft at or above the requested compensating altitude if possible.*

REFERENCE–

FAA Order JO 7110.65, Para 4–8–11, Practice Approaches.
FAA Order JO 7110.65, Para 5–6–3, Vectors Below Minimum Altitude.
FAA Order JO 7110.65, Para 5–8–3, Successive or Simultaneous Departures.
FAA Order 8260.19, Flight Procedures and Airspace, Para 8–6–6
FAA Order 8260.3, United States Standard for Terminal Instrument Procedures (TERPS), Para 2–8–1 and Chapter 16.
AIM, Para 5–5–5, Missed Approach.

4–8–10. APPROACH INFORMATION

Specify the following in the approach clearance when the pilot says he/she is unfamiliar with the procedure:

a. Initial approach altitude.

b. Direction and distance from the holding fix within which procedure turn is to be completed.

c. Altitude at which the procedure turn is to be made.

d. Final approach course and altitude.

e. Missed approach procedures if considered necessary.

PHRASEOLOGY–

INITIAL APPROACH AT (altitude), PROCEDURE TURN AT (altitude), (number) MINUTES/MILES (direction), FINAL APPROACH ON (name of NAVAID) (specified) COURSE/RADIAL/AZIMUTH AT (altitude).

f. Applicable notations on instrument approach charts which levy on the pilot the responsibility to comply with or act on an instruction; for example, “Straight-in minima not authorized at night,” “Procedure not authorized when glideslope/glidepath not used,” “Use of procedure limited to aircraft authorized to use airport,” “Procedure not authorized at night,” or a Snowflake icon indicating mandatory cold temperature compensation.

REFERENCE–

AIM, Para 5–1–17, Cold Temperature Operations.
AIM, Para 5–5–4, Instrument Approach.
AIM, Para 5–5–5, Missed Approach.

4–8–11. PRACTICE APPROACHES

Except for military aircraft operating at military airfields, ensure that neither VFR nor IFR practice approaches disrupt the flow of other arriving and departing IFR or VFR aircraft. Authorize, withdraw authorization, or refuse to authorize practice approaches as traffic conditions require. Normally, approaches in progress should not be terminated.

NOTE–

The priority afforded other aircraft over practice instrument approaches is not intended to be so rigidly applied that it causes grossly inefficient application of services.

a. Separation.

1. IFR aircraft practicing instrument approaches must be afforded approved separation in accordance with Chapter 3, Chapter 4, Chapter 5, Chapter 6, and Chapter 7 minima until:

(a) The aircraft lands, and the flight is terminated, or

(b) The pilot cancels the flight plan.

2. Where procedures require application of IFR separation to VFR aircraft practicing instrument approaches, IFR separation in accordance with Chapter 3, Chapter 4, Chapter 5, Chapter 6, and Chapter 7 must be provided. Controller responsibility for separation begins at the point where the approach clearance becomes effective. Except for super or heavy aircraft, 500 feet vertical separation may be applied between VFR aircraft and between a VFR and an IFR aircraft.

REFERENCE–
FAA Order JO 7210.3, Para 6–4–4, Practice Instrument Approaches.
FAA Order JO 7210.3, Para 10–4–5, Practice Instrument Approaches.

3. Where separation services are not provided to VFR aircraft practicing instrument approaches, the controller must;

(a) Instruct the pilot to maintain VFR.

(b) Advise the pilot that separation services are not provided.

PHRASEOLOGY–
"(Aircraft identification) MAINTAIN VFR, PRACTICE APPROACH APPROVED, NO SEPARATION SERVICES PROVIDED."

(c) Provide traffic information or advise the pilot to contact the appropriate facility.

4. If an altitude is assigned, including at or above/below altitudes, the altitude specified must meet MVA, minimum safe altitude, or minimum IFR altitude criteria.

REFERENCE–
FAA Order JO 7110.65, Para 7–7–5, Altitude Assignments.

5. All VFR aircraft must be instructed to maintain VFR on initial contact or as soon as possible thereafter.

NOTE–
This advisory is intended to remind the pilot that even though ATC is providing IFR-type instructions, the pilot is responsible for compliance with the applicable parts of the CFR governing VFR flight.

b. Missed Approaches.

1. Unless alternate instructions have been issued, IFR aircraft are automatically authorized to execute the missed approach depicted for the instrument approach being flown.

REFERENCE–
FAA Order JO 7110.65, Para 4–8–9, Missed Approach.

2. VFR aircraft are not automatically authorized to execute the missed approach procedure. This authorization must be specifically requested by the pilot and approved by the controller. When a missed approach has been approved and the practice approach is conducted in accordance with paragraph 4–8–11a2, separation must be provided throughout the procedure including the missed approach. If the practice approach is conducted in accordance with paragraph 4–8–11a3, separation services are not required during the missed approach.

REFERENCE–
FAA Order JO 7110.65, Para 7–2–1, Visual Separation.

4–8–12. LOW APPROACH AND TOUCH-AND-GO

Consider an aircraft cleared for a touch-and-go, low approach, or practice approach as an arriving aircraft until that aircraft touches down or crosses the landing threshold; thereafter, consider the aircraft as a departing aircraft. Before the aircraft begins its final descent, issue the appropriate departure instructions the pilot is to follow upon completion of the approach (in accordance with paragraph 4–3–2, Departure Clearances). Climb-out instructions must include a specific heading or a route of flight and altitude, except when the aircraft will maintain VFR and contact the tower.

EXAMPLE–
"After completing low approach, climb and maintain six thousand. Turn right, heading three six zero."

“Maintain VFR, contact tower.”

(Issue other instructions as appropriate.)

NOTE–
Climb-out instructions may be omitted after the first approach if instructions remain the same.

Section 7. Speed Adjustment

5–7–1. APPLICATION

Keep speed adjustments to the minimum necessary to achieve or maintain required or desired spacing. Avoid adjustments requiring alternate decreases and increases. Terminate speed adjustments when no longer needed.

NOTE–
It is the pilot's responsibility and prerogative to refuse speed adjustment that he/she considers excessive or contrary to the aircraft's operating specifications.

a. Consider the following when applying speed control:

1. Determine the interval required and the point at which the interval is to be accomplished.

2. Implement speed adjustment based on the following principles.

(a) Priority of speed adjustment instructions is determined by the relative speed and position of the aircraft involved and the spacing requirement.

(b) Speed adjustments are not achieved instantaneously. Aircraft configuration, altitudes, and speed determine the time and distance required to accomplish the adjustment.

3. Use the following techniques in speed control situations:

(a) Compensate for compression when assigning air speed adjustment in an in-trail situation by using one of the following techniques:

(1) Reduce the trailing aircraft first.

(2) Increase the leading aircraft first.

(b) Assign a specific airspeed if required to maintain spacing.

(c) Allow increased time and distance to achieve speed adjustments in the following situations:

(1) Higher altitudes.

(2) Greater speed.

(3) Clean configurations.

(d) Ensure that aircraft are allowed to operate in a clean configuration as long as circumstances permit.

(e) Keep the number of speed adjustments per aircraft to the minimum required to achieve and maintain spacing.

b. Do not assign speed adjustment to aircraft:

1. At or above FL 390 without pilot consent.

2. Executing a published high altitude instrument approach procedure.

3. In a holding pattern.

REFERENCE–
FAA Order JO 7110.65, Para 4–6–4, Holding Instructions.

4. Inside the final approach fix on final or a point 5 miles from the runway, whichever is closer to the runway.

c. At the time approach clearance or a climb via/descend via clearance is issued, previously assigned speeds must be restated if required.

d. Approach clearances or climb via/descend via clearances cancel any previously assigned speeds. Pilots are expected to make their own speed adjustments to fly the approach, SID, or STAR unless assigned speeds are restated.

NOTE–
Pilots are required to comply with published speed restrictions.

e. A speed restriction published as part of a SID/STAR is canceled when an aircraft is vectored off, or a deviation from the SID/STAR is approved. If necessary, assign a speed in conjunction with the vector or approval to deviate.

NOTE–
The last published speed on a STAR will be maintained by the aircraft until ATC deletes it, assigns a new speed, issues a vector, assigns a direct route or issues an approach clearance.

f. When issuing speed adjustments to aircraft cleared along a route or procedure that has published speed restrictions, if feasible, advise the pilot where you intend on allowing the aircraft to resume the published speed.

NOTE–
If it is anticipated that an aircraft will be allowed to resume the published speeds on a procedure, advising the pilot where that may occur avoids flight crews from unnecessarily deleting speeds from the Flight Management System.

g. Express speed adjustments in terms of knots based on indicated airspeed (IAS) in 5-knot increments. At or above FL 240, speeds may be expressed in terms of Mach numbers in 0.01 increments for aircraft with Mach meters (Mach 0.69, 0.70, 0.71, etc.).

NOTE–
1. *Pilots complying with speed adjustment instructions (published or assigned) should maintain a speed within plus or minus 10 knots or 0.02 Mach number of the specified speed.*

2. *When assigning speeds to achieve spacing between aircraft at different altitudes, consider that ground speed may vary with altitude. Further speed adjustment may be necessary to attain the desired spacing.*

3. *Controllers should anticipate pilots will begin adjusting speed at 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, controllers should expect pilots will maintain the published speed until additional adjustment is required to comply with further published restrictions or ATC assigned speed restrictions.*

REFERENCE–
FAA Order JO 7110.65, Para 5–6–1, Application.
FAA Order JO 7110.65, Para 5–7–2, Methods.

5–7–2. METHODS

a. Instruct aircraft to:

1. Maintain present/specific speed.

2. Maintain specified speed or greater/less.

3. Maintain the highest/lowest practical speed.

4. Increase or reduce to a specified speed in single-digit form or by a specified number of knots in group form.

PHRASEOLOGY–
SAY AIRSPEED.

SAY MACH NUMBER.

MAINTAIN PRESENT SPEED.

MAINTAIN (specific speed) KNOTS.

MAINTAIN (specific speed) KNOTS OR GREATER.

DO NOT EXCEED (speed) KNOTS.

Section 14. Standard Terminal Automation Replacement System (STARS)–Terminal

5–14–1. APPLICATION

STARS may be used for identifying aircraft assigned a discrete beacon code, maintaining identity of targets, and performing handoffs of these targets between controllers. All procedures for the terminal domain related to air traffic control services using STARS apply to the FUSION target.

5–14–2. RESPONSIBILITY

This equipment does not relieve the controller of the responsibility to ensure proper identification, maintenance of identity, handoff of the correct target associated with the alphanumeric data, and separation of aircraft.

5–14–3. FUNCTIONAL USE

In addition to other uses specified herein, terminal automation may be used for the following functions:

a. Tracking.

b. Tagging.

c. Handoff.

d. Altitude information.

REFERENCE–
FAA Order JO 7110.65, Para 5–2–21, Altitude Filters.

e. Coordination.

f. Ground speed.

g. Identification.

5–14–4. SYSTEM REQUIREMENTS

Use terminal automation systems as follows:

NOTE–
Locally developed procedures, operating instructions, and training material are required because of differences in equipment capability. Such locally developed procedures must be supplemental to those contained in this section and must be designed to make maximum use of the STARS equipment.

a. Inform all appropriate positions before terminating or reinstating use of the terminal automation system at a control position. When terminating the use of terminal automation systems, all pertinent flight data of that position must be transferred or terminated.

b. Inform other interfaced facilities of scheduled and unscheduled shutdowns.

c. Initiate a track/tag on all aircraft to the maximum extent possible. As a minimum, aircraft identification should be entered, and automated handoff functions should be used.

d. Assigned altitude, if displayed, must be kept current at all times. Climb and descent arrows, where available, must be used to indicate other than level flight.

e. When operating in FUSION mode, the assigned or pilot reported altitude must be displayed and kept current when the aircraft is in level flight.

f. The automatic altitude readout of an aircraft under another controller's jurisdiction may be used for vertical separation purposes without verbal coordination provided:

1. Operation is conducted using single-site radar coverage or when operating in FUSION mode.

2. Prearranged coordination procedures are contained in a facility directive in accordance with paragraph 5–4–9, Prearranged Coordination, and FAA Order JO 7210.3, paragraph 3–6–7, Prearranged Coordination.

3. Do not use Mode C to effect vertical separation within a Mosaic radar configuration.

5–14–5. INFORMATION DISPLAYED

a. Two-letter ICAO designators or three-letter designators, as appropriate, must be used unless program limitations dictate the use of a single letter alpha prefix.

b. Use of the inhibit/select functions to remove displayed information no longer required must be in accordance with local directives, which should ensure maximum required use of the equipment.

c. Information displayed must be in accordance with national orders and specified in local directives.

d. During outages of the ASR that supports an ASDE system where MLAT is inoperative or is not present, the tower position(s) responsible for aircraft on approach to the airport must enable the ADS–B indicator on the tower display workstation(s) (TDW(s)).

NOTE–
The ADS–B indicator will only display if the TDW is operating in Fused Display Mode.

REFERENCE–
FAA Order JO 7110.65, Para 3–1–9, Use of Tower Radar Displays.

5–14–6. CA/MCI

a. When a CA or MCI alert is displayed, evaluate the reason for the alert without delay and take appropriate action.

REFERENCE–
FAA Order JO 7110.65, Para 2–1–6, Safety Alert.

b. If another controller is involved in the alert, initiate coordination to ensure an effective course of action. Coordination is not required when immediate action is dictated.

c. Suppressing/Inhibiting CA/MCI alert.

1. The suppress function may be used to suppress the display of a specific CA/MCI alert.

2. The inhibit function must only be used to inhibit the display of CA for aircraft routinely engaged in operations where approved separation criteria do not apply.

NOTE–
Examples of operations where approved separation criteria do not apply are ADC practice intercept operations and air shows.

3. Computer entry of a message suppressing a CA/MCI alert constitutes acknowledgment for the alert and signifies that appropriate action has or will be taken.

4. CA/MCI alert may not be suppressed or inhibited at or for another control position without being coordinated.

5–14–7. INHIBITING MINIMUM SAFE ALTITUDE WARNING (MSAW)

a. Inhibit MSAW processing of VFR aircraft and aircraft that cancel instrument flight rules (IFR) flight plans unless the pilot specifically requests otherwise.

REFERENCE–
FAA Order JO 7110.65, Para 10–2–7, VFR Aircraft in Weather Difficulty.
FAA Order JO 7110.65, Para 10–2–8, Radar Assistance to VFR Aircraft in Weather Difficulty.

b. A low altitude alert may be suppressed from the control position. Computer entry of the suppress message constitutes an acknowledgment for the alert and indicates that appropriate action has or will be taken.

5–14–8. TRACK SUSPEND FUNCTION

Use the track suspend function only when data block overlap in holding patterns or in proximity of the final approach create an unworkable situation. If necessary to suspend tracks, those which are not displaying automatic altitude readouts must be suspended. If the condition still exists, those displaying automatic altitude readouts may then be suspended.

Section 7. North Atlantic ICAO Region

8–7–1. APPLICATION

Provide air traffic control services in the North Atlantic ICAO Region with the procedures and minima contained in this section except when noted otherwise.

8–7–2. VERTICAL SEPARATION

Provide vertical separation in accordance with Chapter 4, IFR, Section 5, Altitude Assignment and Verification.

8–7–3. LONGITUDINAL SEPARATION

In accordance with Chapter 8, Offshore/Oceanic Procedures, Section 3, Longitudinal Separation, apply the following:

a. Supersonic flight:

1. *10 minutes* provided that:

(a) both aircraft are in level flight at the same Mach number or the aircraft are of the same type and are both operating in cruise climb, and one of the following;

(1) The aircraft concerned have reported over a common point; or,

(2) If the aircraft have not reported over a common point, the appropriate time interval being applied between aircraft exists and will exist at the common point; or,

(3) If a common point does not exist, the appropriate time interval being applied between aircraft exists and will exist at significant points along each track.

2. *15 minutes* between aircraft in supersonic flight not covered in subparagraph a1 above.

b. Turbojet operations *(subsonic flight)*:

1. Apply the prescribed minima in accordance with paragraph 8–3–3, Mach Number Technique; or

2. Where tracks diverge from the common point and the following aircraft is maintaining a greater Mach Number than the preceding aircraft:

(a) At least *10 minutes* longitudinal separation exists at the point where the tracks diverge; and

(b) At least *5 minutes* longitudinal separation will exist where minimum lateral separation is achieved *(whichever is estimated to occur first)*;

(1) At or before the next significant point (normally within ten degrees of longitude along track(s)), or

(2) Within 90 minutes of the time the following aircraft passes the common point, or

(3) Within 600 NM of the common point.

3. Apply *15 minutes* between all other turbojet aircraft.

c. Nonturbojet operations:

1. Apply *20 minutes* between aircraft operating in the West Atlantic Route System (WATRS), or

2. Apply *30 minutes* between aircraft operating outside of the WATRS.

NOTE–
The WATRS area is defined as beginning at a point 27°00'N/77°00'W direct to 20°00'N/67°00'W direct to

18°00'N/62°00'W direct to 18°00'N/60°00'W direct to 38°30'N/60°00'W direct to 38°30'N/69°15'W, thence counterclockwise along the New York Oceanic CTA/FIR boundary to the Miami Oceanic CTA/FIR boundary, thence southbound along the Miami Oceanic CTA/FIR boundary to the point of beginning.

d. Clear an aircraft for an ADS-B In Trail Procedure (ITP) climb or descent provided the following conditions are satisfied:

1. The ITP climb or descent has been requested by the pilot;

2. The aircraft identification of each reference aircraft in the ITP request exactly matches the Item 7 - aircraft identification of the corresponding aircraft's filed flight plan;

3. The reported ITP distance between the ITP aircraft and any reference aircraft is 15 NM or more;

4. Both the ITP aircraft and reference aircraft are either on:

(a) same identical tracks and any turn at a waypoint shall be limited to less than 45 degrees; or

(b) same tracks with no turns permitted that reduce required separation during the ITP.

NOTE–
Same identical tracks are where the angular difference is zero degrees.

5. No speed or route change clearance shall be issued to the ITP aircraft until the ITP climb or descent is completed;

6. The altitude difference between the ITP aircraft and any reference aircraft shall be 2000 ft or less;

7. No instruction to amend speed, altitude or route shall be issued to any reference aircraft until the ITP climb or descent is completed;

8. The maximum closing speed between the ITP aircraft and each reference aircraft shall be Mach 0.06; and

9. The ITP aircraft shall not be a reference aircraft in another ITP clearance.

NOTE–
ATOP is designed to check for the above criteria prior to allowing the minima to be provided.

e. Minima based on distance using Automatic Dependent Surveillance – Contract (ADS-C):

1. Apply the minima as specified in TBL 8–7–1 between aircraft on the same track within airspace designated for Required Navigation Performance (RNP), provided:

(a) Direct controller/pilot communication via voice or Controller Pilot Data Link Communications (CPDLC) is established, and

(b) The required ADS-C periodic reports are maintained and monitored by an automated flight data processor (for example, ATOP).

