

CHANGE

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

Air Traffic Organization Policy

**JO 7110.65V
CHG 1**

Effective Date:
July 24, 2014

SUBJ: Air Traffic Control

- 1. Purpose of This Change.** This change transmits revised pages to Federal Aviation Administration Order JO 7110.65V, 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 Web site 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 which 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 selected offices in Washington headquarters, regional offices, service area offices, the William J. Hughes Technical Center, and the Mike Monroney Aeronautical Center. Also, copies are sent to all air traffic field facilities and international aviation field offices; and to interested aviation public.
- 6. Disposition of Transmittal.** Retain this transmittal until superseded by a new basic order.
- 7. Page Control Chart.** See the page control chart attachment.



Elizabeth L. Ray
Vice President, Mission Support Services
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Date: _____

6/2/14

Explanation of Changes Change 1

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

a. 2-1-1. ATC SERVICE

This change to Paragraph 2-1-1, better reflects the core values of the controller workforce.

b. 2-1-17. RADIO COMMUNICATIONS

This change clarifies the procedures to be used when transferring radio communications between facilities with/without the same name.

c. 2-1-20. CAUTIONARY WAKE TURBULENCE ADVISORIES

Due to wording in Paragraph 2-1-20, that does not convey the intent of the requirement when issuing a WTCA, Terminal Procedures issued GENOT 13/18 (N JO 7110.631) clarifying the requirement/procedure identified in Paragraph 2-1-20a. This change cancels and incorporates N JO 7110.669, Wake Turbulence Cautionary Advisories, effective March 28, 2014.

d. 3-4-20. RUNWAY STATUS LIGHTS (RWSL)

This change adds the requirements associated with N JO 7210.842, Guidance for the Use of Runway Status Lights (RWSL) Light System, into FAA Order JO 7110.65. The new paragraph provides guidance for the operation and periodic check of the RWSL system.

e. 3-7-5. PRECISION APPROACH CRITICAL AREA

For those facilities that have had the middle marker decommissioned, this change identifies a distance (1/2 mile) from the approach end of the runway for protection of the Localizer Critical Area. This change also removed MLS from the required phraseology to advise pilots that the ILS Critical Area is not protected.

f. 3-9-7. WAKE TURBULENCE SEPARATION FOR INTERSECTION DEPARTURES

This change removes the “visual separation” statement in Paragraph 3-9-7b3 and 3-9-7b4.

Additionally, the paragraph has been divided into two separate subparagraphs to delineate the procedures required with aircraft conducting successive operations with additional aircraft in a tower pattern and those aircraft that are being sequenced with a departing aircraft (leaving the tower pattern). Lastly, aircraft examples were updated to represent current models.

g. 5-3-1. APPLICATION 5-5-1. APPLICATION

Guidance is being added to FAA Order JO 7110.65, applicable to aircraft transiting from oceanic airspace on non-radar offshore airspace to a radar coverage area where radar separation is applied.

h. 5-9-9. SIMULTANEOUS INDEPENDENT CLOSE PARALLEL APPROACHES - HIGH UPDATE RADAR NOT REQUIRED

This proposal incorporates the data from the AFS simulation/analysis and will now permit closely spaced parallel approaches at airports with runway centerlines separated by a minimum of 3,600’ and the field elevation less than 2,000’ MSL.

i. 5-5-13. GPA 102/103 CORRECTION FACTOR

This paragraph has become obsolete and is no longer necessary. This change removes the paragraph from FAA Order JO 7110.65.

j. 7-5-3. SEPARATION

This change replaces the term “approved” with the specific applications controllers may use to provide SVFR services. It also removes the term “approved” from the NOTE and incorporates this information into the paragraph. Use of visual separation has been added to clarify its use as a form of separation that is available during SVFR operations. Paragraph 7-2-1 has been added as a reference. Alternate SVFR helicopter operations have been delineated for those facilities with and without delegated airspace. Minor formatting was

performed on sub-paragraph 7-5-3b(2) to comply with FAA writing standards.

k. 8-5-5, RADAR IDENTIFICATION APPLICATION

Adds Paragraph 8-5-5, Radar Identification Application, to the FAA Order JO 7110.65.

l. 10-5-1. NAVY FLEET SUPPORT MISSIONS

Paragraph 10-5-1, Navy Fleet Support Missions contains outdated and obsolete information, as determined by the U.S. Navy. Therefore, Paragraph 10-5-1 is deleted.

m. 13-2-2. CONFLICT DETECTION AND RESOLUTION

This change removes Paragraph 8-6-3, Temporary Moving Airspace Reservations listed as a conflict probe limitation in Chapter 13 of the 7110.65.

n. 13-2-4. CONTROLLER PILOT DATA LINK COMMUNICATIONS (CPDLC)

This change corrects the guidance for unanswered CPDLC messages in Chapter 13, Decision Support Tools, Section 2, Ocean21 - Oceanic, Paragraph 13-2-4 to comply with ICAO Global Operational Data Link Document (GOLD), Paragraph 2.2.1.5 which states: "When a clearance is sent to the aircraft, the controller continues to protect the airspace associated with the existing clearance until an appropriate operational response is received from the flight crew. If an expected operational response to a clearance is not received, the controller will initiate action to ensure that the clearance as received by the flight crew."

o. 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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Chapter 1. General

Section 1. Introduction

1-1-1. PURPOSE OF THIS ORDER

This order prescribes air traffic control procedures and phraseology for use by persons providing air traffic control services. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations that are not covered by it.

1-1-2. AUDIENCE

This order applies to all ATO personnel and anyone using ATO directives.

1-1-3. WHERE TO FIND THIS ORDER

This order is available on the FAA Web site at http://faa.gov/air_traffic/publications and http://employees.faa.gov/tools_resources/orders_notices/.

1-1-4. WHAT THIS ORDER CANCELS

FAA Order JO 7110.65U, Air Traffic Control, dated February 9, 2012, and all changes to it are canceled.

1-1-5. EXPLANATION OF CHANGES

The significant changes to this order are identified in the Explanation of Changes page(s). It is advisable to retain the page(s) throughout the duration of the basic order.

1-1-6. SUBMISSION CUTOFF AND EFFECTIVE DATES

This order and its changes are scheduled to be published to coincide with AIRAC dates. (See TBL 1-1-1.)

TBL 1-1-1
Publication Schedule

Basic or Change	Cutoff Date for Submission	Effective Date of Publication
JO 7110.65V	8/22/13	4/3/14
Change 1	4/3/14	7/24/14
Change 2	7/24/14	1/8/15
Change 3	1/8/15	6/25/15
JO 7110.65W	6/25/15	12/10/15

1-1-7. DELIVERY DATES

a. If an FAA facility **has not** received the order/changes at least 30 days before the above effective dates, the facility must notify its service area office distribution officer.

b. If a military facility **has not** received the order/changes at least 30 days before the above effective dates, the facility must notify its appropriate military headquarters. (See TBL 1-1-2.)

TBL 1-1-2
Military Distribution Contacts

Military Headquarters	DSN	Commercial
U.S. Army USAASA	656-4868	(703) 806-4868
U.S. Air Force		Contact Local *NGA Customer Account Representative
U.S. Navy CNO (N885F)	664-7727	(703) 604-7727
*NGA-National Geospatial/Intelligence Agency		

1-1-8. RECOMMENDATIONS FOR PROCEDURAL CHANGES

Any recommended changes to this order must be submitted to the Vice President, Mission Support Services, Attn: ATC Procedures Office.

a. Personnel should submit recommended changes in procedures to facility management.

b. Recommendations from other sources should be submitted through appropriate FAA, military, or industry/user channels.

1-1-9. PROCEDURAL LETTERS OF AGREEMENT

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. Letters of agreement 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-

FAAO JO 7110.65, Para 2-1-1, ATC Service.

FAAO JO 7210.3, Para 4-3-1, Letters of Agreement.

1-1-10. 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 N-885F 2000 Navy Pentagon Washington, D.C. 20350-2000
U.S. Air Force	HQ AFFSA/A3A Bldg 4 Room 240 6500 S. MacArthur Blvd Oklahoma City, OK 73169 Email: hqaffsa.a3a@tinker.af.mil
U.S. Army	Director USAASA (MOAS-AS) 9325 Gunston Road, Suite N319 Ft. Belvoir, VA 22060-5582

NOTE-

Terminal: Headquarters USAF has delegated to Major Air Command, Directors of Operations (MAJCOM/DOs) authority to reduce same runway separation standards for military aircraft. These are specified and approved by affected ATC and user units. When applied, appropriate advisories may be required; e.g., "(A/C call sign) continue straight ahead on right side; F-16 landing behind on left." "(A/C call sign) hold position on right side; F-5 behind on left."

REFERENCE-

FAAO JO 7110.65, Para 3-1-3, Use of Active Runways.

1-1-11. 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.)

1-1-12. REFERENCES TO FAA NON-AIR TRAFFIC ORGANIZATIONS

When references are made to regional office organizations that are not part of the Air Traffic Organization (i.e., 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.

1-1-13. DISTRIBUTION

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

6. Upon break-up of the formation flight, the controller initiating the break-up must ensure that all aircraft or flights are assigned their proper equipment suffix.

2-1-14. COORDINATE USE OF AIRSPACE

a. Ensure that the necessary coordination has been accomplished before you allow an aircraft under your control to enter another controller's area of jurisdiction.

b. Before you issue control instructions directly or relay through another source to an aircraft which is within another controller's area of jurisdiction that will change that aircraft's heading, route, speed, or altitude, ensure that coordination has been accomplished with each of the controllers listed below whose area of jurisdiction is affected by those instructions unless otherwise specified by a letter of agreement or a facility directive:

1. The controller within whose area of jurisdiction the control instructions will be issued.

2. The controller receiving the transfer of control.

3. Any intervening controller(s) through whose area of jurisdiction the aircraft will pass.

c. If you issue control instructions to an aircraft through a source other than another controller (e.g., ARINC, FSS, another pilot) ensure that the necessary coordination has been accomplished with any controllers listed in subparas b1, 2, and 3, whose area of jurisdiction is affected by those instructions unless otherwise specified by a letter of agreement or a facility directive.

REFERENCE-

FAAO JO 7110.65, Para 2-1-15 Control Transfer.
FAAO JO 7110.65, Para 5-5-10 Adjacent Airspace.
FAAO JO 7110.65, Para 5-4-5 Transferring Controller Handoff.
FAAO JO 7110.65, Para 5-4-6 Receiving Controller Handoff.

2-1-15. CONTROL TRANSFER

a. Transfer control of an aircraft in accordance with the following conditions:

1. At a prescribed or coordinated location, time, fix, or altitude; or,

2. At the time a radar handoff and frequency change to the receiving controller have been

completed and when authorized by a facility directive or letter of agreement which specifies the type and extent of control that is transferred.

REFERENCE-

FAAO JO 7110.65, Para 2-1-14 Coordinate Use of Airspace.
FAAO JO 7110.65, Para 5-4-5 Transferring Controller Handoff.
FAAO JO 7110.65, Para 5-4-6 Receiving Controller Handoff.

b. Transfer control of an aircraft only after eliminating any potential conflict with other aircraft for which you have separation responsibility.

c. Assume control of an aircraft only after it is in your area of jurisdiction unless specifically coordinated or as specified by letter of agreement or a facility directive.

2-1-16. SURFACE AREAS

a. Coordinate with the appropriate nonapproach control tower on an individual aircraft basis before issuing a clearance which would require flight within a surface area for which the tower has responsibility unless otherwise specified in a letter of agreement.

REFERENCE-

FAAO JO 7210.3, Para 4-3-1, Letters of Agreement.
14 CFR Section 91.127, Operating on or in the Vicinity of an Airport in Class E Airspace.
P/CG Term- Surface Area.

b. Coordinate with the appropriate control tower for transit authorization when you are providing radar traffic advisory service to an aircraft that will enter another facility's airspace.

NOTE-

The pilot is not expected to obtain his/her own authorization through each area when in contact with a radar facility.

c. Transfer communications to the appropriate facility, if required, prior to operation within a surface area for which the tower has responsibility.

REFERENCE-

FAAO JO 7110.65, Para 2-1-17 Radio Communications Transfer.
FAAO JO 7110.65, Para 3-1-1, Surface Area Restrictions.
FAAO JO 7110.65, Para 7-6-1 Application.
14 CFR Section 91.129, Operations in Class D Airspace.

2-1-17. RADIO COMMUNICATIONS

a. Transfer radio communications before an aircraft enters the receiving controller's area of jurisdiction unless otherwise coordinated or specified by a letter of agreement or a facility directive.

b. Transfer radio communications by specifying the following:

NOTE—

Radio communications transfer procedures may be specified by a letter of agreement or contained in the route description of an MTR as published in the DOD Planning AP/1B (AP/3).

1. The facility name or location name and terminal function to be contacted. **TERMINAL:** Omit the location name when transferring communications to another controller within your facility, or, when the tower and TRACON share the same name (for example, Phoenix Tower and Phoenix TRACON).

EXCEPTION. Controllers must include the name of the facility when instructing an aircraft to change frequency for final approach guidance.

2. Frequency to use except the following may be omitted:

(a) FSS frequency.

(b) Departure frequency if previously given or published on a SID chart for the procedure issued.

(c) **TERMINAL:**

(1) Ground or local control frequency if in your opinion the pilot knows which frequency is in use.

(2) The numbers preceding the decimal point if the ground control frequency is in the 121 MHz bandwidth.

EXAMPLE—

“Contact Tower.”

“Contact Ground.”

“Contact Ground Point Seven.”

“Contact Ground, One Two Zero Point Eight.”

“Contact Huntington Radio.”

“Contact Departure.”

“Contact Los Angeles Center, One Two Three Point Four.”

3. Time, fix, altitude, or specifically when to contact a facility. You may omit this when compliance is expected upon receipt.

NOTE—

AIM, para 5-3-1, ARTCC Communications, informs pilots that they are expected to maintain a listening watch on the transferring controller’s frequency until the time, fix, or altitude specified.

PHRASEOLOGY—

CONTACT (facility name or location name and terminal function), (frequency).

If required,

AT (time, fix, or altitude).

c. Controllers must, within a reasonable amount of time, take appropriate action to establish/restore communications with all aircraft for which a communications transfer or initial contact to his/her sector is expected/required.

NOTE—

For the purposes of this paragraph, a reasonable amount of time is considered to be 5 minutes from the time the aircraft enters the controller’s area of jurisdiction or comes within range of radio/communications coverage. Communications include two-way VHF or UHF radio contact, data link, or high frequency (HF) radio through an approved third-party provider such as ARINC.

d. In situations where an operational advantage will be gained, and following coordination with the receiving controller, you may instruct aircraft on the ground to monitor the receiving controller’s frequency.

EXAMPLE—

“Monitor Tower.”

“Monitor Ground.”

“Monitor Ground Point Seven.”

“Monitor Ground, One Two Zero Point Eight.”

e. In situations where a sector has multiple frequencies or when sectors are combined using multiple frequencies and the aircraft will remain under your jurisdiction, transfer radio communication by specifying the following:

PHRASEOLOGY—

(Identification) CHANGE TO MY FREQUENCY (state frequency).

EXAMPLE—

“United two twenty-two change to my frequency one two three point four.”

REFERENCE—

AIM, Para 4-2-3, Contact Procedures.

f. Avoid issuing a frequency change to helicopters known to be single-piloted during air-taxiing, hovering, or low-level flight. Whenever possible, relay necessary control instructions until the pilot is able to change frequency.

NOTE—

Most light helicopters are flown by one pilot and require the constant use of both hands and feet to maintain control. Although Flight Control Friction Devices assist the pilot, changing frequency near the ground could result in inadvertent ground contact and consequent loss of control. Pilots are expected to advise ATC of their single-pilot status if unable to comply with a frequency change.

REFERENCE–

AIM, Para 4–3–14, Communications.

g. In situations where the controller does not want the pilot to change frequency but the pilot is expecting or may want a frequency change, use the following phraseology.

PHRASEOLOGY–

REMAIN THIS FREQUENCY.

REFERENCE–

FAAO JO 7110.65, Para 4–7–1 Clearance Information.

FAAO JO 7110.65, Para 5–12–9 Communication Transfer.

2–1–18. OPERATIONAL REQUESTS

Respond to a request from another controller, a pilot or vehicle operator by one of the following verbal means:

a. Restate the request in complete or abbreviated terms followed by the word “APPROVED.” The phraseology “APPROVED AS REQUESTED” may be substituted in lieu of a lengthy readback.

PHRASEOLOGY–

(Requested operation) APPROVED.

or

APPROVED AS REQUESTED.

b. State restrictions followed by the word “APPROVED.”

PHRASEOLOGY–

(Restriction and/or additional instructions, requested operation) APPROVED.

c. State the word “UNABLE” and, time permitting, a reason.

PHRASEOLOGY–

UNABLE (requested operation).

and when necessary,

(reason and/or additional instructions.)

d. State the words “STAND BY.”

NOTE–

“STAND BY” is not an approval or denial. The controller acknowledges the request and will respond at a later time.

REFERENCE–

FAAO JO 7110.65, Para 2–1–21 Traffic Advisories.

FAAO JO 7110.65, Para 4–2–5 Route or Altitude Amendments.

FAAO JO 7110.65, Para 7–9–3 Methods.

2–1–19. WAKE TURBULENCE

a. Apply wake turbulence procedures to aircraft operating behind heavy jets/B757s and, where indicated, to small aircraft behind large aircraft.

NOTE–

Para 5–5–4 Minima, specifies increased radar separation for small type aircraft landing behind large, heavy, or B757 aircraft because of the possible effects of wake turbulence.

b. The separation minima must continue to touchdown for all IFR aircraft not making a visual approach or maintaining visual separation.

REFERENCE–

FAAO JO 7110.65, Para 5–9–5 Approach Separation Responsibility.

2–1–20. WAKE TURBULENCE CAUTIONARY ADVISORIES

a. Issue wake turbulence cautionary advisories, including the position, altitude if known, and direction of flight to aircraft operating behind Heavy or B757 aircraft to:

REFERENCE–

AC 90–23, Aircraft Wake Turbulence, Pilot Responsibility, Para 12.

1. TERMINAL. VFR aircraft not being radar vectored but are behind heavy jets or B757s.

2. IFR aircraft that accept a visual approach or visual separation.

REFERENCE–

FAAO JO 7110.65, Para 7–4–1 Visual Approach.

3. TERMINAL. VFR arriving aircraft that have previously been radar vectored and the vectoring has been discontinued.

b. Issue cautionary information to any aircraft if in your opinion, wake turbulence may have an adverse effect on it. When traffic is known to be a heavy aircraft, include the word *heavy* in the description.

NOTE–

Wake turbulence may be encountered by aircraft in flight as well as when operating on the airport movement area. Because wake turbulence is unpredictable, the controller is not responsible for anticipating its existence or effect. Although not mandatory during ground operations, controllers may use the words *jet blast*, *propwash*, or *rotorwash*, in lieu of wake turbulence, when issuing a caution advisory.

REFERENCE–

AC 90–23, Aircraft Wake Turbulence.

P/CG Term– Aircraft Classes.

P/CG Term– Wake Turbulence.

PHRASEOLOGY–

CAUTION WAKE TURBULENCE (traffic information).

REFERENCE–

FAAO JO 7110.65, Para 7–2–1 Visual Separation.

2–1–21. TRAFFIC ADVISORIES

Unless an aircraft is operating within Class A airspace or omission is requested by the pilot, issue traffic advisories to all aircraft (IFR or VFR) on your frequency when, in your judgment, their proximity may diminish to less than the applicable separation minima. Where no separation minima applies, such as for VFR aircraft outside of Class B/Class C airspace, or a TRSA, issue traffic advisories to those aircraft on your frequency when in your judgment their proximity warrants it. Provide this service as follows:

a. To radar identified aircraft:

1. Azimuth from aircraft in terms of the 12–hour clock, or

2. When rapidly maneuvering aircraft prevent accurate issuance of traffic as in 1 above, specify the direction from an aircraft's position in terms of the eight cardinal compass points (N, NE, E, SE, S, SW, W, and NW). This method must be terminated at the pilot's request.

3. Distance from aircraft in miles.

4. Direction in which traffic is proceeding and/or relative movement of traffic.

NOTE–

Relative movement includes closing, converging, parallel same direction, opposite direction, diverging, overtaking, crossing left to right, crossing right to left.

5. If known, type of aircraft and altitude.

REFERENCE–

FAAO JO 7110.65, Para 2–4–21 Description of Aircraft Types.

PHRASEOLOGY–

TRAFFIC, (number) O'CLOCK,

or when appropriate,

(direction) (number) MILES, (direction)–BOUND and/or (relative movement),

and if known,

(type of aircraft and altitude).

or

When appropriate,

(type of aircraft and relative position), (number of feet) FEET ABOVE/BELOW YOU.

If altitude is unknown,

ALTITUDE UNKNOWN.

EXAMPLE–

"Traffic, eleven o'clock, one zero miles, southbound, converging, Boeing Seven Twenty Seven, one seven thousand."

"Traffic, twelve o'clock, one five miles, opposite direction, altitude unknown."

"Traffic, ten o'clock, one two miles, southeast bound, one thousand feet below you."

6. When requested by the pilot, issue radar vectors to assist in avoiding the traffic, provided the aircraft to be vectored is within your area of jurisdiction or coordination has been effected with the sector/facility in whose area the aircraft is operating.

7. If unable to provide vector service, inform the pilot.

REFERENCE–

FAAO JO 7110.65, Para 2–1–18 Operational Requests.

8. Inform the pilot of the following when traffic you have issued is not reported in sight:

(a) The traffic is no factor.

(b) The traffic is no longer depicted on radar.

PHRASEOLOGY–

TRAFFIC NO FACTOR/NO LONGER OBSERVED,

or

(number) O'CLOCK TRAFFIC NO FACTOR/NO LONGER OBSERVED,

or

(direction) TRAFFIC NO FACTOR/NO LONGER OBSERVED.

b. To aircraft that are not radar identified:

1. Distance and direction from fix.

2. Direction in which traffic is proceeding.

3. If known, type of aircraft and altitude.

4. ETA over the fix the aircraft is approaching, if appropriate.

3-4-16. HIGH SPEED TURNOFF LIGHTS

Operate high speed turnoff lights:

- a. Whenever the associated runway lights are used for arriving aircraft. Leave them on until the aircraft has either entered a taxiway or passed the last light.
- b. As required by facility directives to meet local conditions.
- c. As requested by the pilot.

3-4-17. TAXIWAY LIGHTS

Operate taxiway lights in accordance with TBL 3-4-11, TBL 3-4-12, or TBL 3-4-13 except:

- a. Where a facility directive specifies other settings or times to meet local conditions.
- b. As requested by the pilot.
- c. As you deem necessary, if not contrary to pilot request.

*TBL 3-4-11***Three Step Taxiway Lights**

Step	Visibility	
	Day	Night
3	Less than 1 mile	When requested
2	When requested	Less than 1 mile
1	When requested	1 mile or more

*TBL 3-4-12***Five Step Taxiway Lights**

Step	Visibility	
	Day	Night
5	Less than 1 mile	When requested
4	When requested	Less than 1 mile
3	When requested	1 mile or more
1 & 2	When requested	When requested

*TBL 3-4-13***One Step Taxiway Lights**

Day	Night
Less than 1 mile	On

NOTE-

AC 150/5340-24, Runway and Taxiway Edge Lighting System, contains recommended brightness levels for variable setting taxiway lights.

3-4-18. OBSTRUCTION LIGHTS

If controls are provided, turn the lights on between sunset and sunrise.

3-4-19. ROTATING BEACON

If controls are provided, turn the rotating beacon on:

- a. Between sunset and sunrise.
- b. Between sunrise and sunset when the reported ceiling or visibility is below basic VFR minima.

3-4-20. RUNWAY STATUS LIGHTS (RWSL)**TERMINAL**

RWSL is equipped with automatic intensity settings and must be operated on a continuous basis except under the following conditions:

- a. If a pilot or vehicle report indicates any portion of the RWSL system is on and is not able to accept an ATC clearance; then

1. ATC must visually scan the entire runway. If the runway is observed to be clear and the lights are still illuminated, then the lights must be turned off and clearance re-issued.

2. If a portion of the runway is not visible from the tower, ATC must visually scan the ASDE-X. If the runway is observed to be clear and the lights are still illuminated, then the lights must be turned off and clearance re-issued.

- b. When the RWSL Operational Status displays "Lost Comm with System," consider the RWSL system out of service until checked and confirmed to be operational by technical operations personnel.

c. Once RWSL systems are turned off, they must remain off until returned to service by technical operations personnel.

- d. Upon pilot request, adjust the light intensity.

EXAMPLE–

“Runway Three–Six Left, taxi via taxiway Alpha, hold short of taxiway Charlie.”

or

“Runway Three–Six Left, taxi via Alpha, hold short of Charlie.”

or

“Runway Three–Six Left, taxi via taxiway Alpha, hold short of Runway Two–Seven Right.”

or

“Runway Three–Six Left, taxi via Charlie, cross Runway Two–Seven Left, hold short of Runway Two–Seven Right.”

or

“Runway Three–Six Left, taxi via Alpha, Charlie, cross Runway One–Zero.”

c. Aircraft/vehicles must receive a clearance for each runway their route crosses. An aircraft/vehicle must have crossed a previous runway before another runway crossing clearance may be issued.

NOTE–

A clearance is required for aircraft/vehicles to operate on any active, inactive, or closed runway except for vehicles operating on closed runways in accordance with a Letter of Agreement (LOA).

EXAMPLE–

“Cross Runway One–Six Left, hold short of Runway One–Six Right.”

d. When an aircraft/vehicle is instructed to “follow” traffic and requires a runway crossing, issue a runway crossing clearance in addition to the follow instructions and/or hold short instructions, as applicable.

EXAMPLE–

“Follow (traffic), cross Runway Two–Seven Right.”

or

“Follow (traffic), cross Runway Two Seven–Right, hold short Runway Two–Seven Left.”

e. At those airports where the taxi distance between runway centerlines is less than 1,000 feet, multiple runway crossings may be issued with a single clearance. The air traffic manager must submit

a request to the appropriate Terminal Services Director of Operations for approval before authorizing multiple runway crossings.

REFERENCE–

FAAO JO 7210.3, Para 10–3–10 Multiple Runway Crossings.

f. Request a read back of runway hold short instructions when it is not received from the pilot/vehicle operator.

PHRASEOLOGY–**READ BACK HOLD INSTRUCTIONS.****EXAMPLE–**

1. *“American Four Ninety Two, Runway Three Six Left, taxi via taxiway Charlie, hold short of Runway Two Seven Right.”*

or

“American Four Ninety Two, Runway Three Six Left, taxi via Charlie, hold short of Runway Two Seven Right.”

“American Four Ninety Two, Roger.”

“American Four Ninety Two, read back hold instructions.”

2. *“Cleveland Tower, American Sixty Three is ready for departure.”*

“American Sixty Three, hold short of Runway Two Three Left, traffic one mile final.”

“American Sixty Three, Roger.”

“American Sixty Three, read back hold instructions.”

3. *“OPS Three proceed via taxiway Charlie hold short of Runway Two Seven.”*

or

“OPS Three proceed via Charlie hold short of Runway Two Seven.”

“OPS Three, Roger.”

“OPS Three, read back hold instructions.”

NOTE–

Read back hold instructions phraseology may be initiated for any point on a movement area when the controller believes the read back is necessary.

g. Issue progressive taxi/ground movement instructions when:

- 1.** A pilot/operator requests.

2. The specialist deems it necessary due to traffic or field conditions, e.g., construction or closed taxiways.

3. Necessary during reduced visibility, especially when the taxi route is not visible from the tower.

NOTE—

Progressive instructions may include step-by-step directions and/or directional turns.

REFERENCE—

FAAO JO 7110.65, Para 3-7-4 Runway Proximity.

FAAO JO 7110.65, Para 3-11-1, Taxi and Ground Movement Operation.

h. Issue instructions to expedite a taxiing aircraft or a moving vehicle.

PHRASEOLOGY—

TAXI WITHOUT DELAY (traffic if necessary).

EXIT/PROCEED/CROSS

(runway/taxiway) WITHOUT DELAY.

3-7-3. GROUND OPERATIONS

WAKE TURBULENCE APPLICATION

Avoid clearances which require:

a. Heavy jet aircraft to use greater than normal taxiing power.

b. Small aircraft or helicopters to taxi in close proximity to taxiing or hover-taxi helicopters.

NOTE—

Use caution when taxiing smaller aircraft/helicopters in the vicinity of larger aircraft.

REFERENCE—

AC 90-23, Aircraft Wake Turbulence, Para 10 and Para 11.

3-7-4. RUNWAY PROXIMITY

Hold a taxiing aircraft or vehicle clear of the runway as follows:

a. Instruct aircraft or vehicle to hold short of a specific runway.

b. Instruct aircraft or vehicle to hold at a specified point.

c. Issue traffic information as necessary.

PHRASEOLOGY—

HOLD SHORT OF/AT (runway number or specific point), (traffic or other information).

NOTE—

Establishing hold lines/signs is the responsibility of the airport manager. The standards for surface measurements, markings, and signs are contained in AC 150/5300-13, Airport Design; AC 150/5340-1, Standards for Airport Markings, and AC 150/5340-18, Standards for Airport Sign Systems. The operator is responsible for properly positioning the aircraft, vehicle, or equipment at the appropriate hold line/sign or designated point. The requirements in para 3-1-12 Visually Scanning Runways, remain valid as appropriate.

REFERENCE—

FAAO JO 7110.65, Para 3-7-2 Taxi and Ground Movement Operations.