TBL 8–7–1
ADS–C Criteria

Minima				
Standard	**RNP**	**RCP See Note 1**	**RSP See Note 2**	**Maximum ADS-C Periodic Reporting Interval**
50 NM	10	240	180	27 minutes
50 NM	4	240	180	32 minutes
30 NM	4	240	180	10 minutes

NOTE–
1. *Required Communication Performance (RCP).*

2. *Required Surveillance Performance (RSP).*

2. Aircraft on reciprocal tracks may be cleared to climb or descend to or through the altitude(s) occupied by another aircraft provided:

(a) An ADS-C position report on at least one of the aircraft has been received beyond the passing point, and

(b) The aircraft have passed each other by the applicable separation minimum.

NOTE–
ATOP has been designed to check for the above criteria prior to allowing the minima to be provided.

3. When an ADS-C periodic or waypoint change event report is overdue by *3 minutes*, the controller must take action to obtain an ADS-C report.

4. If no report is received within *6 minutes* of the time the original report was due, the controller must take action to apply another form of separation.

5. Aircraft on the same track may be cleared to climb or descend through the level of another aircraft provided:

(a) The longitudinal distance between the aircraft is determined from near simultaneous ADS−C demand reports and the ATOP software is used to ensure the following conditions are met;

(b) The longitudinal distance between the aircraft, as determined in a) above, is not less than:

(1) 15 NM when the preceding aircraft is at the same speed or faster than the following aircraft; or

(2) 25 NM when the following aircraft is not more than Mach 0.02 faster than the preceding aircraft

(c) The altitude difference between aircraft is not more than 2000 ft;

(d) The clearance is for a climb or descent of 4000 ft or less;

(e) Both aircraft are filed as single flights not flying in formation with other aircraft;

(f) Both aircraft are in level flight at a single altitude;

(g) Both aircraft are same direction;

(h) Neither aircraft are on a weather deviation;

(i) Neither aircraft have an open CPDLC request for a weather deviation;

(j) Neither aircraft are on an offset with a rejoin clearance; and

(k) The clearance is issued with a restriction that ensures vertical separation is re−established within 15 minutes from the first demand report request.

8−7−4. LATERAL SEPARATION

In accordance with Chapter 8, Offshore/Oceanic Procedures, Section 4, Lateral Separation, apply the following:

a. *23 NM* to approved aircraft (at a minimum, RNP 4, RCP 240, and RSP 180) operating within airspace designated for *23 NM* lateral separation when direct controller/pilot communications via voice or Controller Pilot Data Link Communications (CPDLC), and the required ADS−C contracts are maintained and monitored by an automated flight data processor (e.g., ATOP).

b. *50 NM* between Required Navigation Performance (RNP 4 or RNP 10) approved aircraft that operate in the New York Oceanic CTA/FIR or the San Juan Oceanic CTA/FIR or the Atlantic portion of the Miami Oceanic CTA/FIR.

NOTE–
This reduced lateral separation must not be used if track−keeping capability of the aircraft has been reduced for any reason.

c. *60 NM or 1 degree latitude* between:

1. Supersonic aircraft operating above FL 275.

2. Aircraft which have MNPS or NAT HLA authorization and which:

(a) Operate within NAT HLA; or

(b) Are in transit to or from NAT HLA; or

(c) Operate for part of their flight within, above, or below NAT HLA**.**

NOTE–
This reduced lateral separation must not be used if track–keeping capability of the aircraft has been reduced for any reason.

d. *90 NM or 1 and 1/2 degrees latitude* between aircraft not approved for RNP 4 or RNP 10 and which:

1. Operate on routes or in areas within WATRS, the San Juan CTA/FIR or the Atlantic portion of the Miami CTA/FIR;

2. Operate between points in the U.S. or Canada, and Bermuda;

3. Operate west of 55° West between the U.S., Canada, or Bermuda and points in the Caribbean ICAO Region.

e. *120 NM or 2 degrees latitude* between aircraft not covered by subparagraphs a, c or d above.

NOTE–
Tracks may be spaced with reference to their difference in latitude, provided that in any interval of 10 degrees of longitude the change in latitude of at least one of the tracks does not exceed 3 degrees when operating south of 58°North.

Section 8. Caribbean ICAO Region

8–8–1. APPLICATION

Provide air traffic control services in the Caribbean ICAO Region with the procedures and minima contained in this section except when noted otherwise.

8–8–2. VERTICAL SEPARATION

Provide vertical separation in accordance with Chapter 4, IFR, Section 5, Altitude Assignment and Verification.

8–8–3. LONGITUDINAL SEPARATION

Provide longitudinal separation between aircraft as follows:

a. Supersonic flight:

1. *10 minutes* provided both aircraft are in level flight at the same Mach number or the aircraft are of the same type and are both operating in cruise climb, and one of the following;

(a) Both aircraft have reported over a common point; or,

(b) If both aircraft have not reported over a common point, the appropriate time interval being applied between aircraft exists and will exist at the common point; or,

(c) If a common point does not exist, the appropriate time interval being applied between aircraft exists and will exist at significant points along each track.

2. *15 minutes* between all other aircraft.

b. Turbojet operations at or above FL 200 in the Miami Oceanic, Houston Oceanic and San Juan CTAs/FIRs and all altitudes in the West Atlantic Route System (WATRS) and New York Oceanic CTA/FIR *(subsonic flight)*:

1. Apply the prescribed minima in accordance with paragraph 8–3–3, Mach Number Technique; or

2. In the New York CTA/FIR, where tracks diverge from the common point and the following aircraft is maintaining a greater Mach number than the preceding aircraft:

(a) At least *10 minutes* longitudinal separation exists at the point where the tracks diverge; and

(b) At least *5 minutes* longitudinal separation will exist where minimum lateral separation is achieved *(whichever is estimated to occur first)*;

(1) At or before the next significant point (normally within ten degrees of longitude along track(s)), or

(2) Within *90 minutes* of the time the following aircraft passes the common point, or

(3) Within *600 NM* of the common point; or

3. Apply *15 minutes* between all other turbojet aircraft.

c. Turbojet Operations below FL 200 (*subsonic flight*): Apply *20 minutes* between turbojet aircraft operating below FL 200 in the San Juan Oceanic *(outside the WATRS area)*, Miami Oceanic, and Houston Oceanic CTAs/FIRs.

d. Nonturbojet operations.

1. Apply *20 minutes* between aircraft operating in the WATRS; or

2. Apply *20 minutes* between aircraft operating below FL 200 in the Miami Oceanic, Houston Oceanic and San Juan CTAs/FIRs; or

3. Apply *30 minutes* between aircraft operating outside of the WATRS in the New York CTA/FIR.

NOTE–
The WATRS area is defined as beginning at a point 27°00'N/77°00'W direct to 20°00'N/67°00'W direct to 18°00'N/62°00'W direct to 18°00'N/60°00'W direct to 38°30'N/60°00'W direct to 38°30'N/69°15'W, thence counterclockwise along the New York Oceanic CTA/FIR boundary to the Miami Oceanic CTA/FIR boundary, thence southbound along the Miami Oceanic CTA/FIR boundary to the point of beginning.

e. Clear an aircraft for an ADS-B In Trail Procedure (ITP) climb or descent provided the following conditions are satisfied:

1. The ITP climb or descent has been requested by the pilot;

2. The aircraft identification of each reference aircraft in the ITP request exactly matches the Item 7 - aircraft identification of the corresponding aircraft's filed flight plan;

3. The reported ITP distance between the ITP aircraft and any reference aircraft is 15 NM or more;

4. Both the ITP aircraft and reference aircraft are either on:

(a) same identical tracks and any turn at a waypoint shall be limited to less than 45 degrees; or

(b) same tracks with no turns permitted that reduce required separation during the ITP.

NOTE–
Same identical tracks are where the angular difference is zero degrees.

5. No speed or route change clearance shall be issued to the ITP aircraft until the ITP climb or descent is completed;

6. The altitude difference between the ITP aircraft and any reference aircraft shall be 2000 ft or less;

7. No instruction to amend speed, altitude or route shall be issued to any reference aircraft until the ITP climb or descent is completed;

8. The maximum closing speed between the ITP aircraft and each reference aircraft shall be Mach 0.06; and

9. The ITP aircraft shall not be a reference aircraft in another ITP clearance.

NOTE–
ATOP is designed to check for the above criteria prior to allowing the minima to be provided.

f. Minima based on distance using Automatic Dependent Surveillance – Contract (ADS-C):

1. Apply the minima as specified in TBL 8–8–1 between aircraft on the same track within airspace designated for Required Navigation Performance (RNP), provided:

(a) Direct controller/pilot communication via voice or Controller Pilot Data Link Communications (CPDLC) is established, and

(b) The required ADS-C periodic reports are maintained and monitored by an automated flight data processor (for example, ATOP).

TBL 8–8–1
ADS–C Criteria

Minima				
Standard	**RNP**	**RCP**	**RSP**	**Maximum ADS-C Periodic Reporting Interval**
50 NM	10	240	180	27 minutes
50 NM	4	240	180	32 minutes
30 NM	4	240	180	10 minutes

2. Aircraft on reciprocal tracks may be cleared to climb or descend to or through the altitude(s) occupied by another aircraft provided:

(a) An ADS-C position report on at least one of the aircraft has been received beyond the passing point, and

(b) The aircraft have passed each other by the applicable separation minimum.

NOTE–
ATOP has been designed to check for the above criteria prior to allowing the minima to be provided.

3. When an ADS-C periodic or waypoint change event report is overdue by *3 minutes*, the controller must take action to obtain an ADS-C report.

4. If no report is received within *6 minutes* of the time the original report was due, the controller must take action to apply another form of separation.

5. Aircraft on the same track may be cleared to climb or descend through the level of another aircraft provided:

(a) The longitudinal distance between the aircraft is determined from near simultaneous ADS−C demand reports and the ATOP software is used to ensure the following conditions are met;

(b) The longitudinal distance between the aircraft, as determined in a) above, is not less than:

(1) 15 NM when the preceding aircraft is at the same speed or faster than the following aircraft; or

(2) 25 NM when the following aircraft is not more than Mach 0.02 faster than the preceding aircraft

(c) The altitude difference between aircraft is not more than 2000 ft;

(d) The clearance is for a climb or descent of 4000 ft or less;

(e) Both aircraft are filed as single flights not flying in formation with other aircraft;

(f) Both aircraft are in level flight at a single altitude;

(g) Both aircraft are same direction;

(h) Neither aircraft are on a weather deviation;

(i) Neither aircraft have an open CPDLC request for a weather deviation;

(j) Neither aircraft are on an offset with a rejoin clearance; and

(k) The clearance is issued with a restriction that ensures vertical separation is re−established within 15 minutes from the first demand report request.

8–8–4. LATERAL SEPARATION

In accordance with Chapter 8, Offshore/Oceanic Procedures, Section 4, Lateral Separation, apply the following:

a. *23 NM* to approved aircraft (at a minimum, RNP 4, RCP 240, and RSP 180) operating within airspace designated for *23 NM* lateral separation when direct controller/pilot communications via voice or Controller Pilot Data Link Communications (CPDLC), and the required ADS−C contracts are maintained and monitored by an automated flight data processor (e.g., ATOP).

b. *50 NM* between Required Navigation Performance (RNP 4 or RNP 10) approved aircraft that:

1. Operate in the New York Oceanic CTA/FIR; or

2. Operate in the San Juan Oceanic CTA/FIR; or

3. Operate in the Houston Oceanic CTA/FIR; or

4. Operate in the Atlantic or Gulf of Mexico portion of the Miami CTA/FIR.

NOTE–
This reduced lateral separation must not be used if track−keeping capability of the aircraft has been reduced for any reason.

c. *60 NM* between:

1. Supersonic aircraft operating above FL 275 within the New York oceanic CTA/FIR.

2. Supersonic aircraft operating at or above FL 450 not covered in subparagraph 1 above.

3. Aircraft which have MNPS or NAT HLA authorization and which:

(a) Operate within NTA HLA; or

(b) Are in transit to or from NAT HLA; or

(c) Operate for part of their flight within, above, or below NAT HLA.

NOTE–
This reduced lateral separation must not be used if track–keeping capability of the aircraft has been reduced for any reason.

d. *90 NM* between aircraft not approved for RNP 4 or RNP 10 and which:

1. Operate within *WATRS*; or

2. Operate west of 55° West between the U.S., Canada, or Bermuda and points in the Caribbean ICAO Region.

e. *100 NM* between aircraft operating west of 55° West not covered by subparagraphs a, c, or d above.

f. *120 NM* between aircraft operating east of 55° West.

8–8–5. VFR CLIMB AND DESCENT

a. In the Houston, Miami, and San Juan CTAs, IFR flights may be cleared to climb and descend in VFR conditions only:

1. When requested by the pilot; and

2. Between sunrise and sunset.

b. Apply the following when the flight is cleared:

1. If there is a possibility that VFR conditions may become impractical, issue alternative instructions.

2. Issue traffic information to aircraft that are not separated in accordance with the minima in this section.

PILOT/CONTROLLER GLOSSARY

PURPOSE

a. This Glossary was compiled to promote a common understanding of the terms used in the Air Traffic Control system. It includes those terms which are intended for pilot/controller communications. Those terms most frequently used in pilot/controller communications are printed in ***bold italics***. The definitions are primarily defined in an operational sense applicable to both users and operators of the National Airspace System. Use of the Glossary will preclude any misunderstandings concerning the system's design, function, and purpose.

b. Because of the international nature of flying, terms used in the Lexicon, published by the International Civil Aviation Organization (ICAO), are included when they differ from FAA definitions. These terms are followed by "[ICAO]." For the reader's convenience, there are also cross references to related terms in other parts of the Glossary and to other documents, such as the Code of Federal Regulations (CFR) and the Aeronautical Information Manual (AIM).

c. Terms used in this glossary that apply to flight service station (FSS) roles are included when they differ from air traffic control functions. These terms are followed by "[FSS]."

d. This Glossary will be revised, as necessary, to maintain a common understanding of the system.

EXPLANATION OF CHANGES

e. Terms Added:
SPECIAL MILITARY ACTIVITY ROUTE (SMAR)
WEATHER RADAR PRECIPITATION INTENSITY

f. Terms Deleted:
PRECIPITATION RADAR WEATHER DESCRIPTIONS

g. Terms Modified:
ADAPTED ROUTES
DEVIATIONS

h. Editorial/format changes were made where necessary. Revision bars were not used due to the insignificant nature of the changes.

A

AAM–
(See ADVANCED AIR MOBILITY.)

AAR–
(See AIRPORT ARRIVAL RATE.)
(See ADAPTED ROUTES.)

ABBREVIATED IFR FLIGHT PLANS– An authorization by ATC requiring pilots to submit only that information needed for the purpose of ATC. It includes only a small portion of the usual IFR flight plan information. In certain instances, this may be only aircraft identification, location, and pilot request. Other information may be requested if needed by ATC for separation/control purposes. It is frequently used by aircraft which are airborne and desire an instrument approach or by aircraft which are on the ground and desire a climb to VFR-on-top.
(See VFR-ON-TOP.)
(Refer to AIM.)

ABEAM– An aircraft is "abeam" a fix, point, or object when that fix, point, or object is approximately 90 degrees to the right or left of the aircraft track. Abeam indicates a general position rather than a precise point.

ABORT– To terminate a preplanned aircraft maneuver; e.g., an aborted takeoff.

ABRR–
(See AIRBORNE REROUTE)

AC–
(See ADVISORY CIRCULAR.)

ACC [ICAO]–
(See ICAO term AREA CONTROL CENTER.)

ACCELERATE-STOP DISTANCE AVAILABLE– The runway plus stopway length declared available and suitable for the acceleration and deceleration of an airplane aborting a takeoff.

ACCELERATE-STOP DISTANCE AVAILABLE [ICAO]– The length of the take-off run available plus the length of the stopway if provided.

ACDO–
(See AIR CARRIER DISTRICT OFFICE.)

ACKNOWLEDGE– Let me know that you have received and understood this message.

ACL–
(See AIRCRAFT LIST.)

ACLS–
(See AUTOMATIC CARRIER LANDING SYSTEM.)

ACROBATIC FLIGHT– An intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration not necessary for normal flight.
(See ICAO term ACROBATIC FLIGHT.)
(Refer to 14 CFR Part 91.)

ACROBATIC FLIGHT [ICAO]– Maneuvers intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude, or an abnormal variation in speed.

ACTIVE RUNWAY–
(See RUNWAY IN USE/ACTIVE RUNWAY/DUTY RUNWAY.)

ACTUAL NAVIGATION PERFORMANCE (ANP)–
(See REQUIRED NAVIGATION PERFORMANCE.)

ADAPTED ROUTES– Departure and/or arrival routes that are adapted in ARTCC ERAM computers to accomplish inter/intrafacility controller coordination and to ensure that flight data is posted at the proper control positions. Adapted routes are automatically applied to flight plans where appropriate. When the workload or traffic situation permits, controllers may provide radar vectors or assign requested routes to minimize circuitous routing. Adapted routes are usually confined to one ARTCC's area and are referred to by the following names or abbreviations:

a. Adapted Arrival Route (AAR). A specific arrival route from an appropriate en route point to an airport or terminal area. A Standard Terminal Arrival (STAR) and/or a partial Preferred IFR Route may be included in an AAR.

b. Adapted Departure Route (ADR). A specific departure route from an airport or terminal area to an en route point where there is no further need for flow control. An Instrument Departure Procedure (DP) and/or a partial Preferred IFR Route may be included in an ADR.

c. Adapted Departure and Arrival Route (ADAR). A route between two terminals which are within or immediately adjacent to one ARTCC's area. ADARs are similar to Preferred IFR Routes and may share components, but they are not synonymous.
(See PREFFERED IFR ROUTES.)

ADAR–
(See ADAPTED ROUTES.)

ADDITIONAL SERVICES– Advisory information provided by ATC which includes but is not limited to the following:

a. Traffic advisories.

b. Vectors, when requested by the pilot, to assist aircraft receiving traffic advisories to avoid observed traffic.

c. Altitude deviation information of 300 feet or more from an assigned altitude as observed on a verified (reading correctly) automatic altitude readout (Mode C).

d. Advisories that traffic is no longer a factor.

e. Weather and chaff information.

f. Weather assistance.

g. Bird activity information.

h. Holding pattern surveillance. Additional services are provided to the extent possible contingent only upon the controller's capability to fit them into the performance of higher priority duties and on the basis of limitations of the radar, volume of traffic, frequency congestion, and controller workload. The controller has complete discretion for determining if he/she is able to provide or continue to provide a service in a particular case. The controller's reason not to provide or continue to provide a service in a particular case is not subject to question by the pilot and need not be made known to him/her.
(See TRAFFIC ADVISORIES.)
(Refer to AIM.)

ADF–
(See AUTOMATIC DIRECTION FINDER.)

ADIZ–
(See AIR DEFENSE IDENTIFICATION ZONE.)

ADLY–
(See ARRIVAL DELAY.)

ADMINISTRATOR– The Federal Aviation Administrator or any person to whom he/she has delegated his/her authority in the matter concerned.

ADR–
(See ADAPTED ROUTES.)
(See AIRPORT DEPARTURE RATE.)

ADS [ICAO]–
(See ICAO term AUTOMATIC DEPENDENT SURVEILLANCE.)

ADS–B–
(See AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST.)

ADS–C–
(See AUTOMATIC DEPENDENT SURVEILLANCE–CONTRACT.)

ADVANCED AIR MOBILITY (AAM)–A transportation system that transports people and property by air between two points in the NAS using aircraft with advanced technologies, including electric aircraft or electric vertical takeoff and landing aircraft, in both controlled and uncontrolled airspace.

ADVISE INTENTIONS– Tell me what you plan to do.

ADVISORY– Advice and information provided to assist pilots in the safe conduct of flight and aircraft movement.
(See ADVISORY SERVICE.)

ADVISORY CIRCULAR (AC)– An FAA publication, advisory and descriptive in nature, which is not regulatory.

ADVISORY FREQUENCY– The appropriate frequency to be used for Airport Advisory Service.
(See LOCAL AIRPORT ADVISORY.)
(See UNICOM.)
(Refer to ADVISORY CIRCULAR NO. 90-66.)
(Refer to AIM.)

ADVISORY SERVICE– Advice and information provided by a facility to assist pilots in the safe conduct of flight and aircraft movement.
(See ADDITIONAL SERVICES.)
(See LOCAL AIRPORT ADVISORY.)
(See RADAR ADVISORY.)
(See SAFETY ALERT.)
(See TRAFFIC ADVISORIES.)
(Refer to AIM.)

ADW–
(See ARRIVAL DEPARTURE WINDOW)

AERIAL REFUELING– A procedure used by the military to transfer fuel from one aircraft to another during flight.
(Refer to VFR/IFR Wall Planning Charts.)

AERODROME– A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure, and movement of aircraft.

AERODROME BEACON [ICAO]– Aeronautical beacon used to indicate the location of an aerodrome from the air.

AERODROME CONTROL SERVICE [ICAO]– Air traffic control service for aerodrome traffic.

AERODROME CONTROL TOWER [ICAO]– A unit established to provide air traffic control service to aerodrome traffic.

AERODROME ELEVATION [ICAO]– The elevation of the highest point of the landing area.

AERODROME TRAFFIC CIRCUIT [ICAO]– The specified path to be flown by aircraft operating in the vicinity of an aerodrome.

AERONAUTICAL BEACON– A visual NAVAID displaying flashes of white and/or colored light to indicate the location of an airport, a heliport, a landmark, a certain point of a Federal airway in mountainous terrain, or an obstruction.

(See AIRPORT ROTATING BEACON.)
(Refer to AIM.)

AERONAUTICAL CHART– A map used in air navigation containing all or part of the following: topographic features, hazards and obstructions, navigation aids, navigation routes, designated airspace, and airports. Commonly used aeronautical charts are:

a. Sectional Aeronautical Charts (1:500,000)– Designed for visual navigation of slow or medium speed aircraft. Topographic information on these charts features the portrayal of relief and a judicious selection of visual check points for VFR flight. Aeronautical information includes visual and radio aids to navigation, airports, controlled airspace, permanent special use airspace (SUA), obstructions, and related data.

b. VFR Terminal Area Charts (1:250,000)– Depict Class B airspace which provides for the control or segregation of all the aircraft within Class B airspace. The chart depicts topographic information and aeronautical information which includes visual and radio aids to navigation, airports, controlled airspace, permanent SUA, obstructions, and related data.

c. En Route Low Altitude Charts– Provide aeronautical information for en route instrument navigation (IFR) in the low altitude stratum. Information includes the portrayal of airways, limits of controlled airspace, position identification and frequencies of radio aids, selected airports, minimum en route and minimum obstruction clearance altitudes, airway distances, reporting points, permanent SUA, and related data. Area charts, which are a part of this series, furnish terminal data at a larger scale in congested areas.

d. En Route High Altitude Charts– Provide aeronautical information for en route instrument navigation (IFR) in the high altitude stratum. Information includes the portrayal of jet routes, identification and frequencies of radio aids, selected airports, distances, time zones, special use airspace, and related information.

e. Instrument Approach Procedure (IAP) Charts– Portray the aeronautical data which is required to execute an instrument approach to an airport. These charts depict the procedures, including all related data, and the airport diagram. Each procedure is designated for use with a specific type of electronic navigation system including NDB, TACAN, VOR, ILS RNAV and GLS. These charts are identified by the type of navigational aid(s)/equipment required to provide final approach guidance.

f. Instrument Departure Procedure (DP) Charts– Designed to expedite clearance delivery and to facilitate transition between takeoff and en route operations. Each DP is presented as a separate chart and may serve a single airport or more than one airport in a given geographical location.

g. Standard Terminal Arrival (STAR) Charts– Designed to expedite air traffic control arrival procedures and to facilitate transition between en route and instrument approach operations. Each STAR procedure is presented as a separate chart and may serve a single airport or more than one airport in a given geographical location.

h. Airport Taxi Charts– Designed to expedite the efficient and safe flow of ground traffic at an airport. These charts are identified by the official airport name; e.g., Ronald Reagan Washington National Airport.

(See ICAO term AERONAUTICAL CHART.)

AERONAUTICAL CHART [ICAO]– A representation of a portion of the earth, its culture and relief, specifically designated to meet the requirements of air navigation.

AERONAUTICAL INFORMATION MANUAL (AIM)– A primary FAA publication whose purpose is to instruct airmen about operating in the National Airspace System of the U.S. It provides basic flight information, ATC Procedures and general instructional information concerning health, medical facts, factors affecting flight safety, accident and hazard reporting, and types of aeronautical charts and their use.

AERONAUTICAL INFORMATION PUBLICATION (AIP) [ICAO]– A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.
(See CHART SUPPLEMENT.)

AERONAUTICAL INFORMATION SERVICES (AIS)– A facility in Silver Spring, MD, established by FAA to operate a central aeronautical information service for the collection, validation, and dissemination of aeronautical data in support of the activities of government, industry, and the aviation community. The information is published in the National Flight Data Digest.
(See NATIONAL FLIGHT DATA DIGEST.)

AFFIRMATIVE– Yes.

AFIS–
(See AUTOMATIC FLIGHT INFORMATION SERVICE – ALASKA FSSs ONLY.)

AFP–
(See AIRSPACE FLOW PROGRAM.)

AHA–
(See AIRCRAFT HAZARD AREA.)

AIM–
(See AERONAUTICAL INFORMATION MANUAL.)

AIP [ICAO]–
(See ICAO term AERONAUTICAL INFORMATION PUBLICATION.)

AIR CARRIER DISTRICT OFFICE– An FAA field office serving an assigned geographical area, staffed with Flight Standards personnel serving the aviation industry and the general public on matters related to the certification and operation of scheduled air carriers and other large aircraft operations.

AIR DEFENSE EMERGENCY– A military emergency condition declared by a designated authority. This condition exists when an attack upon the continental U.S., Alaska, Canada, or U.S. installations in Greenland by hostile aircraft or missiles is considered probable, is imminent, or is taking place.
(Refer to AIM.)

AIR DEFENSE IDENTIFICATION ZONE (ADIZ)– An area of airspace over land or water in which the ready identification, location, and control of all aircraft (except for Department of Defense and law enforcement aircraft) is required in the interest of national security.
Note: ADIZ locations and operating and flight plan requirements for civil aircraft operations are specified in 14 CFR Part 99.
(Refer to AIM.)

AIR NAVIGATION FACILITY– Any facility used in, available for use in, or designed for use in, aid of air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio-directional finding, or for radio or other electrical communication, and any other structure or mechanism having a similar purpose for guiding or controlling flight in the air or the landing and takeoff of aircraft.
(See NAVIGATIONAL AID.)

AIR ROUTE SURVEILLANCE RADAR– Air route traffic control center (ARTCC) radar used primarily to detect and display an aircraft's position while en route between terminal areas. The ARSR enables controllers to provide radar air traffic control service when aircraft are within the ARSR coverage. In some instances, ARSR may enable an ARTCC to provide terminal radar services similar to but usually more limited than those provided by a radar approach control.

AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC)– A facility established to provide 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.

(See EN ROUTE AIR TRAFFIC CONTROL SERVICES.)

(Refer to AIM.)

AIR TAXI– Used to describe a helicopter/VTOL aircraft movement conducted above the surface but normally not above 100 feet AGL. The aircraft may proceed either via hover taxi or flight at speeds more than 20 knots. The pilot is solely responsible for selecting a safe airspeed/altitude for the operation being conducted.

(See HOVER TAXI.)

(Refer to AIM.)

AIR TRAFFIC– Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

(See ICAO term AIR TRAFFIC.)

AIR TRAFFIC [ICAO]– All aircraft in flight or operating on the maneuvering area of an aerodrome.

AIR TRAFFIC CLEARANCE– An authorization by air traffic control for the purpose of preventing collision between known aircraft, for an aircraft to proceed under specified traffic conditions within controlled airspace. The pilot-in-command of an aircraft may not deviate from the provisions of a visual flight rules (VFR) or instrument flight rules (IFR) air traffic clearance except in an emergency or unless an amended clearance has been obtained. Additionally, the pilot may request a different clearance from that which has been issued by air traffic control (ATC) if information available to the pilot makes another course of action more practicable or if aircraft equipment limitations or company procedures forbid compliance with the clearance issued. Pilots may also request clarification or amendment, as appropriate, any time a clearance is not fully understood, or considered unacceptable because of safety of flight. Controllers should, in such instances and to the extent of operational practicality and safety, honor the pilot's request. 14 CFR Part 91.3(a) states: "The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft." THE PILOT IS RESPONSIBLE TO REQUEST AN AMENDED CLEARANCE if ATC issues a clearance that would cause a pilot to deviate from a rule or regulation, or in the pilot's opinion, would place the aircraft in jeopardy.

(See ATC INSTRUCTIONS.)

(See ICAO term AIR TRAFFIC CONTROL CLEARANCE.)

AIR TRAFFIC CONTROL– A service operated by appropriate authority to promote the safe, orderly and expeditious flow of air traffic.

(See ICAO term AIR TRAFFIC CONTROL SERVICE.)

AIR TRAFFIC CONTROL CLEARANCE [ICAO]– Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

Note 1: For convenience, the term air traffic control clearance is frequently abbreviated to clearance when used in appropriate contexts.

Note 2: The abbreviated term clearance may be prefixed by the words taxi, takeoff, departure, en route, approach or landing to indicate the particular portion of flight to which the air traffic control clearance relates.

AIR TRAFFIC CONTROL SERVICE–

(See AIR TRAFFIC CONTROL.)

AIR TRAFFIC CONTROL SERVICE [ICAO]– A service provided for the purpose of:

a. Preventing collisions:

1. Between aircraft; and

2. On the maneuvering area between aircraft and obstructions.

b. Expediting and maintaining an orderly flow of air traffic.

AIR TRAFFIC CONTROL SPECIALIST– A person authorized to provide air traffic control service.

(See AIR TRAFFIC CONTROL.)

(See FLIGHT SERVICE STATION.)

(See ICAO term CONTROLLER.)

AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER (ATCSCC)– An Air Traffic Tactical Operations facility responsible for monitoring and managing the flow of air traffic throughout the NAS, producing a safe, orderly, and expeditious flow of traffic while minimizing delays. The following functions are located at the ATCSCC:

a. Central Altitude Reservation Function (CARF). Responsible for coordinating, planning, and approving special user requirements under the Altitude Reservation (ALTRV) concept.

(See ALTITUDE RESERVATION.)

b. Airport Reservation Office (ARO). Monitors the operation and allocation of reservations for unscheduled operations at airports designated by the Administrator as High Density Airports. These airports are generally known as slot controlled airports. The ARO allocates reservations on a first come, first served basis determined by the time the request is received at the ARO.

(Refer to 14 CFR Part 93.)

(See CHART SUPPLEMENT.)

c. U.S. Notice to Air Missions (NOTAM) Office. Responsible for collecting, maintaining, and distributing NOTAMs for the U.S. civilian and military, as well as international aviation communities.

(See NOTICE TO AIR MISSIONS.)

d. Weather Unit. Monitor all aspects of weather for the U.S. that might affect aviation including cloud cover, visibility, winds, precipitation, thunderstorms, icing, turbulence, and more. Provide forecasts based on observations and on discussions with meteorologists from various National Weather Service offices, FAA facilities, airlines, and private weather services.

e. Air Traffic Organization (ATO) Space Operations and Unmanned Aircraft System (UAS); the Office of Primary Responsibility (OPR) for all space and upper class E tactical operations in the National Airspace System (NAS).

AIR TRAFFIC SERVICE– A generic term meaning:

a. Flight Information Service.

b. Alerting Service.

c. Air Traffic Advisory Service.

d. Air Traffic Control Service:

1. Area Control Service,

2. Approach Control Service, or

3. Airport Control Service.

AIR TRAFFIC ORGANIZATION (ATO) – The FAA line of business responsible for providing safe and efficient air navigation services in the national airspace system.

AIR TRAFFIC SERVICE (ATS) ROUTES – The term “ATS Route” is a generic term that includes “VOR Federal airways,” “colored Federal airways,” “jet routes,” and “RNAV routes.” The term “ATS route” does not replace these more familiar route names, but serves only as an overall title when listing the types of routes that comprise the United States route structure.

AIRBORNE– An aircraft is considered airborne when all parts of the aircraft are off the ground.

AIRBORNE DELAY– Amount of delay to be encountered in airborne holding.

AIRBORNE REROUTE (ABRR)– A capability within the Traffic Flow Management System used for the timely development and implementation of tactical reroutes for airborne aircraft. This capability defines a set of aircraft–specific reroutes that address a certain traffic flow problem and then electronically transmits them to En Route Automation Modernization (ERAM) for execution by the appropriate sector controllers.

AIRCRAFT– Device(s) that are used or intended to be used for flight in the air, and when used in air traffic control terminology, may include the flight crew.

(See ICAO term AIRCRAFT.)

AIRCRAFT [ICAO]– Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

AIRCRAFT APPROACH CATEGORY– A grouping of aircraft based on a speed of 1.3 times the stall speed in the landing configuration at maximum gross landing weight. An aircraft must fit in only one category. If it is necessary to maneuver at speeds in excess of the upper limit of a speed range for a category, the minimums for the category for that speed must be used. For example, an aircraft which falls in Category A, but is circling to land at a speed in excess of 91 knots, must use the approach Category B minimums when circling to land. The categories are as follows:

a. Category A– Speed less than 91 knots.

b. Category B– Speed 91 knots or more but less than 121 knots.

c. Category C– Speed 121 knots or more but less than 141 knots.

d. Category D– Speed 141 knots or more but less than 166 knots.

e. Category E– Speed 166 knots or more.

(Refer to 14 CFR Part 97.)

AIRCRAFT CLASSES– For the purposes of Wake Turbulence Separation Minima, ATC classifies aircraft as Super, Heavy, Large, and Small as follows:

a. Super. The Airbus A-380-800 (A388) and the Antonov An-225 (A225) are classified as super.

b. Heavy– Aircraft capable of takeoff weights of 300,000 pounds or more whether or not they are operating at this weight during a particular phase of flight.

c. Large– Aircraft of more than 41,000 pounds, maximum certificated takeoff weight, up to but not including 300,000 pounds.

d. Small– Aircraft of 41,000 pounds or less maximum certificated takeoff weight.

(Refer to AIM.)

AIRCRAFT CONFLICT– Predicted conflict, within EDST of two aircraft, or between aircraft and airspace. A Red alert is used for conflicts when the predicted minimum separation is 5 nautical miles or less. A Yellow alert is used when the predicted minimum separation is between 5 and approximately 12 nautical miles. A Blue alert is used for conflicts between an aircraft and predefined airspace.

(See EN ROUTE DECISION SUPPORT TOOL.)

AIRCRAFT LIST (ACL)– A view available with EDST that lists aircraft currently in or predicted to be in a particular sector's airspace. The view contains textual flight data information in line format and may be sorted into various orders based on the specific needs of the sector team.

(See EN ROUTE DECISION SUPPORT TOOL.)

AIRCRAFT SURGE LAUNCH AND RECOVERY– Procedures used at USAF bases to provide increased launch and recovery rates in instrument flight rules conditions. ASLAR is based on:

a. Reduced separation between aircraft which is based on time or distance. Standard arrival separation applies between participants including multiple flights until the DRAG point. The DRAG point is a published location on an ASLAR approach where aircraft landing second in a formation slows to a predetermined airspeed. The DRAG point is the reference point at which MARSA applies as expanding elements effect separation within a flight or between subsequent participating flights.

b. ASLAR procedures shall be covered in a Letter of Agreement between the responsible USAF military ATC facility and the concerned Federal Aviation Administration facility. Initial Approach Fix spacing requirements are normally addressed as a minimum.

AIRCRAFT HAZARD AREA (AHA)– Used by ATC to segregate air traffic from a launch vehicle, reentry vehicle, amateur rocket, jettisoned stages, hardware, or falling debris generated by failures associated with any

of these activities. An AHA is designated via NOTAM as either a TFR or stationary ALTRV. Unless otherwise specified, the vertical limits of an AHA are from the surface to unlimited.

(See CONTINGENCY HAZARD AREA.)
(See REFINED HAZARD AREA.)
(See TRANSITIONAL HAZARD AREA.)

AIRCRAFT WAKE TURBULENCE CATEGORIES– For the purpose of Wake Turbulence Recategorization (RECAT) Separation Minima, ATC groups aircraft into categories ranging from Category A through Category I, dependent upon the version of RECAT that is applied. Specific category assignments vary and are listed in the RECAT Orders.

AIRMEN'S METEOROLOGICAL INFORMATION (AIRMET)– A concise description of an occurrence or expected occurrence of specified en route weather phenomena that may affect the safety of aircraft operations, but at intensities lower than those that require the issuance of a SIGMET. An AIRMET may be issued when any of the following weather phenomena are occurring or expected to occur:

a. Moderate turbulence

b. Low–level windshear

c. Strong surface winds greater than 30 knots

d. Moderate icing

e. Freezing level

f. Mountain obscuration

g. IFR

(See CONVECTIVE SIGMET.)
(See CWA.)
(See GRAPHICAL AIRMEN'S METEOROLOGICAL INFORMATION.)
(See SAW.)
(See SIGMET.)
(Refer to AIM.)

AIRPORT– An area on land or water that is used or intended to be used for the landing and takeoff of aircraft and includes its buildings and facilities, if any.

AIRPORT ADVISORY AREA– The area within ten miles of an airport without a control tower or where the tower is not in operation, and on which a Flight Service Station is located.

(See LOCAL AIRPORT ADVISORY.)
(Refer to AIM.)

AIRPORT ARRIVAL RATE (AAR)– A dynamic input parameter specifying the number of arriving aircraft which an airport or airspace can accept from the ARTCC per hour. The AAR is used to calculate the desired interval between successive arrival aircraft.

AIRPORT DEPARTURE RATE (ADR)– A dynamic parameter specifying the number of aircraft which can depart an airport and the airspace can accept per hour.

AIRPORT ELEVATION– The highest point of an airport's usable runways measured in feet from mean sea level.

(See TOUCHDOWN ZONE ELEVATION.)
(See ICAO term AERODROME ELEVATION.)