FAAO JO 7110.65, Para 3-10-10 Altitude Restricted Low Approach.

FAAO JO 7110.65, Para 3-1-5 Vehicles/Equipment/Personnel on Runways.

3-7-5. PRECISION APPROACH CRITICAL AREA

a. ILS critical area dimensions are described in FAA Order 6750.16, Siting Criteria for Instrument Landing Systems. Aircraft and vehicle access to the ILS critical area must be controlled to ensure the integrity of ILS course signals whenever conditions are less than reported ceiling 800 feet or visibility less than 2 miles. Do not authorize vehicles/aircraft to operate in or over the critical area, except as specified in subparagraph a1, whenever an arriving aircraft is inside the ILS outer marker (OM) or the fix used in lieu of the OM unless the arriving aircraft has reported the runway in sight or is circling to land on another runway.

PHRASEOLOGY—

HOLD SHORT OF (runway) ILS CRITICAL AREA.

1. LOCALIZER CRITICAL AREA

(a) Do not authorize vehicle or aircraft operations in or over the area when an arriving aircraft is inside the ILS OM or the fix used in lieu of the OM when conditions are less than reported ceiling 800 feet or visibility less than 2 miles, except:

(1) A preceding arriving aircraft on the same or another runway that passes over or through the area while landing or exiting the runway.

(2) A preceding departing aircraft or missed approach on the same or another runway that passes through or over the area.

(b) In addition to subparagraph a1(a), when conditions are less than reported ceiling 200 feet or RVR 2,000 feet, do not authorize vehicles or aircraft operations in or over the area when an arriving

aircraft is inside the middle marker, or in the absence of a middle marker, ½ mile final.

2. GLIDESLOPE CRITICAL AREA. Do not authorize vehicles or aircraft operations in or over the area when an arriving aircraft is inside the ILS OM or the fix used in lieu of the OM unless the arriving aircraft has reported the runway in sight or is circling to land on another runway when conditions are less than reported ceiling 800 feet or visibility less than 2 miles.

b. Operators commonly conduct “coupled” or “autoland” approaches to satisfy maintenance, training, or reliability program requirements. Promptly issue an advisory if the critical area will not be protected when an arriving aircraft advises that a “coupled,” “CATIII,” “autoland,” or similar type approach will be conducted and the weather indicates a reported ceiling of 800 feet or more, or the visibility is 2 miles or more.

PHRASEOLOGY–

ILS CRITICAL AREA NOT PROTECTED.

c. The Department of Defense (DOD) is authorized to define criteria for protection of precision approach critical areas at military controlled airports. This protection is provided to all aircraft operating at that military controlled airport. Waiver authority for DOD precision approach critical area criteria rests with the appropriate military authority.

NOTE–

Signs and markings are installed by the airport operator to define the ILS/MLS critical area. No point along the longitudinal axis of the aircraft is permitted past the hold line for holding purposes. The operator is responsible to properly position the aircraft, vehicle, or equipment at the appropriate hold line/sign or designated point. The requirements in para 3–1–12 Visually Scanning Runways, remain valid as appropriate.

REFERENCE–

AC150/5340–1, Standards for Airport Markings.

3–7–6. PRECISION OBSTACLE FREE ZONE (POFZ) AND FINAL APPROACH OBSTACLE CLEARANCE SURFACES (OCS)

a. Ensure the POFZ is clear of traffic (aircraft or vehicles) when an aircraft on a vertically-guided final approach is within 2 miles of the runway

threshold and the reported ceiling is below 300 feet or visibility is less than ¾ SM to protect aircraft executing a missed approach.

NOTE–

Only horizontal surfaces (e.g., the wings) can penetrate the POFZ, but not the vertical surfaces (e.g., fuselage or tail). Three hundred feet (300) is used because ATC does not measure ceilings in fifty (50) foot increments.

b. Ensure the final approach OCS (e.g., ILS /LPV W, X, and Y surfaces) are clear of aircraft/vehicles when an aircraft on the vertically-guided approach is within 2 miles of the runway threshold and the reported ceiling is below 800 feet or visibility is less than 2 SM to protect aircraft executing a missed approach.

NOTE–

1. *The POFZ and the close-in portion of the final approach obstacle clearance surfaces protect aircraft executing a missed approach. Their dimensions are described in FAAO 8260.3b, Volume III, Chapter 3, para 3.4, United States Standards for Terminal Instrument Procedures.*

2. *Vehicles that are less than 10 feet in height, necessary for the maintenance of the airport and/or navigation facilities operating outside the movement area, are exempt.*

c. If it is not possible to clear the POFZ or OCS prior to an aircraft reaching a point 2 miles from the runway threshold and the weather is less than described in subparas a or b above, issue traffic to the landing aircraft.

NOTE–

The POFZ and/or OCS must be cleared as soon as practical.

PHRASEOLOGY–

(ACID), IN THE EVENT OF MISSED APPROACH (issue traffic).

TAXIING AIRCRAFT/VEHICLE LEFT/RIGHT OF RUNWAY.

EXAMPLE–

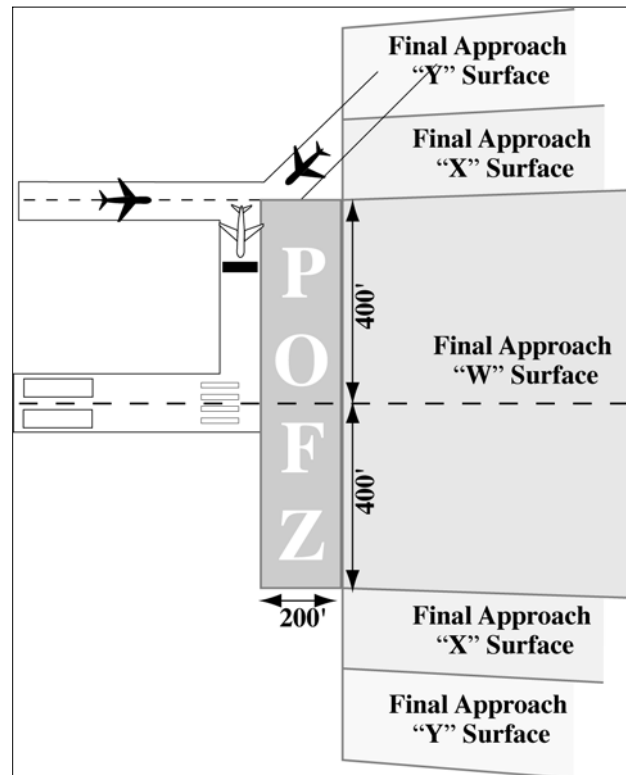
“United 623, in the event of missed approach, taxiing aircraft right of runway.”

“Delta 1058, in the event of missed approach, vehicle left of runway.”

REFERENCE–

FAAO JO 7110.65, Para 3–1–6 Traffic Information.

FIG 3-7-1
Precision Obstacle Free Zone (POFZ)



b. The 3-minute interval is not required when:

1. A pilot has initiated a request to deviate from that interval unless the preceding departing aircraft is a heavy aircraft/B757.

NOTE—

A request for takeoff does not initiate a waiver request; the request for takeoff must be accomplished by a request to deviate from the 3-minute interval.

2. USA NOT APPLICABLE. The intersection is 500 feet or less from the departure point of the preceding aircraft and both aircraft are taking off in the same direction.

3. Successive touch-and-go and/or stop-and-go operations are authorized to the same runway or parallel runways separated by less than 2,500 feet under the following conditions:

(a) When a small aircraft is sequenced behind a small aircraft that weighs more than 12,500 lbs. or a large aircraft to the same runway or parallel runway, ensure aircraft involved have been issued appropriate traffic and have reported the traffic in sight. Issue instructions to follow (if applicable) and a wake turbulence cautionary advisory.

EXAMPLE—

“Follow DH-8 base leg, caution wake turbulence, Runway One-Eight Left, cleared touch-and-go/ stop-and-go.”

“Traffic DH-8 right base Runway One-Eight Right, caution wake turbulence, Runway One-Eight Left cleared touch-and-go/stop-and-go.”

(b) When a small aircraft is landing behind a departing small aircraft that weighs more than 12,500 lbs. or a large aircraft on the same runway or parallel runway, ensure aircraft involved have been issued appropriate traffic and have reported the departing traffic in sight. Issue a wake turbulence cautionary advisory.

EXAMPLE—

“Caution wake turbulence, MD-90 departing, Runway One Eight Left, cleared touch-and-go/stop-and-go.”

“Traffic MD-90 departing Runway One-Eight Right, caution wake turbulence, Runway One-Eight Left cleared touch-and-go/stop-and-go.”

REFERENCE—

FAA Order 7110.65, 2-1-20, Wake Turbulence Cautionary Advisories Advisory Circular 90-23F, Wake Turbulence Avoidance.

4. Successive touch-and-go and/or stop-and-go operations are authorized to the same runway or

parallel runways separated by less than 2,500 feet under the following conditions:

(a) When an aircraft is sequenced behind a heavy aircraft/B757 to the same runway or parallel runway, ensure aircraft involved have been issued appropriate traffic and/or sequencing and have reported the traffic in sight. Issue instructions to follow (if applicable) and a wake turbulence cautionary advisory.

EXAMPLE—

“Follow B757 mid-field downwind, caution wake turbulence, Runway One-Eight Left, cleared touch-and-go/stop-and-go.”

“Traffic Heavy Boeing 767 right base Runway One-Eight Right, caution wake turbulence, Runway One-Eight Left, cleared touch-and-go/stop-and-go.”

(b) When an aircraft is landing behind a departing heavy aircraft/B757 on the same runway or parallel runway, ensure aircraft involved have been issued appropriate traffic and have reported the departing traffic in sight. Issue a wake turbulence cautionary advisory.

EXAMPLE—

“Caution wake turbulence, heavy Boeing 767 departing, Runway One-Eight Left, cleared touch-and-go/ stop-and-go.”

“Traffic Boeing 757 departing Runway One-Eight Right, caution wake turbulence, Runway One Eight Left, caution wake turbulence, cleared touch-and-go/stop-and-go.”

REFERENCE—

FAAO 7110.65, 2-1-20, Wake Turbulence Cautionary Advisories Advisory Circular 90-23F, Wake Turbulence Avoidance.

5. If action is initiated to reduce the separation between successive touch-and-go or stop-and-go operations, apply 3 minutes separation.

c. When applying the provision of subpara b:

1. Issue a wake turbulence advisory before clearing the aircraft for takeoff.

2. Do not clear the intersection departure for an immediate takeoff.

3. Issue a clearance to permit the trailing aircraft to deviate from course enough to avoid the flight path of the preceding large departure when applying subpara b1 or b2.

4. Separation requirements in accordance with para 3-9-6, Same Runway Separation, must also apply.

REFERENCE—

FAAO JO 7110.65, Para 3-9-6 Same Runway Separation.

3-9-8. INTERSECTING RUNWAY SEPARATION

a. Issue traffic information to each aircraft operating on intersecting runways.

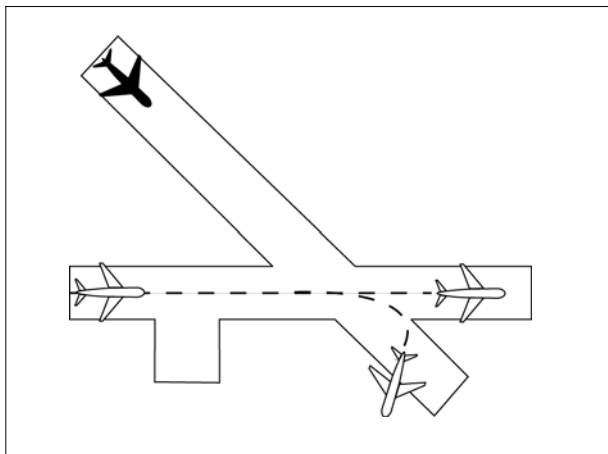
b. Separate departing aircraft from an aircraft using an intersecting runway, or nonintersecting runways when the flight paths intersect, by ensuring that the departure does not begin takeoff roll until one of the following exists:

REFERENCE—

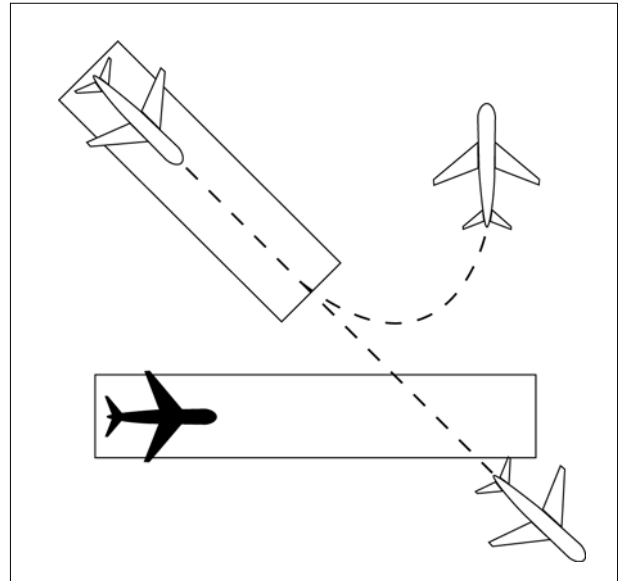
FAAO JO 7110.65, Para 2-1-21 Traffic Advisories.

1. The preceding aircraft has departed and passed the intersection, has crossed the departure runway, or is turning to avert any conflict. (See FIG 3-9-5 and FIG 3-9-6.)

**FIG 3-9-5
Intersecting Runway Separation**



**FIG 3-9-6
Intersecting Runway Separation**



2. A preceding arriving aircraft is clear of the landing runway, completed the landing roll and will hold short of the intersection, passed the intersection, or has crossed over the departure runway. (See FIG 3-9-7 and FIG 3-9-8.)

REFERENCE—

P/CG Term— Clear of the Runway.

**FIG 3-9-7
Intersecting Runway Separation**

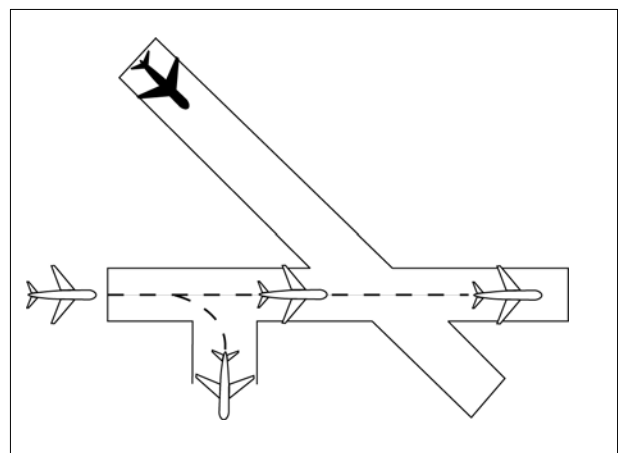
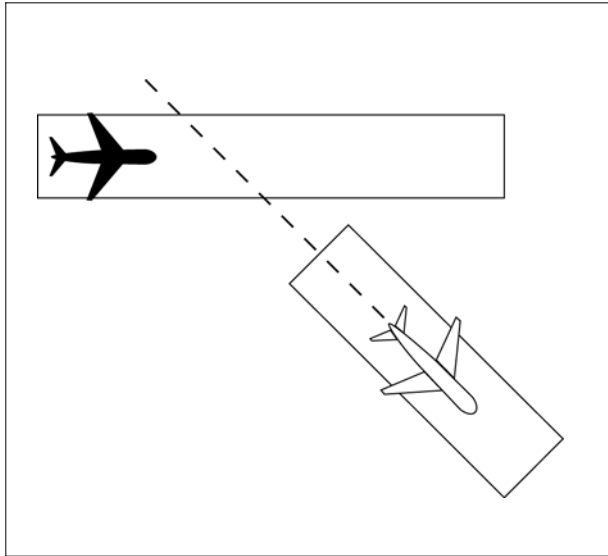


FIG 3-9-8
Intersecting Runway Separation



WAKE TURBULENCE APPLICATION

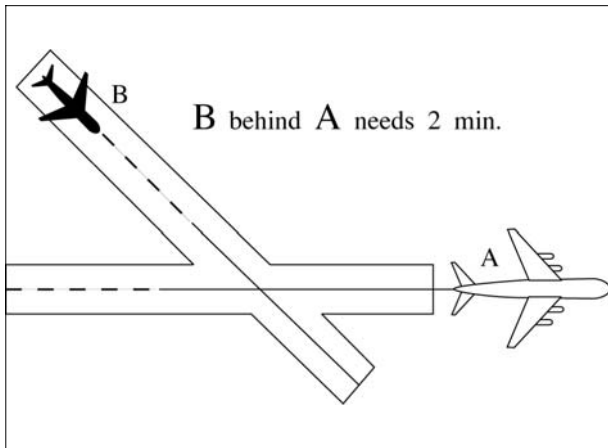
3. Separate IFR/VFR aircraft taking off behind a heavy jet/B757 departure by *2 minutes* when departing:

NOTE—

Takeoff clearance to the following aircraft should not be issued until 2 minutes after the heavy jet/B757 begins takeoff roll.

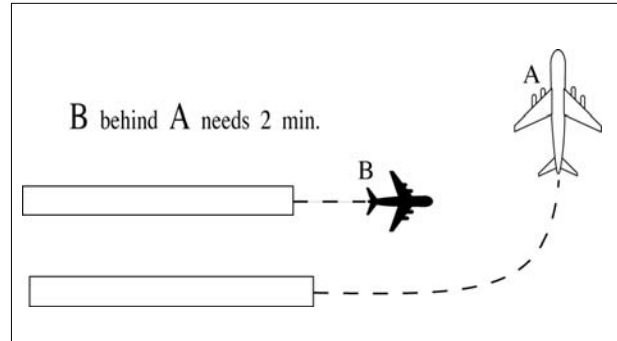
(a) Crossing runways if projected flight paths will cross. (See FIG 3-9-9.)

FIG 3-9-9
Crossing Runways



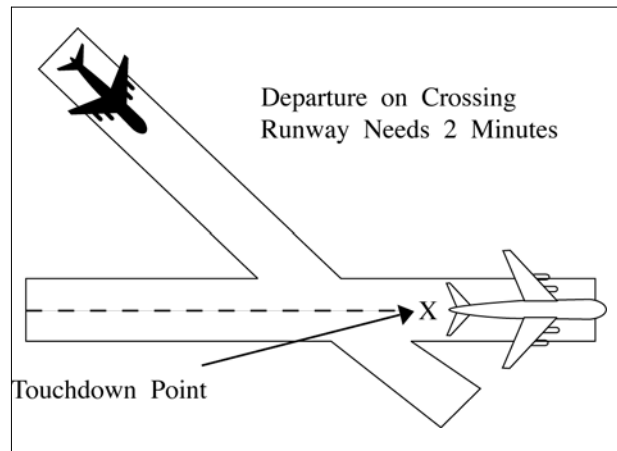
(b) A parallel runway separated by 2,500 feet or more if projected flight paths will cross. (See FIG 3-9-10.)

FIG 3-9-10
Parallel Runway



4. Separate IFR/VFR aircraft departing behind a landing heavy jet/B757 on a crossing runway if the departure will fly through the airborne path of the arrival—*2 minutes*. (See FIG 3-9-11.)

FIG 3-9-11
Departure on Crossing Runway



5. Air traffic controllers must not approve pilot requests to deviate from the required wake turbulence time interval if the preceding aircraft is a heavy jet/B757.

REFERENCE—

FAAO JO 7110.65, Para 5-8-3 Successive or Simultaneous Departures.

FAAO JO 7110.65, Para 5-8-5 Departures and Arrivals on Parallel or Nonintersecting Diverging Runways.

3-9-9. TAKEOFF CLEARANCE

a. When issuing a clearance for takeoff, first state the runway number followed by the takeoff clearance.

PHRASEOLOGY–

RUNWAY (number), CLEARED FOR TAKEOFF.

EXAMPLE–

“RUNWAY TWO SEVEN, CLEARED FOR TAKEOFF.”

NOTE–

Turbine-powered aircraft may be considered ready for takeoff when they reach the runway unless they advise otherwise.

REFERENCE–

FAAO JO 7110.65, Para 4–3–1, *Departure Terminology.*

b. When clearing an aircraft for takeoff from an intersection, state the runway intersection.

PHRASEOLOGY–

RUNWAY (number) AT (taxiway designator) CLEARED FOR TAKEOFF.

c. When two or more aircraft call the tower ready for departure, one or more at the full length of a runway and one or more at an intersection, state the location of the aircraft at the full length of the runway when clearing that aircraft for takeoff.

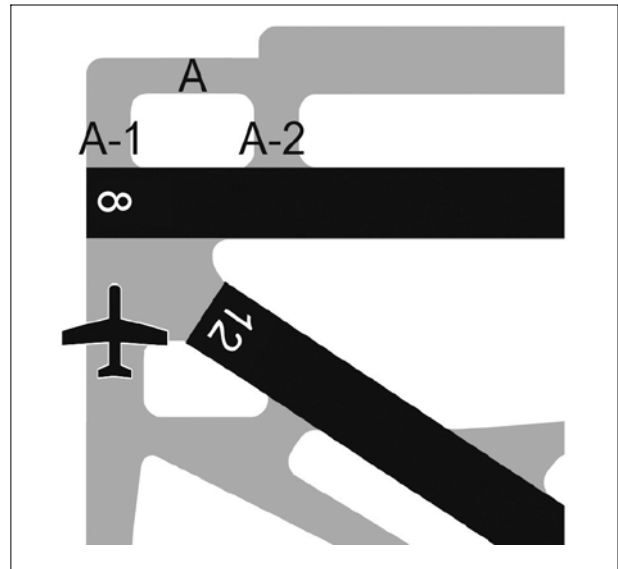
PHRASEOLOGY–

RUNWAY (number), FULL LENGTH, CLEARED FOR TAKEOFF.

EXAMPLE–

“American Four Eighty Two, Runway Three Zero full length, cleared for takeoff.”

d. The controller must ensure that all runways along the taxi route that lead to the departure runway are crossed before the takeoff clearance is issued, except as stated in para 3–9–9e.

FIG 3–9–12**Runway/Taxiway Proximity**

e. At those airports where the airport configuration does not allow for an aircraft to completely cross one runway and hold short of the departure runway and/or where airports do not have runway hold markings between runways, state the runway to be crossed with the takeoff clearance if the aircraft is not able to complete a runway crossing before reaching its departure runway.

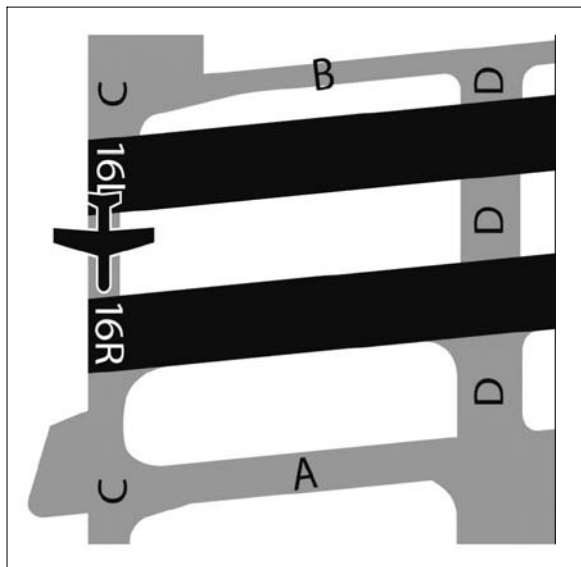
PHRASEOLOGY–

CROSS RUNWAY (number), RUNWAY (number) CLEARED FOR TAKEOFF.

EXAMPLE–

“CROSS RUNWAY TWO FOUR LEFT, RUNWAY TWO FOUR RIGHT, CLEARED FOR TAKEOFF.”

FIG 3-9-13
Runway/Taxiway Proximity



REFERENCE-

FAAO JO 7210.3, Para 10-3-9, Takeoff Clearance.

P/CG Term- Clear of the Runway.

f. Do not use the term “full length” when the runway length available for departure has been temporarily shortened. On permanently shortened runways, do not use the term “full length” until the Airport/Facility Directory is updated to include the change(s).

NOTE-

The use of the term “full length” could be interpreted by the pilot(s) as the available runway length prior to the runway being shortened.

g. Whenever a runway length has been temporarily or permanently shortened, state the word “shortened” immediately following the runway number as part of the takeoff clearance. This information must be issued in conjunction with the takeoff clearance.

1. The addition of “shortened” must be included in the takeoff clearance for the duration of the construction project when the runway is temporarily shortened.

2. The addition of “shortened” must be included in the takeoff clearance until the Airport/Facility

Directory is updated to include the change(s) when the runway is permanently shortened.

PHRASEOLOGY-

RUNWAY (number) SHORTENED, CLEARED FOR TAKEOFF.

EXAMPLE-

“Runway Two-Seven shortened, cleared for takeoff.”

PHRASEOLOGY-

RUNWAY (number) AT (taxiway designator) INTERSECTION DEPARTURE SHORTENED, CLEARED FOR TAKEOFF.

EXAMPLE-

“Runway Two-Seven at Juliet, intersection departure shortened, cleared for takeoff.”

REFERENCE-

FAAO JO 7210.3, Para 10-3-11, Airport Construction

FAAO JO 7210.3, Para 10-3-12, Change in Runway Length Due to Construction

h. USAF. When an aircraft is cleared for takeoff, inform it of the closest traffic within 6 miles on final approach to the same runway. If the approaching aircraft is on a different frequency, inform it of the departing aircraft.

i. USA/USN/USAF. Issue surface wind and takeoff clearance to aircraft.

PHRASEOLOGY-

RUNWAY (number), WIND (surface wind in direction and velocity). CLEARED FOR TAKEOFF.

3-9-10. CANCELLATION OF TAKEOFF CLEARANCE

Cancel a previously issued clearance for takeoff and inform the pilot of the reason if circumstances require. Once an aircraft has started takeoff roll, cancel the takeoff clearance only for the purpose of safety.

NOTE-

In no case should a takeoff clearance be canceled after an aircraft has started its takeoff roll solely for the purpose of meeting traffic management requirements/EDCT.

PHRASEOLOGY-

CANCEL TAKEOFF CLEARANCE (reason).

Section 3. Radar Identification

5-3-1. APPLICATION

Before you provide radar service, establish and maintain radar identification of the aircraft involved, except as provided in Paragraph 5-5-1, Application, subparagraphs b2, b3 and in Paragraph 8-5-5, Radar Identification Application.

REFERENCE—

FAAO JO 7110.65, Para 3-1-9, Use of Tower Radar Displays.
FAAO JO 7110.65, Para 5-1-1, Presentation and Equipment Performance.

5-3-2. PRIMARY RADAR IDENTIFICATION METHODS

Identify a primary or radar beacon target by using one of the following methods:

a. Observing a departing aircraft target within 1 mile of the takeoff runway end at airports with an operating control tower, provided one of the following methods of coordination is accomplished.

1. A verbal rolling/boundary notification is issued for each departure, or

2. A nonverbal rolling/boundary notification is used for each departure aircraft.

NOTE—

Nonverbal notification can be accomplished via the use of a manual or electronic “drop tube” or automation.

b. Observing a target whose position with respect to a fix (displayed on the video map, scribed on the map overlay, or displayed as a permanent echo) or a visual reporting point (whose range and azimuth from the radar antenna has been accurately determined and made available to the controller) corresponds with a direct position report received from an aircraft, and the observed track is consistent with the reported heading or route of flight. If a TACAN/VORTAC is located within 6,000 feet of the radar antenna, the TACAN/VORTAC may be used as a reference fix for radar identification without being displayed on the video map or map overlay.

NOTE—

1. Establishment of radar identification through use of DME position information can be complicated by the fact that some military TACANs are not collocated with frequency-paired VORs and might be separated from them by as much as 31 miles.

2. Visual reporting points used for RADAR identification are limited to those most used by pilots and whose range and azimuth have been determined by supervisory personnel.

c. Observing a target make an identifying turn or turns of 30 degrees or more, provided the following conditions are met:

NOTE—

Use of identifying turns or headings which would cause the aircraft to follow normal IFR routes or known VFR flight paths might result in misidentification. When these circumstances cannot be avoided, additional methods of identification may be necessary.

1. Except in the case of a lost aircraft, a pilot position report is received which assures you that the aircraft is within radar coverage and within the area being displayed.

2. Only one aircraft is observed making these turns.

3. For aircraft operating in accordance with an IFR clearance, you either issue a heading away from an area which will require an increased minimum IFR altitude or have the aircraft climb to the highest minimum altitude in your area of jurisdiction before you issue a heading.

REFERENCE—

FAAO JO 7110.65, Para 3-1-9 Use of Tower Radar Displays.
FAAO JO 7110.65, Para 5-12-1, Surveillance Unusable.

5-3-3. BEACON IDENTIFICATION METHODS

When using only Mode 3/A radar beacon to identify a target, use one of the following methods:

a. Request the aircraft to activate the “IDENT” feature of the transponder and then observe the identification display.

NOTE—

1. At facilities where the single-slash “IDENT” modification is installed or other decoder modifications have been made which increase the number of “blooming” target displays, it will be necessary to exercise additional care to preclude the possibility of misidentification.

2. **TERMINAL.** When automated displays are operated in the analog mode, the “IDENT” return is displayed as a double slash and the emergency return as a single bloomer whenever the beacon control head is in the “fail” position.

PHRASEOLOGY–**IDENT.**

SQUAWK (code) AND IDENT.

b. Request the aircraft to change to a specific discrete or nondiscrete code, as appropriate, and then observe the target or code display change. If a code change is required in accordance with Section 2, Beacon Systems, of this chapter, use the codes specified therein.

c. Request the aircraft to change transponder to “standby.” After you observe the target disappear for sufficient scans to assure that loss of target resulted from placing the transponder in “standby” position, request the aircraft to return transponder to normal operation and then observe the reappearance of the target.

PHRASEOLOGY–**SQUAWK STANDBY,**

then

SQUAWK NORMAL.

d. EN ROUTE. During narrowband operations, an aircraft may be considered identified when the full data block is automatically associated with the beacon target symbol of an aircraft that is squawking a discrete code assigned by the computer.

PHRASEOLOGY–

SQUAWK (4 digit discrete code), AND IF YOUR ALTITUDE REPORTING EQUIPMENT IS TURNED OFF, SQUAWK ALTITUDE.

NOTE–

The AIM informs pilots to adjust Mode C transponders with altitude reporting capability activated unless deactivation is requested by ATC. Squawk altitude is included to provide applicable phraseology.

REFERENCE–

*FAAO JO 7110.65, Para 3–1–9 Use of Tower Radar Displays.
FAAO JO 7110.65, Para 5–3–6 Position Information.*

5–3–4. TERMINAL AUTOMATION SYSTEMS IDENTIFICATION METHODS

TERMINAL

a. Consider an auto-acquired aircraft as identified when the data block is displayed and is visible to you, and one of the following conditions exist:

1. The radar or beacon identification procedures have been used to confirm the identity of the tagged target.

2. The aircraft is being handed off using a NAS automated system and one of the following does not appear in the data block: “CST”, “NAT”, “NT”, “AMB”, “OLD”, “NB”, “TU”, “AM”, “OL”, or “TRK”.

b. Use the data block to maintain target identity unless it is in a coast status or displaced from the appropriate target.

c. A displaced data block must be updated at all times.

REFERENCE–

FAAO JO 7110.65, Para 3–1–9 Use of Tower Radar Displays.

5–3–5. QUESTIONABLE IDENTIFICATION

a. Use more than one method of identification when proximity of targets, duplication of observed action, or any other circumstances cause doubt as to target identification.

b. If identification is questionable for any reason, take immediate action to reidentify the aircraft or terminate radar service. Identify the aircraft as follows:

1. As described in para 5–3–2, Primary Radar Identification Methods, or para 5–3–3, Beacon Identification Methods.

2. En route. Ensure that all primary targets are displayed when radar identification is lost or is questionable.

REFERENCE–

FAAO JO 7110.65, Para 5–4–3 Methods.

5–3–6. POSITION INFORMATION

Inform an aircraft of its position whenever radar identification is established by means of identifying turns or by any of the beacon identification methods outlined in para 5–3–3, Beacon Identification Methods. Position information need not be given when identification is established by position correlation or when a departing aircraft is identified within 1 mile of the takeoff runway end.

5–3–7. IDENTIFICATION STATUS

a. Inform an aircraft of radar contact when:

Section 5. Radar Separation

5-5-1. APPLICATION

a. Radar separation must be applied to all RNAV aircraft operating at and below FL450 on Q routes or random RNAV routes, excluding oceanic airspace.

EXCEPTION. GNSS-equipped aircraft /G, /L, /S, and /V not on a random impromptu route.

REFERENCE-

FAAO JO 7110.5, Para 2-3-8, Aircraft Equipment Suffixes.
FAAO JO 7110.5, TBL 2-3-10, Aircraft Equipment Suffixes
FAAO JO 7110.65, Para 4-4-1, Route Use.
AIM, Para 5-1-8d., Area Navigation (RNAV).
AIM, Para 5-3-4a.3, Area Navigation (RNAV) Routes.
P/CG Term - Global Navigation Satellite System (GNSS)[ICAO].
P/CG Term - Global Positioning Satellite/ Wide Area Augmentation
Minimum En Route IFR Altitude (GPS/WAAS MEA).
P/CG Term - Parallel Offset Route.
AC 90-101A, U.S. Terminal and En Route Area Navigation (RNAV)
Operations, Para 8a, Navigation System Accuracy.

b. Radar separation may be applied between:

1. Radar identified aircraft.

2. An aircraft taking off and another radar identified aircraft when the aircraft taking off will be radar-identified within 1 mile of the runway end.

3. A radar-identified aircraft and one not radar-identified when either is cleared to climb/descend through the altitude of the other provided:

(a) The performance of the radar system is adequate and, as a minimum, primary radar targets or ASR-9/Full Digital Radar Primary Symbol targets are being displayed on the display being used within the airspace within which radar separation is being applied; and

(b) Flight data on the aircraft not radar-identified indicate it is a type which can be expected to give adequate primary/ASR-9/Full Digital Radar Primary Symbol return in the area where separation is applied; and

(c) The airspace within which radar separation is applied is not less than the following number of miles from the edge of the radar display:

(1) When less than 40 miles from the antenna- 6 miles;

(2) When 40 miles or more from the antenna- 10 miles;

(3) Narrowband radar operations- 10 miles; and

(d) Radar separation is maintained between the radar-identified aircraft and all observed primary, ASR-9/Full Digital Radar Primary Symbol, and secondary radar targets until nonradar separation is established from the aircraft not radar identified; and

(e) When the aircraft involved are on the same relative heading, the radar-identified aircraft is vectored a sufficient distance from the route of the aircraft not radar identified to assure the targets are not superimposed prior to issuing the clearance to climb/descend.

REFERENCE-

FAAO JO 7110.65, Para 4-1-2 Exceptions.
FAAO JO 7110.65, Para 4-4-1 Route Use.
FAAO JO 7110.65, Para 5-3-1 Application.
FAAO JO 7110.65, Para 5-5-8 Additional Separation for Formation Flights.
FAAO JO 7110.65, Para 5-9-5 Approach Separation Responsibility.

4. A radar-identified aircraft and one not radar-identified that is in transit from oceanic airspace or non-radar offshore airspace into an area of known radar coverage where radar separation is applied as specified in Paragraph 8-5-5, Radar Identification Application, until the transiting aircraft is radar-identified or the controller establishes other approved separation in the event of a delay or inability to establish radar identification of the transiting aircraft.

REFERENCE-

FAAO JO 7110.65, Para 2-2-6, IFR Flight Progress Data.
FAAO JO 7110.65, Para 5-1-1, Presentation and Equipment Performance.
FAAO JO 7110.65, Para 5-3-1, Application.
FAAO JO 7110.65, Para 8-1-8, Use of Control Estimates.
FAAO JO 7110.65, Para 8-5-5, Radar Separation.

5-5-2. TARGET SEPARATION

a. Apply radar separation:

1. Between the centers of primary radar targets; however, do not allow a primary target to touch another primary target or a beacon control slash.

2. Between the ends of beacon control slashes.

NOTE-

At TPX-42 sites, the bracket video feature must be activated to display the beacon control slash.

3. Between the end of a beacon control slash and the center of a primary target.

4. All-digital displays. Between the centers of digitized targets. Do not allow digitized targets to touch.

REFERENCE–

FAAO JO 7110.65, Para 5–9–7 Simultaneous Independent ILS/MLS Approaches– Dual & Triple.

5–5–3. TARGET RESOLUTION

a. A process to ensure that correlated radar targets or digitized targets do not touch.

b. Mandatory traffic advisories and safety alerts must be issued when this procedure is used.

NOTE–

This procedure must not be provided utilizing mosaic radar systems.

c. Target resolution must be applied as follows:

1. Between the edges of two primary targets or the edges of primary digitized targets.

2. Between the end of the beacon control slash and the edge of a primary target or primary digitized target.

3. Between the ends of two beacon control slashes.

5–5–4. MINIMA

Separate aircraft by the following minima:

a. **TERMINAL.** Single Sensor ASR or Digital Terminal Automation System (DTAS):

NOTE–

Includes single sensor long range radar mode.

1. When less than 40 miles from the antenna– 3 miles.

2. When 40 miles or more from the antenna– 5 miles.

3. For single sensor ASR–9 with Mode S, when less than 60 miles from the antenna– 3 miles.

4. For single sensor ASR–11 MSSR Beacon, when less than 60 miles from the antenna– 3 miles.

NOTE–

Wake turbulence procedures specify increased separation minima required for certain classes of aircraft because of the possible effects of wake turbulence.

b. **TERMINAL. FUSION:**

1. Fusion target symbol – 3 miles.

2. When displaying ISR in the data block– 5 miles.

3. If TRK appears in the data block, handle in accordance with Paragraph 5-3-7, Identification Status, subparagraph b, and take appropriate steps to establish non-radar separation.

c. Stage A/DARC, Terminal Mosaic/ Multi-Sensor Mode:

NOTE–

Mosaic/Multi–Sensor Mode combines radar input from 2 to 16 sites into a single picture utilizing a mosaic grid composed of radar sort boxes.

1. Below FL 600– 5 miles.

2. At or above FL 600– 10 miles.

3. For areas meeting all of the following conditions:

(a) Radar site adaptation is set to single sensor.

(b) Significant operational advantages can be obtained.

(c) Within 40 miles of the antenna.

(d) Below FL 180.

(e) Facility directives specifically define the area where the separation can be applied. Facility directives may specify 3 miles.

REFERENCE–

FAAO JO 7210.3, Para 8–2–1, Single Site Coverage Stage A Operations.

FAAO JO 7210.3, Para 11–8–15, Single Site Coverage ATTS Operations.

4. When transitioning from terminal to en route control, 3 miles increasing to 5 miles or greater, provided:

(a) The aircraft are on diverging routes/ courses, and/or

(b) The leading aircraft is and will remain faster than the following aircraft; and

(c) Separation constantly increasing and the first center controller will establish 5 NM or other appropriate form of separation prior to the aircraft departing the first center sector; and

(d) The procedure is covered by a letter of agreement between the facilities involved and limited to specified routes and/or sectors/positions.

d. **MEARTS Mosaic Mode:**

1. Below FL 600- 5 miles.

2. At or above FL 600- 10 miles.

3. For areas meeting all of the following conditions – 3 miles:

(a) Radar site adaptation is set to single sensor mode.

NOTE–

1. *Single Sensor Mode displays information from the radar input of a single site.*

2. *Procedures to convert MEARTS Mosaic Mode to MEARTS Single Sensor Mode at each PVD/MDM will be established by facility directive.*

(b) Significant operational advantages can be obtained.

(c) Within 40 miles of the antenna.

(d) Below FL 180.

(e) Facility directives specifically define the area where the separation can be applied and define the requirements for displaying the area on the controller's PVD/MDM.

4. MEARTS Mosaic Mode Utilizing Single Source Polygon (San Juan CERAP and Honolulu Control Facility only) when meeting all of the following conditions– 3 miles:

(a) Less than 40 miles from the antenna, below FL180, and targets are from the adapted sensor.

(b) The single source polygon must be displayed on the controller's PVD/MDM.

(c) Significant operational advantages can be obtained.

(d) Facility directives specifically define the single source polygon area where the separation can be applied and specify procedures to be used.

(e) Controller must commence a transition to achieve either vertical separation or 5 mile lateral separation in the event that either target is not from the adapted sensor.

e. STARS Multi–Sensor Mode:

NOTE–

1. *In Multi–Sensor Mode, STARS displays targets as filled and unfilled boxes, depending upon the target's distance from the radar site providing the data. Since there is presently no way to identify which specific site is providing*

data for any given target, utilize separation standards for targets 40 or more miles from the antenna.

2. *When operating in STARS Single Sensor Mode, if TRK appears in the data block, handle in accordance with para 5–3–7 Identification Status, subpara b, and take appropriate steps to establish nonradar separation.*

3. *TRK appears in the data block whenever the aircraft is being tracked by a radar site other than the radar currently selected. Current equipment limitations preclude a target from being displayed in the single sensor mode; however, a position symbol and data block, including altitude information, will still be displayed. Therefore, low altitude alerts must be provided in accordance with para 2–1–6, Safety Alert.*

WAKE TURBULENCE APPLICATION

f. Separate aircraft operating directly behind, or directly behind and less than 1,000 feet below, or following an aircraft conducting an instrument approach by:

NOTE–

1. *When applying wake turbulence separation criteria, directly behind means an aircraft is operating within 2,500 feet of the flight path of the leading aircraft over the surface of the earth.*

2. *Consider parallel runways less than 2,500 feet apart as a single runway because of the possible effects of wake turbulence.*

1. Heavy behind heavy– 4 miles.

2. Large/heavy behind B757– 4 miles.

3. Small behind B757– 5 miles.

4. Small/large behind heavy – 5 miles.

WAKE TURBULENCE APPLICATION

g. **TERMINAL.** In addition to subpara f, separate an aircraft landing behind another aircraft on the same runway, or one making a touch-and-go, stop-and-go, or low approach by ensuring the following minima will exist at the time the preceding aircraft is over the landing threshold:

NOTE–

Consider parallel runways less than 2,500 feet apart as a single runway because of the possible effects of wake turbulence.

1. Small behind large– 4 miles.

2. Small behind B757– 5 miles.

3. Small behind heavy– 6 miles.

h. TERMINAL. 2.5 nautical miles (NM) separation is authorized between aircraft established on the final approach course within 10 NM of the landing runway when operating in single sensor slant range mode and aircraft remains within 40 miles of the antenna and:

1. The leading aircraft's weight class is the same or less than the trailing aircraft;
2. Heavy aircraft and the Boeing 757 are permitted to participate in the separation reduction as the trailing aircraft only;
3. An average runway occupancy time of 50 seconds or less is documented;

4. CTRDs are operational and used for quick glance references;

REFERENCE–

FAAO JO 7110.65, Para 3–1–9, *Use of Tower Radar Displays.*

5. Turnoff points are visible from the control tower.

REFERENCE–

FAAO JO 7110.65, Para 2–1–19, *Wake Turbulence.*
 FAAO JO 7110.65, Para 3–9–6, *Same Runway Separation.*
 FAAO JO 7110.65, Para 5–5–7, *Passing or Diverging.*
 FAAO JO 7110.65, Para 5–5–9, *Separation from Obstructions.*
 FAAO JO 7110.65, Para 5–8–3, *Successive or Simultaneous Departures.*
 FAAO JO 7110.65, Para 5–9–5, *Approach Separation Responsibility.*
 FAAO JO 7110.65, Para 7–6–7, *Sequencing.*
 FAAO JO 7110.65, Para 7–7–3, *Separation.*
 FAAO JO 7110.65 Para 7–8–3, *Separation.*
 FAAO JO 7210.3, Para 10–4–8, *Reduced Separation on Final.*

5–5–5. VERTICAL APPLICATION

Aircraft not laterally separated, may be vertically separated by one of the following methods:

a. Assign altitudes to aircraft, provided valid Mode C altitude information is monitored and the applicable separation minima is maintained at all times.

REFERENCE–

FAAO JO 7110.65, Para 4–5–1, *Vertical Separation Minima.*
 FAAO JO 7110.65, Para 5–2–17, *Validation of Mode C Readout.*
 FAAO JO 7110.65, Para 7–7–3, *Separation.*
 FAAO JO 7110.65, Para 7–8–3, *Separation.*
 FAAO JO 7110.65, Para 7–9–4, *Separation.*

b. Assign an altitude to an aircraft after the aircraft previously at that altitude has been issued a climb/descent clearance and is observed (valid Mode C), or reports leaving the altitude.

NOTE–

1. Consider known aircraft performance characteristics,

pilot furnished and/or Mode C detected information which indicate that climb/descent will not be consistent with the rates recommended in the AIM.

2. It is possible that the separation minima described in para 4–5–1, *Vertical Separation Minima*, para 7–7–3, *Separation*, para 7–8–3, *Separation*, or para 7–9–4, *Separation*, might not always be maintained using subpara b. However, correct application of this procedure will ensure that aircraft are safely separated because the first aircraft must have already vacated the altitude prior to the assignment of that altitude to the second aircraft.

REFERENCE–

FAAO JO 7110.65, Para 2–1–3, *Procedural Preference.*
 FAAO JO 7110.65, Para 4–5–1, *Vertical Separation Minima.*
 FAAO JO 7110.65, Para 5–2–17, *Validation of Mode C Readout.*
 FAAO JO 7110.65, Para 6–6–1, *Application.*

5–5–6. EXCEPTIONS

a. Do not use Mode C to effect vertical separation with an aircraft on a cruise clearance, contact approach, or as specified in para 5–15–4, *System Requirements*, subpara e3.

REFERENCE–

FAAO JO 7110.65, Para 6–6–2, *Exceptions.*
 FAAO JO 7110.65, Para 7–4–6, *Contact Approach.*
 P/CG Term– *Cruise.*

b. Assign an altitude to an aircraft only after the aircraft previously at that altitude is observed at or passing through another altitude separated from the first by the appropriate minima when:

1. Severe turbulence is reported.
2. Aircraft are conducting military aerial refueling.

REFERENCE–

FAAO JO 7110.65, Para 9–2–13, *Military Aerial Refueling.*

3. The aircraft previously at that altitude has been issued a climb/descent at pilot's discretion.

5–5–7. PASSING OR DIVERGING

a. TERMINAL. In accordance with the following criteria, all other approved separation may be discontinued and passing or diverging separation applied when:

1. Aircraft are on opposite/reciprocal courses and you have observed that they have passed each other; or aircraft are on same or crossing courses/assigned radar vectors and one aircraft has crossed the projected course of the other, and the angular difference between their courses/assigned radar vectors is at least 15 degrees.

NOTE–

Two aircraft, both assigned radar vectors with an angular difference of at least 15 degrees, is considered a correct application of this paragraph.

2. The tracks are monitored to ensure that the primary targets, beacon control slashes, or full digital terminal system primary and/or beacon target symbols will not touch.

REFERENCE–

FAAO JO 7110.65, Para 1–2–2, Course Definitions.

NOTE–

1. Apply en route separation rules when using long range or multi-sensory radar.

2. Although all other approved separation may be discontinued, the requirements of para 5-5-4, Minima, subparas e and f must apply when operating behind a heavy jet/B757.

b. EN ROUTE. Vertical separation between aircraft may be discontinued when they are on opposite courses as defined in para 1–2–2, Course Definitions; and

1. You are in communications with both aircraft involved; and

2. You tell the pilot of one aircraft about the other aircraft, including position, direction, type; and

3. One pilot reports having seen the other aircraft and that the aircraft have passed each other; and

4. You have observed that the radar targets have passed each other; and

5. You have advised the pilots if either aircraft is classified as a heavy jet/B757 aircraft.

6. Although vertical separation may be discontinued, the requirements of para 5–5–4, Minima, subparas f and g must be applied when operating behind a heavy jet/B757.

EXAMPLE–

“Traffic, twelve o’clock, Boeing Seven Twenty Seven, opposite direction. Do you have it in sight?”

(If the answer is in the affirmative):

“Report passing the traffic.”

(When pilot reports passing the traffic and the radar targets confirm that the traffic has passed, issue appropriate control instructions.)

5–5–8. ADDITIONAL SEPARATION FOR FORMATION FLIGHTS

Because of the distance allowed between formation aircraft and lead aircraft, additional separation is necessary to ensure the periphery of the formation is adequately separated from other aircraft, adjacent airspace, or obstructions. Provide supplemental separation for formation flights as follows:

a. Separate a standard formation flight by adding 1 mile to the appropriate radar separation minima.

REFERENCE–

FAAO JO 7110.65, Para 2–1–13, Formation Flights.

FAAO JO 7110.65, Para 5–5–1, Application.

FAAO JO 7110.65, Para 7–7–3, Separation.

P/CG Term– Formation Flight.

b. Separate two standard formation flights from each other by adding 2 miles to the appropriate separation minima.

c. Separate a nonstandard formation flight by applying the appropriate separation minima to the perimeter of the airspace encompassing the nonstandard formation or from the outermost aircraft of the nonstandard formation whichever applies.

d. If necessary for separation between a nonstandard formation and other aircraft, assign an appropriate beacon code to each aircraft in the formation or to the first and last aircraft in-trail.

NOTE–

The additional separation provided in Paragraph 5–5–8 Additional Separation for Formation Flights, is not normally added to wake turbulence separation when a formation is following a heavier aircraft since none of the formation aircraft are likely to be closer to the heavier aircraft than the lead aircraft (to which the prescribed wake turbulence separation has been applied).

REFERENCE–

FAAO JO 7110.65, Para 9–2–13, Military Aerial Refueling.

5–5–9. SEPARATION FROM OBSTRUCTIONS

a. Except in En Route Stage A/DARC or Stage A/EDARC, separate aircraft from obstructions depicted on the radar display by the following minima:

1. When less than 40 miles from the antenna–3 miles.

2. When 40 miles or more from the antenna–5 miles.

b. Except in En Route Stage A/DARC or Stage A/EDARC, vertical separation of aircraft

above an obstruction depicted on the radar display may be discontinued after the aircraft has passed it.

c. En Route Stage A/DARC or Stage A/EDARC, apply the radar separation minima specified in Paragraph 5-5-4, Minima, subparagraph c1.

5-5-10. ADJACENT AIRSPACE

a. If coordination between the controllers concerned has not been effected, separate radar-controlled aircraft from the boundary of adjacent airspace in which radar separation is also being used by the following minima:

REFERENCE—

FAAO JO 7110.65, Para 2-1-14, *Coordinate Use of Airspace*.

1. When less than 40 miles from the antenna—
1 1/2 miles.

2. When 40 miles or more from the antenna—
2 1/2 miles.

3. En route Stage A/DARC or Stage A/EDARC:

(a) Below Flight Level 600— 2 1/2 miles.

(b) Flight Level 600 and above— 5 miles.

b. Separate radar-controlled aircraft from the boundary of airspace in which nonradar separation is being used by the following minima:

1. When less than 40 miles from the antenna—
3 miles.

2. When 40 miles or more from the antenna—
5 miles.

3. En route Stage A/DARC or Stage A/EDARC:

(a) Below Flight Level 600— 5 miles.

(b) Flight Level 600 and above— 10 miles.

c. The provisions of subparas a and b do not apply to VFR aircraft being provided Class B, Class C, or TRSA services. Ensure that the targets of these aircraft do not touch the boundary of adjacent airspace.

d. VFR aircraft approaching Class B, Class C, Class D, or TRSA airspace which is under the control jurisdiction of another air traffic control facility should either be provided with a radar handoff or be advised that radar service is terminated, given their position in relation to the Class B, Class C, Class D, or TRSA airspace, and the ATC frequency, if known, for the airspace to be entered. These actions should be accomplished in sufficient time for the pilot to obtain the required ATC approval prior to entering the airspace involved, or to avoid the airspace.

5-5-11. EDGE OF SCOPE

Separate a radar-controlled aircraft climbing or descending through the altitude of an aircraft that has been tracked to the edge of the scope/display by the following minima until nonradar separation has been established:

a. When less than 40 miles from the antenna—
3 miles from edge of scope.

b. When 40 miles or more from the antenna—
5 miles from edge of scope.

c. En route Stage A/DARC or Stage A/EDARC:

1. Below Flight Level 600— 5 miles.

2. Flight Level 600 and above— 10 miles.

5-5-12. BEACON TARGET DISPLACEMENT

When using a radar target display with a previously specified beacon target displacement to separate a beacon target from a primary target, adjacent airspace, obstructions, or terrain, add a 1 mile correction factor to the applicable minima. The maximum allowable beacon target displacement which may be specified by the facility air traffic manager is 1/2 mile.

REFERENCE—

FAAO JO 7210.3, Para 3-7-4, *Monitoring of Mode 3/A Radar Beacon Codes*.

Weather conditions in the vicinity of the final approach course may dictate a change of the approach in use.

REFERENCE–

FAAO JO 7110.65, Para 5–1–13, Radar Service Termination.
FAAO JO 7110.65, Para 5–9–2, Final Approach Course Interception.

5–9–9. SIMULTANEOUS INDEPENDENT CLOSE PARALLEL APPROACHES – HIGH UPDATE RADAR NOT REQUIRED.

TERMINAL

a. Simultaneous close parallel approaches may only be conducted where instrument approach charts specifically authorize simultaneous approaches to parallel runways.

b. Apply the following minimum separation when conducting simultaneous independent close parallel approaches:

1. Provide a minimum of 1,000 feet vertical or a minimum of 3 miles radar separation between aircraft during turn-on to parallel final approach courses.

NOTE–

Communications transfer to the tower controller's frequency will be completed prior to losing vertical separation between aircraft.

2. Parallel runway centerlines are separated by a minimum of 3,600 feet or more, and the airport elevation is less than 2,000' MSL.

3. Provide the minimum applicable radar separation between aircraft on the same final approach course.

REFERENCE–

FAAO JO 7110.65, Para 5-5-4, Minima.

c. A high-resolution color monitor with alert algorithms, such as the final monitor aid, must be used to monitor close parallel approaches.

d. The following conditions are required when applying the minimum separation on parallel final approach courses allowed in subparagraph a:

1. Straight-in landings will be made.

2. All appropriate communication, navigation, and surveillance systems are operating normally.

3. Inform aircraft that simultaneous closely spaced approaches are in use prior to aircraft

departing an outer fix. This information may be provided through the ATIS.

4. Clear the aircraft to descend to the appropriate glideslope intercept altitude soon enough to provide a period of level flight to dissipate excess speed. Provide at least 1 mile of straight flight prior to the final approach course intercept.

NOTE–

Not applicable to curved and segmented approaches.

5. A NTZ at least 2,000 feet wide is established an equal distance between extended runway final approach courses and must be depicted on the monitor display. The primary responsibility for navigation on the final approach course rests with the pilot. Control instructions and information are issued only to ensure separation between aircraft and to prevent aircraft from penetrating the NTZ.

6. Monitor all approaches regardless of weather. Monitor local control frequency to receive any aircraft transmission. Issue control instructions as necessary to ensure aircraft do not enter the NTZ.

NOTE–

1. Separate monitor controllers, each with transmit/receive and override capability on the local control frequency, will ensure aircraft do not penetrate the depicted NTZ. Facility directives must define responsibility for providing the minimum applicable longitudinal separation between aircraft on the same final approach course.

2. The aircraft is considered the center of the primary radar return for that aircraft, or, if an FMA or other color final monitor aid is used, the center of the digitized target of that aircraft, for the purposes of ensuring an aircraft does not penetrate the NTZ. The provisions of Paragraph 5-5-2, Target Separation, also apply.

e. The following procedures must be used by the final monitor controllers:

1. Instruct the aircraft to return to the correct final approach course when aircraft are observed to overshoot the turn-on or to continue on a track that will penetrate the NTZ.

PHRASEOLOGY–

YOU HAVE CROSSED THE FINAL APPROACH COURSE. TURN (left/right) IMMEDIATELY AND RETURN TO THE FINAL APPROACH COURSE,

or

TURN (left/right) AND RETURN TO THE FINAL APPROACH COURSE.

2. Instruct aircraft on the adjacent final approach course to alter course to avoid the deviating aircraft when an aircraft is observed penetrating or in the controller's judgment will penetrate the NTZ.

PHRASEOLOGY–

TRAFFIC ALERT, (call sign), TURN (right/left) IMMEDIATELY HEADING (degrees), CLIMB AND MAINTAIN (altitude).

3. Terminate radar monitoring when one of the following occurs:

- (a) Visual separation is applied.
- (b) The aircraft reports the approach lights or runway in sight.
- (c) The aircraft is 1 mile or less from the runway threshold, if procedurally required, and contained in facility directives.

4. Do not inform the aircraft when radar monitoring is terminated.

5. Do not apply the provisions of Paragraph 5-13-1, Monitor on PAR Equipment, for simultaneous independent close parallel approaches.

f. Consideration should be given to known factors that may in any way affect the safety of the instrument approach phase of flight when simultaneous independent close parallel approaches are being conducted to parallel runways. Factors include, but are not limited to, wind direction/velocity, wind-shear alerts/reports, severe weather activity, etc. Closely monitor weather activity that could impact the final approach course. Weather conditions in the vicinity of the final approach course may dictate a change of approach in use.

REFERENCE–

FAAO JO 7110.65, Para 5-1-13, Radar Service Termination.

FAAO JO 7110.65, Para 5-9-2, Final Approach Course Interception.

5-9-10. SIMULTANEOUS OFFSET INSTRUMENT APPROACHES (SOIA)– HIGH UPDATE RADAR

TERMINAL

a. Simultaneous offset independent approaches SOIA may be conducted at FAA designated airports that have an authorization issued by the Director, Terminal Operations, Headquarters, in coordination with AFS with parallel runways that have centerlines separated by less than 3,000 feet with one final approach course offset by 2.5 to 3.0 degrees using a

high update rate surveillance system with a 1.0-second radar update; and

1. Provide a minimum of 1,000 feet vertical or a minimum of 3 miles radar separation between aircraft during turn-on to final approaches.

NOTE–

Communications transfer to the tower controller's frequency must be completed prior to losing vertical separation between aircraft.

2. Provide the minimum applicable radar separation between aircraft on the same final approach course.

3. Provide the minimum applicable radar separation between the trailing offset aircraft of a leading SOIA pair and the lead straight-in aircraft in the subsequent SOIA pair when the parallel runways have centerlines separated by less than 2,500 feet.

REFERENCE–

FAAO JO 7110.65, Para 5-5-4, Minima.

b. The following conditions are required when applying the minimum separation between lead straight-in and offset trailing approaches with glideslope courses or vertical navigation authorized in subparagraph a above:

- 1. Straight-in landings will be made.
- 2. All appropriate communication, navigation, and surveillance systems are operating normally.
- 3. Inform aircraft that closely spaced simultaneous approaches are in use prior to aircraft departing an outer fix. This information may be provided through the ATIS.
- 4. Clear the aircraft to descend to the appropriate glideslope/glidepath intercept altitude soon enough to provide a period of level flight to dissipate excess speed. Provide at least 1 mile of straight flight prior to the final approach course intercept.