AIRPORT LIGHTING– Various lighting aids that may be installed on an airport. Types of airport lighting include:

a. Approach Light System (ALS)– An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended centerline of the runway on his/her final approach for landing. Condenser-Discharge Sequential Flashing Lights/Sequenced Flashing Lights may be installed in conjunction with the ALS at some airports. Types of Approach Light Systems are:

1. ALSF-1– Approach Light System with Sequenced Flashing Lights in ILS Cat-I configuration.

2. ALSF-2– Approach Light System with Sequenced Flashing Lights in ILS Cat-II configuration. The ALSF-2 may operate as an SSALR when weather conditions permit.

3. SSALF– Simplified Short Approach Light System with Sequenced Flashing Lights.

4. SSALR– Simplified Short Approach Light System with Runway Alignment Indicator Lights.

5. MALSF– Medium Intensity Approach Light System with Sequenced Flashing Lights.

6. MALSR– Medium Intensity Approach Light System with Runway Alignment Indicator Lights.

7. RLLS– Runway Lead-in Light System Consists of one or more series of flashing lights installed at or near ground level that provides positive visual guidance along an approach path, either curving or straight, where special problems exist with hazardous terrain, obstructions, or noise abatement procedures.

8. RAIL– Runway Alignment Indicator Lights– Sequenced Flashing Lights which are installed only in combination with other light systems.

9. ODALS– Omnidirectional Approach Lighting System consists of seven omnidirectional flashing lights located in the approach area of a nonprecision runway. Five lights are located on the runway centerline extended with the first light located 300 feet from the threshold and extending at equal intervals up to 1,500 feet from the threshold. The other two lights are located, one on each side of the runway threshold, at a lateral distance of 40 feet from the runway edge, or 75 feet from the runway edge when installed on a runway equipped with a VASI.

(Refer to FAA Order JO 6850.2, Visual Guidance Lighting Systems.)

b. Runway Lights/Runway Edge Lights– Lights having a prescribed angle of emission used to define the lateral limits of a runway. Runway lights are uniformly spaced at intervals of approximately 200 feet, and the intensity may be controlled or preset.

c. Touchdown Zone Lighting– Two rows of transverse light bars located symmetrically about the runway centerline normally at 100 foot intervals. The basic system extends 3,000 feet along the runway.

d. Runway Centerline Lighting– Flush centerline lights spaced at 50-foot intervals beginning 75 feet from the landing threshold and extending to within 75 feet of the opposite end of the runway.

e. Threshold Lights– Fixed green lights arranged symmetrically left and right of the runway centerline, identifying the runway threshold.

f. Runway End Identifier Lights (REIL)– Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.

g. Visual Approach Slope Indicator (VASI)– An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he/she is “on path” if he/she sees red/white, “above path” if white/white, and “below path” if red/red. Some airports serving large aircraft have three-bar VASIs which provide two visual glide paths to the same runway.

h. Precision Approach Path Indicator (PAPI)– An airport lighting facility, similar to VASI, providing vertical approach slope guidance to aircraft during approach to landing. PAPIs consist of a single row of either two or four lights, normally installed on the left side of the runway, and have an effective visual range of about 5 miles during the day and up to 20 miles at night. PAPIs radiate a directional pattern of high intensity red and white focused light beams which indicate that the pilot is “on path” if the pilot sees an equal number of white lights and red lights, with white to the left of the red; “above path” if the pilot sees more white than red lights; and “below path” if the pilot sees more red than white lights.

i. Boundary Lights– Lights defining the perimeter of an airport or landing area.

(Refer to AIM.)

AIRPORT MARKING AIDS– Markings used on runway and taxiway surfaces to identify a specific runway, a runway threshold, a centerline, a hold line, etc. A runway should be marked in accordance with its present usage such as:

a. Visual.

b. Nonprecision instrument.

c. Precision instrument.

(Refer to AIM.)

AIRPORT REFERENCE POINT (ARP)– The approximate geometric center of all usable runway surfaces.

AIRPORT RESERVATION OFFICE– Office responsible for monitoring the operation of slot controlled airports. It receives and processes requests for unscheduled operations at slot controlled airports.

AIRPORT ROTATING BEACON– A visual NAVAID operated at many airports. At civil airports, alternating white and green flashes indicate the location of the airport. At military airports, the beacons flash alternately white and green, but are differentiated from civil beacons by dualpeaked (two quick) white flashes between the green flashes.

(See INSTRUMENT FLIGHT RULES.)

(See SPECIAL VFR OPERATIONS.)

(See ICAO term AERODROME BEACON.)

(Refer to AIM.)

AIRPORT SURFACE DETECTION EQUIPMENT (ASDE)– Surveillance equipment specifically designed to detect aircraft, vehicular traffic, and other objects, on the surface of an airport, and to present the image on a tower display. Used to augment visual observation by tower personnel of aircraft and/or vehicular movements on runways and taxiways. There are three ASDE systems deployed in the NAS:

a. ASDE–3– a Surface Movement Radar.

b. ASDE–X– a system that uses an X–band Surface Movement Radar, multilateration, and ADS–B.

c. Airport Surface Surveillance Capability (ASSC)– A system that uses Surface Movement Radar, multilateration, and ADS–B.

AIRPORT SURVEILLANCE RADAR– Approach control radar used to detect and display an aircraft's position in the terminal area. ASR provides range and azimuth information but does not provide elevation data. Coverage of the ASR can extend up to 60 miles.

AIRPORT TAXI CHARTS–

(See AERONAUTICAL CHART.)

AIRPORT TRAFFIC CONTROL SERVICE– A service provided by a control tower for aircraft operating on the movement area and in the vicinity of an airport.

(See MOVEMENT AREA.)

(See TOWER.)

(See ICAO term AERODROME CONTROL SERVICE.)

AIRPORT TRAFFIC CONTROL TOWER–

(See TOWER.)

AIRSPACE CONFLICT– Predicted conflict of an aircraft and active Special Activity Airspace (SAA).

AIRSPACE FLOW PROGRAM (AFP)– AFP is a Traffic Management (TM) process administered by the Air Traffic Control System Command Center (ATCSCC) where aircraft are assigned an Expect Departure Clearance Time (EDCT) in order to manage capacity and demand for a specific area of the National Airspace System (NAS). The purpose of the program is to mitigate the effects of en route constraints. It is a flexible program and may be implemented in various forms depending upon the needs of the air traffic system.

AIRSPACE HIERARCHY– Within the airspace classes, there is a hierarchy and, in the event of an overlap of airspace: Class A preempts Class B, Class B preempts Class C, Class C preempts Class D, Class D preempts Class E, and Class E preempts Class G.

AIRSPEED– The speed of an aircraft relative to its surrounding air mass. The unqualified term "airspeed" means one of the following:

a. Indicated Airspeed– The speed shown on the aircraft airspeed indicator. This is the speed used in pilot/controller communications under the general term “airspeed.”
(Refer to 14 CFR Part 1.)

b. True Airspeed– The airspeed of an aircraft relative to undisturbed air. Used primarily in flight planning and en route portion of flight. When used in pilot/controller communications, it is referred to as “true airspeed” and not shortened to “airspeed.”

AIRSPACE RESERVATION– The term used in oceanic ATC for airspace utilization under prescribed conditions normally employed for the mass movement of aircraft or other special user requirements which cannot otherwise be accomplished. Airspace reservations must be classified as either “moving” or “stationary.”
(See MOVING AIRSPACE RESERVATION)
(See STATIONARY AIRSPACE RESERVATION.)
(See ALTITUDE RESERVATION.)

AIRSTART– The starting of an aircraft engine while the aircraft is airborne, preceded by engine shutdown during training flights or by actual engine failure.

AIRWAY– A Class E airspace area established in the form of a corridor, the centerline of which is defined by radio navigational aids.
(See FEDERAL AIRWAYS.)
(See ICAO term AIRWAY.)
(Refer to 14 CFR Part 71.)
(Refer to AIM.)

AIRWAY [ICAO]– A control area or portion thereof established in the form of corridor equipped with radio navigational aids.

AIRWAY BEACON– Used to mark airway segments in remote mountain areas. The light flashes Morse Code to identify the beacon site.
(Refer to AIM.)

AIS–
(See AERONAUTICAL INFORMATION SERVICES.)

AIT–
(See AUTOMATED INFORMATION TRANSFER.)

ALERFA (Alert Phase) [ICAO]– A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

ALERT– A notification to a position that there is an aircraft-to-aircraft or aircraft-to-airspace conflict, as detected by Automated Problem Detection (APD).

ALERT AREA–
(See SPECIAL USE AIRSPACE.)

ALERT NOTICE (ALNOT)– A request originated by a flight service station (FSS) or an air route traffic control center (ARTCC) for an extensive communication search for overdue, unreported, or missing aircraft.

ALERTING SERVICE– A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and assist such organizations as required.

ALNOT–
(See ALERT NOTICE.)

ALONG–TRACK DISTANCE (ATD)– The horizontal distance between the aircraft’s current position and a fix measured by an area navigation system that is not subject to slant range errors.

ALPHANUMERIC DISPLAY– Letters and numerals used to show identification, altitude, beacon code, and other information concerning a target on a radar display.

ALTERNATE AERODROME [ICAO]– An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing.

Note: The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for the flight.

ALTERNATE AIRPORT– An airport at which an aircraft may land if a landing at the intended airport becomes inadvisable.

(See ICAO term ALTERNATE AERODROME.)

ALTIMETER SETTING– The barometric pressure reading used to adjust a pressure altimeter for variations in existing atmospheric pressure or to the standard altimeter setting (29.92).

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

ALTITUDE– The height of a level, point, or object measured in feet Above Ground Level (AGL) or from Mean Sea Level (MSL).

(See FLIGHT LEVEL.)

a. MSL Altitude– Altitude expressed in feet measured from mean sea level.

b. AGL Altitude– Altitude expressed in feet measured above ground level.

c. Indicated Altitude– The altitude as shown by an altimeter. On a pressure or barometric altimeter it is altitude as shown uncorrected for instrument error and uncompensated for variation from standard atmospheric conditions.

(See ICAO term ALTITUDE.)

ALTITUDE [ICAO]– The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

ALTITUDE READOUT– An aircraft's altitude, transmitted via the Mode C transponder feature, that is visually displayed in 100-foot increments on a radar scope having readout capability.

(See ALPHANUMERIC DISPLAY.)

(Refer to AIM.)

ALTITUDE RESERVATION (ALTRV)– Airspace utilization under prescribed conditions normally employed for the mass movement of aircraft or other special user requirements which cannot otherwise be accomplished. ALTRVs are approved by the appropriate FAA facility. ALTRVs must be classified as either "moving" or "stationary."

(See MOVING ALTITUDE RESERVATION.)

(See STATIONARY ALTITUDE RESERVATION.)

(See AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER.)

ALTITUDE RESTRICTION– An altitude or altitudes, stated in the order flown, which are to be maintained until reaching a specific point or time. Altitude restrictions may be issued by ATC due to traffic, terrain, or other airspace considerations.

ALTITUDE RESTRICTIONS ARE CANCELED– Adherence to previously imposed altitude restrictions is no longer required during a climb or descent.

ALTRV–

(See ALTITUDE RESERVATION.)

AMVER–

(See AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM.)

APB–

(See AUTOMATED PROBLEM DETECTION BOUNDARY.)

APD–

(See AUTOMATED PROBLEM DETECTION.)

APDIA–
(See AUTOMATED PROBLEM DETECTION INHIBITED AREA.)

APPROACH CLEARANCE– Authorization by ATC for a pilot to conduct an instrument approach. The type of instrument approach for which a clearance and other pertinent information is provided in the approach clearance when required.
(See CLEARED APPROACH.)
(See INSTRUMENT APPROACH PROCEDURE.)
(Refer to AIM.)
(Refer to 14 CFR Part 91.)

APPROACH CONTROL FACILITY– A terminal ATC facility that provides approach control service in a terminal area.
(See APPROACH CONTROL SERVICE.)
(See RADAR APPROACH CONTROL FACILITY.)

APPROACH CONTROL SERVICE– Air traffic control service provided by an approach control facility for arriving and departing VFR/IFR aircraft and, on occasion, en route aircraft. At some airports not served by an approach control facility, the ARTCC provides limited approach control service.
(See ICAO term APPROACH CONTROL SERVICE.)
(Refer to AIM.)

APPROACH CONTROL SERVICE [ICAO]– Air traffic control service for arriving or departing controlled flights.

APPROACH GATE– An imaginary point used within ATC as a basis for vectoring aircraft to the final approach course. The gate will be established along the final approach course 1 mile from the final approach fix on the side away from the airport and will be no closer than 5 miles from the landing threshold.

APPROACH/DEPARTURE HOLD AREA– The locations on taxiways in the approach or departure areas of a runway designated to protect landing or departing aircraft. These locations are identified by signs and markings.

APPROACH LIGHT SYSTEM–
(See AIRPORT LIGHTING.)

APPROACH SEQUENCE– The order in which aircraft are positioned while on approach or awaiting approach clearance.
(See LANDING SEQUENCE.)
(See ICAO term APPROACH SEQUENCE.)

APPROACH SEQUENCE [ICAO]– The order in which two or more aircraft are cleared to approach to land at the aerodrome.

APPROACH SPEED– The recommended speed contained in aircraft manuals used by pilots when making an approach to landing. This speed will vary for different segments of an approach as well as for aircraft weight and configuration.

APPROACH WITH VERTICAL GUIDANCE (APV)– A term used to describe RNAV approach procedures that provide lateral and vertical guidance but do not meet the requirements to be considered a precision approach.

APPROPRIATE ATS AUTHORITY [ICAO]– The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned. In the United States, the “appropriate ATS authority” is the Program Director for Air Traffic Planning and Procedures, ATP-1.

APPROPRIATE AUTHORITY–

a. Regarding flight over the high seas: the relevant authority is the State of Registry.

b. Regarding flight over other than the high seas: the relevant authority is the State having sovereignty over the territory being overflown.

APPROPRIATE OBSTACLE CLEARANCE MINIMUM ALTITUDE– Any of the following:
(See MINIMUM EN ROUTE IFR ALTITUDE.)
(See MINIMUM IFR ALTITUDE.)
(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)
(See MINIMUM VECTORING ALTITUDE.)

APPROPRIATE TERRAIN CLEARANCE MINIMUM ALTITUDE– Any of the following:
(See MINIMUM EN ROUTE IFR ALTITUDE.)
(See MINIMUM IFR ALTITUDE.)
(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)
(See MINIMUM VECTORING ALTITUDE.)

APRON– A defined area on an airport or heliport intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance. With regard to seaplanes, a ramp is used for access to the apron from the water.
(See ICAO term APRON.)

APRON [ICAO]– A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, refueling, parking or maintenance.

ARC– The track over the ground of an aircraft flying at a constant distance from a navigational aid by reference to distance measuring equipment (DME).

AREA CONTROL CENTER [ICAO]– An air traffic control facility primarily responsible for ATC services being provided IFR aircraft during the en route phase of flight. The U.S. equivalent facility is an air route traffic control center (ARTCC).

AREA NAVIGATION (RNAV)– A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground– or space–based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.
Note: Area navigation includes performance–based navigation as well as other operations that do not meet the definition of performance–based navigation.

AREA NAVIGATION (RNAV) APPROACH CONFIGURATION:

a. STANDARD T– An RNAV approach whose design allows direct flight to any one of three initial approach fixes (IAF) and eliminates the need for procedure turns. The standard design is to align the procedure on the extended centerline with the missed approach point (MAP) at the runway threshold, the final approach fix (FAF), and the initial approach/intermediate fix (IAF/IF). The other two IAFs will be established perpendicular to the IF.

b. MODIFIED T– An RNAV approach design for single or multiple runways where terrain or operational constraints do not allow for the standard T. The "T" may be modified by increasing or decreasing the angle from the corner IAF(s) to the IF or by eliminating one or both corner IAFs.

c. STANDARD I– An RNAV approach design for a single runway with both corner IAFs eliminated. Course reversal or radar vectoring may be required at busy terminals with multiple runways.

d. TERMINAL ARRIVAL AREA (TAA)– The TAA is controlled airspace established in conjunction with the Standard or Modified T and I RNAV approach configurations. In the standard TAA, there are three areas: straight-in, left base, and right base. The arc boundaries of the three areas of the TAA are published portions of the approach and allow aircraft to transition from the en route structure direct to the nearest IAF. TAAs will also eliminate or reduce feeder routes, departure extensions, and procedure turns or course reversal.

1. STRAIGHT-IN AREA– A 30 NM arc centered on the IF bounded by a straight line extending through the IF perpendicular to the intermediate course.

2. LEFT BASE AREA– A 30 NM arc centered on the right corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30 NM from the IAF and is bounded on the other side by a line extending from the IF through the FAF to the arc.

3. RIGHT BASE AREA– A 30 NM arc centered on the left corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30 NM from the IAF and is bounded on the other side by a line extending from the IF through the FAF to the arc.

AREA NAVIGATION (RNAV) GLOBAL POSITIONING SYSTEM (GPS) PRECISION RUNWAY MONITORING (PRM) APPROACH–
A GPS approach, which requires vertical guidance, used in lieu of another type of PRM approach to conduct approaches to parallel runways whose extended centerlines are separated by less than 4,300 feet and at least 3,000 feet, where simultaneous close parallel approaches are permitted. Also used in lieu of an ILS PRM and/or LDA PRM approach to conduct Simultaneous Offset Instrument Approach (SOIA) operations.

ARMY AVIATION FLIGHT INFORMATION BULLETIN– A bulletin that provides air operation data covering Army, National Guard, and Army Reserve aviation activities.

ARO–
(See AIRPORT RESERVATION OFFICE.)

ARRESTING SYSTEM– A safety device consisting of two major components, namely, engaging or catching devices and energy absorption devices for the purpose of arresting both tailhook and/or nontailhook-equipped aircraft. It is used to prevent aircraft from overrunning runways when the aircraft cannot be stopped after landing or during aborted takeoff. Arresting systems have various names; e.g., arresting gear, hook device, wire barrier cable.
(See ABORT.)
(Refer to AIM.)

ARRIVAL CENTER– The ARTCC having jurisdiction for the impacted airport.

ARRIVAL DELAY– A parameter which specifies a period of time in which no aircraft will be metered for arrival at the specified airport.

ARRIVAL/DEPARTURE WINDOW (ADW)– A depiction presented on an air traffic control display, used by the controller to prevent possible conflicts between arrivals to, and departures from, a runway. The ADW identifies that point on the final approach course by which a departing aircraft must have begun takeoff.

ARRIVAL SECTOR (En Route)– An operational control sector containing one or more meter fixes on or near the TRACON boundary.

ARRIVAL TIME– The time an aircraft touches down on arrival.

ARSR–
(See AIR ROUTE SURVEILLANCE RADAR.)

ARTCC–
(See AIR ROUTE TRAFFIC CONTROL CENTER.)

ASDA–
(See ACCELERATE-STOP DISTANCE AVAILABLE.)

ASDA [ICAO]–
(See ICAO Term ACCELERATE-STOP DISTANCE AVAILABLE.)