NOTE–

Not applicable to curved and segmented MLS approaches.

5. A No Transgression Zone (NTZ) at least 2,000 feet wide is established an equal distance between extended runway final approach courses and must be depicted on the monitor display. The NTZ begins prior to the point where adjacent inbound aircraft first lose vertical separation and extends to a point coincident with the location of the offset approach MAP. The primary responsibility for navigation on the final approach course rests with the

Section 5. Special VFR (SVFR)

7-5-1. AUTHORIZATION

a. SVFR operations in weather conditions less than basic VFR minima are authorized:

REFERENCE-

FAAO JO 7110.65, Para 2-1-4 Operational Priority.

1. At any location not prohibited by 14 CFR Part 91, Appendix D or when an exemption to 14 CFR Part 91 has been granted and an associated LOA established. 14 CFR Part 91 does not prohibit SVFR helicopter operations.

2. Only within the lateral boundaries of Class B, Class C, Class D, or Class E surface areas, below 10,000 feet MSL.

3. Only when requested by the pilot.

4. On the basis of weather conditions reported at the airport of intended landing/departure.

REFERENCE-

FAAO JO 7110.65, Para 7-5-6 Climb to VFR.

FAAO JO 7110.65, Para 7-5-7 Ground Visibility Below One Mile.

5. When weather conditions are not reported at the airport of intended landing/departure and the pilot advises that VFR cannot be maintained and requests SVFR.

PHRASEOLOGY-

CLEARED TO ENTER/OUT OF/THROUGH, (name) SURFACE AREA

and if required,

(direction) OF (name) AIRPORT (specified routing),
and

MAINTAIN SPECIAL V-F-R CONDITIONS,

and if required,

AT OR BELOW (altitude below 10,000 feet MSL)

or as applicable under an exemption from 14 CFR Part 91,

CLEARED FOR (coded arrival or departure procedure) ARRIVAL/DEPARTURE, (additional instructions as required).

REFERENCE-

FAAO JO 7110.65, Para 2-4-22 Airspace Classes.

b. SVFR operations may be authorized for aircraft operating in or transiting a Class B, Class C, Class D, or Class E surface area when the primary airport is reporting VFR but the pilot advises that basic VFR cannot be maintained.

NOTE-

The basic requirements for issuance of a SVFR clearance in subpara a apply with the obvious exception that weather conditions at the controlling airport are not required to be less than basic VFR minima.

7-5-2. PRIORITY

a. SVFR flights may be approved only if arriving and departing IFR aircraft are not delayed.

EXAMPLE-

1. A SVFR aircraft has been cleared to enter a Class B, Class C, Class D, or Class E surface area and subsequently an IFR aircraft is ready to depart or is in position to begin an approach. Less overall delay might accrue to the IFR aircraft if the SVFR aircraft is allowed to proceed to the airport and land, rather than leave, a Class B, Class C, Class D, or Class E surface area or be repositioned to provide IFR priority.

2. A SVFR aircraft is number one for takeoff and located in such a position that the number two aircraft, an IFR flight, cannot taxi past to gain access to the runway. Less overall delay might accrue to the IFR aircraft by releasing the SVFR departure rather than by having the aircraft taxi down the runway to a turnoff point so the IFR aircraft could be released first.

NOTE-

The priority afforded IFR aircraft over SVFR aircraft is not intended to be so rigidly applied that inefficient use of airspace results. The controller has the prerogative of permitting completion of a SVFR operation already in progress when an IFR aircraft becomes a factor if better overall efficiency will result.

b. Inform an aircraft of the anticipated delay when a SVFR clearance cannot be granted because of IFR traffic. Do not issue an EFC or expected departure time.

PHRASEOLOGY-

EXPECT (number) MINUTES DELAY, (additional instructions as necessary).

REFERENCE-

FAAO JO 7110.65, Para 2-1-4 Operational Priority.

FAAO JO 7110.65, Para 5-6-1 Application.

7-5-3. SEPARATION

a. Apply non-radar, altitude, or visual separation between:

1. SVFR aircraft.
2. SVFR and IFR aircraft

NOTE—

Due to the requirement for fixed-wing aircraft to maintain 1-mile flight visibility and all SVFR aircraft to remain clear of clouds, radar separation is not authorized during SVFR operations. Radar vectors are authorized, as prescribed in Paragraph 5-6-1, Application, subparagraph f, to expedite the entrance, exit, and transition of SVFR aircraft through the appropriate surface area.

REFERENCE—

FAAO JO 7110.65, Chapter 6, Non-Radar
FAAO JO 7110.65, 7-2-1, Visual Separation
FAAO JO 7110.65, 7-5-4, Altitude Assignment

b. Alternate SVFR helicopter separation minima may be established when warranted by the volume and/or complexity of local helicopter operations. Alternate SVFR helicopter separation minima must be contained in an LOA with the helicopter operator which must specify, as a minimum, that SVFR helicopters are to maintain visual reference to the surface and adhere to the following aircraft separation minima:

1. Between a SVFR helicopter and an arriving or departing IFR aircraft:

(a) $\frac{1}{2}$ mile. If the IFR aircraft is less than 1 mile from the landing airport.

(b) 1 mile. If the IFR aircraft is 1 mile or more from the airport.

2. 1 mile between SVFR helicopters. This separation may be reduced to 200 feet if both helicopters are departing simultaneously on courses that diverge by at least 30 degrees and

(a) The tower can determine this separation by reference to surface markings; or

(b) One of the departing helicopters is instructed to remain at least 200 feet from the other.

NOTE—

Radar vectors are authorized as prescribed in para 5-6-1 Application.

REFERENCE—

FAAO JO 7110.65, Para 2-1-4 Operational Priority.

3. When applying the provisions of Alternate SVFR helicopter separation minima, towers that are delegated separation responsibility in accordance with FAA Order JO 7210.3, Paragraph 10-5-3, Functional Use of Certified Tower Radar Displays, subparagraph b5, or delegated airspace in accordance with FAA Order JO 7210.3, Paragraph 10-5-3, Functional Use of Certified Tower Radar Displays, subparagraph d, may use CTRDs to ensure that the prescribed separation exists. Radar Vectors are authorized as prescribed in Paragraph 5-6-1, Application.

4. Towers that are not delegated airspace or separation responsibility must use CTRDs in accordance with Paragraph 3-1-9, Use of Tower Radar Displays, subparagraph b.

7-5-4. ALTITUDE ASSIGNMENT

Do not assign a fixed altitude when applying vertical separation, but clear the SVFR aircraft at or below an altitude which is at least 500 feet below any conflicting IFR traffic but not below the MSA prescribed in 14 CFR Section 91.119.

PHRASEOLOGY—

MAINTAIN SPECIAL V-F-R CONDITIONS AT OR BELOW (altitude).

NOTE—

1. *SVFR aircraft are not assigned fixed altitudes to maintain because of the clearance from clouds requirement.*

2. *The MSAs are:*

(a) *Over congested areas, an altitude at least 1,000 feet above the highest obstacle, and*

(b) *Over other than congested areas, an altitude at least 500 feet above the surface.*

(c) *Helicopters may be operated at less than the minimum altitudes prescribed in (a) and (b) above.*

REFERENCE—

FAAO JO 7110.65, Para 2-1-4 Operational Priority.
FAAO JO 7110.65, Para 5-6-1 Application.
14 CFR Section 91.119, Minimum Safe Altitudes: General.

7-5-5. LOCAL OPERATIONS

a. Authorize local SVFR operations for a specified period (series of landings and takeoffs, etc.) upon request if the aircraft can be recalled when traffic or weather conditions require. Where warranted, LOAs may be consummated.

PHRASEOLOGY–

LOCAL SPECIAL V-F-R OPERATIONS IN THE IMMEDIATE VICINITY OF (name) AIRPORT ARE AUTHORIZED UNTIL (time). MAINTAIN SPECIAL V-F-R CONDITIONS.

REFERENCE–

FAAO JO 7210.3, Para 4-3-2, *Appropriate Subjects.*

b. Control facilities may also authorize an FSS to transmit SVFR clearances so that only one aircraft at a time operates in the Class B, Class C, Class D, or Class E surface areas unless pilots agree that they will maintain visual separation with other aircraft operating in the Class B, Class C, Class D, or Class E surface areas. Such authorization concerning visual separation by pilots must be contained in a LOA between the control facility and the FSS.

REFERENCE–

FAAO JO 7210.3, Para 4-3-3, *Developing LOA.*
FAAO JO 7110.65, Para 2-1-4 *Operational Priority.*

7-5-6. CLIMB TO VFR

Authorize an aircraft to climb to VFR upon request if the only weather limitation is restricted visibility.

PHRASEOLOGY–

CLIMB TO V-F-R WITHIN (name) SURFACE AREA/WITHIN (a specified distance) MILES FROM (airport name) AIRPORT, MAINTAIN SPECIAL V-F-R CONDITIONS UNTIL REACHING V-F-R.

REFERENCE–

FAAO JO 7110.65, Para 2-1-4 *Operational Priority.*
FAAO JO 7110.65, Para 2-4-22 *Airspace Classes.*
FAAO JO 7110.65, Para 7-5-1 *Authorization.*

7-5-7. GROUND VISIBILITY BELOW ONE MILE

14 CFR Part 91 does not prohibit helicopter SVFR flight when the visibility is less than 1 mile. Treat requests for SVFR fixed wing operations as follows when the ground visibility is officially reported at an airport as less than 1 mile:

a. Inform departing aircraft that ground visibility is less than 1 mile and that a clearance cannot be issued.

b. Inform arriving aircraft, operating outside of a Class B, Class C, Class D, or Class E surface area, that ground visibility is less than 1 mile and that, unless an emergency exists, a clearance cannot be issued.

c. Inform arriving aircraft, operating VFR/SVFR within a Class B, Class C, Class D, or Class E surface

area, that ground visibility is less than 1 mile and request the pilot to advise intentions.

PHRASEOLOGY–

(Name of airport) VISIBILITY LESS THAN ONE MILE. ADVISE INTENTIONS.

NOTE–

Clear an aircraft to land at an airport with an operating control tower, traffic permitting, if the pilot reports the airport in sight. The pilot is responsible to continue to the airport or exit the surface area. 14 CFR Section 91.157 prohibits VFR aircraft (other than helicopters) from landing at any airport within a surface area when ground visibility is less than 1 mile. A pilot could inadvertently encounter conditions that are below SVFR minimums after entering a surface area due to rapidly changing weather. The pilot is best suited to determine the action to be taken since pilots operating under SVFR between sunrise and sunset are not required to be instrument rated, and the possibility exists that flight visibility may not be the same as ground visibility. 14 CFR Section 91.3 authorizes a pilot encountering an inflight emergency requiring immediate action to deviate from any rule of 14 CFR Part 91 to the extent required to meet that emergency. Flight into adverse weather conditions may require the pilot to execute the emergency authority granted in 14 CFR Section 91.3 and continue inbound to land.

d. Authorize scheduled air carrier aircraft in the U.S. to conduct operations if ground visibility is not less than 1/2 statute mile.

NOTE–

14 CFR Part 121 permits landing or takeoff by domestic scheduled air carriers where a local surface restriction to visibility is not less than 1/2 statute mile, provided all turns after takeoff or before landing and all flights beyond 1 statute mile from the airport boundary can be accomplished above or outside the area so restricted. The pilot is solely responsible for determining if the nature of the visibility restriction will permit compliance with the provisions of 14 CFR Part 121.

e. Clear an aircraft to fly through the Class B, Class C, Class D, or Class E surface area if the aircraft reports flight visibility is at least 1 statute mile.

REFERENCE–

FAAO JO 7110.65, Para 2-1-4 *Operational Priority.*
FAAO JO 7110.65, Para 7-5-1 *Authorization.*

7-5-8. FLIGHT VISIBILITY BELOW ONE MILE

Treat requests for SVFR fixed-wing operations as follows when weather conditions are not reported at

an airport and the pilot advises the flight visibility is less than 1 mile:

NOTE—

14 CFR Part 91 prescribes the visibility for basic VFR and SVFR operations as the official reported ground visibility at airports where provided and landing or takeoff “flight visibility” where there is no official reported ground visibility.

a. Inform departing aircraft that a clearance cannot be issued.

b. Inform arriving aircraft operating outside of a Class B, Class C, Class D or Class E surface area that a clearance cannot be issued unless an emergency exists.

c. Request the intentions of an arriving aircraft operating within a Class B, Class C, Class D, or Class E surface area.

NOTE—

Clear an aircraft to land at an airport with an operating

control tower, traffic permitting, if the pilot reports the airport in sight. The pilot is responsible to continue to the airport or exit the surface area. 14 CFR Section 91.157 prohibits VFR aircraft (other than helicopters) from landing at any airport within a surface area when flight visibility is less than 1 mile. A pilot could inadvertently encounter conditions that are below SVFR minimums after entering a surface area due to rapidly changing weather. The pilot is best suited to determine the action to be taken since pilots operating under SVFR between sunrise and sunset are not required to be instrument rated, and the possibility exists that flight visibility may not be the same as ground visibility. 14 CFR Section 91.3 authorizes a pilot encountering an inflight emergency requiring immediate action to deviate from any rule of 14 CFR Part 91 to the extent required to meet that emergency. Flight into adverse weather conditions may require the pilot to execute the emergency authority granted in 14 CFR Section 91.3 and continue inbound to land.

REFERENCE—

FAAO JO 7110.65, Para 2–1–4 Operational Priority.

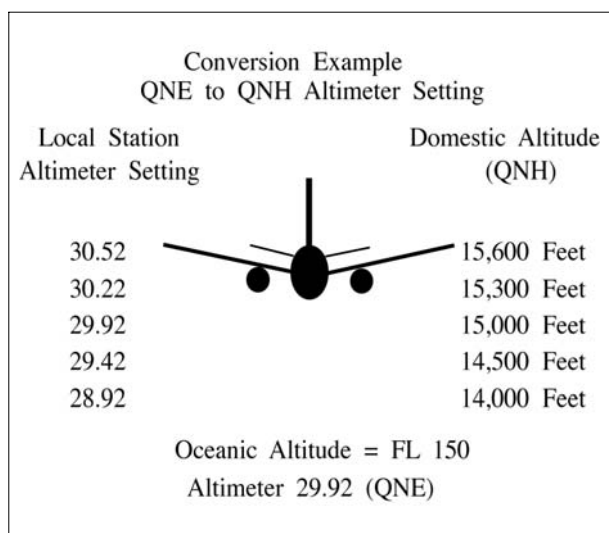
Section 5. Offshore/Oceanic Transition Procedures

8-5-1. ALTITUDE/FLIGHT LEVEL TRANSITION

When vertical separation is applied between aircraft crossing the offshore/oceanic airspace boundary below FL 180, control action must be taken to ensure that differences between the standard altimeter setting (QNE) and local altimeter setting (QNH) do not compromise separation. (See FIG 8-5-1.)

FIG 8-5-1

Standard and Local Altimeter Setting Differences



8-5-2. COURSE DIVERGENCE

When aircraft are entering oceanic airspace, separation will exist in oceanic airspace when:

- Aircraft are established on courses that diverge by at least 15 degrees until oceanic lateral separation is established, and

- The aircraft are horizontally radar separated and separation is increasing at the edge of known radar coverage.

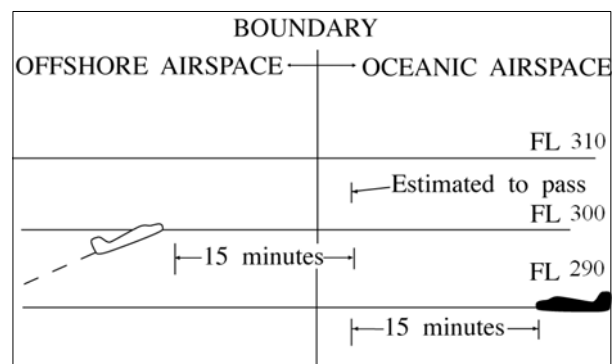
8-5-3. OPPOSITE DIRECTION

When transitioning from an offshore airspace area to oceanic airspace, an aircraft may climb through opposite direction oceanic traffic provided vertical separation above that traffic is established:

- Before the outbound crosses the offshore/oceanic boundary; and
- 15 minutes before the aircraft are estimated to pass. (See FIG 8-5-2.)

FIG 8-5-2

Transitioning From Offshore to Oceanic Airspace Opposite Direction

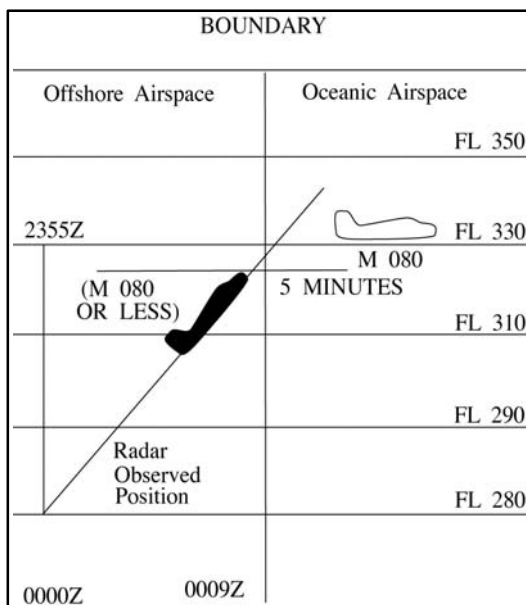


8-5-4. SAME DIRECTION

When transitioning from an offshore airspace area to oceanic airspace or while within oceanic airspace, apply 5 minutes minimum separation when a following aircraft on the same course is climbing through the altitude of the preceding aircraft if the following conditions are met:

- a. The preceding aircraft is level at the assigned altitude and is maintaining a speed equal to or greater than the following aircraft; and
- b. The minimum of 5 minutes is maintained between the preceding and following aircraft; and
- c. The following aircraft is separated by not more than 4,000 feet from the preceding aircraft when the climb clearance is issued; and
- d. The following aircraft commences climb within 10 minutes after passing:
 1. An exact reporting point (DME fix or intersection formed from NAVAIDs) which the preceding aircraft has reported; or
 2. A radar observed position over which the preceding aircraft has been observed; and
- e. The following aircraft is in direct communication with air traffic control until vertical separation is established. (See FIG 8-5-3.)

FIG 8-5-3
Transitioning From Offshore to Oceanic Airspace
Same Direction



8-5-5. RADAR IDENTIFICATION APPLICATION

Radar separation standards may be applied between radar identified aircraft and another aircraft not yet identified that is in transit from oceanic airspace or non-radar offshore airspace into an area of known radar coverage where radar separation is applied provided:

- a. Direct radio communications is maintained with one of the aircraft involved and there is an ability to communicate with the other;
- b. The transiting aircraft is RNAV equipped;
- c. The performance of the radar/system is adequate;

REFERENCE-

FAA Order JO 7110.65, Para 5-1-1, Presentation and Equipment Performance

d. Flight data on the aircraft that has not been radar identified indicate that it is equipped with a standard transponder and there is no known information that the transponder is not operating;

e. Radar separation standards are maintained between the radar identified aircraft and any other observed targets until the transitioning aircraft is radar identified or non-radar separation is established;

f. The facility has identified areas of known radar coverage, incorporated those areas into facility standard operating procedures (SOP), and provided training to the controllers.

g. This procedure is also applicable to aircraft in transit from oceanic airspace into Guam Control Area (CTA), San Juan CTA and Honolulu CTA radar coverage areas.

h. EXCEPTION: This procedure is not authorized if there is insufficient time for the controller to establish other approved separation in the event of a delay or inability to establish radar identification of the transiting aircraft taking into consideration factors such as aircraft performance characteristics, type, and speed; weather, traffic conditions; workload; frequency congestion; etc.

REFERENCE-

FAAO JO 7110.65, Para 2-2-6, IFR Flight Progress Data, Subpara 2-2-6.b.

FAAO JO 7110.65, Para 8-1-8, use of Control Estimates

Section 5. Oceanic Emergency Procedures

10-5-1. APPLICATION

The procedures in this section are to be used solely in oceanic airspace.

10-5-2. PHASES OF EMERGENCY

Emergency phases are described as follows:

a. Uncertainty phase (INCERFA). When there is concern about the safety of an aircraft or its occupants, an INCERFA exists:

1. When communication from an aircraft has not been received within 30 minutes after the time a communication should have been received or after the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is earlier; or

2. When an aircraft fails to arrive within 30 minutes after the time of arrival last estimated by the pilot or by the ATC units, whichever is later.

b. Alert phase (ALERFA). When there is apprehension about the safety of an aircraft and its occupants, an ALERFA exists:

1. Following the uncertainty phase when subsequent attempts to establish communications with the aircraft, or inquiries to other relevant sources have failed to reveal any information about the aircraft; or

2. When information has been received which indicates that the operating efficiency of the aircraft has been impaired but not to the extent that a forced landing is likely; or

3. When communication from an aircraft has not been received within 60 minutes after the time a communication should have been received or after the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is earlier.

c. Distress phase (DETRESFA). When there is reasonable certainty that the aircraft and its occupants are threatened by grave and imminent danger, a DETRESFA exists:

1. Following the alert phase when further attempts to establish communications with the aircraft and more widespread inquiries are unsuccessful; or

2. When the fuel on board is considered to be exhausted or to be insufficient for the aircraft to reach safety; or

3. When information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely; or

4. When information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing.

10-5-3. ALERTING SERVICE AND SPECIAL ASSISTANCE

a. Provide alerting service to:

1. All aircraft receiving ATC service;

2. All other aircraft which have filed a flight plan or which are otherwise known to the ATC unit; and

3. Any aircraft known or believed to be the subject of unlawful interference.

b. When alerting service is required, the responsibility for coordinating such service must, unless otherwise established by letter of agreement, rest with the facility serving the FIR or CTA:

1. Within which the aircraft was flying at the time of last air-ground radio contact; or

2. Which the aircraft was about to enter if the last air-ground contact was established at or close to the boundary; or

3. Within which the point of destination is located if the aircraft:

- (a) Was not equipped with suitable two-way radio communications equipment; or

- (b) Was not under obligation to transmit position reports.

REFERENCE-

FAAO JO 7110.65, Chapter 8, Section 2, Coordination.

c. The responsible Area Control Center (ACC) must serve as the control point for:

1. Collecting all information relevant to a state of emergency of an aircraft;
2. Forwarding that information to the appropriate RCC; and
3. Coordinating with other facilities concerned.

d. The responsibility of the ACC to provide alerting service for military aircraft may be waived upon a written or recorded request from a military agency. In this case, the military request must state that the military agency assumes full responsibility for their aircraft while the aircraft are operating in the oceanic airspace.

e. Responsibility to provide alerting service for flight operations conducted under the “due regard” or “operational” prerogative of military aircraft is assumed by the military. When “due regard” operations are scheduled to end with aircraft filed under ICAO procedures, the ACC may, if specified in a letter of agreement, assume responsibility for alerting service at proposed time filed.

f. In the event of INCERFA, ALERFA, or DETRESFA, notify the following:

1. When practicable, the aircraft operator.
2. The appropriate RCC.

3. Aeronautical stations having en route communications guard responsibilities at the point of departure, along or adjacent to the route of flight, and at the destination.

4. ACCs having jurisdiction over the proposed route of flight from the last reported position to the destination airport.

g. INCERFA, ALERFA, and DETRESFA messages must include the following information, if available, in the order listed:

1. INCERFA, ALERFA, or DETRESFA according to the phase of the emergency.
2. Agency and person originating the message.
3. Nature of the emergency.
4. Significant flight plan information.

5. The air traffic unit which made the last radio contact, the time, and the frequency used.

6. The aircraft’s last position report, how it was received, and what facility received it.

7. Color and distinctive marks of aircraft.

8. Any action taken by reporting office.

9. Other pertinent remarks.

h. An INCERFA phase ends with the receipt of any information or position report on the aircraft. Cancel the INCERFA by a message addressed to the same stations as the INCERFA message.

1. An ALERFA ends when:

(a) Evidence exists that would ease apprehension about the safety of the aircraft and its occupants; or

(b) The concerned aircraft lands. Cancel the ALERFA message by a message addressed to the same stations as the ALERFA message.

2. A DETRESFA ends when the:

(a) Aircraft successfully lands; or

(b) RCC advises of a successful rescue; or

(c) RCC advises of termination of SAR activities. Cancel the DETRESFA by a message addressed to the same stations as the DETRESFA message.

i. A separate chronological record should be kept on each ALERFA and DETRESFA together with a chart which displays the projected route of the aircraft, position reports received, route of interceptor aircraft, and other pertinent information.

10-5-4. INFLIGHT CONTINGENCIES

a. If an aircraft over water requests weather, sea conditions, ditching information, and/or assistance from surface vessels, or if the controller feels that this information may be necessary for aircraft safety, it should be requested from the RCC. Also, an appropriate AMVER SURPIC should be asked for if requested by the aircraft or deemed beneficial by control personnel.

NOTE—

The AMVER Center can deliver, in a matter of minutes, a SURPIC of vessels in the area of a SAR incident, including their predicted positions and their characteristics.

b. In all cases of aircraft ditching, the airspace required for SAR operations must be determined by the RCC. The ACC must block that airspace until the RCC advises the airspace is no longer required. An International Notice to Airmen (NOTAM) must be issued describing the airspace affected.

c. The following actions will be taken in the event an aircraft must make an emergency descent:

1. In the event an aircraft requests an emergency descent:

(a) Issue a clearance to the requested altitude if approved separation can be provided.

(b) Advise the aircraft of the traffic, and request its intentions if traffic prevents an unrestricted descent.

PHRASEOLOGY–

ATC ADVISES (aircraft identification) UNABLE TO APPROVE UNRESTRICTED DESCENT.

TRAFFIC (traffic information).

REQUEST INTENTIONS.

2. In the event an aircraft is making or will make an emergency descent without a clearance:

(a) Advise other aircraft of the emergency descent.

PHRASEOLOGY–

ATC ADVISES (aircraft identification/all aircraft) BE ALERT FOR EMERGENCY DESCENT IN THE VICINITY OF (latitude/longitude) FROM (altitude/FL) TO (altitude/FL).

(b) Advise other aircraft when the emergency descent is complete.

PHRASEOLOGY–

(Aircraft identification/all aircraft) EMERGENCY DESCENT AT (location) COMPLETED.

3. Upon notification that an aircraft is making an emergency descent through other traffic, take action immediately to safeguard all aircraft concerned.

4. When appropriate, broadcast by ATC communications, by radio navigation aids, and/or through aeronautical communication stations/services an emergency message to all aircraft in the vicinity of the descending aircraft. Include the following information:

(a) Location of emergency descent.

(b) Direction of flight.

(c) Type aircraft.

(d) Route if appropriate.

(e) Altitude vacated.

(f) Other information.

EXAMPLE–

“Attention all aircraft in the vicinity of Trout, a northbound D–C Ten on A–T–S Route Alfa Seven Hundred is making an emergency descent from flight level three three zero.” (Repeat as you deem appropriate.)

5. If traffic conditions permit, provide traffic information to the affected aircraft.

6. Immediately after an emergency broadcast or traffic information has been made, issue appropriate clearances or instructions, as necessary, to all aircraft involved.

10–5–5. SERVICES TO RESCUE AIRCRAFT ■

a. Provide standard IFR separation between the SAR and the aircraft in distress, except when visual or radar contact has been established by the search and rescue aircraft and the pilots of both aircraft concur, IFR separation may be discontinued.

b. Clear the SAR aircraft to a fixed clearance limit rather than to the aircraft in distress, which is a moving fix. Issue route clearances that are consistent with that of the distressed aircraft.

c. Advise the rescue aircraft, as soon as practicable, of any factors that could adversely affect its mission; e.g., unfavorable weather conditions, anticipated problems, the possibility of not being able to approve an IFR descent through en route traffic, etc.

d. Advise the appropriate rescue agency of all pertinent information as it develops.

e. Forward immediately any information about the action being taken by the RCC, other organizations, or aircraft to the aircraft concerned.

f. Advise the aircraft operator of the current status of the SAR operation as soon as practicable.

g. Since prompt, correct, and complete information is the key to successful rescue operations, ensure that this information is swiftly and smoothly supplied to those organizations actively engaged in rescue operations.

Section 6. Ground Missile Emergencies

10-6-1. INFORMATION RELAY

When you receive information concerning a ground missile emergency, notify other concerned facilities and take action to have alerting advisories issued by:

a. EN ROUTE. Air carrier company radio stations for each VFR company aircraft which is or will be operating in the vicinity of the emergency.

b. EN ROUTE. FSSs adjacent to the emergency location.

c. TERMINAL. Relay all information concerning a ground missile emergency to the ARTCC within whose area the emergency exists and disseminate as a NOTAM.

REFERENCE—
P/CG Term— Notice to Airmen.

10-6-2. IFR AND SVFR MINIMA

Reroute IFR and SVFR aircraft as necessary to avoid the emergency location by one of the following minima, or by greater minima when suggested by the notifying official:

a. Lateral separation— 1 mile between the emergency location and either of the following:

1. An aircraft under radar control and the emergency location which can be accurately determined by reference to the radar scope.

2. The airspace to be protected for the route being flown.

b. Vertical separation— 6,000 feet above the surface over the emergency location.

10-6-3. VFR MINIMA

Advise all known VFR aircraft which are, or will be, operating in the vicinity of a ground missile emergency, to avoid the emergency location by 1 mile laterally or 6,000 feet vertically, or by a greater distance or altitude, when suggested by the notifying official.

10-6-4. SMOKE COLUMN AVOIDANCE

Advise all aircraft to avoid any observed smoke columns in the vicinity of a ground missile emergency.

10-6-5. EXTENDED NOTIFICATION

EN ROUTE

When reports indicate that an emergency will exist for an extended period of time, a Notice to Airmen may be issued.

Section 2. Ocean21 – Oceanic

The following procedures are applicable to the operation of the Ocean21 Oceanic Air Traffic Control (ATC) System.

13-2-1. DESCRIPTION

a. The Ocean21 ATC System is utilized in designated en route/oceanic airspace. Ocean21 includes both surveillance and flight data processing, which provides the controllers with automated decision support tools to establish, monitor and maintain separation between aircraft, and aircraft to airspace and terrain.

b. Ocean21 capabilities include:

1. MEARTS based radar surveillance processing.
2. Conflict Prediction and Reporting.
3. Automatic Dependent Surveillance–Broadcast (ADS–B).
4. Automatic Dependent Surveillance–Contract (ADS–C).
5. Controller Pilot Data Link Communications (CPDLC).
6. ATS Interfacility Data Communications (AIDC).
7. Additional Decision Support Tools used primarily for situational awareness.
8. Electronic Flight Data including Electronic Flight Strips.

13-2-2. CONFLICT DETECTION AND RESOLUTION

The controller must use the most accurate information available to initiate, monitor, and maintain separation.

a. Apply the following procedures in airspace where conflict probe is being utilized as a decision support tool:

1. Conflict Probe Results.

(a) Controllers must assume that the conflict probe separation calculations are accurate.

(b) Unless otherwise prescribed in sub-para a3, controllers must utilize the results from conflict probe to initiate and maintain the prescribed separation minima.

2. Conflict Resolution.

(a) When a controller is alerted to a conflict, which will occur in his/her sector, take the appropriate action to resolve the conflict.

(b) The controller responsible for resolving a conflict must evaluate the alert and take appropriate action as early as practical, in accordance with duty priorities, alert priority, and operational considerations.

(c) Unless otherwise specified in facility directives, the controller must take immediate action to resolve any “red” conflicts.

3. Overriding Conflict Probe.

(a) Controllers must not override conflict probe except for the following situations:

(1) The application of a separation standard not recognized by conflict probe listed in sub-para a8(a), or as identified by facility directive.

(2) When action has been taken to resolve the identified conflict and separation has been ensured, or

(3) Control responsibility has been delegated to another sector or facility, or

(4) Other situations as specified in facility directives.

(b) Controllers must continue to ensure that separation is maintained until the overridden conflict is resolved.

4. Use of Probe when Issuing Clearances. Utilize conflict probe results when issuing a clearance to ensure that any potential conflict has been given thorough consideration.

5. Use of Probe when Accepting Manual Transfers. Prior to manually accepting an aircraft transfer from an external facility ensure that the coordinated flight profile is accurately entered, conflict probe initiated and, if necessary, action is taken to resolve any potential conflicts.

6. Trial Probe. The controller can utilize trial probe to assess whether there are any potential conflicts with a proposed clearance or when performing manual coordination.

NOTE–

Once initiated, trial probe does not take into account any changes made to the proposed profile or to any other flight profile in the system. It is an assessment by conflict probe of the current situation at the time the controller enters the trial probe. A trial probe does not alleviate the controller from performing a conflict probe when issuing a clearance or accepting a transfer.

7. System Unable to Perform Conflict Probe for a Specific Aircraft.

(a) If a flight's profile becomes corrupted, conflict probe may not be able to correctly monitor separation for that flight. Take the necessary steps to correct an aircraft's flight plan when conflict probe could not be performed.

(b) In addition, after verifying flight plan data accuracy, utilize other decision support tools to establish and maintain the appropriate separation minima until such time that conflict probe can be utilized.

8. Conflict Probe Limitations.

(a) Conflict Probe does not support the following separation minima:

(1) Subpara 8-4-2a2 – Nonintersecting paths.

(2) Subpara 8-4-2d – Intersecting flight paths with variable width protected airspace.

(3) Subpara 8-4-3a – Reduction of Route Protected Airspace, below FL 240.

(4) Subpara 8-4-3b – Reduction of Route Protected Airspace, at and above FL 240.

(5) Subpara 8-4-4a1 – Same NAVAID: VOR/VORTAC/TACAN.

(6) Subpara 8-4-4a2 – Same NAVAID: NDB.

(7) Subpara 8-4-4c – Dead Reckoning.

(8) Para 8-5-4 – Same Direction.

(9) Para 8-8-5 – VFR Climb and Descent.

b. Additional Decision Support Tools: These support tools include: range/bearing, time of passing, intercept angle, the aircraft situation display (ASD) and electronic flight data.

1. The results provided by these additional decision support/controller tools can be used by the controller for maintaining situational awareness and monitoring flight profile information, and for establishing and maintaining separation standards not supported by probe, or when probe is unavailable.

2. Under no circumstances must the controller utilize any of the additional decision support tools to override probe results when the applicable separation standard is supported by probe and none of the other conditions for overriding probe apply.

13-2-3. INFORMATION MANAGEMENT

a. Currency of Information: The sector team is responsible for ensuring that manually entered data is accurate and timely. Ensure that nonconformant messages are handled in a timely manner and that the flight's profile is updated as necessary.

NOTE–

Conflict probe accuracy requires timely updates of data used to model each flight's trajectory. If this data is not current, the aircraft flight profile and probe results may be misleading.

b. Data Block Management.

1. Ensure that the data block reflects the most current flight information and controller applied indicators as specified in facility directives.

2. Ensure that appropriate and timely action is taken when a special condition code is indicated in the data block.

c. Electronic Flight Strip Management.

1. Electronic flight strips must be maintained in accordance with facility directives and the following:

(a) Annotations. Ensure that annotations are kept up to date.

(b) Reduced Separation Flags. Ensure the flags listed below are selected appropriately for each flight:

(1) M– Mach Number Technique (MNT).

(2) R– Reduced MNT.

(3) D– Distance–based longitudinal.

(4) W– Reduced Vertical Separation Minimum (RVSM).

(c) Degraded RNP. Select when an aircraft has notified ATC of a reduction in navigation capability that affects the applicable separation minima.

(d) Restrictions. Ensure restrictions accurately reflect the cleared profile.

d. Queue Management.

1. Manage all sector and coordination queues in accordance with the appropriate message priority and the controller's priority of duties.

2. In accordance with facility directives, ensure that the messages directed to the error queue are processed in a timely manner.

e. Window/List Management.

1. Ensure that the situation display window title bar is not obscured by other windows and/or lists.

NOTE–

The title bar changes color to denote when priority information on the ASD is being obscured or is out of view.

2. In accordance with facility directives, ensure that designated windows and/or lists are displayed at all times.

13–2–4. CONTROLLER PILOT DATA LINK COMMUNICATIONS (CPDLC)

a. Means of communication.

1. When CPDLC is available and CPDLC connected aircraft are operating outside of VHF coverage, CPDLC must be used as the primary means of communication.

2. Voice communications may be utilized for CPDLC aircraft when it will provide an operational advantage and/or when workload or equipment capabilities demand.

3. When CPDLC is being utilized, a voice backup must exist (e.g., HF, SATCOM, Third party).

4. When a pilot communicates via CPDLC, the response should be via CPDLC.

5. To the extent possible, the CPDLC message set should be used in lieu of free text messages.

NOTE–

The use of the CPDLC message set ensures the proper “closure” of CPDLC exchanges.

b. Transfer of Communications to the Next Facility.

1. When the receiving facility is capable of CPDLC communications, the data link transfer is automatic and is accomplished within facility adapted parameters.

2. When a receiving facility is not CPDLC capable, the transfer of communications must be made in accordance with local directives and Letters of Agreement (LOAs).

c. Abnormal conditions.

1. If any portion of the automated transfer fails, the controller should attempt to initiate the transfer manually. If unable to complete the data link transfer, the controller should advise the pilot to log on to the next facility and send an End Service (EOS) message.

2. If CPDLC fails, voice communications must be utilized until CPDLC connections can be reestablished.

3. If the CPDLC connection is lost on a specific aircraft, the controller should send a connection request message (CR1) or advise the pilot via backup communications to log on again.

4. If CPDLC service is to be canceled, the controller must advise the pilot as early as possible to facilitate a smooth transition to voice communications. Workload permitting, the controller should also advise the pilot of the reason for the termination of data link.

5. When there is uncertainty that a clearance was delivered to an aircraft via CPDLC, the controller must continue to protect the airspace associated with the clearance until an appropriate operational response is received from the flight crew. If an expected operational response to a clearance is not received, the controller will initiate appropriate action to ensure that the clearance was received by the flight crew. On initial voice contact with aircraft preface the message with the following:

PHRASEOLOGY–

(Call Sign) CPDLC Failure, (message).

13-2-5. COORDINATION

In addition to the requirements set forth in Chapter 8, Offshore/Oceanic Procedures, Section 2, Coordination, automated coordination must constitute complete coordination between Ocean21 sectors, both internally and between sectors across adjacent Ocean21 facilities, except:

a. When the aircraft is in conflict with another in the receiving sector, or

b. When otherwise specified in facility directives or LOA.

**13-2-6. TEAM RESPONSIBILITIES –
MULTIPLE PERSON OPERATION**

a. When operating in a multiple controller operation at a workstation, ensure all ATC tasks are completed according to their priority of duties.

b. Multiple controller operation must be accomplished according to facility directives.

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

EXPLANATION OF CHANGES

d. Terms Added:

ATTENTION ALL USERS PAGE (AAUP)
RUNWAY ENTRANCE LIGHTS (REL)
RUNWAY STATUS LIGHTS (RWSL)
SIMULTANEOUS CLOSE PARALLEL APPROACHES
SIMULTANEOUS (CONVERGING) DEPENDENT APPROACHES
SIMULTANEOUS (CONVERGING) INDEPENDENT APPROACHES
SIMULTANEOUS (PARALLEL) DEPENDENT APPROACHES
TAKE-OFF HOLD LIGHTS (THL)

e. Terms Deleted:

AZIMUTH (MLS)
PARALLEL MLS APPROACHES (See PARALLEL ILS APPROACHES)
SIMULTANEOUS MLS APPROACHES (See SIMULTANEOUS ILS APPROACHES)

f. Terms Modified:

AERONAUTICAL CHART
AREA NAVIGATION (RNAV) GLOBAL POSITIONING SYSTEM (GPS) PRECISION
RUNWAY MONITOR (PRM) APPROACH
AUTOLAND APPROACH
BREAKOUT
CLOSE PARALLEL RUNWAYS
COUPLED APPROACH
DECISION ALTITUDE/DECISION HEIGHT [ICAO Annex 6]
DECISION HEIGHT
FINAL APPROACH FIX
FINAL MONITOR AID (FMA)
FINAL MONITOR CONTROLLER
GATE HOLD PROCEDURES

GENERAL AVIATION
GLIDESLOPE INTERCEPT ALTITUDE
ILS PRM APPROACH
LOCALIZER OFFSET
LOCALIZER TYPE DIRECTIONAL AID
LOCALIZER TYPE DIRECTIONAL AID (LDA) PRECISION RUNWAY MONITOR (PRM)
APPROACH
MLS CATEGORIES
NO TRANSGRESSION ZONE (NTZ)
NONRADAR
PRECISION APPROACH PROCEDURE
PRECISION RUNWAY MONITOR (PRM) SYSTEM
PRM
RADAR SERVICE
SIMULTANEOUS OFFSET INSTRUMENT APPROACH (SOIA)
THRESHOLD CROSSING HEIGHT

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

A

AAI–

(See ARRIVAL AIRCRAFT INTERVAL.)

AAR–

(See AIRPORT ARRIVAL RATE.)

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.

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.)

ACLT–

(See ACTUAL CALCULATED LANDING TIME.)

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 CALCULATED LANDING TIME– ACLT is a flight’s frozen calculated landing time. An actual time determined at freeze calculated landing time (FCLT) or meter list display interval (MLDI) for the adapted vertex for each arrival aircraft based upon runway configuration, airport acceptance rate, airport arrival delay period, and other metered arrival aircraft. This time is either the vertex time of arrival (VTA) of the aircraft or the tentative calculated landing time (TCLT)/ACLT of the previous aircraft plus the arrival aircraft interval (AAI), whichever is later. This time will not be updated in response to the aircraft’s progress.

ACTUAL NAVIGATION PERFORMANCE (ANP)–

(See REQUIRED NAVIGATION PERFORMANCE.)

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 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.)

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 FREQUENCY– The appropriate frequency to be used for Airport Advisory Service.

(See LOCAL AIRPORT ADVISORY.)

(See UNICOM.)

(Refer to ADVISORY CIRCULAR NO. 90-42.)

(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 EN ROUTE FLIGHT ADVISORY SERVICE.)

(See LOCAL AIRPORT ADVISORY.)

(See RADAR ADVISORY.)

(See SAFETY ALERT.)

(See TRAFFIC ADVISORIES.)

(Refer to AIM.)

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, restricted areas, 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, restricted areas, obstructions, and related data.

c. World Aeronautical Charts (WAC) (1:1,000,000)– Provide a standard series of aeronautical charts covering land areas of the world at a size and scale convenient for navigation by moderate speed aircraft. Topographic information includes cities and towns, principal roads, railroads, distinctive landmarks, drainage, and relief. Aeronautical information includes visual and radio aids to navigation, airports, airways, restricted areas, obstructions, and other pertinent data.

d. 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, restricted areas, and related data. Area charts, which are a part of this series, furnish terminal data at a larger scale in congested areas.

e. 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.

f. Instrument Approach Procedures (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.

g. 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.

h. 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.

i. 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.

A/FD–

(See AIRPORT/FACILITY DIRECTORY.)

AFFIRMATIVE– Yes.

AFIS–

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

AFP–

(See AIRSPACE FLOW PROGRAM.)

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)– The area of airspace over land or water, extending upward from the surface, within which the ready identification, the location, and the control of aircraft are required in the interest of national security.

a. Domestic Air Defense Identification Zone. An ADIZ within the United States along an international boundary of the United States.

b. Coastal Air Defense Identification Zone. An ADIZ over the coastal waters of the United States.

c. Distant Early Warning Identification Zone (DEWIZ). An ADIZ over the coastal waters of the State of Alaska.

d. Land-Based Air Defense Identification Zone. An ADIZ over U.S. metropolitan areas, which is activated and deactivated as needed, with dimensions, activation dates and other relevant information disseminated via NOTAM.

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– 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). Responsible for approving IFR flights at designated high density traffic airports (John F. Kennedy, LaGuardia, and Ronald Reagan Washington National) during specified hours.

(Refer to 14 CFR Part 93.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

c. U.S. Notice to Airmen (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 AIRMEN.)

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.

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 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.

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 Heavy, Large, and Small as follows:

- a. 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.
 - b. Large–** Aircraft of more than 41,000 pounds, maximum certificated takeoff weight, up to but not including 300,000 pounds.
 - c. Small–** Aircraft of 41,000 pounds or less maximum certificated takeoff weight.
- (Refer to AIM.)

AIRCRAFT CONFLICT– Predicted conflict, within URET, 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 USER REQUEST EVALUATION TOOL.)

AIRCRAFT LIST (ACL)– A view available with URET 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 USER REQUEST EVALUATION 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 MARSAs apply 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.

AIRMEN'S METEOROLOGICAL INFORMATION–

(See AIRMET.)

AIRMET– In-flight weather advisories issued only to amend the area forecast concerning weather phenomena which are of operational interest to all aircraft and potentially hazardous to aircraft having limited capability because of lack of equipment, instrumentation, or pilot qualifications. AIRMETs concern weather of less severity than that covered by SIGMETs or Convective SIGMETs. AIRMETs cover moderate icing, moderate turbulence, sustained winds of 30 knots or more at the surface, widespread areas of ceilings less than 1,000 feet and/or visibility less than 3 miles, and extensive mountain obscurement.

(See AWW.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(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/FACILITY DIRECTORY– A publication designed primarily as a pilot's operational manual containing all airports, seaplane bases, and heliports open to the public including communications data, navigational facilities, and certain special notices and procedures. This publication is issued in seven volumes according to geographical area.

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 FAAO 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 STREAM FILTER (ASF)– An on/off filter that allows the conflict notification function to be inhibited for arrival streams into single or multiple airports to prevent nuisance alerts.

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 a X-band Surface Movement Radar and multilateration. Data from these two sources are fused and presented on a digital display.

c. ASDE-3X– an ASDE-X system that uses the ASDE-3 Surface Movement Radar.

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.”

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.)

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– 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 distance measured from a point-in-space by systems using area navigation reference capabilities that are 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.

(See AUTOMATED RADAR TERMINAL SYSTEMS.)

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.)

(See AUTOMATED RADAR TERMINAL SYSTEMS.)

(Refer to AIM.)

ALTITUDE RESERVATION– 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.

(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 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.

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 30NM arc centered on the IF bounded by a straight line extending through the IF perpendicular to the intermediate course.

2. LEFT BASE AREA– A 30NM arc centered on the right corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30NM 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 30NM arc centered on the left corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30NM 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 an ILS 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.

ARINC– An acronym for Aeronautical Radio, Inc., a corporation largely owned by a group of airlines. ARINC is licensed by the FCC as an aeronautical station and contracted by the FAA to provide communications support for air traffic control and meteorological services in portions of international airspace.

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 AIRCRAFT INTERVAL– An internally generated program in hundredths of minutes based upon the AAR. AAI is the desired optimum interval between successive arrival aircraft over the vertex.

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 SECTOR– An operational control sector containing one or more meter fixes.

ARRIVAL SECTOR ADVISORY LIST– An ordered list of data on arrivals displayed at the PVD/MDM of the sector which controls the meter fix.

ARRIVAL SEQUENCING PROGRAM– The automated program designed to assist in sequencing aircraft destined for the same airport.

ARRIVAL TIME– The time an aircraft touches down on arrival.

ARSR–

(See AIR ROUTE SURVEILLANCE RADAR.)

ARTCC–

(See AIR ROUTE TRAFFIC CONTROL CENTER.)

ARTS–

(See AUTOMATED RADAR TERMINAL SYSTEMS.)

ASDA–

(See ACCELERATE-STOP DISTANCE AVAILABLE.)

ASDA [ICAO]–

(See ICAO Term ACCELERATE-STOP DISTANCE AVAILABLE.)

ASDE–

(See AIRPORT SURFACE DETECTION EQUIPMENT.)

ASF–

(See AIRPORT STREAM FILTER.)

ASLAR–

(See AIRCRAFT SURGE LAUNCH AND RECOVERY.)

ASP–

(See ARRIVAL SEQUENCING PROGRAM.)

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– URET 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 USER REQUEST EVALUATION 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.

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.)

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 INFORMATION TRANSFER– 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 FAAO 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 URET performs conflict detection.

(See USER REQUEST EVALUATION TOOL.)

AUTOMATED PROBLEM DETECTION INHIBITED AREA (APDIA)– Airspace surrounding a terminal area within which APD is inhibited for all flights within that airspace.

AUTOMATED RADAR TERMINAL SYSTEMS (ARTS)– A generic term for several tracking systems included in the Terminal Automation Systems (TAS). ARTS plus a suffix roman numeral denotes a major modification to that system.

a. ARTS IIIA. The Radar Tracking and Beacon Tracking Level (RT&BTL) of the modular, programmable automated radar terminal system.

ARTS IIIA detects, tracks, and predicts primary as well as secondary radar-derived aircraft targets. This more sophisticated computer-driven system upgrades the existing ARTS III system by providing improved tracking, continuous data recording, and fail-soft capabilities.

b. Common ARTS. Includes ARTS IIE, ARTS IIIE; and ARTS IIIE with ACD (see DTAS) which combines functionalities of the previous ARTS systems.

c. Programmable Indicator Data Processor (PIDP). The PIDP is a modification to the AN/TPX-42 interrogator system currently installed in fixed RAPCONs. The PIDP detects, tracks, and predicts secondary radar aircraft targets. These are displayed by means of computer-generated symbols and alphanumeric characters depicting flight identification, aircraft altitude, ground speed, and flight plan data. Although primary radar targets are not tracked, they are displayed coincident with the secondary radar targets as well as with the other symbols and alphanumerics. The system has the capability of interfacing with ARTCCs.

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), Automated Weather Sensor System (AWSS) 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 Airport/Facility Directory 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 GPS-derived position and other information such as velocity over the data link, which is received by a ground-based transmitter/receiver (transceiver) for processing and display at an air traffic control facility.

(See GLOBAL POSITIONING SYSTEM.)

(See GROUND-BASED TRANSCEIVER.)

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 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, breaking action, airport NOTAMs, and other applicable information. The information is continuously broadcast over a

discrete VHF radio frequency (usually the ASOS/AWSS/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 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 EN ROUTE FLIGHT ADVISORY SERVICE.)

(See TRANSCRIBED WEATHER BROADCAST.)

(See WEATHER ADVISORY.)

(Refer to AIM.)

AWW–

(See SEVERE WEATHER FORECAST ALERTS.)

B

BACK-TAXI– A term used by air traffic controllers to taxi an aircraft on the runway opposite to the traffic flow. The aircraft may be instructed to back-taxi to the beginning of the runway or at some point before reaching the runway end for the purpose of departure or to exit the runway.

BASE LEG–

(See TRAFFIC PATTERN.)

BEACON–

(See AERONAUTICAL BEACON.)

(See AIRPORT ROTATING BEACON.)

(See AIRWAY BEACON.)

(See MARKER BEACON.)

(See NONDIRECTIONAL BEACON.)

(See RADAR.)

BEARING– The horizontal direction to or from any point, usually measured clockwise from true north, magnetic north, or some other reference point through 360 degrees.

(See NONDIRECTIONAL BEACON.)

BELOW MINIMUMS– Weather conditions below the minimums prescribed by regulation for the particular action involved; e.g., landing minimums, takeoff minimums.

BLAST FENCE– A barrier that is used to divert or dissipate jet or propeller blast.

BLAST PAD– A surface adjacent to the ends of a runway provided to reduce the erosive effect of jet blast and propeller wash.

BLIND SPEED– The rate of departure or closing of a target relative to the radar antenna at which cancellation of the primary radar target by moving target indicator (MTI) circuits in the radar equipment causes a reduction or complete loss of signal.

(See ICAO term BLIND VELOCITY.)

BLIND SPOT– An area from which radio transmissions and/or radar echoes cannot be received. The term is also used to describe portions of the airport not visible from the control tower.

BLIND TRANSMISSION–

(See TRANSMITTING IN THE BLIND.)

BLIND VELOCITY [ICAO]– The radial velocity of a moving target such that the target is not seen on primary radars fitted with certain forms of fixed echo suppression.

BLIND ZONE–

(See BLIND SPOT.)

BLOCKED– Phraseology used to indicate that a radio transmission has been distorted or interrupted due to multiple simultaneous radio transmissions.

BOTTOM ALTITUDE– In reference to published altitude restrictions on a STAR or STAR runway transition, the lowest altitude authorized.

BOUNDARY LIGHTS–

(See AIRPORT LIGHTING.)

BRAKING ACTION (GOOD, FAIR, POOR, OR NIL)– A report of conditions on the airport movement area providing a pilot with a degree/quality of braking that he/she might expect. Braking action is reported in terms of good, fair, poor, or nil.

(See RUNWAY CONDITION READING.)

BRAKING ACTION ADVISORIES– When tower controllers have received runway braking action reports which include the terms “fair,” “poor,” or “nil,” or whenever weather conditions are conducive to deteriorating or rapidly changing runway braking conditions, the tower will include on the ATIS broadcast the statement, “Braking action advisories are in effect” on the ATIS broadcast. During the time braking action advisories are in effect, ATC will issue the latest braking action report for the runway in use to each arriving and departing aircraft. Pilots should be prepared for deteriorating braking conditions and should request current runway condition information if not volunteered by controllers. Pilots should also be prepared to provide a descriptive runway condition report to controllers after landing.

BREAKOUT– A technique to direct aircraft out of the approach stream. In the context of simultaneous (independent) parallel operations, a breakout is used to direct threatened aircraft away from a deviating aircraft.

BROADCAST– Transmission of information for which an acknowledgement is not expected.

(See ICAO term BROADCAST.)

BROADCAST [ICAO]– A transmission of information relating to air navigation that is not addressed to a specific station or stations.

C

CALCULATED LANDING TIME– A term that may be used in place of tentative or actual calculated landing time, whichever applies.

CALL FOR RELEASE– Wherein the overlying ARTCC requires a terminal facility to initiate verbal coordination to secure ARTCC approval for release of a departure into the en route environment.

CALL UP– Initial voice contact between a facility and an aircraft, using the identification of the unit being called and the unit initiating the call.

(Refer to AIM.)

CANADIAN MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE– That portion of Canadian domestic airspace within which MNPS separation may be applied.

CARDINAL ALTITUDES– “Odd” or “Even” thousand-foot altitudes or flight levels; e.g., 5,000, 6,000, 7,000, FL 250, FL 260, FL 270.

(See ALTITUDE.)

(See FLIGHT LEVEL.)

CARDINAL FLIGHT LEVELS–

(See CARDINAL ALTITUDES.)

CAT–

(See CLEAR-AIR TURBULENCE.)

CATCH POINT– A fix/waypoint that serves as a transition point from the high altitude waypoint navigation structure to an arrival procedure (STAR) or the low altitude ground-based navigation structure.

CEILING– The heights above the earth’s surface of the lowest layer of clouds or obscuring phenomena that is reported as “broken,” “overcast,” or “obscuration,” and not classified as “thin” or “partial.”

(See ICAO term CEILING.)

CEILING [ICAO]– The height above the ground or water of the base of the lowest layer of cloud below 6,000 meters (20,000 feet) covering more than half the sky.

CENRAP–

(See CENTER RADAR ARTS
PRESENTATION/PROCESSING.)

CENRAP-PLUS–

(See CENTER RADAR ARTS
PRESENTATION/PROCESSING-PLUS.)

CENTER–

(See AIR ROUTE TRAFFIC CONTROL
CENTER.)

CENTER’S AREA– The specified airspace within which an air route traffic control center (ARTCC) provides air traffic control and advisory service.

(See AIR ROUTE TRAFFIC CONTROL
CENTER.)

(Refer to AIM.)

CENTER RADAR ARTS PRESENTATION/PROCESSING– A computer program developed to provide a back-up system for airport surveillance radar in the event of a failure or malfunction. The program uses air route traffic control center radar for the processing and presentation of data on the ARTS IIA or IIIA displays.

CENTER RADAR ARTS PRESENTATION/PROCESSING-PLUS– A computer program developed to provide a back-up system for airport surveillance radar in the event of a terminal secondary radar system failure. The program uses a combination of Air Route Traffic Control Center Radar and terminal airport surveillance radar primary targets displayed simultaneously for the processing and presentation of data on the ARTS IIA or IIIA displays.

CENTER TRACON AUTOMATION SYSTEM (CTAS)– A computerized set of programs designed to aid Air Route Traffic Control Centers and TRACONs in the management and control of air traffic.

CENTER WEATHER ADVISORY– An unscheduled weather advisory issued by Center Weather Service Unit meteorologists for ATC use to alert pilots of existing or anticipated adverse weather conditions within the next 2 hours. A CWA may modify or redefine a SIGMET.

(See AWW.)

(See AIRMET.)

(See CONVECTIVE SIGMET.)

(See SIGMET.)

(Refer to AIM.)

CENTRAL EAST PACIFIC– An organized route system between the U.S. West Coast and Hawaii.

CEP–

(See CENTRAL EAST PACIFIC.)

CERAP–

(See COMBINED CENTER-RAPCON.)

CERTIFIED TOWER RADAR DISPLAY (CTRD)– A FAA radar display certified for use in the NAS.

CFR–

(See CALL FOR RELEASE.)

CHAFF– Thin, narrow metallic reflectors of various lengths and frequency responses, used to reflect radar energy. These reflectors when dropped from aircraft and allowed to drift downward result in large targets on the radar display.

CHARTED VFR FLYWAYS– Charted VFR Flyways are flight paths recommended for use to bypass areas heavily traversed by large turbine-powered aircraft. Pilot compliance with recommended flyways and associated altitudes is strictly voluntary. VFR Flyway Planning charts are published on the back of existing VFR Terminal Area charts.

CHARTED VISUAL FLIGHT PROCEDURE APPROACH– An approach conducted while operating on an instrument flight rules (IFR) flight plan which authorizes the pilot of an aircraft to proceed visually and clear of clouds to the airport via visual landmarks and other information depicted on a charted visual flight procedure. This approach must be authorized and under the control of the appropriate air traffic control facility. Weather minimums required are depicted on the chart.

CHASE– An aircraft flown in proximity to another aircraft normally to observe its performance during training or testing.

CHASE AIRCRAFT–

(See CHASE.)

CIRCLE-TO-LAND MANEUVER– A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or is not desirable. At tower controlled airports, this maneuver is made only after ATC authorization has been

obtained and the pilot has established required visual reference to the airport.

(See CIRCLE TO RUNWAY.)

(See LANDING MINIMUMS.)

(Refer to AIM.)

CIRCLE TO RUNWAY (RUNWAY NUMBER)–

Used by ATC to inform the pilot that he/she must circle to land because the runway in use is other than the runway aligned with the instrument approach procedure. When the direction of the circling maneuver in relation to the airport/runway is required, the controller will state the direction (eight cardinal compass points) and specify a left or right downwind or base leg as appropriate; e.g., “Cleared VOR Runway Three Six Approach circle to Runway Two Two,” or “Circle northwest of the airport for a right downwind to Runway Two Two.”

(See CIRCLE-TO-LAND MANEUVER.)

(See LANDING MINIMUMS.)

(Refer to AIM.)

CIRCLING APPROACH–

(See CIRCLE-TO-LAND MANEUVER.)