ASDE–
(See AIRPORT SURFACE DETECTION EQUIPMENT.)

ASLAR–
(See AIRCRAFT SURGE LAUNCH AND RECOVERY.)

ASR–
(See AIRPORT SURVEILLANCE RADAR.)

ASR APPROACH–
(See SURVEILLANCE APPROACH.)

ASSOCIATED– A radar target displaying a data block with flight identification and altitude information.
(See UNASSOCIATED.)

ATC–
(See AIR TRAFFIC CONTROL.)

ATC ADVISES– Used to prefix a message of noncontrol information when it is relayed to an aircraft by other than an air traffic controller.
(See ADVISORY.)

ATC ASSIGNED AIRSPACE– Airspace of defined vertical/lateral limits, assigned by ATC, for the purpose of providing air traffic segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic.
(See SPECIAL USE AIRSPACE.)

ATC CLEARANCE–
(See AIR TRAFFIC CLEARANCE.)

ATC CLEARS– Used to prefix an ATC clearance when it is relayed to an aircraft by other than an air traffic controller.

ATC INSTRUCTIONS– Directives issued by air traffic control for the purpose of requiring a pilot to take specific actions; e.g., "Turn left heading two five zero," "Go around," "Clear the runway."
(Refer to 14 CFR Part 91.)

ATC PREFERRED ROUTE NOTIFICATION– EDST notification to the appropriate controller of the need to determine if an ATC preferred route needs to be applied, based on destination airport.
(See ROUTE ACTION NOTIFICATION.)
(See EN ROUTE DECISION SUPPORT TOOL.)

ATC PREFERRED ROUTES– Preferred routes that are not automatically applied by Host.

ATC REQUESTS– Used to prefix an ATC request when it is relayed to an aircraft by other than an air traffic controller.

ATC SECURITY SERVICES– Communications and security tracking provided by an ATC facility in support of the DHS, the DoD, or other Federal security elements in the interest of national security. Such security services are only applicable within designated areas. ATC security services do not include ATC basic radar services or flight following.

ATC SECURITY SERVICES POSITION– The position responsible for providing ATC security services as defined. This position does not provide ATC, IFR separation, or VFR flight following services, but is responsible for providing security services in an area comprising airspace assigned to one or more ATC operating sectors. This position may be combined with control positions.

ATC SECURITY TRACKING– The continuous tracking of aircraft movement by an ATC facility in support of the DHS, the DoD, or other security elements for national security using radar (i.e., radar tracking) or other means (e.g., manual tracking) without providing basic radar services (including traffic advisories) or other ATC services not defined in this section.

ATS SURVEILLANCE SERVICE [ICAO]– A term used to indicate a service provided directly by means of an ATS surveillance system.

ATC SURVEILLANCE SOURCE– Used by ATC for establishing identification, control and separation using a target depicted on an air traffic control facility's video display that has met the relevant safety standards for operational use and received from one, or a combination, of the following surveillance sources:

a. Radar (See RADAR.)

b. ADS-B (See AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST.)

c. WAM (See WIDE AREA MULTILATERATION.)
(See INTERROGATOR.)
(See TRANSPONDER.)
(See ICAO term RADAR.)
(Refer to AIM.)

ATS SURVEILLANCE SYSTEM [ICAO]– A generic term meaning variously, ADS–B, PSR, SSR or any comparable ground–based system that enables the identification of aircraft.

Note: A comparable ground–based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse SSR.

ATCAA–
(See ATC ASSIGNED AIRSPACE.)

ATCRBS–
(See RADAR.)

ATCSCC–
(See AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER.)

ATCT–
(See TOWER.)

ATD–
(See ALONG–TRACK DISTANCE.)

ATIS–
(See AUTOMATIC TERMINAL INFORMATION SERVICE.)

ATIS [ICAO]–
(See ICAO Term AUTOMATIC TERMINAL INFORMATION SERVICE.)

ATO–
(See AIR TRAFFIC ORGANIZATION.)

ATPA–
(See AUTOMATED TERMINAL PROXIMITY ALERT.)

ATS ROUTE [ICAO]– A specified route designed for channeling the flow of traffic as necessary for the provision of air traffic services.

Note: The term “ATS Route” is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure, etc.

ATTENTION ALL USERS PAGE (AAUP)- The AAUP provides the pilot with additional information relative to conducting a specific operation, for example, PRM approaches and RNAV departures.

AUTOLAND APPROACH–An autoland system aids by providing control of aircraft systems during a precision instrument approach to at least decision altitude and possibly all the way to touchdown, as well as in some cases, through the landing rollout. The autoland system is a sub-system of the autopilot system from which control surface management occurs. The aircraft autopilot sends instructions to the autoland system and monitors the autoland system performance and integrity during its execution.

AUTOMATED EMERGENCY DESCENT–
(See EMERGENCY DESCENT MODE.)

AUTOMATED INFORMATION TRANSFER (AIT)– A precoordinated process, specifically defined in facility directives, during which a transfer of altitude control and/or radar identification is accomplished without verbal coordination between controllers using information communicated in a full data block.

AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM– A facility which can deliver, in a matter of minutes, a surface picture (SURPIC) of vessels in the area of a potential or actual search and rescue incident, including their predicted positions and their characteristics.
(See FAA Order JO 7110.65, Para 10–6–4, INFLIGHT CONTINGENCIES.)

AUTOMATED PROBLEM DETECTION (APD)– An Automation Processing capability that compares trajectories in order to predict conflicts.

AUTOMATED PROBLEM DETECTION BOUNDARY (APB)– The adapted distance beyond a facilities boundary defining the airspace within which EDST performs conflict detection.

(See EN ROUTE DECISION SUPPORT TOOL.)

AUTOMATED PROBLEM DETECTION INHIBITED AREA (APDIA)– Airspace surrounding a terminal area within which APD is inhibited for all flights within that airspace.

AUTOMATED SERVICES–Services delivered via an automated system (that is, without human interaction). For example, flight plans, Notices to Air Missions (NOTAM), interactive maps, computer–generated text–to–speech messages, short message service, or email.

AUTOMATED TERMINAL PROXIMITY ALERT (ATPA)– Monitors the separation of aircraft on the Final Approach Course (FAC), displaying a graphical notification (cone and/or mileage) when a potential loss of separation is detected. The warning cone (Yellow) will display at 45 seconds and the alert cone (Red) will display at 24 seconds prior to predicted loss of separation. Current distance between two aircraft on final will be displayed in line 3 of the full data block of the trailing aircraft in corresponding colors.

AUTOMATED WEATHER SYSTEM– Any of the automated weather sensor platforms that collect weather data at airports and disseminate the weather information via radio and/or landline. The systems currently consist of the Automated Surface Observing System (ASOS) and Automated Weather Observation System (AWOS).

AUTOMATED UNICOM– Provides 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 will be published in the Chart Supplement and approach charts.

AUTOMATIC ALTITUDE REPORT–

(See ALTITUDE READOUT.)

AUTOMATIC ALTITUDE REPORTING– That function of a transponder which responds to Mode C interrogations by transmitting the aircraft's altitude in 100-foot increments.

AUTOMATIC CARRIER LANDING SYSTEM– U.S. Navy final approach equipment consisting of precision tracking radar coupled to a computer data link to provide continuous information to the aircraft, monitoring capability to the pilot, and a backup approach system.

AUTOMATIC DEPENDENT SURVEILLANCE (ADS) [ICAO]– A surveillance technique in which aircraft automatically provide, via a data link, data derived from on–board navigation and position fixing systems, including aircraft identification, four dimensional position and additional data as appropriate.

AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST (ADS-B)– A surveillance system in which an aircraft or vehicle to be detected is fitted with cooperative equipment in the form of a data link transmitter. The aircraft or vehicle periodically broadcasts its GNSS–derived position and other required information such as identity and velocity, which is then received by a ground–based or space–based receiver for processing and display at an air traffic control facility, as well as by suitably equipped aircraft.

(See AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST IN.)

(See AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST OUT.)

(See COOPERATIVE SURVEILLANCE.)

(See GLOBAL POSITIONING SYSTEM.)

(See SPACE–BASED ADS–B.)

AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST IN (ADS–B In)– Aircraft avionics capable of receiving ADS–B Out transmissions directly from other aircraft, as well as traffic or weather information transmitted from ground stations.
(See AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST OUT.)
(See AUTOMATIC DEPENDENT SURVEILLANCE–REBROADCAST.)
(See FLIGHT INFORMATION SERVICE–BROADCAST.)
(See TRAFFIC INFORMATION SERVICE–BROADCAST.)

AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST OUT (ADS–B Out)– The transmitter onboard an aircraft or ground vehicle that periodically broadcasts its GNSS–derived position along with other required information, such as identity, altitude, and velocity.
(See AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST.)
(See AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST IN.)

AUTOMATIC DEPENDENT SURVEILLANCE–CONTRACT (ADS–C)– A data link position reporting system, controlled by a ground station, that establishes contracts with an aircraft's avionics that occur automatically whenever specific events occur, or specific time intervals are reached.

AUTOMATIC DEPENDENT SURVEILLANCE- REBROADCAST (ADS-R)– A datalink translation function of the ADS–B ground system required to accommodate the two separate operating frequencies (978 MHz and 1090 MHz). 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.

AUTOMATIC DIRECTION FINDER– An aircraft radio navigation system which senses and indicates the direction to a L/MF nondirectional radio beacon (NDB) ground transmitter. Direction is indicated to the pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft depending on the type of indicator installed in the aircraft. In certain applications, such as military, ADF operations may be based on airborne and ground transmitters in the VHF/UHF frequency spectrum.
(See BEARING.)
(See NONDIRECTIONAL BEACON.)

AUTOMATIC FLIGHT INFORMATION SERVICE (AFIS) – ALASKA FSSs ONLY– The continuous broadcast of recorded non–control information at airports in Alaska where a FSS provides local airport advisory service. The AFIS broadcast automates the repetitive transmission of essential but routine information such as weather, wind, altimeter, favored runway, braking action, airport NOTAMs, and other applicable information. The information is continuously broadcast over a discrete VHF radio frequency (usually the ASOS/AWOS frequency).

AUTOMATIC TERMINAL INFORMATION SERVICE– The continuous broadcast of recorded noncontrol information in selected terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information; e.g., "Los Angeles information Alfa. One three zero zero Coordinated Universal Time. Weather, measured ceiling two thousand overcast, visibility three, haze, smoke, temperature seven one, dew point five seven, wind two five zero at five, altimeter two niner niner six. I-L-S Runway Two Five Left approach in use, Runway Two Five Right closed, advise you have Alfa."
(See ICAO term AUTOMATIC TERMINAL INFORMATION SERVICE.)
(Refer to AIM.)

AUTOMATIC TERMINAL INFORMATION SERVICE [ICAO]– The provision of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts throughout the day or a specified portion of the day.

AUTOROTATION– A rotorcraft flight condition in which the lifting rotor is driven entirely by action of the air when the rotorcraft is in motion.

a. Autorotative Landing/Touchdown Autorotation. Used by a pilot to indicate that the landing will be made without applying power to the rotor.

b. Low Level Autorotation. Commences at an altitude well below the traffic pattern, usually below 100 feet AGL and is used primarily for tactical military training.

c. 180 degrees Autorotation. Initiated from a downwind heading and is commenced well inside the normal traffic pattern. "Go around" may not be possible during the latter part of this maneuver.

AVAILABLE LANDING DISTANCE (ALD)– The portion of a runway available for landing and roll-out for aircraft cleared for LAHSO. This distance is measured from the landing threshold to the hold-short point.

AVIATION WATCH NOTIFICATION MESSAGE– The Storm Prediction Center (SPC) issues Aviation Watch Notification Messages (SAW) to provide an area threat alert for the aviation meteorology community to forecast organized severe thunderstorms that may produce tornadoes, large hail, and/or convective damaging winds as indicated in Public Watch Notification Messages within the Continental U.S. A SAW message provides a description of the type of watch issued by SPC, a valid time, an approximation of the area in a watch, and primary hazard(s).

AVIATION WEATHER SERVICE– A service provided by the National Weather Service (NWS) and FAA which collects and disseminates pertinent weather information for pilots, aircraft operators, and ATC. Available aviation weather reports and forecasts are displayed at each NWS office and FAA FSS.

(See TRANSCRIBED WEATHER BROADCAST.)
(See WEATHER ADVISORY.)
(Refer to AIM.)

without an operating airport traffic control tower, a CTAF may also be designated for the purpose of carrying out advisory practices for operations in and through areas with a high volume of VFR traffic.

DESIRED COURSE–

a. True– A predetermined desired course direction to be followed (measured in degrees from true north).

b. Magnetic– A predetermined desired course direction to be followed (measured in degrees from local magnetic north).

DESIRED TRACK– The planned or intended track between two waypoints. It is measured in degrees from either magnetic or true north. The instantaneous angle may change from point to point along the great circle track between waypoints.

DETRESFA (DISTRESS PHASE) [ICAO]– The code word used to designate an emergency phase wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

DEVIATION–

a. A departure from a current clearance, such as an off course maneuver to avoid weather or turbulence.

b. Where specifically authorized in the CFRs and requested by the pilot, ATC may permit pilots to deviate from certain regulations.

DH–

(See DECISION HEIGHT.)

DH [ICAO]–

(See ICAO Term DECISION ALTITUDE/ DECISION HEIGHT.)

DIGITAL-AUTOMATIC TERMINAL INFORMATION SERVICE (D-ATIS)– The service provides text messages to aircraft, airlines, and other users outside the standard reception range of conventional ATIS via landline and data link communications to the cockpit. Also, the service provides a computer–synthesized voice message that can be transmitted to all aircraft within range of existing transmitters. The Terminal Data Link System (TDLS) D-ATIS application uses weather inputs from local automated weather sources or manually entered meteorological data together with preprogrammed menus to provide standard information to users. Airports with D-ATIS capability are listed in the Chart Supplement U.S.

DIGITAL TARGET– A computer–generated symbol representing an aircraft's position, based on a primary return or radar beacon reply, shown on a digital display.

DIGITAL TERMINAL AUTOMATION SYSTEM (DTAS)– A system where digital radar and beacon data is presented on digital displays and the operational program monitors the system performance on a real–time basis.

DIGITIZED TARGET– A computer–generated indication shown on an analog radar display resulting from a primary radar return or a radar beacon reply.

DIRECT– Straight line flight between two navigational aids, fixes, points, or any combination thereof. When used by pilots in describing off-airway routes, points defining direct route segments become compulsory reporting points unless the aircraft is under radar contact.

DIRECTLY BEHIND– An aircraft is considered to be operating directly behind when it is following the actual flight path of the lead aircraft over the surface of the earth except when applying wake turbulence separation criteria.

DISCRETE BEACON CODE–

(See DISCRETE CODE.)

DISCRETE CODE– As used in the Air Traffic Control Radar Beacon System (ATCRBS), any one of the 4096 selectable Mode 3/A aircraft transponder codes except those ending in zero zero; e.g., discrete codes: 0010, 1201, 2317, 7777; nondiscrete codes: 0100, 1200, 7700. Nondiscrete codes are normally reserved for radar facilities

that are not equipped with discrete decoding capability and for other purposes such as emergencies (7700), VFR aircraft (1200), etc.
(See RADAR.)
(Refer to AIM.)

DISCRETE FREQUENCY– A separate radio frequency for use in direct pilot-controller communications in air traffic control which reduces frequency congestion by controlling the number of aircraft operating on a particular frequency at one time. Discrete frequencies are normally designated for each control sector in en route/terminal ATC facilities. Discrete frequencies are listed in the Chart Supplement U.S. and the DoD FLIP IFR En Route Supplement.
(See CONTROL SECTOR.)

DISPLACED THRESHOLD– A threshold that is located at a point on the runway other than the designated beginning of the runway.
(See THRESHOLD.)
(Refer to AIM.)

DISTANCE MEASURING EQUIPMENT (DME)– Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.
(See TACAN.)
(See VORTAC.)

DISTRESS– A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.

DIVE BRAKES–
(See SPEED BRAKES.)

DIVERSE VECTOR AREA– In a radar environment, that area in which a prescribed departure route is not required as the only suitable route to avoid obstacles. The area in which random radar vectors below the MVA/MIA, established in accordance with the TERPS criteria for diverse departures, obstacles and terrain avoidance, may be issued to departing aircraft.

DIVERSION (DVRSN)– Flights that are required to land at other than their original destination for reasons beyond the control of the pilot/company, e.g. periods of significant weather.

DME–
(See DISTANCE MEASURING EQUIPMENT.)

DME FIX– A geographical position determined by reference to a navigational aid which provides distance and azimuth information. It is defined by a specific distance in nautical miles and a radial, azimuth, or course (i.e., localizer) in degrees magnetic from that aid.
(See DISTANCE MEASURING EQUIPMENT.)
(See FIX.)

DME SEPARATION– Spacing of aircraft in terms of distances (nautical miles) determined by reference to distance measuring equipment (DME).
(See DISTANCE MEASURING EQUIPMENT.)

DoD FLIP– Department of Defense Flight Information Publications used for flight planning, en route, and terminal operations. FLIP is produced by the National Geospatial–Intelligence Agency (NGA) for world-wide use. United States Government Flight Information Publications (en route charts and instrument approach procedure charts) are incorporated in DoD FLIP for use in the National Airspace System (NAS).

DOMESTIC AIRSPACE– Airspace which overlies the continental land mass of the United States plus Hawaii and U.S. possessions. Domestic airspace extends to 12 miles offshore.

DOMESTIC NOTICE– A special notice or notice containing graphics or plain language text pertaining to almost every aspect of aviation, such as military training areas, large scale sporting events, air show information, Special

POINT–TO–POINT (PTP)– A level of NRR service for aircraft that is based on traditional waypoints in their FMSs or RNAV equipage.

POLAR TRACK STRUCTURE– A system of organized routes between Iceland and Alaska which overlie Canadian MNPS Airspace.

POSITION REPORT– A report over a known location as transmitted by an aircraft to ATC.
(Refer to AIM.)

POSITION SYMBOL– A computer-generated indication shown on a radar display to indicate the mode of tracking.

POSITIVE CONTROL– The separation of all air traffic within designated airspace by air traffic control.

PRACTICE INSTRUMENT APPROACH– An instrument approach procedure conducted by a VFR or an IFR aircraft for the purpose of pilot training or proficiency demonstrations.

PRE–DEPARTURE CLEARANCE– An application with the Terminal Data Link System (TDLS) that provides clearance information to subscribers, through a service provider, in text to the cockpit or gate printer.

PRE–DEPARTURE REROUTE (PDRR)– A capability within the Traffic Flow Management System that enables ATC to quickly amend and execute revised departure clearances that mitigate en route constraints or balance en route traffic flows.

PREARRANGED COORDINATION– A standardized procedure which permits an air traffic controller to enter the airspace assigned to another air traffic controller without verbal coordination. The procedures are defined in a facility directive which ensures approved separation between aircraft.