CIRCLING MANEUVER–

(See CIRCLE-TO-LAND MANEUVER.)

CIRCLING MINIMA–

(See LANDING MINIMUMS.)

CLASS A AIRSPACE–

(See CONTROLLED AIRSPACE.)

CLASS B AIRSPACE–

(See CONTROLLED AIRSPACE.)

CLASS C AIRSPACE–

(See CONTROLLED AIRSPACE.)

CLASS D AIRSPACE–

(See CONTROLLED AIRSPACE.)

CLASS E AIRSPACE–

(See CONTROLLED AIRSPACE.)

CLASS G AIRSPACE– That airspace not designated as Class A, B, C, D or E.

CLEAR AIR TURBULENCE (CAT)– Turbulence encountered in air where no clouds are present. This term is commonly applied to high-level turbulence associated with wind shear. CAT is often encountered in the vicinity of the jet stream.

(See WIND SHEAR.)

(See JET STREAM.)

CLEAR OF THE RUNWAY–

a. Taxiing aircraft, which is approaching a runway, is clear of the runway when all parts of the

aircraft are held short of the applicable runway holding position marking.

b. A pilot or controller may consider an aircraft, which is exiting or crossing a runway, to be clear of the runway when all parts of the aircraft are beyond the runway edge and there are no restrictions to its continued movement beyond the applicable runway holding position marking.

c. Pilots and controllers shall exercise good judgement to ensure that adequate separation exists between all aircraft on runways and taxiways at airports with inadequate runway edge lines or holding position markings.

CLEARANCE–

(See AIR TRAFFIC CLEARANCE.)

CLEARANCE LIMIT– The fix, point, or location to which an aircraft is cleared when issued an air traffic clearance.

(See ICAO term CLEARANCE LIMIT.)

CLEARANCE LIMIT [ICAO]– The point to which an aircraft is granted an air traffic control clearance.

CLEARANCE VOID IF NOT OFF BY (TIME)–

Used by ATC to advise an aircraft that the departure clearance is automatically canceled if takeoff is not made prior to a specified time. The pilot must obtain a new clearance or cancel his/her IFR flight plan if not off by the specified time.

(See ICAO term CLEARANCE VOID TIME.)

CLEARANCE VOID TIME [ICAO]– A time specified by an air traffic control unit at which a clearance ceases to be valid unless the aircraft concerned has already taken action to comply therewith.

CLEARED APPROACH– ATC authorization for an aircraft to execute any standard or special instrument approach procedure for that airport. Normally, an aircraft will be cleared for a specific instrument approach procedure.

(See CLEARED (Type of) APPROACH.)

(See INSTRUMENT APPROACH PROCEDURE.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

CLEARED (Type of) APPROACH– ATC authorization for an aircraft to execute a specific instrument

approach procedure to an airport; e.g., “Cleared ILS Runway Three Six Approach.”

(See APPROACH CLEARANCE.)

(See INSTRUMENT APPROACH PROCEDURE.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

CLEARED AS FILED– Means the aircraft is cleared to proceed in accordance with the route of flight filed in the flight plan. This clearance does not include the altitude, DP, or DP Transition.

(See REQUEST FULL ROUTE CLEARANCE.)

(Refer to AIM.)

CLEARED FOR TAKEOFF– ATC authorization for an aircraft to depart. It is predicated on known traffic and known physical airport conditions.

CLEARED FOR THE OPTION– ATC authorization for an aircraft to make a touch-and-go, low approach, missed approach, stop and go, or full stop landing at the discretion of the pilot. It is normally used in training so that an instructor can evaluate a student’s performance under changing situations.

(See OPTION APPROACH.)

(Refer to AIM.)

CLEARED THROUGH– ATC authorization for an aircraft to make intermediate stops at specified airports without refiling a flight plan while en route to the clearance limit.

CLEARED TO LAND– ATC authorization for an aircraft to land. It is predicated on known traffic and known physical airport conditions.

CLEARWAY– An area beyond the takeoff runway under the control of airport authorities within which terrain or fixed obstacles may not extend above specified limits. These areas may be required for certain turbine-powered operations and the size and upward slope of the clearway will differ depending on when the aircraft was certificated.

(Refer to 14 CFR Part 1.)

CLIMB TO VFR– ATC authorization for an aircraft to climb to VFR conditions within Class B, C, D, and E surface areas when the only weather limitation is restricted visibility. The aircraft must remain clear of clouds while climbing to VFR.

(See SPECIAL VFR CONDITIONS.)

(Refer to AIM.)

CLIMBOUT– That portion of flight operation between takeoff and the initial cruising altitude.

CLIMB VIA– An abbreviated ATC clearance that requires compliance with the procedure lateral path, associated speed restrictions, and altitude restrictions along the cleared route or procedure.

CLOSE PARALLEL RUNWAYS– Two parallel runways whose extended centerlines are separated by less than 4,300 feet and at least 3000 feet (750 feet for SOIA operations) that are authorized to conduct simultaneous independent approach operations. PRM and simultaneous close parallel appear in approach title. Dual communications, special pilot training, an Attention All Users Page (AAUP), NTZ monitoring by displays that have aural and visual alerting algorithms are required. A high update rate surveillance sensor is required for certain runway or approach course spacing.

CLOSED RUNWAY– A runway that is unusable for aircraft operations. Only the airport management/military operations office can close a runway.

CLOSED TRAFFIC– Successive operations involving takeoffs and landings or low approaches where the aircraft does not exit the traffic pattern.

CLOUD– A cloud is a visible accumulation of minute water droplets and/or ice particles in the atmosphere above the Earth's surface. Cloud differs from ground fog, fog, or ice fog only in that the latter are, by definition, in contact with the Earth's surface.

CLT–

(See CALCULATED LANDING TIME.)

CLUTTER– In radar operations, clutter refers to the reception and visual display of radar returns caused by precipitation, chaff, terrain, numerous aircraft targets, or other phenomena. Such returns may limit or preclude ATC from providing services based on radar.

(See CHAFF.)

(See GROUND CLUTTER.)

(See PRECIPITATION.)

(See TARGET.)

(See ICAO term RADAR CLUTTER.)

CMNPS–

(See CANADIAN MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE.)

COASTAL FIX– A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

CODES– The number assigned to a particular multiple pulse reply signal transmitted by a transponder.

(See DISCRETE CODE.)

COMBINED CENTER-RAPCON– An air traffic facility which combines the functions of an ARTCC and a radar approach control facility.

(See AIR ROUTE TRAFFIC CONTROL CENTER.)

(See RADAR APPROACH CONTROL FACILITY.)

COMMON POINT– A significant point over which two or more aircraft will report passing or have reported passing before proceeding on the same or diverging tracks. To establish/maintain longitudinal separation, a controller may determine a common point not originally in the aircraft's flight plan and then clear the aircraft to fly over the point.

(See SIGNIFICANT POINT.)

COMMON PORTION–

(See COMMON ROUTE.)

COMMON ROUTE– That segment of a North American Route between the inland navigation facility and the coastal fix.

OR

COMMON ROUTE– Typically the portion of a RNAV STAR between the en route transition end point and the runway transition start point; however, the common route may only consist of a single point that joins the en route and runway transitions.

COMMON TRAFFIC ADVISORY FREQUENCY (CTAF)– A frequency designed for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a UNICOM, Multicom, FSS, or tower frequency and is identified in appropriate aeronautical publications.

(Refer to AC 90-42, Traffic Advisory Practices at Airports Without Operating Control Towers.)

COMPASS LOCATOR– A low power, low or medium frequency (L/MF) radio beacon installed at the site of the outer or middle marker of an instrument landing system (ILS). It can be used for navigation at

distances of approximately 15 miles or as authorized in the approach procedure.

a. Outer Compass Locator (LOM)– A compass locator installed at the site of the outer marker of an instrument landing system.

(See OUTER MARKER.)

b. Middle Compass Locator (LMM)– A compass locator installed at the site of the middle marker of an instrument landing system.

(See MIDDLE MARKER.)

(See ICAO term LOCATOR.)

COMPASS ROSE– A circle, graduated in degrees, printed on some charts or marked on the ground at an airport. It is used as a reference to either true or magnetic direction.

COMPLY WITH RESTRICTIONS– An ATC instruction that requires an aircraft being vectored back onto an arrival or departure procedure to comply with all altitude and/or speed restrictions depicted on the procedure. This term may be used in lieu of repeating each remaining restriction that appears on the procedure.

COMPOSITE FLIGHT PLAN– A flight plan which specifies VFR operation for one portion of flight and IFR for another portion. It is used primarily in military operations.

(Refer to AIM.)

COMPOSITE ROUTE SYSTEM– An organized oceanic route structure, incorporating reduced lateral spacing between routes, in which composite separation is authorized.

COMPOSITE SEPARATION– A method of separating aircraft in a composite route system where, by management of route and altitude assignments, a combination of half the lateral minimum specified for the area concerned and half the vertical minimum is applied.

COMPULSORY REPORTING POINTS– Reporting points which must be reported to ATC. They are designated on aeronautical charts by solid triangles or filed in a flight plan as fixes selected to define direct routes. These points are geographical locations which are defined by navigation aids/fixes. Pilots should discontinue position reporting over compulsory reporting points when informed by ATC that their aircraft is in “radar contact.”

CONFIDENCE MANEUVER– A confidence maneuver consists of one or more turns, a climb or descent, or other maneuver to determine if the pilot in command (PIC) is able to receive and comply with ATC instructions.

CONFLICT ALERT– A function of certain air traffic control automated systems designed to alert radar controllers to existing or pending situations between tracked targets (known IFR or VFR aircraft) that require his/her immediate attention/action.

(See MODE C INTRUDER ALERT.)

CONFLICT RESOLUTION– The resolution of potential conflicts between aircraft that are radar identified and in communication with ATC by ensuring that radar targets do not touch. Pertinent traffic advisories shall be issued when this procedure is applied.

Note: This procedure shall not be provided utilizing mosaic radar systems.

CONFORMANCE– The condition established when an aircraft’s actual position is within the conformance region constructed around that aircraft at its position, according to the trajectory associated with the aircraft’s Current Plan.

CONFORMANCE REGION– A volume, bounded laterally, vertically, and longitudinally, within which an aircraft must be at a given time in order to be in conformance with the Current Plan Trajectory for that aircraft. At a given time, the conformance region is determined by the simultaneous application of the lateral, vertical, and longitudinal conformance bounds for the aircraft at the position defined by time and aircraft’s trajectory.

CONSOLAN– A low frequency, long-distance NAVAID used principally for transoceanic navigations.

CONTACT–

a. Establish communication with (followed by the name of the facility and, if appropriate, the frequency to be used).

b. A flight condition wherein the pilot ascertains the attitude of his/her aircraft and navigates by visual reference to the surface.

(See CONTACT APPROACH.)

(See RADAR CONTACT.)

CONTACT APPROACH– An approach wherein an aircraft on an IFR flight plan, having an air traffic control authorization, operating clear of clouds with

at least 1 mile flight visibility and a reasonable expectation of continuing to the destination airport in those conditions, may deviate from the instrument approach procedure and proceed to the destination airport by visual reference to the surface. This approach will only be authorized when requested by the pilot and the reported ground visibility at the destination airport is at least 1 statute mile.

(Refer to AIM.)

CONTAMINATED RUNWAY– A runway is considered contaminated whenever standing water, ice, snow, slush, frost in any form, heavy rubber, or other substances are present. A runway is contaminated with respect to rubber deposits or other friction-degrading substances when the average friction value for any 500-foot segment of the runway within the ALD fails below the recommended minimum friction level and the average friction value in the adjacent 500-foot segments falls below the maintenance planning friction level.

CONTERMINOUS U.S.– The 48 adjoining States and the District of Columbia.

CONTINENTAL UNITED STATES– The 49 States located on the continent of North America and the District of Columbia.

CONTINUE– When used as a control instruction should be followed by another word or words clarifying what is expected of the pilot. Example: “continue taxi,” “continue descent,” “continue inbound,” etc.

CONTROL AREA [ICAO]– A controlled airspace extending upwards from a specified limit above the earth.

CONTROL SECTOR– An airspace area of defined horizontal and vertical dimensions for which a controller or group of controllers has air traffic control responsibility, normally within an air route traffic control center or an approach control facility. Sectors are established based on predominant traffic flows, altitude strata, and controller workload. Pilot-communications during operations within a sector are normally maintained on discrete frequencies assigned to the sector.

(See DISCRETE FREQUENCY.)

CONTROL SLASH– A radar beacon slash representing the actual position of the associated aircraft. Normally, the control slash is the one closest to the

interrogating radar beacon site. When ARTCC radar is operating in narrowband (digitized) mode, the control slash is converted to a target symbol.

CONTROLLED AIRSPACE– An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

a. Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace.

b. Controlled airspace is also that airspace within which all aircraft operators are subject to certain pilot qualifications, operating rules, and equipment requirements in 14 CFR Part 91 (for specific operating requirements, please refer to 14 CFR Part 91). For IFR operations in any class of controlled airspace, a pilot must file an IFR flight plan and receive an appropriate ATC clearance. Each Class B, Class C, and Class D airspace area designated for an airport contains at least one primary airport around which the airspace is designated (for specific designations and descriptions of the airspace classes, please refer to 14 CFR Part 71).

c. Controlled airspace in the United States is designated as follows:

1. CLASS A– Generally, that airspace from 18,000 feet MSL up to and including FL 600, including the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Unless otherwise authorized, all persons must operate their aircraft under IFR.

2. CLASS B– Generally, that airspace from the surface to 10,000 feet MSL surrounding the nation’s busiest airports in terms of airport operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspaces areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is “clear of clouds.”

3. CLASS C– Generally, that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain

number of IFR operations or passenger enplanements. Although the configuration of each Class C area is individually tailored, the airspace usually consists of a surface area with a 5 nautical mile (NM) radius, a circle with a 10NM radius that extends no lower than 1,200 feet up to 4,000 feet above the airport elevation and an outer area that is not charted. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace. VFR aircraft are only separated from IFR aircraft within the airspace.

(See OUTER AREA.)

4. CLASS D– Generally, that airspace from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be Class D or Class E airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace. No separation services are provided to VFR aircraft.

5. CLASS E– Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Also in this class are Federal airways, airspace beginning at either 700 or 1,200 feet AGL used to transition to/from the terminal or en route environment, en route domestic, and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska, up to, but not including 18,000 feet MSL, and the airspace above FL 600.

CONTROLLED AIRSPACE [ICAO]– An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

Note: Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D, and E.

CONTROLLED TIME OF ARRIVAL– Arrival time assigned during a Traffic Management Program. This time may be modified due to adjustments or user options.

CONTROLLER–

(See AIR TRAFFIC CONTROL SPECIALIST.)

CONTROLLER [ICAO]– A person authorized to provide air traffic control services.

CONTROLLER PILOT DATA LINK COMMUNICATIONS (CPDLC)– A two-way digital communications system that conveys textual air traffic control messages between controllers and pilots using ground or satellite-based radio relay stations.

CONVECTIVE SIGMET– A weather advisory concerning convective weather significant to the safety of all aircraft. Convective SIGMETs are issued for tornadoes, lines of thunderstorms, embedded thunderstorms of any intensity level, areas of thunderstorms greater than or equal to VIP level 4 with an area coverage of $\frac{4}{10}$ (40%) or more, and hail $\frac{3}{4}$ inch or greater.

(See AIRMET.)

(See AWW.)

(See CWA.)

(See SIGMET.)

(Refer to AIM.)

CONVECTIVE SIGNIFICANT METEOROLOGICAL INFORMATION–

(See CONVECTIVE SIGMET.)

COORDINATES– The intersection of lines of reference, usually expressed in degrees/minutes/seconds of latitude and longitude, used to determine position or location.

COORDINATION FIX– The fix in relation to which facilities will handoff, transfer control of an aircraft, or coordinate flight progress data. For terminal facilities, it may also serve as a clearance for arriving aircraft.

COPTER–

(See HELICOPTER.)

CORRECTION– An error has been made in the transmission and the correct version follows.

COUPLED APPROACH– An instrument approach performed by the aircraft autopilot, and/or visually depicted on the flight director, which is receiving position information and/or steering commands from onboard navigational equipment. In general, coupled non-precision approaches must be flown manually (autopilot disengaged) at altitudes lower than 50 feet AGL below the minimum descent altitude, and coupled precision approaches must be flown manually (autopilot disengaged) below 50 feet AGL unless authorized to conduct autoland operations. Coupled instrument approaches are commonly flown to the allowable IFR weather minima established by the operator or PIC, or flown VFR for training and safety.

COURSE–

- a. The intended direction of flight in the horizontal plane measured in degrees from north.
- b. The ILS localizer signal pattern usually specified as the front course or the back course.
- c. The intended track along a straight, curved, or segmented MLS path.
(See BEARING.)
(See INSTRUMENT LANDING SYSTEM.)
(See MICROWAVE LANDING SYSTEM.)
(See RADIAL.)

CPDLC–

(See CONTROLLER PILOT DATA LINK COMMUNICATIONS.)

CPL [ICAO]–

(See ICAO term CURRENT FLIGHT PLAN.)

CRITICAL ENGINE– The engine which, upon failure, would most adversely affect the performance or handling qualities of an aircraft.

CROSS (FIX) AT (ALTITUDE)– Used by ATC when a specific altitude restriction at a specified fix is required.

CROSS (FIX) AT OR ABOVE (ALTITUDE)– Used by ATC when an altitude restriction at a specified fix is required. It does not prohibit the aircraft from crossing the fix at a higher altitude than specified; however, the higher altitude may not be one that will

violate a succeeding altitude restriction or altitude assignment.

(See ALTITUDE RESTRICTION.)

(Refer to AIM.)

CROSS (FIX) AT OR BELOW (ALTITUDE)– Used by ATC when a maximum crossing altitude at a specific fix is required. It does not prohibit the aircraft from crossing the fix at a lower altitude; however, it must be at or above the minimum IFR altitude.

(See ALTITUDE RESTRICTION.)

(See MINIMUM IFR ALTITUDES.)

(Refer to 14 CFR Part 91.)

CROSSWIND–

a. When used concerning the traffic pattern, the word means “crosswind leg.”

(See TRAFFIC PATTERN.)

b. When used concerning wind conditions, the word means a wind not parallel to the runway or the path of an aircraft.

(See CROSSWIND COMPONENT.)

CROSSWIND COMPONENT– The wind component measured in knots at 90 degrees to the longitudinal axis of the runway.

CRUISE– Used in an ATC clearance to authorize a pilot to conduct flight at any altitude from the minimum IFR altitude up to and including the altitude specified in the clearance. The pilot may level off at any intermediate altitude within this block of airspace. Climb/descent within the block is to be made at the discretion of the pilot. However, once the pilot starts descent and verbally reports leaving an altitude in the block, he/she may not return to that altitude without additional ATC clearance. Further, it is approval for the pilot to proceed to and make an approach at destination airport and can be used in conjunction with:

a. An airport clearance limit at locations with a standard/special instrument approach procedure. The CFRs require that if an instrument letdown to an airport is necessary, the pilot shall make the letdown in accordance with a standard/special instrument approach procedure for that airport, or

b. An airport clearance limit at locations that are within/below/outside controlled airspace and without a standard/special instrument approach procedure. Such a clearance is NOT AUTHORIZATION for the pilot to descend under IFR conditions below the applicable minimum IFR altitude nor does

it imply that ATC is exercising control over aircraft in Class G airspace; however, it provides a means for the aircraft to proceed to destination airport, descend, and land in accordance with applicable CFRs governing VFR flight operations. Also, this provides search and rescue protection until such time as the IFR flight plan is closed.

(See INSTRUMENT APPROACH
PROCEDURE.)

CRUISE CLIMB– A climb technique employed by aircraft, usually at a constant power setting, resulting in an increase of altitude as the aircraft weight decreases.

CRUISING ALTITUDE– An altitude or flight level maintained during en route level flight. This is a constant altitude and should not be confused with a cruise clearance.

(See ALTITUDE.)

(See ICAO term CRUISING LEVEL.)

CRUISING LEVEL–

(See CRUISING ALTITUDE.)

CRUISING LEVEL [ICAO]– A level maintained during a significant portion of a flight.

CT MESSAGE– An EDCT time generated by the ATCSCC to regulate traffic at arrival airports. Normally, a CT message is automatically transferred from the traffic management system computer to the NAS en route computer and appears as an EDCT. In

the event of a communication failure between the traffic management system computer and the NAS, the CT message can be manually entered by the TMC at the en route facility.

CTA–

(See CONTROLLED TIME OF ARRIVAL.)

(See ICAO term CONTROL AREA.)

CTAF–

(See COMMON TRAFFIC ADVISORY
FREQUENCY.)

CTAS–

(See CENTER TRACON AUTOMATION
SYSTEM.)

CTRD–

(See CERTIFIED TOWER RADAR DISPLAY.)

CURRENT FLIGHT PLAN [ICAO]– The flight plan, including changes, if any, brought about by subsequent clearances.

CURRENT PLAN– The ATC clearance the aircraft has received and is expected to fly.

CVFP APPROACH–

(See CHARTED VISUAL FLIGHT PROCEDURE
APPROACH.)

CWA–

(See CENTER WEATHER ADVISORY and
WEATHER ADVISORY.)

D

D-ATIS–

(See DIGITAL-AUTOMATIC TERMINAL INFORMATION SERVICE.)

DA [ICAO]–

(See ICAO Term DECISION ALTITUDE/DECISION HEIGHT.)

DAIR–

(See DIRECT ALTITUDE AND IDENTITY READOUT.)

DANGER AREA [ICAO]– An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

Note: The term “Danger Area” is not used in reference to areas within the United States or any of its possessions or territories.

DAS–

(See DELAY ASSIGNMENT.)

DATA BLOCK–

(See ALPHANUMERIC DISPLAY.)

DEAD RECKONING– Dead reckoning, as applied to flying, is the navigation of an airplane solely by means of computations based on airspeed, course, heading, wind direction, and speed, groundspeed, and elapsed time.

DECISION ALTITUDE/DECISION HEIGHT [ICAO Annex 6]– A specified altitude or height (A/H) in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

1. Decision altitude (DA) is referenced to mean sea level and decision height (DH) is referenced to the threshold elevation.

2. Category II and III minima are expressed as a DH and not a DA. Minima is assessed by reference to a radio altimeter and not a barometric altimeter, which makes the minima a DH.

3. The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path.

Decision altitude (DA) - A specified altitude (mean

sea level (MSL)) on an instrument approach procedure (ILS, GLS, vertically guided RNAV) at which the pilot must decide whether to continue the approach or initiate an immediate missed approach if the pilot does not see the required visual references.

DECISION HEIGHT– With respect to the operation of aircraft, means the height at which a decision must be made during an ILS, MLS, or PAR instrument approach to either continue the approach or to execute a missed approach.

(See ICAO term DECISION ALTITUDE/DECISION HEIGHT.)

DECODER– The device used to decipher signals received from ATCRBS transponders to effect their display as select codes.

(See CODES.)

(See RADAR.)

DEFENSE AREA– Any airspace of the contiguous United States that is not an ADIZ in which the control of aircraft is required for reasons of national security.

DEFENSE VISUAL FLIGHT RULES– Rules applicable to flights within an ADIZ conducted under the visual flight rules in 14 CFR Part 91.

(See AIR DEFENSE IDENTIFICATION ZONE.)

(Refer to 14 CFR Part 91.)

(Refer to 14 CFR Part 99.)

DELAY ASSIGNMENT (DAS)– Delays are distributed to aircraft based on the traffic management program parameters. The delay assignment is calculated in 15-minute increments and appears as a table in Traffic Flow Management System (TFMS).

DELAY INDEFINITE (REASON IF KNOWN) EXPECT FURTHER CLEARANCE (TIME)– Used by ATC to inform a pilot when an accurate estimate of the delay time and the reason for the delay cannot immediately be determined; e.g., a disabled aircraft on the runway, terminal or center area saturation, weather below landing minimums, etc.

(See EXPECT FURTHER CLEARANCE (TIME).)

DELAY TIME– The amount of time that the arrival must lose to cross the meter fix at the assigned meter fix time. This is the difference between ACLT and VTA.

DEPARTURE CENTER– The ARTCC having jurisdiction for the airspace that generates a flight to the impacted airport.

DEPARTURE CONTROL– A function of an approach control facility providing air traffic control service for departing IFR and, under certain conditions, VFR aircraft.

(See APPROACH CONTROL FACILITY.)

(Refer to AIM.)

DEPARTURE SEQUENCING PROGRAM– A program designed to assist in achieving a specified interval over a common point for departures.

DEPARTURE TIME– The time an aircraft becomes airborne.

DESCEND VIA– An abbreviated ATC clearance that requires compliance with a published procedure lateral path and associated speed restrictions and provides a pilot-discretion descent to comply with published altitude restrictions.

DESCENT SPEED ADJUSTMENTS– Speed deceleration calculations made to determine an accurate VTA. These calculations start at the transition point and use arrival speed segments to the vertex.

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.

DEVIATIONS–

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 Airport/Facility Directory.

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.

DIRECT ALTITUDE AND IDENTITY READ-OUT– The DAIR System is a modification to the AN/TPX-42 Interrogator System. The Navy has two adaptations of the DAIR System-Carrier Air Traffic Control Direct Altitude and Identification Readout System for Aircraft Carriers and Radar Air Traffic Control Facility Direct Altitude and Identity Readout System for land-based terminal operations. The DAIR detects, tracks, and predicts secondary radar aircraft targets. Targets are displayed by means of computer-generated symbols and alphanumeric

characters depicting flight identification, altitude, ground speed, and flight plan data. The DAIR System is capable of interfacing with ARTCCs.

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 Airport/Facility Directory 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– Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.
(See **MICROWAVE LANDING SYSTEM**.)
(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**.)
(See **MICROWAVE LANDING SYSTEM**.)

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.

DOWNBURST– A strong downdraft which induces an outburst of damaging winds on or near the ground. Damaging winds, either straight or curved, are highly divergent. The sizes of downbursts vary from 1/2 mile or less to more than 10 miles. An intense downburst often causes widespread damage. Damag-

ing winds, lasting 5 to 30 minutes, could reach speeds as high as 120 knots.

DOWNWIND LEG–

(See TRAFFIC PATTERN.)

DP–

(See INSTRUMENT DEPARTURE PROCEDURE.)

DRAG CHUTE– A parachute device installed on certain aircraft which is deployed on landing roll to assist in deceleration of the aircraft.

DSP–

(See DEPARTURE SEQUENCING PROGRAM.)

DT–

(See DELAY TIME.)

DTAS–

(See DIGITAL TERMINAL AUTOMATION SYSTEM.)

DUE REGARD– A phase of flight wherein an aircraft commander of a State-operated aircraft assumes responsibility to separate his/her aircraft from all other aircraft.

(See also FAAO JO 7110.65, Para 1-2-1, WORD MEANINGS.)

DUTY RUNWAY–

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

DVA–

(See DIVERSE VECTOR AREA.)

DVFR–

(See DEFENSE VISUAL FLIGHT RULES.)

DVFR FLIGHT PLAN– A flight plan filed for a VFR aircraft which intends to operate in airspace within which the ready identification, location, and control of aircraft are required in the interest of national security.

DVRSN–

(See DIVERSION.)

DYNAMIC– Continuous review, evaluation, and change to meet demands.

DYNAMIC RESTRICTIONS– Those restrictions imposed by the local facility on an “as needed” basis to manage unpredictable fluctuations in traffic demands.

E

EAS–

(See EN ROUTE AUTOMATION SYSTEM.)

EDCT–

(See EXPECT DEPARTURE CLEARANCE TIME.)

EFC–

(See EXPECT FURTHER CLEARANCE (TIME).)

ELT–

(See EMERGENCY LOCATOR TRANSMITTER.)

EMERGENCY– A distress or an urgency condition.

EMERGENCY LOCATOR TRANSMITTER– A radio transmitter attached to the aircraft structure which operates from its own power source on 121.5 MHz and 243.0 MHz. It aids in locating downed aircraft by radiating a downward sweeping audio tone, 2-4 times per second. It is designed to function without human action after an accident.

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

E-MSAW–

(See EN ROUTE MINIMUM SAFE ALTITUDE WARNING.)

EN ROUTE AIR TRAFFIC CONTROL SERVICES– Air traffic control service provided aircraft on IFR flight plans, generally by centers, when these aircraft are operating between departure and destination terminal areas. When equipment, capabilities, and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.

(See AIR ROUTE TRAFFIC CONTROL CENTER.)

(Refer to AIM.)

EN ROUTE AUTOMATION SYSTEM (EAS)– The complex integrated environment consisting of situation display systems, surveillance systems and flight data processing, remote devices, decision support tools, and the related communications equipment that form the heart of the automated IFR air traffic control system. It interfaces with automated terminal systems and is used in the control of en route IFR aircraft.

(Refer to AIM.)

EN ROUTE CHARTS–

(See AERONAUTICAL CHART.)

EN ROUTE DESCENT– Descent from the en route cruising altitude which takes place along the route of flight.

EN ROUTE FLIGHT ADVISORY SERVICE– A service specifically designed to provide, upon pilot request, timely weather information pertinent to his/her type of flight, intended route of flight, and altitude. The FSSs providing this service are listed in the Airport/Facility Directory.

(See FLIGHT WATCH.)

(Refer to AIM.)

EN ROUTE HIGH ALTITUDE CHARTS–

(See AERONAUTICAL CHART.)

EN ROUTE LOW ALTITUDE CHARTS–

(See AERONAUTICAL CHART.)

EN ROUTE MINIMUM SAFE ALTITUDE WARNING– A function of the EAS that aids the controller by providing an alert when a tracked aircraft is below or predicted by the computer to go below a predetermined minimum IFR altitude (MIA).