PREARRANGED COORDINATION PROCEDURES– A facility's standardized procedure that describes the process by which one controller shall allow an aircraft to penetrate or transit another controller's airspace in a manner that assures approved separation without individual coordination for each aircraft.

PRECIPITATION– Any or all forms of water particles (rain, sleet, hail, or snow) that fall from the atmosphere and reach the surface.

PRECISION APPROACH–
(See PRECISION APPROACH PROCEDURE.)

PRECISION APPROACH PROCEDURE– A standard instrument approach procedure in which an electronic glideslope or other type of glidepath is provided; e.g., ILS, PAR, and GLS.
(See INSTRUMENT LANDING SYSTEM.)
(See PRECISION APPROACH RADAR.)

PRECISION APPROACH RADAR– Radar equipment in some ATC facilities operated by the FAA and/or the military services at joint-use civil/military locations and separate military installations to detect and display azimuth, elevation, and range of aircraft on the final approach course to a runway. This equipment may be used to monitor certain nonradar approaches, but is primarily used to conduct a precision instrument approach (PAR) wherein the controller issues guidance instructions to the pilot based on the aircraft's position in relation to the final approach course (azimuth), the glidepath (elevation), and the distance (range) from the touchdown point on the runway as displayed on the radar scope.
(See GLIDEPATH.)
(See PAR.)
(See ICAO term PRECISION APPROACH RADAR.)
(Refer to AIM.)

PRECISION APPROACH RADAR [ICAO]– Primary radar equipment used to determine the position of an aircraft during final approach, in terms of lateral and vertical deviations relative to a nominal approach path, and in range relative to touchdown.

PRECISION OBSTACLE FREE ZONE (POFZ)– An 800 foot wide by 200 foot long area centered on the runway centerline adjacent to the threshold designed to protect aircraft flying precision approaches from ground

vehicles and other aircraft when ceiling is less than 250 feet or visibility is less than 3/4 statute mile (or runway visual range below 4,000 feet.)

PRECISION RUNWAY MONITOR (PRM) SYSTEM– Provides air traffic controllers monitoring the NTZ during simultaneous close parallel PRM approaches with precision, high update rate secondary surveillance data. The high update rate surveillance sensor component of the PRM system is only required for specific runway or approach course separation. The high resolution color monitoring display, Final Monitor Aid (FMA) of the PRM system, or other FMA with the same capability, presents NTZ surveillance track data to controllers along with detailed maps depicting approaches and no transgression zone and is required for all simultaneous close parallel PRM NTZ monitoring operations.

(Refer to AIM.)

PREDICTIVE WIND SHEAR ALERT SYSTEM (PWS)– A self–contained system used on board some aircraft to alert the flight crew to the presence of a potential wind shear. PWS systems typically monitor 3 miles ahead and 25 degrees left and right of the aircraft's heading at or below 1200' AGL. Departing flights may receive a wind shear alert after they start the takeoff roll and may elect to abort the takeoff. Aircraft on approach receiving an alert may elect to go around or perform a wind shear escape maneuver.

PREFERRED IFR ROUTES– Routes established between busier airports to increase system efficiency and capacity. They normally extend through one or more ARTCC areas and are designed to achieve balanced traffic flows among high density terminals. IFR clearances are issued on the basis of these routes except when severe weather avoidance procedures or other factors dictate otherwise. Preferred IFR Routes are listed in the Chart Supplement U.S., and are also available at https://www.fly.faa.gov/rmt/nfdc_preferred_routes_database.jsp. If a flight is planned to or from an area having such routes but the departure or arrival point is not listed in the Chart Supplement U.S., pilots may use that part of a Preferred IFR Route which is appropriate for the departure or arrival point that is listed. Preferred IFR Routes may be defined by DPs, SIDs, or STARs; NAVAIDs, Waypoints, etc.; high or low altitude airways; or any combinations thereof. Because they often share elements with adapted routes, pilots' use of preferred IFR routes can minimize flight plan route amendments.

(See ADAPTED ROUTES.)
(See CENTER'S AREA.)
(See INSTRUMENT APPROACH PROCEDURE.)
(See INSTRUMENT DEPARTURE PROCEDURE.)
(See STANDARD TERMINAL ARRIVAL.)
(Refer to CHART SUPPLEMENT U.S.)

PRE-FLIGHT PILOT BRIEFING–

(See PILOT BRIEFING.)

PREVAILING VISIBILITY–

(See VISIBILITY.)

PRIMARY RADAR TARGET– An analog or digital target, exclusive of a secondary radar target, presented on a radar display.

PRM–

(See AREA NAVIGATION (RNAV) GLOBAL POSITIONING SYSTEM (GPS) PRECISION RUNWAY MONITORING (PRM) APPROACH.)
(See PRM APPROACH.)
(See PRECISION RUNWAY MONITOR SYSTEM.)

PRM APPROACH– An instrument approach procedure titled ILS PRM, RNAV PRM, LDA PRM, or GLS PRM conducted to parallel runways separated by less than 4,300 feet and at least 3,000 feet where independent closely spaced approaches are permitted. Use of an enhanced display with alerting, a No Transgression Zone (NTZ), secondary monitor frequency, pilot PRM training, and publication of an Attention All Users Page are required for all PRM approaches. Depending on the runway spacing, the approach courses may be parallel or one approach course must be offset. PRM procedures are also used to conduct Simultaneous Offset Instrument

Approach (SOIA) operations. In SOIA, one straight–in ILS PRM, RNAV PRM, GLS PRM, and one offset LDA PRM, RNAV PRM or GLS PRM approach are utilized. PRM procedures are terminated and a visual segment begins at the offset approach missed approach point where the minimum distance between the approach courses is 3000 feet. Runway spacing can be as close as 750 feet.
(Refer to AIM.)

PROCEDURAL CONTROL [ICAO]– Term used to indicate that information derived from an ATS surveillance system is not required for the provision of air traffic control service.

PROCEDURAL SEPARATION [ICAO]– The separation used when providing procedural control.

PROCEDURE TURN– The maneuver prescribed when it is necessary to reverse direction to establish an aircraft on the intermediate approach segment or final approach course. The outbound course, direction of turn, distance within which the turn must be completed, and minimum altitude are specified in the procedure. However, unless otherwise restricted, the point at which the turn may be commenced and the type and rate of turn are left to the discretion of the pilot.
(See ICAO term PROCEDURE TURN.)

PROCEDURE TURN [ICAO]– A maneuver in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.
Note 1: Procedure turns are designated “left” or “right” according to the direction of the initial turn.
Note 2: Procedure turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual approach procedure.

PROCEDURE TURN INBOUND– That point of a procedure turn maneuver where course reversal has been completed and an aircraft is established inbound on the intermediate approach segment or final approach course. A report of “procedure turn inbound” is normally used by ATC as a position report for separation purposes.
(See FINAL APPROACH COURSE.)
(See PROCEDURE TURN.)
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

PROFILE DESCENT– An uninterrupted descent (except where level flight is required for speed adjustment; e.g., 250 knots at 10,000 feet MSL) from cruising altitude/level to interception of a glideslope or to a minimum altitude specified for the initial or intermediate approach segment of a nonprecision instrument approach. The profile descent normally terminates at the approach gate or where the glideslope or other appropriate minimum altitude is intercepted.

PROGRESS REPORT–
(See POSITION REPORT.)

PROGRESSIVE TAXI– Precise taxi instructions given to a pilot unfamiliar with the airport or issued in stages as the aircraft proceeds along the taxi route.

PROHIBITED AREA–
(See SPECIAL USE AIRSPACE.)
(See ICAO term PROHIBITED AREA.)

PROHIBITED AREA [ICAO]– An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

PROMINENT OBSTACLE– An obstacle that meets one or more of the following conditions:

a. An obstacle which stands out beyond the adjacent surface of surrounding terrain and immediately projects a noticeable hazard to aircraft in flight.

b. An obstacle, not characterized as low and close in, whose height is no less than 300 feet above the departure end of takeoff runway (DER) elevation, is within 10 NM from the DER, and that penetrates that airport/heliport’s diverse departure obstacle clearance surface (OCS).

c. An obstacle beyond 10 NM from an airport/heliport that requires an obstacle departure procedure (ODP) to ensure obstacle avoidance.

(See OBSTACLE.)

(See OBSTRUCTION.)

PROPELLER (PROP) WASH (PROP BLAST)– The disturbed mass of air generated by the motion of a propeller.

PROPOSED BOUNDARY CROSSING TIME– Each center has a PBCT parameter for each internal airport. Proposed internal flight plans are transmitted to the adjacent center if the flight time along the proposed route from the departure airport to the center boundary is less than or equal to the value of PBCT or if airport adaptation specifies transmission regardless of PBCT.

PROPOSED DEPARTURE TIME– The time that the aircraft expects to become airborne.

PROTECTED AIRSPACE– The airspace on either side of an oceanic route/track that is equal to one-half the lateral separation minimum except where reduction of protected airspace has been authorized.

PROTECTED SEGMENT- The protected segment is a segment on the amended TFM route that is to be inhibited from automatic adapted route alteration by ERAM.

PT–

(See PROCEDURE TURN.)

PTP–

(See POINT–TO–POINT.)

PTS–

(See POLAR TRACK STRUCTURE.)

PUBLIC AIRCRAFT OPERATION (PAO)– A UAS operation meeting the qualifications and conditions required for the operation of a public aircraft.

(See AC–1.1)

(See AIM)

PUBLISHED INSTRUMENT APPROACH PROCEDURE VISUAL SEGMENT– A segment on an IAP chart annotated as “Fly Visual to Airport” or “Fly Visual.” A dashed arrow will indicate the visual flight path on the profile and plan view with an associated note on the approximate heading and distance. The visual segment should be flown as a dead reckoning course while maintaining visual conditions.

PUBLISHED ROUTE– A route for which an IFR altitude has been established and published; e.g., Federal Airways, Jet Routes, Area Navigation Routes, Specified Direct Routes.

PWS–

(See PREDICTIVE WIND SHEAR ALERT SYSTEM.)

SIDESTEP MANEUVER– A visual maneuver accomplished by a pilot at the completion of an instrument approach to permit a straight-in landing on a parallel runway not more than 1,200 feet to either side of the runway to which the instrument approach was conducted.
(Refer to AIM.)

SIGMET– A weather advisory issued concerning weather significant to the safety of all aircraft. SIGMET advisories cover severe and extreme turbulence, severe icing, and widespread dust or sandstorms that reduce visibility to less than 3 miles.
(See AIRMET.)
(See CONVECTIVE SIGMET.)
(See CWA.)
(See GRAPHICAL AIRMEN'S METEOROLOGICAL INFORMATION.)
(See ICAO term SIGMET INFORMATION.)
(See SAW.)
(Refer to AIM.)

SIGMET INFORMATION [ICAO]– Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

SIGNIFICANT METEOROLOGICAL INFORMATION–
(See SIGMET.)

SIGNIFICANT POINT– A point, whether a named intersection, a NAVAID, a fix derived from a NAVAID(s), or geographical coordinate expressed in degrees of latitude and longitude, which is established for the purpose of providing separation, as a reporting point, or to delineate a route of flight.

SIMPLIFIED DIRECTIONAL FACILITY (SDF)– A NAVAID used for nonprecision instrument approaches. The final approach course is similar to that of an ILS localizer except that the SDF course may be offset from the runway, generally not more than 3 degrees, and the course may be wider than the localizer, resulting in a lower degree of accuracy.
(Refer to AIM.)

SIMULATED FLAMEOUT– A practice approach by a jet aircraft (normally military) at idle thrust to a runway. The approach may start at a runway (high key) and may continue on a relatively high and wide downwind leg with a continuous turn to final. It terminates in landing or low approach. The purpose of this approach is to simulate a flameout.
(See FLAMEOUT.)

SIMULTANEOUS CLOSE PARALLEL APPROACHES– A simultaneous, independent approach operation permitting ILS/RNAV/GLS approaches to airports having parallel runways separated by at least 3,000 feet and less than 4,300–feet between centerlines. Aircraft are permitted to pass each other during these simultaneous operations. Integral parts of a total system are radar, NTZ monitoring with enhanced FMA color displays that include aural and visual alerts and predictive aircraft position software, communications override, ATC procedures, an Attention All Users Page (AAUP), PRM in the approach name, and appropriate ground based and airborne equipment. High update rate surveillance sensor required for certain runway or approach course separations.

SIMULTANEOUS (CONVERGING) DEPENDENT APPROACHES- An approach operation permitting ILS/RNAV/GLS approaches to runways or missed approach courses that intersect where required minimum spacing between the aircraft on each final approach course is required.

SIMULTANEOUS (CONVERGING) INDEPENDENT APPROACHES- An approach operation permitting ILS/RNAV/GLS approaches to non-parallel runways where approach procedure design maintains the required aircraft spacing throughout the approach and missed approach and hence the operations may be conducted independently.

SIMULTANEOUS ILS APPROACHES– An approach system permitting simultaneous ILS approaches to airports having parallel runways separated by at least 4,300 feet between centerlines. Integral parts of a total system are ILS, radar, communications, ATC procedures, and appropriate airborne equipment.
(See PARALLEL RUNWAYS.)
(Refer to AIM.)

SIMULTANEOUS OFFSET INSTRUMENT APPROACH (SOIA)– An instrument landing system comprised of an ILS PRM, RNAV PRM or GLS PRM approach to one runway and an offset LDA PRM with glideslope or an RNAV PRM or GLS PRM approach utilizing vertical guidance to another where parallel runway spaced less than 3,000 feet and at least 750 feet apart. The approach courses converge by 2.5 to 3 degrees. Simultaneous close parallel PRM approach procedures apply up to the point where the approach course separation becomes 3,000 feet, at the offset MAP. From the offset MAP to the runway threshold, visual separation by the aircraft conducting the offset approach is utilized.
(Refer to AIM)

SIMULTANEOUS (PARALLEL) DEPENDENT APPROACHES- An approach operation permitting ILS/RNAV/GLS approaches to adjacent parallel runways where prescribed diagonal spacing must be maintained. Aircraft are not permitted to pass each other during simultaneous dependent operations. Integral parts of a total system ATC procedures, and appropriate airborne and ground based equipment.

SINGLE DIRECTION ROUTES– Preferred IFR Routes which are sometimes depicted on high altitude en route charts and which are normally flown in one direction only.
(See PREFERRED IFR ROUTES.)
(Refer to CHART SUPPLEMENT U.S.)

SINGLE FREQUENCY APPROACH– A service provided under a letter of agreement to military single-piloted turbojet aircraft which permits use of a single UHF frequency during approach for landing. Pilots will not normally be required to change frequency from the beginning of the approach to touchdown except that pilots conducting an en route descent are required to change frequency when control is transferred from the air route traffic control center to the terminal facility. The abbreviation “SFA” in the DoD FLIP IFR Supplement under “Communications” indicates this service is available at an aerodrome.

SINGLE-PILOTED AIRCRAFT– A military turbojet aircraft possessing one set of flight controls, tandem cockpits, or two sets of flight controls but operated by one pilot is considered single-piloted by ATC when determining the appropriate air traffic service to be applied.
(See SINGLE FREQUENCY APPROACH.)

SKYSPOTTER– A pilot who has received specialized training in observing and reporting inflight weather phenomena.

SLASH– A radar beacon reply displayed as an elongated target.

SLDI–
(See SECTOR LIST DROP INTERVAL.)

SLOW TAXI– To taxi a float plane at low power or low RPM.

SMALL UNMANNED AIRCRAFT SYSTEM (sUAS)– An unmanned aircraft weighing less than 55 pounds on takeoff, including everything that is on board or otherwise attached to the aircraft.

SMAR–
(See SPECIAL MILITARY ACTIVITY ROUTE.)

SN–
(See SYSTEM STRATEGIC NAVIGATION.)

SPACE–BASED ADS–B (SBA)– A constellation of satellites that receives ADS–B Out broadcasts and relays that information to the appropriate surveillance facility. The currently deployed SBA system is only capable of

receiving broadcasts from 1090ES–equipped aircraft, and not from those equipped with only a universal access transceiver (UAT). Also, aircraft with a top–of–fuselage–mounted transponder antenna (required for TCAS II installations) will be better received by SBA, especially at latitudes below 45 degrees.

(See AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST.)

(See AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST OUT.)

SPACE LAUNCH AND REENTRY AREA– Locations where commercial space launch and/or reentry operations occur. For pilot awareness, a rocket–shaped symbol is used to depict space launch and reentry areas on sectional aeronautical charts.

SPEAK SLOWER– Used in verbal communications as a request to reduce speech rate.

SPECIAL ACTIVITY AIRSPACE (SAA)– Airspace with defined dimensions within the National Airspace System wherein limitations may be imposed upon operations for national defense, homeland security, public interest, or public safety. Special activity airspace includes but is not limited to the following; Air Traffic Control Assigned Airspace (ATCAA), Altitude Reservations (ALTRV), Military Training Routes (MTR), Air Refueling Tracks and Anchors, Temporary Flight Restrictions (TFR), Special Security Instructions (SSI), etc. Special Use Airspace (SUA) is a subset of Special Activity Airspace.

(See SPECIAL USE AIRSPACE.)

SPECIAL AIR TRAFFIC RULES (SATR)– Rules that govern procedures for conducting flights in certain areas listed in 14 CFR Part 93. The term "SATR" is used in the United States to describe the rules for operations in specific areas designated in the Code of Federal Regulations.

(Refer to 14 CFR Part 93.)

SPECIAL EMERGENCY– A condition of air piracy or other hostile act by a person(s) aboard an aircraft which threatens the safety of the aircraft or its passengers.

SPECIAL FLIGHT RULES AREA (SFRA)– An area in the NAS, described in 14 CFR Part 93, wherein the flight of aircraft is subject to special traffic rules, unless otherwise authorized by air traffic control. Not all areas listed in 14 CFR Part 93 are designated SFRA, but special air traffic rules apply to all areas described in 14 CFR Part 93.

SPECIAL GOVERNMENT INTEREST (SGI)– A near real-time airspace authorization for Part 91 or Part 107 UAS, which supports activities that answer significant and urgent governmental interests. These include: national defense, homeland security, law enforcement, and emergency operations objectives.

SPECIAL INSTRUMENT APPROACH PROCEDURE–

(See INSTRUMENT APPROACH PROCEDURE.)

SPECIAL MILITARY ACTIVITY ROUTE (SMAR)– A route, which may also be charted on the VFR Sectional Chart, that shows the extent of the airspace allocated to an associated IFR Military Training Route within which the Department of Defense conducts periodic operations involving Unmanned Aircraft Systems (UAS).

SPECIAL USE AIRSPACE– Airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. Types of special use airspace are:

a. 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. Alert Areas are depicted on aeronautical charts for the information of nonparticipating pilots. All activities within an Alert Area are conducted in accordance with Federal Aviation Regulations, and pilots of participating aircraft as well as pilots transiting the area are equally responsible for collision avoidance.

b. Controlled Firing Area– Airspace wherein activities are conducted under conditions so controlled as to eliminate hazards to nonparticipating aircraft and to ensure the safety of persons and property on the ground.

c. Military Operations Area (MOA)– Permanent and temporary MOAs are airspace established outside of Class A airspace area to separate or segregate certain nonhazardous military activities from IFR traffic and to

identify for VFR traffic where these activities are conducted. Permanent MOAs are depicted on Sectional Aeronautical, VFR Terminal Area, and applicable En Route Low Altitude Charts.