EN ROUTE SPACING PROGRAM (ESP)– A program designed to assist the exit sector in achieving the required in-trail spacing.

EN ROUTE TRANSITION–

a. Conventional STARs/SIDs. The portion of a SID/STAR that connects to one or more en route airway/jet route.

b. RNAV STARs/SIDs. The portion of a STAR preceding the common route or point, or for a SID the portion following, that is coded for a specific en route fix, airway or jet route.

ESP–

(See EN ROUTE SPACING PROGRAM.)

ESTABLISHED–To be stable or fixed on a route, route segment, altitude, heading, etc.

ESTIMATED ELAPSED TIME [ICAO]– The estimated time required to proceed from one significant point to another.

(See ICAO Term TOTAL ESTIMATED ELAPSED TIME.)

ESTIMATED OFF-BLOCK TIME [ICAO]– The estimated time at which the aircraft will commence movement associated with departure.

ESTIMATED POSITION ERROR (EPE)–
(See Required Navigation Performance)

ESTIMATED TIME OF ARRIVAL– The time the flight is estimated to arrive at the gate (scheduled operators) or the actual runway on times for nonscheduled operators.

ESTIMATED TIME EN ROUTE– The estimated flying time from departure point to destination (lift-off to touchdown).

ETA–
(See ESTIMATED TIME OF ARRIVAL.)

ETE–
(See ESTIMATED TIME EN ROUTE.)

EXECUTE MISSED APPROACH– Instructions issued to a pilot making an instrument approach which means continue inbound to the missed approach point and execute the missed approach procedure as described on the Instrument Approach Procedure Chart or as previously assigned by ATC. The pilot may climb immediately to the altitude specified in the missed approach procedure upon making a missed approach. No turns should be initiated prior to reaching the missed approach point. When conducting an ASR or PAR approach, execute the assigned missed approach procedure immediately

upon receiving instructions to “execute missed approach.”

(Refer to AIM.)

EXPECT (ALTITUDE) AT (TIME) or (FIX)– Used under certain conditions to provide a pilot with an altitude to be used in the event of two-way communications failure. It also provides altitude information to assist the pilot in planning.

(Refer to AIM.)

EXPECT DEPARTURE CLEARANCE TIME (EDCT)– The runway release time assigned to an aircraft in a traffic management program and shown on the flight progress strip as an EDCT.

(See GROUND DELAY PROGRAM.)

EXPECT FURTHER CLEARANCE (TIME)– The time a pilot can expect to receive clearance beyond a clearance limit.

EXPECT FURTHER CLEARANCE VIA (AIRWAYS, ROUTES OR FIXES)– Used to inform a pilot of the routing he/she can expect if any part of the route beyond a short range clearance limit differs from that filed.

EXPEDITE– Used by ATC when prompt compliance is required to avoid the development of an imminent situation. Expedite climb/descent normally indicates to a pilot that the approximate best rate of climb/descent should be used without requiring an exceptional change in aircraft handling characteristics.

F

FAF–

(See FINAL APPROACH FIX.)

FAST FILE– An FSS system whereby a pilot files a flight plan via telephone that is recorded and later transcribed for transmission to the appropriate air traffic facility. (Alaska only.)

FAWP– Final Approach Waypoint

FCLT–

(See FREEZE CALCULATED LANDING TIME.)

FEATHERED PROPELLER– A propeller whose blades have been rotated so that the leading and trailing edges are nearly parallel with the aircraft flight path to stop or minimize drag and engine rotation. Normally used to indicate shutdown of a reciprocating or turboprop engine due to malfunction.

FEDERAL AIRWAYS–

(See LOW ALTITUDE AIRWAY STRUCTURE.)

FEEDER FIX– The fix depicted on Instrument Approach Procedure Charts which establishes the starting point of the feeder route.

FEEDER ROUTE– A route depicted on instrument approach procedure charts to designate routes for aircraft to proceed from the en route structure to the initial approach fix (IAF).

(See INSTRUMENT APPROACH PROCEDURE.)

FERRY FLIGHT– A flight for the purpose of:

- a. Returning an aircraft to base.
- b. Delivering an aircraft from one location to another.
- c. Moving an aircraft to and from a maintenance base.– Ferry flights, under certain conditions, may be conducted under terms of a special flight permit.

FIELD ELEVATION–

(See AIRPORT ELEVATION.)

FILED– Normally used in conjunction with flight plans, meaning a flight plan has been submitted to ATC.

FILED EN ROUTE DELAY– Any of the following preplanned delays at points/areas along the route of

flight which require special flight plan filing and handling techniques.

a. Terminal Area Delay. A delay within a terminal area for touch-and-go, low approach, or other terminal area activity.

b. Special Use Airspace Delay. A delay within a Military Operations Area, Restricted Area, Warning Area, or ATC Assigned Airspace.

c. Aerial Refueling Delay. A delay within an Aerial Refueling Track or Anchor.

FILED FLIGHT PLAN– The flight plan as filed with an ATS unit by the pilot or his/her designated representative without any subsequent changes or clearances.

FINAL– Commonly used to mean that an aircraft is on the final approach course or is aligned with a landing area.

(See FINAL APPROACH COURSE.)

(See FINAL APPROACH-IFR.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH [ICAO]– That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified.

a. At the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or

b. At the point of interception of the last track specified in the approach procedure; and ends at a point in the vicinity of an aerodrome from which:

1. A landing can be made; or
2. A missed approach procedure is initiated.

FINAL APPROACH COURSE– A bearing/radial/track of an instrument approach leading to a runway or an extended runway centerline all without regard to distance.

FINAL APPROACH FIX– The fix from which the final approach (IFR) to an airport is executed and which identifies the beginning of the final approach segment. It is designated on Government charts by the Maltese Cross symbol for nonprecision approaches and the lightning bolt symbol, designating the PFAF, for precision approaches; or

when ATC directs a lower-than-published glideslope/path or vertical path intercept altitude, it is the resultant actual point of the glideslope/path or vertical path intercept.

(See FINAL APPROACH POINT.)

(See GLIDESLOPE INTERCEPT ALTITUDE.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH-IFR– The flight path of an aircraft which is inbound to an airport on a final instrument approach course, beginning at the final approach fix or point and extending to the airport or the point where a circle-to-land maneuver or a missed approach is executed.

(See FINAL APPROACH COURSE.)

(See FINAL APPROACH FIX.)

(See FINAL APPROACH POINT.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

(See ICAO term FINAL APPROACH.)

FINAL APPROACH POINT– The point, applicable only to a nonprecision approach with no depicted FAF (such as an on airport VOR), where the aircraft is established inbound on the final approach course from the procedure turn and where the final approach descent may be commenced. The FAP serves as the FAF and identifies the beginning of the final approach segment.

(See FINAL APPROACH FIX.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH SEGMENT–

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH SEGMENT [ICAO]– That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.

FINAL CONTROLLER– The controller providing information and final approach guidance during PAR and ASR approaches utilizing radar equipment.

(See RADAR APPROACH.)

FINAL GUARD SERVICE– A value added service provided in conjunction with LAA/RAA only during periods of significant and fast changing weather conditions that may affect landing and takeoff operations.

FINAL MONITOR AID– A high resolution color display that is equipped with the controller alert system hardware/software used to monitor the no transgression zone (NTZ) during simultaneous parallel approach operations. The display includes alert algorithms providing the target predictors, a color change alert when a target penetrates or is predicted to penetrate the no transgression zone (NTZ), synthesized voice alerts, and digital mapping.

(See RADAR APPROACH.)

FINAL MONITOR CONTROLLER– Air Traffic Control Specialist assigned to radar monitor the flight path of aircraft during simultaneous parallel (approach courses spaced less than 9000 feet/9200 feet above 5000 feet) and simultaneous close parallel approach operations. Each runway is assigned a final monitor controller during simultaneous parallel and simultaneous close parallel ILS approaches.

FIR–

(See FLIGHT INFORMATION REGION.)

FIRST TIER CENTER– The ARTCC immediately adjacent to the impacted center.

FIS-B–

(See FLIGHT INFORMATION SERVICE-BROADCAST.)

FIX– A geographical position determined by visual reference to the surface, by reference to one or more radio NAVAIDs, by celestial plotting, or by another navigational device.

FIX BALANCING– A process whereby aircraft are evenly distributed over several available arrival fixes reducing delays and controller workload.

FLAG– A warning device incorporated in certain airborne navigation and flight instruments indicating that:

a. Instruments are inoperative or otherwise not operating satisfactorily, or

b. Signal strength or quality of the received signal falls below acceptable values.

FLAG ALARM–

(See FLAG.)

FLAMEOUT– An emergency condition caused by a loss of engine power.

FLAMEOUT PATTERN– An approach normally conducted by a single-engine military aircraft experiencing loss or anticipating loss of engine

power or control. The standard overhead approach starts at a relatively high altitude over a runway (“high key”) followed by a continuous 180 degree turn to a high, wide position (“low key”) followed by a continuous 180 degree turn final. The standard straight-in pattern starts at a point that results in a straight-in approach with a high rate of descent to the runway. Flameout approaches terminate in the type approach requested by the pilot (normally fullstop).

FLIGHT CHECK– A call-sign prefix used by FAA aircraft engaged in flight inspection/certification of navigational aids and flight procedures. The word “recorded” may be added as a suffix; e.g., “Flight Check 320 recorded” to indicate that an automated flight inspection is in progress in terminal areas.

(See **FLIGHT INSPECTION**.)

(Refer to AIM.)

FLIGHT FOLLOWING–

(See **TRAFFIC ADVISORIES**.)

FLIGHT INFORMATION REGION– An airspace of defined dimensions within which Flight Information Service and Alerting Service are provided.

a. Flight Information Service. A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

b. Alerting Service. A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and to assist such organizations as required.

FLIGHT INFORMATION SERVICE– A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

FLIGHT INFORMATION SERVICE–BROADCAST (FIS-B)– A ground broadcast service provided through the ADS-B Broadcast Services network over the UAT data link that operates on 978 MHz. The FIS-B system provides pilots and flight crews of properly equipped aircraft with a cockpit display of certain aviation weather and aeronautical information.

FLIGHT INSPECTION– Inflight investigation and evaluation of a navigational aid to determine whether it meets established tolerances.

(See **FLIGHT CHECK**.)

(See **NAVIGATIONAL AID**.)

FLIGHT LEVEL– A level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet. For example, flight level (FL) 250 represents a barometric altimeter indication of 25,000 feet; FL 255, an indication of 25,500 feet.

(See ICAO term **FLIGHT LEVEL**.)

FLIGHT LEVEL [ICAO]– A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hPa (1013.2 mb), and is separated from other such surfaces by specific pressure intervals.

Note 1: A pressure type altimeter calibrated in accordance with the standard atmosphere:

- a.** When set to a QNH altimeter setting, will indicate altitude;
- b.** When set to a QFE altimeter setting, will indicate height above the QFE reference datum; and
- c.** When set to a pressure of 1013.2 hPa (1013.2 mb), may be used to indicate flight levels.

Note 2: The terms ‘height’ and ‘altitude,’ used in Note 1 above, indicate altimetric rather than geometric heights and altitudes.

FLIGHT LINE– A term used to describe the precise movement of a civil photogrammetric aircraft along a predetermined course(s) at a predetermined altitude during the actual photographic run.

FLIGHT MANAGEMENT SYSTEMS– A computer system that uses a large data base to allow routes to be preprogrammed and fed into the system by means of a data loader. The system is constantly updated with respect to position accuracy by reference to conventional navigation aids. The sophisticated program and its associated data base ensures that the most appropriate aids are automatically selected during the information update cycle.

FLIGHT MANAGEMENT SYSTEM PROCEDURE– An arrival, departure, or approach procedure developed for use by aircraft with a slant (/) E or slant (/) F equipment suffix.

FLIGHT PATH– A line, course, or track along which an aircraft is flying or intended to be flown.

(See **COURSE**.)

(See **TRACK**.)

FLIGHT PLAN– Specified information relating to the intended flight of an aircraft that is filed orally or in writing with an FSS or an ATC facility.

(See **FAST FILE**.)

(See **FILED**.)

(Refer to **AIM**.)

FLIGHT PLAN AREA (FPA)– The geographical area assigned to a flight service station (FSS) for the purpose of establishing primary responsibility for services that may include search and rescue for VFR aircraft, issuance of NOTAMs, pilot briefings, inflight services, broadcast services, emergency services, flight data processing, international operations, and aviation weather services. Large consolidated FSS facilities may combine FPAs into larger areas of responsibility (AOR).

(See **FLIGHT SERVICE STATION**.)

(See **TIE-IN FACILITY**.)

FLIGHT RECORDER– A general term applied to any instrument or device that records information about the performance of an aircraft in flight or about conditions encountered in flight. Flight recorders may make records of airspeed, outside air temperature, vertical acceleration, engine RPM, manifold pressure, and other pertinent variables for a given flight.

(See ICAO term **FLIGHT RECORDER**.)

FLIGHT RECORDER [ICAO]– Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

Note: See Annex 6 Part I, for specifications relating to flight recorders.

FLIGHT SERVICE STATION (FSS) – An air traffic facility which provides pilot briefings, flight plan processing, en route radio communications, search and rescue services, and assistance to lost aircraft and aircraft in emergency situations. FSS also relays ATC clearances, processes Notices to Airmen, and broadcasts aviation weather and aeronautical information. In addition, at selected locations, FSS provides En Route Flight Advisory Service (Flight Watch) and

Airport Advisory Service (AAS) and takes airport weather observations.

(See **FLIGHT PLAN AREA**.)

(See **TIE-IN FACILITY**.)

FLIGHT STANDARDS DISTRICT OFFICE– An FAA field office serving an assigned geographical area and staffed with Flight Standards personnel who serve the aviation industry and the general public on matters relating to the certification and operation of air carrier and general aviation aircraft. Activities include general surveillance of operational safety, certification of airmen and aircraft, accident prevention, investigation, enforcement, etc.

FLIGHT TEST– A flight for the purpose of:

a. Investigating the operation/flight characteristics of an aircraft or aircraft component.

b. Evaluating an applicant for a pilot certificate or rating.

FLIGHT VISIBILITY–

(See **VISIBILITY**.)

FLIGHT WATCH– A shortened term for use in air-ground contacts to identify the flight service station providing En Route Flight Advisory Service; e.g., “Oakland Flight Watch.”

(See **EN ROUTE FLIGHT ADVISORY SERVICE**.)

FLIP–

(See **DOD FLIP**.)

FLY HEADING (DEGREES)– Informs the pilot of the heading he/she should fly. The pilot may have to turn to, or continue on, a specific compass direction in order to comply with the instructions. The pilot is expected to turn in the shorter direction to the heading unless otherwise instructed by ATC.

FLY-BY WAYPOINT– A fly-by waypoint requires the use of turn anticipation to avoid overshoot of the next flight segment.

FLY-OVER WAYPOINT– A fly-over waypoint precludes any turn until the waypoint is overflown and is followed by an intercept maneuver of the next flight segment.

FLY VISUAL TO AIRPORT–

(See **PUBLISHED INSTRUMENT APPROACH PROCEDURE VISUAL SEGMENT**.)

FMA–

(See **FINAL MONITOR AID**.)

FMS–

(See FLIGHT MANAGEMENT SYSTEM.)

FMSP–

(See FLIGHT MANAGEMENT SYSTEM PROCEDURE.)

FORMATION FLIGHT– More than one aircraft which, by prior arrangement between the pilots, operate as a single aircraft with regard to navigation and position reporting. Separation between aircraft within the formation is the responsibility of the flight leader and the pilots of the other aircraft in the flight. This includes transition periods when aircraft within the formation are maneuvering to attain separation from each other to effect individual control and during join-up and breakaway.

a. A standard formation is one in which a proximity of no more than 1 mile laterally or longitudinally and within 100 feet vertically from the flight leader is maintained by each wingman.

b. Nonstandard formations are those operating under any of the following conditions:

1. When the flight leader has requested and ATC has approved other than standard formation dimensions.

2. When operating within an authorized altitude reservation (ALTRV) or under the provisions of a letter of agreement.

3. When the operations are conducted in airspace specifically designed for a special activity.
(See ALTITUDE RESERVATION.)
(Refer to 14 CFR Part 91.)

FRC–

(See REQUEST FULL ROUTE CLEARANCE.)

FREEZE/FROZEN– Terms used in referring to arrivals which have been assigned ACLTs and to the lists in which they are displayed.

FREEZE CALCULATED LANDING TIME– A dynamic parameter number of minutes prior to the meter fix calculated time of arrival for each aircraft when the TCLT is frozen and becomes an ACLT (i.e., the VTA is updated and consequently the TCLT is modified as appropriate until FCLT minutes prior to meter fix calculated time of arrival, at which time updating is suspended and an ACLT and a frozen meter fix crossing time (MFT) is assigned).

FREEZE HORIZON– The time or point at which an aircraft's STA becomes fixed and no longer fluctuates

with each radar update. This setting ensures a constant time for each aircraft, necessary for the metering controller to plan his/her delay technique. This setting can be either in distance from the meter fix or a prescribed flying time to the meter fix.

FREEZE SPEED PARAMETER– A speed adapted for each aircraft to determine fast and slow aircraft. Fast aircraft freeze on parameter FCLT and slow aircraft freeze on parameter MLDI.

FRICTION MEASUREMENT– A measurement of the friction characteristics of the runway pavement surface using continuous self-watering friction measurement equipment in accordance with the specifications, procedures and schedules contained in AC 150/5320-12, Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces.

FSDO–

(See FLIGHT STANDARDS DISTRICT OFFICE.)

FSPD–

(See FREEZE SPEED PARAMETER.)

FSS–

(See FLIGHT SERVICE STATION.)

FUEL DUMPING– Airborne release of usable fuel. This does not include the dropping of fuel tanks.

(See JETTISONING OF EXTERNAL STORES.)

FUEL REMAINING– A phrase used by either pilots or controllers when relating to the fuel remaining on board until actual fuel exhaustion. When transmitting such information in response to either a controller question or pilot initiated cautionary advisory to air traffic control, pilots will state the APPROXIMATE NUMBER OF MINUTES the flight can continue with the fuel remaining. All reserve fuel SHOULD BE INCLUDED in the time stated, as should an allowance for established fuel gauge system error.

FUEL SIPHONING– Unintentional release of fuel caused by overflow, puncture, loose cap, etc.

FUEL VENTING–

(See FUEL SIPHONING.)

FUSED TARGET–

(See DIGITAL TARGET)

FUSION [STARS/CARTS]– the combination of all available surveillance sources (airport surveillance radar [ASR], air route surveillance radar [ARSR], ADS-B, etc.) into the display of a single tracked

target for air traffic control separation services. FUSION is the equivalent of the current single-sensor radar display. FUSION performance is characteristic of a single-sensor radar display system. Terminal areas use mono-pulse secondary surveillance radar (ASR 9, Mode S or ASR 11, MSSR).

G

GATE HOLD PROCEDURES– Procedures at Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS.

GBT–

(See **GROUND-BASED TRANSCEIVER**.)

GCA–

(See **GROUND CONTROLLED APPROACH**.)

GDP–

(See **GROUND DELAY PROGRAM**.)

GENERAL AVIATION– That portion of civil aviation that does not include scheduled or unscheduled air carriers or commercial space operations.

(See ICAO term **GENERAL AVIATION**.)

GENERAL AVIATION [ICAO]– All civil aviation operations other than scheduled air services and nonscheduled air transport operations for remuneration or hire.

GEO MAP– The digitized map markings associated with the ASR-9 Radar System.

GLIDEPATH–

(See **GLIDESLOPE**.)

GLIDEPATH [ICAO]– A descent profile determined for vertical guidance during a final approach.

GLIDEPATH INTERCEPT ALTITUDE–

(See **GLIDESLOPE INTERCEPT ALTITUDE**.)

GLIDESLOPE– Provides vertical guidance for aircraft during approach and landing. The glideslope/ glidepath is based on the following:

a. Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS/MLS, or

b. Visual ground aids, such as VASI, which provide vertical guidance for a VFR approach or for the visual portion of an instrument approach and landing.

c. **PAR**. Used by ATC to inform an aircraft making a PAR approach of its vertical position (elevation) relative to the descent profile.

(See ICAO term **GLIDEPATH**.)

GLIDESLOPE INTERCEPT ALTITUDE– The published minimum altitude to intercept the glideslope in the intermediate segment of an instrument approach. Government charts use the lightning bolt symbol to identify this intercept point. This intersection is called the Precise Final Approach fix (PFAF). ATC directs a higher altitude, the resultant intercept becomes the PFAF.

(See **FINAL APPROACH FIX**.)

(See **SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE**.)

GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) [ICAO]– GNSS refers collectively to the worldwide positioning, navigation, and timing determination capability available from one or more satellite constellation in conjunction with a network of ground stations.

GLOBAL NAVIGATION SATELLITE SYSTEM MINIMUM EN ROUTE IFR ALTITUDE (GNSS MEA)– The minimum en route IFR altitude on a published ATS route or route segment which assures acceptable Global Navigation Satellite System reception and meets obstacle clearance requirements. (Refer to 14 CFR Part 91.) (Refer to 14 CFR Part 95.)

GLOBAL POSITIONING SYSTEM (GPS)– GPS refers to the worldwide positioning, navigation and timing determination capability available from the U.S. satellite constellation. The service provided by GPS for civil use is defined in the GPS Standard Positioning System Performance Standard. GPS is composed of space, control, and user elements.

GNSS [ICAO]–

(See **GLOBAL NAVIGATION SATELLITE SYSTEM**.)

GNSS MEA–

(See **GLOBAL NAVIGATION SATELLITE SYSTEM MINIMUM EN ROUTE IFR ALTITUDE**.)

GO AHEAD– Proceed with your message. Not to be used for any other purpose.

GO AROUND– Instructions for a pilot to abandon his/her approach to landing. Additional instructions may follow. Unless otherwise advised by ATC, a VFR aircraft or an aircraft conducting visual approach should overfly the runway while climbing to traffic pattern altitude and enter the traffic pattern via the crosswind leg. A pilot on an IFR flight plan making an instrument approach should execute the published missed approach procedure or proceed as instructed by ATC; e.g., “Go around” (additional instructions if required).

(See LOW APPROACH.)

(See MISSED APPROACH.)

GPD–

(See GRAPHIC PLAN DISPLAY.)

GPS–

(See GLOBAL POSITIONING SYSTEM.)

GRAPHIC PLAN DISPLAY (GPD)– A view available with URET that provides a graphic display of aircraft, traffic, and notification of predicted conflicts. Graphic routes for Current Plans and Trial Plans are displayed upon controller request.

(See USER REQUEST EVALUATION TOOL.)

GROSS NAVIGATION ERROR (GNE) – A lateral deviation from a cleared track, normally in excess of 25 Nautical Miles (NM). More stringent standards (for example, 10NM in some parts of the North Atlantic region) may be used in certain regions to support reductions in lateral separation.

GROUND-BASED TRANSCEIVER (GBT)– The ground-based transmitter/receiver (transceiver) receives automatic dependent surveillance–broadcast messages, which are forwarded to an air traffic control facility for processing and display with other radar targets on the plan position indicator (radar display).

(See AUTOMATIC DEPENDENT
SURVEILLANCE-BROADCAST.)

GROUND CLUTTER– A pattern produced on the radar scope by ground returns which may degrade other radar returns in the affected area. The effect of ground clutter is minimized by the use of moving target indicator (MTI) circuits in the radar equipment resulting in a radar presentation which displays only targets which are in motion.

(See CLUTTER.)

GROUND COMMUNICATION OUTLET (GCO)– An unstaffed, remotely controlled, ground/ground communications facility. Pilots at uncontrolled airports may contact ATC and FSS via VHF to a telephone connection to obtain an instrument clearance or close a VFR or IFR flight plan. They may also get an updated weather briefing prior to takeoff. Pilots will use four “key clicks” on the VHF radio to contact the appropriate ATC facility or six “key clicks” to contact the FSS. The GCO system is intended to be used only on the ground.

GROUND CONTROLLED APPROACH– A radar approach system operated from the ground by air traffic control personnel transmitting instructions to the pilot by radio. The approach may be conducted with surveillance radar (ASR) only or with both surveillance and precision approach radar (PAR). Usage of the term “GCA” by pilots is discouraged except when referring to a GCA facility. Pilots should specifically request a “PAR” approach when a precision radar approach is desired or request an “ASR” or “surveillance” approach when a nonprecision radar approach is desired.

(See RADAR APPROACH.)

GROUND DELAY PROGRAM (GDP)– A traffic management process administered by the ATCSCC; when aircraft are held on the ground. The purpose of the program is to support the TM mission and limit airborne holding. It is a flexible program and may be implemented in various forms depending upon the needs of the AT system. Ground delay programs provide for equitable assignment of delays to all system users.

GROUND SPEED– The speed of an aircraft relative to the surface of the earth.

GROUND STOP (GS)– The GS is a process that requires aircraft that meet a specific criteria to remain on the ground. The criteria may be airport specific, airspace specific, or equipment specific; for example, all departures to San Francisco, or all departures entering Yorktown sector, or all Category I and II aircraft going to Charlotte. GSs normally occur with little or no warning.

GROUND VISIBILITY–

(See VISIBILITY.)

GS–

(See GROUND STOP.)

H

HAA–

(See HEIGHT ABOVE AIRPORT.)

HAL–

(See HEIGHT ABOVE LANDING.)

HANDOFF– An action taken to transfer the radar identification of an aircraft from one controller to another if the aircraft will enter the receiving controller’s airspace and radio communications with the aircraft will be transferred.

HAR–

(See HIGH ALTITUDE REDESIGN.)

HAT–

(See HEIGHT ABOVE TOUCHDOWN.)

HAVE NUMBERS– Used by pilots to inform ATC that they have received runway, wind, and altimeter information only.

HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE– Continuous recorded hazardous inflight weather forecasts broadcasted to airborne pilots over selected VOR outlets defined as an HIWAS BROADCAST AREA.

HAZARDOUS WEATHER INFORMATION– Summary of significant meteorological information (SIGMET/WS), convective significant meteorological information (convective SIGMET/WST), urgent pilot weather reports (urgent PIREP/UUA), center weather advisories (CWA), airmen’s meteorological information (AIRMET/WA) and any other weather such as isolated thunderstorms that are rapidly developing and increasing in intensity, or low ceilings and visibilities that are becoming widespread which is considered significant and are not included in a current hazardous weather advisory.

HEAVY (AIRCRAFT)–

(See AIRCRAFT CLASSES.)

HEIGHT ABOVE AIRPORT– The height of the Minimum Descent Altitude above the published airport elevation. This is published in conjunction with circling minimums.

(See MINIMUM DESCENT ALTITUDE.)

HEIGHT ABOVE LANDING– The height above a designated helicopter landing area used for helicopter instrument approach procedures.

(Refer to 14 CFR Part 97.)

HEIGHT ABOVE TOUCHDOWN– The height of the Decision Height or Minimum Descent Altitude above the highest runway elevation in the touchdown zone (first 3,000 feet of the runway). HAT is published on instrument approach charts in conjunction with all straight-in minimums.

(See DECISION HEIGHT.)

(See MINIMUM DESCENT ALTITUDE.)

HELICOPTER– A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.

HELIPAD– A small, designated area, usually with a prepared surface, on a heliport, airport, landing/take-off area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters.

HELIPORT– An area of land, water, or structure used or intended to be used for the landing and takeoff of helicopters and includes its buildings and facilities if any.

HELIPORT REFERENCE POINT (HRP)– The geographic center of a heliport.

HERTZ– The standard radio equivalent of frequency in cycles per second of an electromagnetic wave. Kilohertz (kHz) is a frequency of one thousand cycles per second. Megahertz (MHz) is a frequency of one million cycles per second.

HF–

(See HIGH FREQUENCY.)

HF COMMUNICATIONS–

(See HIGH FREQUENCY COMMUNICATIONS.)

HIGH ALTITUDE REDESIGN (HAR)– A level of non-restrictive routing (NRR) service for aircraft that have all waypoints associated with the HAR program in their flight management systems or RNAV equipage.

HIGH FREQUENCY– The frequency band between 3 and 30 MHz.

(See HIGH FREQUENCY COMMUNICATIONS.)

HIGH FREQUENCY COMMUNICATIONS– High radio frequencies (HF) between 3 and 30 MHz used for air-to-ground voice communication in overseas operations.

HIGH SPEED EXIT–

(See HIGH SPEED TAXIWAY.)

HIGH SPEED TAXIWAY– A long radius taxiway designed and provided with lighting or marking to define the path of aircraft, traveling at high speed (up to 60 knots), from the runway center to a point on the center of a taxiway. Also referred to as long radius exit or turn-off taxiway. The high speed taxiway is designed to expedite aircraft turning off the runway after landing, thus reducing runway occupancy time.

HIGH SPEED TURNOFF–

(See HIGH SPEED TAXIWAY.)

HIWAS–

(See HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE.)

HIWAS AREA–

(See HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE.)

HIWAS BROADCAST AREA– A geographical area of responsibility including one or more HIWAS outlet areas assigned to a FSS for hazardous weather advisory broadcasting.

HIWAS OUTLET AREA– An area defined as a 150 NM radius of a HIWAS outlet, expanded as necessary to provide coverage.

HOLD FOR RELEASE– Used by ATC to delay an aircraft for traffic management reasons; i.e., weather, traffic volume, etc. Hold for release instructions (including departure delay information) are used to inform a pilot or a controller (either directly or through an authorized relay) that an IFR departure clearance is not valid until a release time or additional instructions have been received.

(See ICAO term HOLDING POINT.)