Note: Temporary MOAs are not charted.

(Refer to AIM.)

d. National Security Area (NSA)– Airspace of defined vertical and lateral dimensions established at locations where there is a requirement for increased security of ground facilities. Pilots are requested to voluntarily avoid flying through the depicted NSA. When a greater level of security is required, flight through an NSA may be temporarily prohibited by establishing a TFR under the provisions of 14 CFR Section 99.7. Such prohibitions will be issued by FAA Headquarters and disseminated via the U.S. NOTAM System.

(Refer to AIM)

e. Prohibited Area– Airspace designated under 14 CFR Part 73 within which no person may operate an aircraft without the permission of the using agency.

(Refer to AIM.)

(Refer to En Route Charts.)

f. Restricted Area– Permanent and temporary restricted areas are airspace designated under 14 CFR Part 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency. Permanent restricted areas are depicted on Sectional Aeronautical, VFR Terminal Area, and applicable En Route charts. Where joint use is authorized, the name of the ATC controlling facility is also shown.

Note: Temporary restricted areas are not charted.

(Refer to 14 CFR Part 73.)

(Refer to AIM.)

g. Warning Area– A warning area is airspace of defined dimensions extending from 3 nautical miles outward from the coast of the United States, that contains activity that may be hazardous to nonparticipating aircraft. The purpose of such warning area is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both.

SPECIAL VFR CONDITIONS– Meteorological conditions that are less than those required for basic VFR flight in Class B, C, D, or E surface areas and in which some aircraft are permitted flight under visual flight rules.

(See SPECIAL VFR OPERATIONS.)

(Refer to 14 CFR Part 91.)

SPECIAL VFR FLIGHT [ICAO]– A VFR flight cleared by air traffic control to operate within Class B, C, D, and E surface areas in meteorological conditions below VMC.

SPECIAL VFR OPERATIONS– Aircraft operating in accordance with clearances within Class B, C, D, and E surface areas in weather conditions less than the basic VFR weather minima. Such operations must be requested by the pilot and approved by ATC.

(See SPECIAL VFR CONDITIONS.)

(See ICAO term SPECIAL VFR FLIGHT.)

SPECIALIST–PROVIDED SERVICES–
Services delivered directly by a flight service specialist via ground/ground communication, air/ground communication, in–person, or technology (for example, speech–to–text, email, or short message service).

SPEED–

(See AIRSPEED.)

(See GROUND SPEED.)

SPEED ADJUSTMENT– An ATC procedure used to request pilots to adjust aircraft speed to a specific value for the purpose of providing desired spacing. Pilots are expected to maintain a speed of plus or minus 10 knots or 0.02 Mach number of the specified speed. Examples of speed adjustments are:

a. “Increase/reduce speed to Mach point (number).”

b. “Increase/reduce speed to (speed in knots)” or “Increase/reduce speed (number of knots) knots.”

SPEED ADVISORY– Speed advisories that are generated within Time–Based Flow Management to assist controllers to meet the Scheduled Time of Arrival (STA) at the meter fix/meter arc. See also Ground–Based Interval Management–Spacing (GIM–S) Speed Advisory.

SPEED BRAKES– Moveable aerodynamic devices on aircraft that reduce airspeed during descent and landing.

SPEED SEGMENTS– Portions of the arrival route between the transition point and the vertex along the optimum flight path for which speeds and altitudes are specified. There is one set of arrival speed segments adapted from each transition point to each vertex. Each set may contain up to six segments.

SPOOFING– Denotes emissions of GNSS–like signals that may be acquired and tracked in combination with or instead of the intended signals by civil receivers. The onset of spoofing effects can be instantaneous or delayed, and effects can persist after the spoofing has ended. Spoofing can result in false and potentially confusing, or hazardously misleading, position, navigation, and/or date/time information in addition to loss of GNSS use.

SQUAWK (Mode, Code, Function)– Used by ATC to instruct a pilot to activate the aircraft transponder and ADS–B Out with altitude reporting enabled, or (military) to activate only specific modes, codes, or functions. Examples: “Squawk five seven zero seven;” “Squawk three/alpha, two one zero five.”
(See TRANSPONDER.)

STA–
(See SCHEDULED TIME OF ARRIVAL.)

STAGING/QUEUING– The placement, integration, and segregation of departure aircraft in designated movement areas of an airport by departure fix, EDCT, and/or restriction.

STAND BY– Means the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority. Also means to wait as in “stand by for clearance.” The caller should reestablish contact if a delay is lengthy. “Stand by” is not an approval or denial.

STANDARD INSTRUMENT APPROACH PROCEDURE (SIAP)–
(See INSTRUMENT APPROACH PROCEDURE.)

STANDARD INSTRUMENT DEPARTURE (SID)– A preplanned instrument flight rule (IFR) air traffic control (ATC) departure procedure printed for pilot/controller use in graphic form to provide obstacle clearance and a transition from the terminal area to the appropriate en route structure. SIDs are primarily designed for system enhancement to expedite traffic flow and to reduce pilot/controller workload. ATC clearance must always be received prior to flying a SID.
(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)
(See OBSTACLE DEPARTURE PROCEDURE.)
(Refer to AIM.)

STANDARD RATE TURN– A turn of three degrees per second.

STANDARD TERMINAL ARRIVAL (STAR)– A preplanned instrument flight rule (IFR) air traffic control arrival procedure published for pilot use in graphic and/or textual form. STARs provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area.

STANDARD TERMINAL ARRIVAL CHARTS–
(See AERONAUTICAL CHART.)

STANDARD TERMINAL AUTOMATION REPLACEMENT SYSTEM (STARS)–
(See DTAS.)

STAR–
(See STANDARD TERMINAL ARRIVAL.)

STATE AIRCRAFT– Aircraft used in military, customs and police service, in the exclusive service of any government or of any political subdivision thereof, including the government of any state, territory, or possession of the United States or the District of Columbia, but not including any government-owned aircraft engaged in carrying persons or property for commercial purposes.

STATIC RESTRICTIONS– Those restrictions that are usually not subject to change, fixed, in place, and/or published.

STATIONARY AIRSPACE RESERVATION– The term used in oceanic ATC for airspace that encompasses activities in a fixed volume of airspace to be occupied for a specified time period. Stationary Airspace Reservations may include activities such as special tests of weapons systems or equipment; certain U.S. Navy carrier, fleet, and anti–submarine operations; rocket, missile, and drone operations; and certain aerial refueling or similar operations.

(See STATIONARY ALTITUDE RESERVATION.)

STATIONARY ALTITUDE RESERVATION (STATIONARY ALTRV)– An altitude reservation which encompasses activities in a fixed volume of airspace to be occupied for a specified time period. Stationary ALTRVs may include activities such as special tests of weapons systems or equipment; certain U.S. Navy carrier, fleet, and anti–submarine operations; rocket, missile, and drone operations; and certain aerial refueling or similar operations.

STEP TAXI– To taxi a float plane at full power or high RPM.

STEP TURN– A maneuver used to put a float plane in a planing configuration prior to entering an active sea lane for takeoff. The STEP TURN maneuver should only be used upon pilot request.

STEPDOWN FIX– A fix permitting additional descent within a segment of an instrument approach procedure by identifying a point at which a controlling obstacle has been safely overflown.

STEREO ROUTE– A routinely used route of flight established by users and ARTCCs identified by a coded name; e.g., ALPHA 2. These routes minimize flight plan handling and communications.

STNR ALT RESERVATION– An abbreviation for Stationary Altitude Reservation commonly used in NOTAMs.

(See STATIONARY ALTITUDE RESERVATION.)

STOL AIRCRAFT–

(See SHORT TAKEOFF AND LANDING AIRCRAFT.)

STOP ALTITUDE SQUAWK– Used by ATC to instruct a pilot to turn off the automatic altitude reporting feature of the aircraft transponder and ADS–B Out. It is issued when a verbally reported altitude varies by 300 feet or more from the automatic altitude report.

(See ALTITUDE READOUT.)

(See TRANSPONDER.)

STOP AND GO– A procedure wherein an aircraft will land, make a complete stop on the runway, and then commence a takeoff from that point.

(See LOW APPROACH.)

(See OPTION APPROACH.)

STOP BURST–

(See STOP STREAM.)

STOP BUZZER–

(See STOP STREAM.)

STOP SQUAWK (Mode or Code)– Used by ATC to instruct a pilot to stop transponder and ADS–B transmissions, or to turn off only specified functions of the aircraft transponder (military).

(See STOP ALTITUDE SQUAWK.)

(See TRANSPONDER.)

STOP STREAM– Used by ATC to request a pilot to suspend electronic attack activity.
(See JAMMING.)

STOPOVER FLIGHT PLAN– A flight plan format which permits in a single submission the filing of a sequence of flight plans through interim full-stop destinations to a final destination.

STOPWAY– An area beyond the takeoff runway no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted takeoff, without causing structural damage to the airplane, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff.

STRAIGHT-IN APPROACH IFR– An instrument approach wherein final approach is begun without first having executed a procedure turn, not necessarily completed with a straight-in landing or made to straight-in landing minimums.
(See LANDING MINIMUMS.)
(See STRAIGHT-IN APPROACH VFR.)
(See STRAIGHT-IN LANDING.)

STRAIGHT-IN APPROACH VFR– Entry into the traffic pattern by interception of the extended runway centerline (final approach course) without executing any other portion of the traffic pattern.
(See TRAFFIC PATTERN.)

STRAIGHT-IN LANDING– A landing made on a runway aligned within 30° of the final approach course following completion of an instrument approach.
(See STRAIGHT-IN APPROACH IFR.)

STRAIGHT-IN LANDING MINIMUMS–
(See LANDING MINIMUMS.)

STRAIGHT-IN MINIMUMS–
(See STRAIGHT-IN LANDING MINIMUMS.)

STRATEGIC PLANNING– Planning whereby solutions are sought to resolve potential conflicts.

sUAS–
(See SMALL UNMANNED AIRCRAFT SYSTEM.)

SUBSTITUTE ROUTE– A route assigned to pilots when any part of an airway or route is unusable because of NAVAID status. These routes consist of:

a. Substitute routes which are shown on U.S. Government charts.

b. Routes defined by ATC as specific NAVAID radials or courses.

c. Routes defined by ATC as direct to or between NAVAIDs.

SUNSET AND SUNRISE– The mean solar times of sunset and sunrise as published in the Nautical Almanac, converted to local standard time for the locality concerned. Within Alaska, the end of evening civil twilight and the beginning of morning civil twilight, as defined for each locality.

SUPPLEMENTAL WEATHER SERVICE LOCATION– Airport facilities staffed with contract personnel who take weather observations and provide current local weather to pilots via telephone or radio. (All other services are provided by the parent FSS.)

SUPPS– Refers to ICAO Document 7030 Regional Supplementary Procedures. SUPPS contain procedures for each ICAO Region which are unique to that Region and are not covered in the worldwide provisions identified in the ICAO Air Navigation Plan. Procedures contained in Chapter 8 are based in part on those published in SUPPS.

SURFACE AREA– The 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.

SURFACE METERING PROGRAM– A capability within Terminal Flight Data Manager that provides the user with the ability to tactically manage surface traffic flows through adjusting desired minimum and maximum departure queue lengths to balance surface demand with capacity. When a demand/capacity imbalance for a surface resource is predicted, a metering procedure is recommended.

SURFACE VIEWER– A capability within the Traffic Flow Management System that provides situational awareness for a user–selected airport. The Surface Viewer displays a top–down view of an airport depicting runways, taxiways, gate areas, ramps, and buildings. The display also includes icons representing aircraft and vehicles currently on the surface, with identifying information. In addition, the display includes current airport configuration information such as departure/arrival runways and airport departure/arrival rates.

SURPIC– A description of surface vessels in the area of a Search and Rescue incident including their predicted positions and their characteristics.

(Refer to FAA Order JO 7110.65, Para 10–6–4, INFLIGHT CONTINGENCIES.)

SURVEILLANCE APPROACH– An instrument approach wherein the air traffic controller issues instructions, for pilot compliance, based on aircraft position in relation to the final approach course (azimuth), and the distance (range) from the end of the runway as displayed on the controller's radar scope. The controller will provide recommended altitudes on final approach if requested by the pilot.

(Refer to AIM.)

SURVEILLANCE ENHANCED SEARCH AND RESCUE (SE SAR)– An automated service used to enhance search and rescue operations that provides federal contract flight service specialists direct information from the aircraft's registered tracking device.

SUSPICIOUS UAS– Suspicious UAS operations may include operating without authorization, loitering in the vicinity of sensitive locations, (e.g., national security, law enforcement facilities, and critical infrastructure), or disrupting normal air traffic operations resulting in runway changes, ground stops, pilot evasive action, etc. The report of a UAS operation alone does not constitute suspicious activity. Development of a comprehensive list of suspicious activities is not possible due to the vast number of situations that could be considered suspicious. ATC must exercise sound judgment when identifying situations that could constitute or indicate a suspicious activity.

SWAP–

(See SEVERE WEATHER AVOIDANCE PLAN.)

SWSL–

(See SUPPLEMENTAL WEATHER SERVICE LOCATION.)

SYSTEM STRATEGIC NAVIGATION– Military activity accomplished by navigating along a preplanned route using internal aircraft systems to maintain a desired track. This activity normally requires a lateral route width of 10 NM and altitude range of 1,000 feet to 6,000 feet AGL with some route segments that permit terrain following.

W

WA–
(See AIRMET.)
(See WEATHER ADVISORY.)

WAAS–
(See WIDE-AREA AUGMENTATION SYSTEM.)

WAKE RE–CATEGORIZATION (RECAT)– A set of optimized wake separation standards, featuring an increased number of aircraft wake categories, in use at select airports, which allows reduced wake intervals.
(See WAKE TURBULENCE.)

WAKE TURBULENCE– A phenomenon that occurs when an aircraft develops lift and forms a pair of counter–rotating vortices.
(See AIRCRAFT CLASSES.)
(See VORTICES.)
(Refer to AIM.)

WARNING AREA–
(See SPECIAL USE AIRSPACE.)

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.

WEATHER ADVISORY– In aviation weather forecast practice, an expression of hazardous weather conditions not predicted in the Aviation Surface Forecast, Aviation Cloud Forecast, or area forecast, as they affect the operation of air traffic and as prepared by the NWS.
(See AIRMET.)
(See GRAPHICAL AIRMEN'S METEOROLOGICAL INFORMATION.)
(See SIGMET.)

WEATHER RADAR PRECIPITATION INTENSITY– Existing radar systems cannot detect turbulence, however, there is a direct correlation between turbulence intensity and precipitation intensity. Controllers must issue all precipitation displayed on their user display systems. When precipitation intensity is not available, controllers will report intensity as UNKNOWN. When precipitation intensity levels are available, they will be described as follows:

a. LIGHT (< 26 dBZ)

b. MODERATE (26 to 40 dBZ)

c. HEAVY (> 40 to 50 dBZ)

d. EXTREME (> 50 dBZ)

WEATHER RECONNAISSANCE AREA (WRA)– A WRA is airspace with defined dimensions and published by Notice to Air Missions, which is established to support weather reconnaissance/research flights. Air traffic control services are not provided within WRAs. Only participating weather reconnaissance/research aircraft from the 53rd Weather Reconnaissance Squadron and National Oceanic and Atmospheric Administration Aircraft Operations Center are permitted to operate within a WRA. A WRA may only be established in airspace within U.S. Flight Information Regions outside of U.S. territorial airspace.

WHEN ABLE–

a. In conjunction with ATC instructions, gives the pilot the latitude to delay compliance until a condition or event has been reconciled. Unlike "pilot discretion," when instructions are prefaced "when able," the pilot is expected to seek the first opportunity to comply.

b. In conjunction with a weather deviation clearance, requires the pilot to determine when he/she is clear of weather, then execute ATC instructions.

c. Once a maneuver has been initiated, the pilot is expected to continue until the specifications of the instructions have been met. "When able," should not be used when expeditious compliance is required.

WIDE-AREA AUGMENTATION SYSTEM (WAAS)– The WAAS is a satellite navigation system consisting of the equipment and software which augments the GPS Standard Positioning Service (SPS). The WAAS provides enhanced integrity, accuracy, availability, and continuity over and above GPS SPS. The differential correction function provides improved accuracy required for precision approach.

WIDE AREA MULTILATERATION (WAM)– A distributed surveillance technology which may utilize any combination of signals from Air Traffic Control Radar Beacon System (ATCRBS) (Modes A and C) and Mode S transponders, and ADS-B transmissions. Multiple geographically dispersed ground sensors measure the time-of-arrival of the transponder messages. Aircraft position is determined by joint processing of the time-difference-of-arrival (TDOA) measurements computed between a reference and the ground stations' measured time-of-arrival.

WILCO– I have received your message, understand it, and will comply with it.

WIND GRID DISPLAY– A display that presents the latest forecasted wind data overlaid on a map of the ARTCC area. Wind data is automatically entered and updated periodically by transmissions from the National Weather Service. Winds at specific altitudes, along with temperatures and air pressure can be viewed.

WIND SHEAR– A change in wind speed and/or wind direction in a short distance resulting in a tearing or shearing effect. It can exist in a horizontal or vertical direction and occasionally in both.

WIND SHEAR ESCAPE– An unplanned abortive maneuver initiated by the pilot in command (PIC) as a result of onboard cockpit systems. Wind shear escapes are characterized by maximum thrust climbs in the low altitude terminal environment until wind shear conditions are no longer detected.

WING TIP VORTICES–
(See VORTICES.)

WORDS TWICE–

a. As a request: "Communication is difficult. Please say every phrase twice."

b. As information: "Since communications are difficult, every phrase in this message will be spoken twice."

WS–
(See SIGMET.)
(See WEATHER ADVISORY.)

WST–
(See CONVECTIVE SIGMET.)
(See WEATHER ADVISORY.)

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BRIEFING GUIDE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Initiated By: AJV−0
Vice President, Mission Support Services

Table of Contents

1. PARAGRAPH NUMBER AND TITLE: 1−1−12. SAFETY MANAGEMENT SYSTEM (SMS)

2. BACKGROUND: The language in paragraph 1−1−12 of FAA Order JO 7110.65 directs employees of the ATO to FAA Order 1100.161, Air Traffic Safety Oversight, and the Safety Management System (SMS) Manual for all information and direction regarding the SMS and its application. The ATO has since established its SMS via FAA Order JO 1000.37. Implementation, as approved by the Air Traffic Safety Oversight Service (AOV), exists in accordance with FAA Order 1100.161 and FAA Order 8000.369, Safety Management System. Recently, there have been concerns over current SMS expectations for facilities. Directing employees to JO 1000.37 and the ATO SMS Toolbox website instead of FAA Order 1100.161 should remedy many of these concerns.

3. CHANGE:

OLD

1−1−12. SAFETY MANAGEMENT SYSTEM (SMS)

Every employee is responsible to ensure the safety of equipment and procedures used in the provision of services within the National Airspace System (NAS). Risk assessment techniques and mitigations, as appropriate, are intended for implementation of any planned safety significant changes within the NAS, as directed by FAA Order 1100.161, Air Traffic Safety Oversight. Direction regarding the SMS and its application can be found in the FAA Safety Management System Manual and FAA Order 1100.161. The SMS will be implemented through a period of transitional activities. (Additional information pertaining to these requirements and processes can be obtained by contacting the service area offices.)

NEW

1−1−12. SAFETY MANAGEMENT SYSTEM (SMS)

Safety is fundamental to the provision of air traffic management and communication, navigation, and surveillance services. The ATO develops, implements, and maintains processes, tools, and guiding principles within the framework of a Safety Management System (SMS) to ensure that performance-based NAS safety goals are achieved. The ATO SMS gives the responsibility for owning and executing the SMS to all employees at all levels of the ATO. All ATO employees must strive not only to maintain safety in the NAS for those services they provide but also to continuously improve the ATO SMS. Direction regarding the ATO SMS and its application is found in FAA Order JO 1000.37, Air Traffic Organization Safety Management System. Additional information pertaining to **ATO SMS** requirements and processes can be obtained by **visiting the SMS Toolbox, emailing the Office of Safety and Technical Training (AJI) at 9-AJI-SMS@faa.gov, or** contacting the service **center Quality Control Group**. **SMS training is available for all employees via eLMS. Additional courses along with Technical Training for SMS Practitioners and SMS Facilitators are available from AJI.**

1. PARAGRAPH NUMBER AND TITLE:
1−2−6. ABBREVIATIONS
8−7−3. LONGITUDINAL SEPARATION
8−7−4. LATERAL SEPARATION
8−8−4. LATERAL SEPARATION

2. BACKGROUND: In 2020, New York air traffic control (ATC) requested Flight Standards Service (AFS) stop using WATRS as an acronym for an area of designated airspace which is defined by the boundaries of ZNY West Oceanic Area, ZMA Oceanic Area, and the ZSU FIR. The request was made to stop any confusion with an area of airspace that ZNY utilized that also had the acronym WATRS. The two WATRS airspaces do not have the same defining boundaries. On September 7, 2023, Notice 8900.673, New Name for B050 West Atlantic Route System (WATRS) Area of Operation, took effect that changed the AFS acronym WATRS to WAT. While processing a NAS change to paragraph 5−7−1, the specialist became aware of the AFS notice and recognized the acronym WATRS was still being used in FAA Order JO 7110.65. Thinking that the notice should have applied to the air traffic order as well, the specialist initiated a change for a significant editorial change to amend WATRS to WAT in several places. That significant editorial change was processed and became effective on March 21, 2024. During the initial line of business coordination for the original change, AFS noticed that the WAT definition in FAA Order JO 7110.65 did not match their definition of WAT and suggested the definition be changed as well. During conversations with other AJV−P32 specialists regarding that suggestion, it was determined that the acronym WATRS should not have been changed to WAT in FAA Order JO 7110.65 because they are two different airspaces with two different purposes.

3. CHANGE:

OLD

1−2−6. ABBREVIATIONS

As used in this order, the abbreviations listed below have the following meanings indicated. (See TBL 1−2−1.)

TBL 1−2−1

FAA Order JO 7110.65 Abbreviations

WAT . . . . . West Atlantic

NEW

1−2−6. ABBREVIATIONS

No Change

No Change

WAT**RS** . . . . . West Atlantic **Route System**

OLD

8−7−3. LONGITUDINAL SEPARATION

Title through **b3**

c. Nonturbojet operations:

1. Apply *20 minutes* between aircraft operating in the West Atlantic (WAT), or

2. Apply *30 minutes* between aircraft operating outside of the WAT.

NOTE−
The WAT area is defined as beginning at a point 27°00'N/77°00'W direct to 20°00'N/67°00'W direct to 18°00'N/62°00'W direct to 18°00'N/60°00'W direct to 38°30'N/60°00'W direct to 38°30'N/69°15'W, thence counterclockwise along the New York Oceanic CTA/FIR boundary to the Miami Oceanic CTA/FIR boundary, thence southbound along the Miami Oceanic CTA/FIR boundary to the point of beginning.

NEW

8−7−3. LONGITUDINAL SEPARATION

No Change

No Change

1. Apply *20 minutes* between aircraft operating in the West Atlantic **Route System** (WAT**RS**), or

2. Apply *30 minutes* between aircraft operating outside of the WAT**RS**.

NOTE−
*The WAT**RS** area is defined as beginning at a point 27°00'N/77°00'W direct to 20°00'N/67°00'W direct to 18°00'N/62°00'W direct to 18°00'N/60°00'W direct to 38°30'N/60°00'W direct to 38°30'N/69°15'W, thence counterclockwise along the New York Oceanic CTA/FIR boundary to the Miami Oceanic CTA/FIR boundary, thence southbound along the Miami Oceanic CTA/FIR boundary to the point of beginning.*

OLD	NEW
8–7–4. LATERAL SEPARATION	**8–7–4. LATERAL SEPARATION**
Title through **c2(c) Note**	No Change
d. *90 NM or 1 and 1/2 degrees latitude* between aircraft not approved for RNP 4 or RNP 10 and which:	No Change
1. Operate on routes or in areas within WAT, the San Juan CTA/FIR or the Atlantic portion of the Miami CTA/FIR;	**1.** Operate on routes or in areas within WAT**RS**, the San Juan CTA/FIR or the Atlantic portion of the Miami CTA/FIR;

OLD	NEW
8–8–4. LATERAL SEPARATION	**8–8–4. LATERAL SEPARATION**
Title through **c3(c)** ***NOTE***	No Change
d. *90 NM* between aircraft not approved for RNP 4 or RNP 10 and which:	No Change
1. Operate within *WAT*; or	**1.** Operate within *WAT**RS***; or

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1. PARAGRAPH NUMBER AND TITLE: 2–6–2. PIREP SOLICITATION AND DISSEMINATION

2. BACKGROUND: The National Transportation Safety Board (NTSB) has made a safety recommendation to the FAA (A–17–023) that remains an open and unacceptable response to the NTSB. This recommendation was previously addressed in 2019, however the NTSB concluded the response did not provide consistent guidance about Pilot Weather Report (PIREP) coding, handling, solicitation, and dissemination in FAA Order JO 7110.65 with the guidance currently contained in FAA Orders JO 7210.3 and JO 7110.10.

3. CHANGE:

OLD	NEW
2–6–2. PIREP SOLICITATION AND DISSEMINATION	**2–6–2. PIREP SOLICITATION AND DISSEMINATION**
Emphasis must be placed on the solicitation and dissemination of Urgent (UUA) and Routine (UA) PIREPs. Timely dissemination of PIREPs alerts pilots to weather conditions and provides information useful to forecasters in the development of aviation forecasts. PIREPs also provide information required by ATC in the provision of safe and efficient use of airspace. This includes 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, braking action, volcanic eruptions and volcanic ash clouds, detection of sulfur gases in the cabin, and other conditions pertinent to flight safety. Controllers must provide the information in sufficient detail to assist pilots in making decisions pertinent to flight safety.	No Change

NOTE–
Routine PIREPs indicating a lack of forecasted weather conditions, for example, a lack of icing or turbulence, are also valuable to aviation weather forecasters and pilots. This is especially true when adverse conditions are expected or forecasted but do not develop or no longer exist.

No Change

REFERENCE–
FAA Order JO 7110.65, Para 3−1−8, Low Level Wind Shear/Microburst Advisories.
FAA Order JO 7110.65, Para 3−3−4, Braking Action.
P/CG Term− Braking Action.
FAA Order JO 7210.3, Para 6−3−1, Handling of SIGMETs, CWAs, and PIREPs.
AIM, Para 7−5−9, Flight Operations in Volcanic Ash.
FAA Order JO 7210.3, Para 10−3−1, SIGMET and PIREP Handling.
FAA Order JO 7110.10, Chapter 8, Section 1, Pilot Weather Reports.

REFERENCE–
FAA Order JO 7110.65, Para 3−1−8, Low Level Wind Shear/Microburst Advisories.
FAA Order JO 7110.65, Para 3−3−4, Braking Action.
P/CG Term− Braking Action.
FAA Order JO 7210.3, Para 6−3−1, Handling of SIGMETs, CWAs, and PIREPs.
AIM, Para 7−5−9, Flight Operations in Volcanic Ash.
FAA Order JO 7210.3, Para 10−3−1, ***Dissemination of Weather Information.***
FAA Order JO 7110.10, Chapter 8, Section 1, Pilot Weather Reports.

a. Solicit PIREPs when requested, deemed necessary or any of the following conditions exists or is forecast for your area of jurisdiction:

No Change

a1 through **a8**

No Change

9. Detection of sulfur gases (SO_2 or H_2S), associated with volcanic activity, in the cabin.

9. Detection of sulfur gases (SO_2 or H_2S), associated with volcanic activity, in the cabin.

NOTE–
1. *The smell of sulfur gases in the cockpit may indicate volcanic activity that has not yet been detected or reported and/or possible entry into an ash−bearing cloud. SO_2 is identifiable as the sharp, acrid odor of a freshly struck match. H_2S has the odor of rotten eggs.*

2. *Pilots may forward PIREPs regarding volcanic activity using the format described in the Volcanic Activity Reporting Form (VAR) as depicted in the AIM, Appendix 2.*

NOTE–
1. *The smell of sulfur gases in the cockpit may indicate volcanic activity that has not yet been detected or reported and/or possible entry into an ash-bearing cloud. SO_2 is identifiable as the sharp, acrid odor of a freshly struck match. H_2S has the odor of rotten eggs.*

No Change

Add

b. Categorize PIREPs as follows:

Add

1. ***URGENT.*** **The following weather phenomena must be classified as an URGENT PIREP (UUA):**

Add

(a) Tornadoes, funnel clouds, or waterspouts.

Add

(b) Severe or extreme turbulence (including clear air turbulence).

Add

(c) Severe icing.

Add

(d) Hail.

Add

(e) Low-level wind shear (LLWS). For the safety of light aircraft, classify low-level wind shear PIREPs as UUA if the pilot reports airspeed fluctuations of 10 knots or more. Classify reports of low-level wind shear with airspeed fluctuations less than 10 knots as routine. If airspeed fluctuation is not reported, classify PIREP as UUA.

Add	***NOTE–*** ***Low-level wind shear is defined as wind shear within 2,000 feet of the surface.***
Add	**(f) Volcanic eruption, ash clouds, and/or detection of sulfur gases (H_2S or SO_2) in the cabin, however, if a pilot only reported the smell of H_2S or SO_2 in the cabin and confirmed no volcanic ash clouds were present, classify the report as a ROUTINE PIREP.**
Add	**(g) Any other weather phenomena reported which in your opinion may be hazardous, or potentially hazardous, to flight operations.**
Add	**2. *ROUTINE*. Classify as ROUTINE (UA) all PIREPs received except those listed above.**
b. Record with the PIREPs:	**c.** Record with the PIREPs:
1. Time.	No Change
2. Aircraft position.	No Change
3. Type aircraft.	No Change
4. Altitude.	**4.** Altitude **or range of altitudes**.
Add	**5. When the PIREP involves turbulence, include:**
Add	**(a) Duration (occasional, intermittent, or continuous).**
Add	**(b) Intensity (light, moderate, severe, or extreme).**
Add	***NOTE–*** ***The duration and intensity of turbulence is determined by the pilot.***
5. When the PIREP involves icing include:	**6.** When the PIREP involves icing**,** include:
(a) Icing type and intensity.	**(a)** Icing type and intensity **(trace, light, moderate, or severe)**.
(b) Air temperature in which icing is occurring.	No Change
c through **d**	Re–letter **d** through **e**

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1. PARAGRAPH NUMBER AND TITLE:
3–1–9. USE OF TOWER RADAR DISPLAYS
3–6–1. EQUIPMENT USAGE
3–6–5. RADAR–ONLY MODE
5–14–5. INFORMATION DISPLAYED

2. BACKGROUND: The Multilateration (MLAT) component of the Airport Surface Detection Equipment Model X (ASDE–X) and Airport Surface Surveillance Capability (ASSC) systems is being removed due to parts obsolescence, sustainment costs, and the increased availability/reliability of Automatic Dependent Surveillance–Broadcast (ADS–B) technology. A Safety Risk Management Panel (SRMP) convened in March 2022 to assess the risks of removing MLAT from the ASDE–X and ASSC systems, identify any differences/changes in system operations, and determine whether these differences introduce new hazards or

increase existing hazard risks in the NAS. The SRMP reconvened in April 2023 to refine the safety requirement created at the first SRMP, resulting in a final safety requirement that, when the Airport Surveillance Radar (ASR) supporting the ASDE system is inoperative, the affected Airport Traffic Control Tower (ATCT) positions must enable the ADS−B indicator at the applicable position(s), which will enable those controllers to identify any aircraft on final approach not transmitting ADS−B.

3. CHANGE:

OLD	NEW
3−1−9. USE OF TOWER RADAR DISPLAYS	**3−1−9. USE OF TOWER RADAR DISPLAYS**
Title through **c** ***REFERENCE***	No Change
Add	**d. If there is an outage of the ASR supporting the ASDE system and Multilateration (MLAT) is inoperative or is not present at airports with an ASDE system, the tower position(s) responsible for aircraft on approach to the airport must enable the ADS−B indicator on the tower display workstation(s) (TDW(s)).**
Add	***NOTE−*** ***The ADS−B indicator will only display if the TDW is operating in Fused Display Mode.***
Add	***REFERENCE−*** ***FAA Order JO 7110.65, Para 3−6−2, Identification.*** ***FAA Order JO 7110.65, Para 5−14−5, Information Displayed.***

OLD	NEW
3−6−1. EQUIPMENT USAGE	**3−6−1. EQUIPMENT USAGE**
Title through **b2(b)**	No Change
(c) When, in your judgment, its use will assist you in the performance of your duties at any time.	No Change
Add	***NOTE−*** ***Radar-only mode is an enhancement of the ASDE−X and ASSC systems that allows the system to stay operational with safety logic processing during a simultaneous loss of the Multilateration (MLAT) subsystem and ADS−B data or loss of ADS−B data when MLAT is not present. The system stays in full core alert status under radar-only mode but without automatic data block capability.***

OLD	NEW
3−6−5. RADAR−ONLY MODE	Delete
Radar−only mode is an enhancement of the ASDE−X and ASSC systems which allows the system to stay operational with safety logic processing, despite a critical fault in the Multilateration (MLAT) subsystem. The system stays in full core alert status under radar−only mode without data block capability.	Delete

OLD	NEW
5–14–5. INFORMATION DISPLAYED	**5–14–5. INFORMATION DISPLAYED**
Title through **c**	No Change
Add	**d. During outages of the ASR that supports an ASDE system where MLAT is inoperative or is not present, the tower position(s) responsible for aircraft on approach to the airport must enable the ADS–B indicator on the tower display workstation(s) (TDW(s)).**
Add	***NOTE–*** ***The ADS–B indicator will only display if the TDW is operating in Fused Display Mode.***
Add	***REFERENCE–*** ***FAA Order JO 7110.65, Para 3–1–9, Use of Tower Radar Displays.***

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1. PARAGRAPH NUMBER AND TITLE: 4–8–2. CLEARANCE LIMIT

2. BACKGROUND: FAA Order JO 7110.65, paragraph 4–8–2, Clearance Limit, in actuality, addresses approach clearances to airports without an operating airport control tower, not a clearance limit as the paragraph title suggests. Additionally, the application of the phraseology as written results in ambiguous and unnecessarily complex clearances.

3. CHANGE:

OLD	NEW
4–8–2. CLEARANCE LIMIT	**4–8–2. APPROACH CLEARANCE TO UNCONTROLLED AIRPORTS**
Issue approach or other clearances, as required, specifying the destination airport as the clearance limit if airport traffic control service is not provided even though this is a repetition of the initial clearance.	**When issuing an approach clearance at locations without an operating control tower or where part-time towers are closed, state the name of the airport.**
PHRASEOLOGY– *CLEARED TO (destination) AIRPORT*	***PHRASEOLOGY–*** *CLEARED* ***(type) APPROACH TO (airport name)*** ***or*** ***CLEARED APPROACH TO (airport name)*** ***(To authorize a pilot to execute his/her choice of instrument approach)***

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1. PARAGRAPH NUMBER AND TITLE:
5–7–1. APPLICATION
8–8–3. LONGITUDINAL SEPARATION

2. BACKGROUND: In 2020, International Civil Aviation Organization (ICAO) Doc 4444, paragraphs 5.4.2.4 and 5.4.2.5, were changed, removing the reference to “turbojet” aircraft when applying Mach speeds. To

harmonize use of Mach speeds in ICAO Standards and Recommended Practices (SARPs) with FAA policies, the Aeronautical Information Manual (AIM) and the Aeronautical Information Publication (AIP) will also be modified accordingly.

3. CHANGE:

OLD	NEW
5–7–1. APPLICATION	**5–7–1. APPLICATION**
Title through **f** ***NOTE***	No Change
g. Express speed adjustments in terms of knots based on indicated airspeed (IAS) in 5–knot increments. At or above FL 240, speeds may be expressed in terms of Mach numbers in 0.01 increments for turbojet aircraft with Mach meters (i.e., Mach 0.69, 0.70, 0.71, etc.).	**g.** Express speed adjustments in terms of knots based on indicated airspeed (IAS) in 5-knot increments. At or above FL 240, speeds may be expressed in terms of Mach numbers in 0.01 increments for aircraft with Mach meters (Mach 0.69, 0.70, 0.71, etc.).
NOTE–	No Change
1. *Pilots complying with speed adjustment instructions (published or assigned) should maintain a speed within plus or minus 10 knots or 0.02 Mach number of the specified speed.*	
2. *When assigning speeds to achieve spacing between aircraft at different altitudes, consider that ground speed may vary with altitude. Further speed adjustment may be necessary to attain the desired spacing.*	No Change
3. *Controllers should anticipate pilots will begin adjusting speed at 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, controllers should expect pilots will maintain the published speed until additional adjustment is required to comply with further published restrictions or ATC assigned speed restrictions.*	No Change
REFERENCE–	No Change
FAA Order JO 7110.65, Para 5–6–1, Application.	
FAA Order JO 7110.65, Para 5–7–2, Methods.	

OLD	NEW
8–8–3. LONGITUDINAL SEPARATION	**8–8–3. LONGITUDINAL SEPARATION**
Title through **b3**	No Change
c. Turbojet operations below FL 200 (*subsonic flight*):	**c.** Turbojet Operations below FL 200 (*subsonic flight*): **Apply *20 minutes* between turbojet aircraft operating below FL 200 in the San Juan Oceanic *(outside the WATRS area)*, Miami Oceanic, and Houston Oceanic CTAs/FIRs.**
Apply *20 minutes* between turbojet aircraft operating below FL 200 in the San Juan Oceanic *(outside the WATRS area)*, Miami Oceanic and Houston Oceanic CTAs/FIRs.	Delete