HOLD IN LIEU OF PROCEDURE TURN– A hold in lieu of procedure turn shall be established over a final or intermediate fix when an approach can be made from a properly aligned holding pattern. The hold in lieu of procedure turn permits the pilot to align with the final or intermediate segment of the approach and/or descend in the holding pattern to an

altitude that will permit a normal descent to the final approach fix altitude. The hold in lieu of procedure turn is a required maneuver (the same as a procedure turn) unless the aircraft is being radar vectored to the final approach course, when “NoPT” is shown on the approach chart, or when the pilot requests or the controller advises the pilot to make a “straight-in” approach.

HOLD PROCEDURE– A predetermined maneuver which keeps aircraft within a specified airspace while awaiting further clearance from air traffic control. Also used during ground operations to keep aircraft within a specified area or at a specified point while awaiting further clearance from air traffic control.

(See HOLDING FIX.)

(Refer to AIM.)

HOLDING FIX– A specified fix identifiable to a pilot by NAVAIDs or visual reference to the ground used as a reference point in establishing and maintaining the position of an aircraft while holding.

(See FIX.)

(See VISUAL HOLDING.)

(Refer to AIM.)

HOLDING POINT [ICAO]– A specified location, identified by visual or other means, in the vicinity of which the position of an aircraft in flight is maintained in accordance with air traffic control clearances.

HOLDING PROCEDURE–

(See HOLD PROCEDURE.)

HOLD-SHORT POINT– A point on the runway beyond which a landing aircraft with a LAHSO clearance is not authorized to proceed. This point may be located prior to an intersecting runway, taxiway, predetermined point, or approach/departure flight path.

HOLD-SHORT POSITION LIGHTS– Flashing in-pavement white lights located at specified hold-short points.

HOLD-SHORT POSITION MARKING– The painted runway marking located at the hold-short point on all LAHSO runways.

HOLD-SHORT POSITION SIGNS– Red and white holding position signs located alongside the hold-short point.

HOMING– Flight toward a NAVAID, without correcting for wind, by adjusting the aircraft heading to maintain a relative bearing of zero degrees.

(See BEARING.)

(See ICAO term HOMING.)

HOMING [ICAO]– The procedure of using the direction-finding equipment of one radio station with the emission of another radio station, where at least one of the stations is mobile, and whereby the mobile station proceeds continuously towards the other station.

HOVER CHECK– Used to describe when a helicopter/VTOL aircraft requires a stabilized hover to conduct a performance/power check prior to hover taxi, air taxi, or takeoff. Altitude of the hover will vary based on the purpose of the check.

HOVER TAXI– Used to describe a helicopter/VTOL aircraft movement conducted above the surface and in ground effect at airspeeds less than approximately 20 knots. The actual height may vary, and some helicopters may require hover taxi above 25 feet AGL to reduce ground effect turbulence or provide clearance for cargo slingloads.

(See AIR TAXI.)

(See HOVER CHECK.)

(Refer to AIM.)

HOW DO YOU HEAR ME?– A question relating to the quality of the transmission or to determine how well the transmission is being received.

HZ–

(See HERTZ.)

I

I SAY AGAIN– The message will be repeated.

IAF–

(See INITIAL APPROACH FIX.)

IAP–

(See INSTRUMENT APPROACH PROCEDURE.)

IAWP– Initial Approach Waypoint

ICAO–

(See ICAO Term INTERNATIONAL CIVIL AVIATION ORGANIZATION.)

ICING– The accumulation of airframe ice.

Types of icing are:

a. Rime Ice– Rough, milky, opaque ice formed by the instantaneous freezing of small supercooled water droplets.

b. Clear Ice– A glossy, clear, or translucent ice formed by the relatively slow freezing or large supercooled water droplets.

c. Mixed– A mixture of clear ice and rime ice.

Intensity of icing:

a. Trace– Ice becomes perceptible. Rate of accumulation is slightly greater than the rate of sublimation. Deicing/anti-icing equipment is not utilized unless encountered for an extended period of time (over 1 hour).

b. Light– The rate of accumulation may create a problem if flight is prolonged in this environment (over 1 hour). Occasional use of deicing/anti-icing equipment removes/prevents accumulation. It does not present a problem if the deicing/anti-icing equipment is used.

c. Moderate– The rate of accumulation is such that even short encounters become potentially hazardous and use of deicing/anti-icing equipment or flight diversion is necessary.

d. Severe– The rate of accumulation is such that deicing/anti-icing equipment fails to reduce or control the hazard. Immediate flight diversion is necessary.

IDENT– A request for a pilot to activate the aircraft transponder identification feature. This will help the

controller to confirm an aircraft identity or to identify an aircraft.

(Refer to AIM.)

IDENT FEATURE– The special feature in the Air Traffic Control Radar Beacon System (ATCRBS) equipment. It is used to immediately distinguish one displayed beacon target from other beacon targets.

(See IDENT.)

IF–

(See INTERMEDIATE FIX.)

IFIM–

(See INTERNATIONAL FLIGHT INFORMATION MANUAL.)

IF NO TRANSMISSION RECEIVED FOR (TIME)– Used by ATC in radar approaches to prefix procedures which should be followed by the pilot in event of lost communications.

(See LOST COMMUNICATIONS.)

IFR–

(See INSTRUMENT FLIGHT RULES.)

IFR AIRCRAFT– An aircraft conducting flight in accordance with instrument flight rules.

IFR CONDITIONS– Weather conditions below the minimum for flight under visual flight rules.

(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

IFR DEPARTURE PROCEDURE–

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(Refer to AIM.)

IFR FLIGHT–

(See IFR AIRCRAFT.)

IFR LANDING MINIMUMS–

(See LANDING MINIMUMS.)

IFR MILITARY TRAINING ROUTES (IR)– Routes used by the Department of Defense and associated Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training in both IFR and VFR weather conditions below 10,000 feet MSL at airspeeds in excess of 250 knots IAS.

IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES– Title 14 Code of Federal

Regulations Part 91, prescribes standard takeoff rules for certain civil users. At some airports, obstructions or other factors require the establishment of nonstandard takeoff minimums, departure procedures, or both to assist pilots in avoiding obstacles during climb to the minimum en route altitude. Those airports are listed in FAA/DOD Instrument Approach Procedures (IAPs) Charts under a section entitled "IFR Takeoff Minimums and Departure Procedures." The FAA/DOD IAP chart legend illustrates the symbol used to alert the pilot to nonstandard takeoff minimums and departure procedures. When departing IFR from such airports or from any airports where there are no departure procedures, DPs, or ATC facilities available, pilots should advise ATC of any departure limitations. Controllers may query a pilot to determine acceptable departure directions, turns, or headings after takeoff. Pilots should be familiar with the departure procedures and must assure that their aircraft can meet or exceed any specified climb gradients.

IF/IAWP– Intermediate Fix/Initial Approach Waypoint. The waypoint where the final approach course of a T approach meets the crossbar of the T. When designated (in conjunction with a TAA) this waypoint will be used as an IAWP when approaching the airport from certain directions, and as an IFWP when beginning the approach from another IAWP.

IFWP– Intermediate Fix Waypoint

ILS–

(See INSTRUMENT LANDING SYSTEM.)

ILS CATEGORIES– 1. Category I. An ILS approach procedure which provides for approach to a height above touchdown of not less than 200 feet and with runway visual range of not less than 1,800 feet.– 2. Special Authorization Category I. An ILS approach procedure which provides for approach to a height above touchdown of not less than 150 feet and with runway visual range of not less than 1,400 feet, HUD to DH. 3. Category II. An ILS approach procedure which provides for approach to a height above touchdown of not less than 100 feet and with runway visual range of not less than 1,200 feet (with autoland or HUD to touchdown and noted on authorization, RVR 1,000 feet).– 4. Special Authorization Category II with Reduced Lighting. An ILS approach procedure which provides for approach to a height above touchdown of not less than 100 feet and with runway visual range of not less

than 1,200 feet with autoland or HUD to touchdown and noted on authorization (no touchdown zone and centerline lighting are required).– 5. Category III:

a. IIIA.–An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 700 feet.

b. IIIB.–An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 150 feet.

c. IIIC.–An ILS approach procedure which provides for approach without a decision height minimum and without runway visual range minimum.

ILS PRM APPROACH– An instrument landing system (ILS) approach conducted to parallel runways whose extended centerlines are separated by less than 4,300 feet and at least 3,000 feet where independent closely spaced approaches are permitted. Also used in conjunction with an LDA PRM, RNAV PRM or GLS PRM approach to conduct Simultaneous Offset Instrument Approach (SOIA) operations. No Transgression Zone (NTZ) monitoring is required to conduct these approaches. ATC utilizes an enhanced display with alerting and, with certain runway spacing, a high update rate PRM surveillance sensor. Use of a secondary monitor frequency, pilot PRM training, and publication of an Attention All Users Page are also required for all PRM approaches.

(Refer to AIM)

IM–

(See INNER MARKER.)

IMC–

(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

IMMEDIATELY–Used by ATC or pilots when such action compliance is required to avoid an imminent situation.

INCERFA (Uncertainty Phase) [ICAO]– A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

INCREASE SPEED TO (SPEED)–

(See SPEED ADJUSTMENT.)

INERTIAL NAVIGATION SYSTEM– An RNAV system which is a form of self-contained navigation.

(See Area Navigation/RNAV.)

INFLIGHT REFUELING–

(See AERIAL REFUELING.)

INFLIGHT WEATHER ADVISORY–

(See WEATHER ADVISORY.)

INFORMATION REQUEST– A request originated by an FSS for information concerning an overdue VFR aircraft.

INITIAL APPROACH FIX– The fixes depicted on instrument approach procedure charts that identify the beginning of the initial approach segment(s).

(See FIX.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INITIAL APPROACH SEGMENT–

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INITIAL APPROACH SEGMENT [ICAO]– That segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point.

INLAND NAVIGATION FACILITY– A navigation aid on a North American Route at which the common route and/or the noncommon route begins or ends.

INNER MARKER– A marker beacon used with an ILS (CAT II) precision approach located between the middle marker and the end of the ILS runway, transmitting a radiation pattern keyed at six dots per second and indicating to the pilot, both aurally and visually, that he/she is at the designated decision height (DH), normally 100 feet above the touchdown zone elevation, on the ILS CAT II approach. It also marks progress during a CAT III approach.

(See INSTRUMENT LANDING SYSTEM.)

(Refer to AIM.)

INNER MARKER BEACON–

(See INNER MARKER.)

INREQ–

(See INFORMATION REQUEST.)

INS–

(See INERTIAL NAVIGATION SYSTEM.)

INSTRUMENT APPROACH–

(See INSTRUMENT APPROACH PROCEDURE.)

INSTRUMENT APPROACH PROCEDURE– A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority.

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

a. U.S. civil standard instrument approach procedures are approved by the FAA as prescribed under 14 CFR Part 97 and are available for public use.

b. U.S. military standard instrument approach procedures are approved and published by the Department of Defense.

c. Special instrument approach procedures are approved by the FAA for individual operators but are not published in 14 CFR Part 97 for public use.

(See ICAO term INSTRUMENT APPROACH PROCEDURE.)

INSTRUMENT APPROACH OPERATIONS [ICAO]* An approach and landing using instruments for navigation guidance based on an instrument approach procedure. There are two methods for executing instrument approach operations:

a. A two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and

b. A three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance.

Note: Lateral and vertical navigation guidance refers to the guidance provided either by:

a) a ground-based radio navigation aid; or

b) computer-generated navigation data from ground-based, space-based, self-contained navigation aids or a combination of these.

(See ICAO term INSTRUMENT APPROACH PROCEDURE.)

INSTRUMENT APPROACH PROCEDURE [ICAO]– A series of predetermined maneuvers by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not

completed, to a position at which holding or en route obstacle clearance criteria apply.

(See ICAO term INSTRUMENT APPROACH OPERATIONS)

INSTRUMENT APPROACH PROCEDURES CHARTS–

(See AERONAUTICAL CHART.)

INSTRUMENT DEPARTURE PROCEDURE (DP)– A preplanned instrument flight rule (IFR) departure procedure published for pilot use, in graphic or textual format, that provides obstruction clearance from the terminal area to the appropriate en route structure. There are two types of DP, Obstacle Departure Procedure (ODP), printed either textually or graphically, and, Standard Instrument Departure (SID), which is always printed graphically.

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See OBSTACLE DEPARTURE PROCEDURES.)

(See STANDARD INSTRUMENT DEPARTURES.)

(Refer to AIM.)

INSTRUMENT DEPARTURE PROCEDURE (DP) CHARTS–

(See AERONAUTICAL CHART.)

INSTRUMENT FLIGHT RULES– Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

(See VISUAL FLIGHT RULES.)

(See VISUAL METEOROLOGICAL CONDITIONS.)

(See ICAO term INSTRUMENT FLIGHT RULES.)

(Refer to AIM.)

INSTRUMENT FLIGHT RULES [ICAO]– A set of rules governing the conduct of flight under instrument meteorological conditions.

INSTRUMENT LANDING SYSTEM– A precision instrument approach system which normally consists of the following electronic components and visual aids:

a. Localizer.

(See LOCALIZER.)

b. Glideslope.

(See GLIDESLOPE.)

c. Outer Marker.

(See OUTER MARKER.)

d. Middle Marker.

(See MIDDLE MARKER.)

e. Approach Lights.

(See AIRPORT LIGHTING.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

INSTRUMENT METEOROLOGICAL CONDITIONS– Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling less than the minima specified for visual meteorological conditions.

(See INSTRUMENT FLIGHT RULES.)

(See VISUAL FLIGHT RULES.)

(See VISUAL METEOROLOGICAL CONDITIONS.)

INSTRUMENT RUNWAY– A runway equipped with electronic and visual navigation aids for which a precision or nonprecision approach procedure having straight-in landing minimums has been approved.

(See ICAO term INSTRUMENT RUNWAY.)

INSTRUMENT RUNWAY [ICAO]– One of the following types of runways intended for the operation of aircraft using instrument approach procedures:

a. Nonprecision Approach Runway–An instrument runway served by visual aids and a nonvisual aid providing at least directional guidance adequate for a straight-in approach.

b. Precision Approach Runway, Category I–An instrument runway served by ILS and visual aids intended for operations down to 60 m (200 feet) decision height and down to an RVR of the order of 800 m.

c. Precision Approach Runway, Category II–An instrument runway served by ILS and visual aids intended for operations down to 30 m (100 feet) decision height and down to an RVR of the order of 400 m.

d. Precision Approach Runway, Category III–An instrument runway served by ILS to and along the surface of the runway and:

1. Intended for operations down to an RVR of the order of 200 m (no decision height being applicable) using visual aids during the final phase of landing;

2. Intended for operations down to an RVR of the order of 50 m (no decision height being applicable) using visual aids for taxiing;

3. Intended for operations without reliance on visual reference for landing or taxiing.

Note 1: See Annex 10 Volume I, Part I, Chapter 3, for related ILS specifications.

Note 2: Visual aids need not necessarily be matched to the scale of nonvisual aids provided. The criterion for the selection of visual aids is the conditions in which operations are intended to be conducted.

INTEGRITY– The ability of a system to provide timely warnings to users when the system should not be used for navigation.

INTERMEDIATE APPROACH SEGMENT–

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INTERMEDIATE APPROACH SEGMENT [ICAO]– That segment of an instrument approach procedure between either the intermediate approach fix and the final approach fix or point, or between the end of a reversal, race track or dead reckoning track procedure and the final approach fix or point, as appropriate.

INTERMEDIATE FIX– The fix that identifies the beginning of the intermediate approach segment of an instrument approach procedure. The fix is not normally identified on the instrument approach chart as an intermediate fix (IF).

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INTERMEDIATE LANDING– On the rare occasion that this option is requested, it should be approved. The departure center, however, must advise the ATCSCC so that the appropriate delay is carried over and assigned at the intermediate airport. An intermediate landing airport within the arrival center will not be accepted without coordination with and the approval of the ATCSCC.

INTERNATIONAL AIRPORT– Relating to international flight, it means:

a. An airport of entry which has been designated by the Secretary of Treasury or Commissioner of Customs as an international airport for customs service.

b. A landing rights airport at which specific permission to land must be obtained from customs authorities in advance of contemplated use.

c. Airports designated under the Convention on International Civil Aviation as an airport for use by international commercial air transport and/or international general aviation.

(See ICAO term INTERNATIONAL AIRPORT.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

(Refer to IFIM.)

INTERNATIONAL AIRPORT [ICAO]– Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

INTERNATIONAL CIVIL AVIATION ORGANIZATION [ICAO]– A specialized agency of the United Nations whose objective is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport.

a. Regions include:

1. African-Indian Ocean Region
2. Caribbean Region
3. European Region
4. Middle East/Asia Region
5. North American Region
6. North Atlantic Region
7. Pacific Region
8. South American Region

INTERNATIONAL FLIGHT INFORMATION MANUAL– A publication designed primarily as a pilot's preflight planning guide for flights into foreign airspace and for flights returning to the U.S. from foreign locations.

INTERROGATOR– The ground-based surveillance radar beacon transmitter-receiver, which normally scans in synchronism with a primary radar, transmitting discrete radio signals which repetitiously request all transponders on the mode being used to reply. The replies received are mixed with the primary radar returns and displayed on the same plan position indicator (radar scope). Also, applied to the airborne element of the TACAN/DME system.

(See TRANSPONDER.)

(Refer to AIM.)

INTERSECTING RUNWAYS– Two or more runways which cross or meet within their lengths.

(See **INTERSECTION**.)

INTERSECTION–

a. A point defined by any combination of courses, radials, or bearings of two or more navigational aids.

b. Used to describe the point where two runways, a runway and a taxiway, or two taxiways cross or meet.

INTERSECTION DEPARTURE– A departure from any runway intersection except the end of the runway.

(See **INTERSECTION**.)

INTERSECTION TAKEOFF–

(See **INTERSECTION DEPARTURE**.)

IR–

(See **IFR MILITARY TRAINING ROUTES**.)

ISR– Indicates the confidence level of the track requires 5NM separation. 3NM separation, 1 1/2NM separation, and target resolution cannot be used.

J

JAMMING– Electronic or mechanical interference which may disrupt the display of aircraft on radar or the transmission/reception of radio communications/navigation.

JET BLAST– Jet engine exhaust (thrust stream turbulence).

(See **WAKE TURBULENCE**.)

JET ROUTE– A route designed to serve aircraft operations from 18,000 feet MSL up to and including flight level 450. The routes are referred to as “J” routes with numbering to identify the designated

route; e.g., J105.

(See **Class A AIRSPACE**.)

(Refer to 14 CFR Part 71.)

JET STREAM– A migrating stream of high-speed winds present at high altitudes.

JETTISONING OF EXTERNAL STORES– Airborne release of external stores; e.g., tiptanks, ordnance.

(See **FUEL DUMPING**.)

(Refer to 14 CFR Part 91.)

JOINT USE RESTRICTED AREA–

(See **RESTRICTED AREA**.)

K

KNOWN TRAFFIC– With respect to ATC clearances, means aircraft whose altitude, position, and intentions are known to ATC.

L

LAA–

(See LOCAL AIRPORT ADVISORY.)

LAAS–

(See LOW ALTITUDE ALERT SYSTEM.)

LAHSO– An acronym for “Land and Hold Short Operation.” These operations include landing and holding short of an intersecting runway, a taxiway, a predetermined point, or an approach/departure flightpath.

LAHSO-DRY– Land and hold short operations on runways that are dry.

LAHSO-WET– Land and hold short operations on runways that are wet (but not contaminated).

LAND AND HOLD SHORT OPERATIONS– Operations which include simultaneous takeoffs and landings and/or simultaneous landings when a landing aircraft is able and is instructed by the controller to hold-short of the intersecting runway/taxiway or designated hold-short point. Pilots are expected to promptly inform the controller if the hold short clearance cannot be accepted.

(See PARALLEL RUNWAYS.)

(Refer to AIM.)

LANDING AREA– Any locality either on land, water, or structures, including airports/heliports and intermediate landing fields, which is used, or intended to be used, for the landing and takeoff of aircraft whether or not facilities are provided for the shelter, servicing, or for receiving or discharging passengers or cargo.

(See ICAO term LANDING AREA.)

LANDING AREA [ICAO]– That part of a movement area intended for the landing or take-off of aircraft.

LANDING DIRECTION INDICATOR– A device which visually indicates the direction in which landings and takeoffs should be made.

(See TETRAHEDRON.)

(Refer to AIM.)

LANDING DISTANCE AVAILABLE (LDA)– The runway length declared available and suitable for a landing airplane.

(See ICAO term LANDING DISTANCE AVAILABLE.)

LANDING DISTANCE AVAILABLE [ICAO]– The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

LANDING MINIMUMS– The minimum visibility prescribed for landing a civil aircraft while using an instrument approach procedure. The minimum applies with other limitations set forth in 14 CFR Part 91 with respect to the Minimum Descent Altitude (MDA) or Decision Height (DH) prescribed in the instrument approach procedures as follows:

a. Straight-in landing minimums. A statement of MDA and visibility, or DH and visibility, required for a straight-in landing on a specified runway, or

b. Circling minimums. A statement of MDA and visibility required for the circle-to-land maneuver.

Note: Descent below the MDA or DH must meet the conditions stated in 14 CFR Section 91.175.

(See CIRCLE-TO-LAND MANEUVER.)

(See DECISION HEIGHT.)

(See INSTRUMENT APPROACH PROCEDURE.)

(See MINIMUM DESCENT ALTITUDE.)

(See STRAIGHT-IN LANDING.)

(See VISIBILITY.)

(Refer to 14 CFR Part 91.)

LANDING ROLL– The distance from the point of touchdown to the point where the aircraft can be brought to a stop or exit the runway.

LANDING SEQUENCE– The order in which aircraft are positioned for landing.

(See APPROACH SEQUENCE.)

LAST ASSIGNED ALTITUDE– The last altitude/flight level assigned by ATC and acknowledged by the pilot.

(See MAINTAIN.)

(Refer to 14 CFR Part 91.)

LATERAL NAVIGATION (LNAV)– A function of area navigation (RNAV) equipment which calculates,

displays, and provides lateral guidance to a profile or path.

LATERAL SEPARATION– The lateral spacing of aircraft at the same altitude by requiring operation on different routes or in different geographical locations.
(See SEPARATION.)

LDA–
(See LOCALIZER TYPE DIRECTIONAL AID.)
(See LANDING DISTANCE AVAILABLE.)
(See ICAO Term LANDING DISTANCE AVAILABLE.)

LF–
(See LOW FREQUENCY.)

LIGHTED AIRPORT– An airport where runway and obstruction lighting is available.
(See AIRPORT LIGHTING.)
(Refer to AIM.)

LIGHT GUN– A handheld directional light signaling device which emits a brilliant narrow beam of white, green, or red light as selected by the tower controller. The color and type of light transmitted can be used to approve or disapprove anticipated pilot actions where radio communication is not available. The light gun is used for controlling traffic operating in the vicinity of the airport and on the airport movement area.
(Refer to AIM.)

LIGHT-SPORT AIRCRAFT (LSA)– An FAA-registered aircraft, other than a helicopter or powered-lift, that meets certain weight and performance. Principally it is a single engine aircraft with a maximum of two seats and weighing no more than 1,430 pounds if intended for operation on water, or 1,320 pounds if not. They must be of simple design (fixed landing gear (except if intended for operations on water or a glider) piston powered, non-pressurized, with a fixed or ground adjustable propeller), Performance is also limited to a maximum airspeed in level flight of not more than 120 knots CAS, have a maximum never-exceed speed of not more than 120 knots CAS for a glider, and have a maximum stalling speed, without the use of lift-enhancing devices (VS1) of not more than 45 knots CAS. They may be certificated as either Experimental LSA or as a Special LSA aircraft. A minimum of a sport pilot_certificate is required to operate light-sport aircraft.” (Refer to 14 CFR Part 1, §1.1.)

LINE UP AND WAIT (LUAW)– Used by ATC to inform a pilot to taxi onto the departure runway to line up and wait. It is not authorization for takeoff. It is used when takeoff clearance cannot immediately be issued because of traffic or other reasons.
(See CLEARED FOR TAKEOFF.)

LOCAL AIRPORT ADVISORY (LAA)– A service provided by facilities, which are located on the landing airport, have a discrete ground-to-air communication frequency or the tower frequency when the tower is closed, automated weather reporting with voice broadcasting, and a continuous ASOS/AWSS/AWOS data display, other continuous direct reading instruments, or manual observations available to the specialist.
(See AIRPORT ADVISORY AREA.)

LOCAL TRAFFIC– Aircraft operating in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.
(See TRAFFIC PATTERN.)

LOCALIZER– The component of an ILS which provides course guidance to the runway.
(See INSTRUMENT LANDING SYSTEM.)
(See ICAO term LOCALIZER COURSE.)
(Refer to AIM.)

LOCALIZER COURSE [ICAO]– The locus of points, in any given horizontal plane, at which the DDM (difference in depth of modulation) is zero.

LOCALIZER OFFSET– An angular offset of the localizer aligned with 3° of the runway alignment.

LOCALIZER TYPE DIRECTIONAL AID– A localizer with an angular offset that exceeds 3°. of the runway alignment used for nonprecision instrument approaches with utility and accuracy comparable to a localizer but which are not part of a complete ILS.
(Refer to AIM.)

LOCALIZER TYPE DIRECTIONAL AID (LDA) PRECISION RUNWAY MONITOR (PRM) APPROACH– An approach, which includes a glidslope, used in conjunction with an ILS PRM, RNAV PRM or GLS PRM approach to an adjacent runway to conduct Simultaneous Offset Instrument Approaches (SOIA) to parallel runways whose centerlines are separated by less than 3,000 feet and

at least 750 feet. NTZ monitoring is required to conduct these approaches.

(See SIMULTANEOUS OFFSET INSTRUMENT APPROACH (SOIA).)

(Refer to AIM.)

LOCALIZER USABLE DISTANCE– The maximum distance from the localizer transmitter at a specified altitude, as verified by flight inspection, at which reliable course information is continuously received.

(Refer to AIM.)

LOCATOR [ICAO]– An LM/MF NDB used as an aid to final approach.

Note: A locator usually has an average radius of rated coverage of between 18.5 and 46.3 km (10 and 25 NM).

LONG RANGE NAVIGATION–

(See LORAN.)

LONGITUDINAL SEPARATION– The longitudinal spacing of aircraft at the same altitude by a minimum distance expressed in units of time or miles.

(See SEPARATION.)

(Refer to AIM.)

LORAN– An electronic navigational system by which hyperbolic lines of position are determined by measuring the difference in the time of reception of synchronized pulse signals from two fixed transmitters. Loran A operates in the 1750-1950 kHz frequency band. Loran C and D operate in the 100-110 kHz frequency band. In 2010, the U.S. Coast Guard terminated all U.S. LORAN-C transmissions.

(Refer to AIM.)

LOST COMMUNICATIONS– Loss of the ability to communicate by radio. Aircraft are sometimes referred to as NORDO (No Radio). Standard pilot procedures are specified in 14 CFR Part 91. Radar controllers issue procedures for pilots to follow in the

event of lost communications during a radar approach when weather reports indicate that an aircraft will likely encounter IFR weather conditions during the approach.

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

LOW ALTITUDE AIRWAY STRUCTURE– The network of airways serving aircraft operations up to but not including 18,000 feet MSL.

(See AIRWAY.)

(Refer to AIM.)

LOW ALTITUDE ALERT, CHECK YOUR ALTITUDE IMMEDIATELY–

(See SAFETY ALERT.)

LOW ALTITUDE ALERT SYSTEM– An automated function of the TPX-42 that alerts the controller when a Mode C transponder equipped aircraft on an IFR flight plan is below a predetermined minimum safe altitude. If requested by the pilot, Low Altitude Alert System monitoring is also available to VFR Mode C transponder equipped aircraft.

LOW APPROACH– An approach over an airport or runway following an instrument approach or a VFR approach including the go-around maneuver where the pilot intentionally does not make contact with the runway.

(Refer to AIM.)

LOW FREQUENCY– The frequency band between 30 and 300 kHz.

(Refer to AIM.)

LPV– A type of approach with vertical guidance (APV) based on WAAS, published on RNAV (GPS) approach charts. This procedure takes advantage of the precise lateral guidance available from WAAS. The minima is published as a decision altitude (DA).

LUAW–

(See LINE UP AND WAIT.)

M

MAA–

(See MAXIMUM AUTHORIZED ALTITUDE.)

MACH NUMBER– The ratio of true airspeed to the speed of sound; e.g., MACH .82, MACH 1.6.

(See AIRSPEED.)

MACH TECHNIQUE [ICAO]– Describes a control technique used by air traffic control whereby turbojet aircraft operating successively along suitable routes are cleared to maintain appropriate MACH numbers for a relevant portion of the en route phase of flight. The principle objective is to achieve improved utilization of the airspace and to ensure that separation between successive aircraft does not decrease below the established minima.

MAHWP– Missed Approach Holding Waypoint

MAINTAIN–

a. Concerning altitude/flight level, the term means to remain at the altitude/flight level specified. The phrase “climb and” or “descend and” normally precedes “maintain” and the altitude assignment; e.g., “descend and maintain 5,000.”

b. Concerning other ATC instructions, the term is used in its literal sense; e.g., maintain VFR.

MAINTENANCE PLANNING FRICTION LEVEL– The friction level specified in AC 150/5320-12, Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces, which represents the friction value below which the runway pavement surface remains acceptable for any category or class of aircraft operations but which is beginning to show signs of deterioration. This value will vary depending on the particular friction measurement equipment used.

MAKE SHORT APPROACH– Used by ATC to inform a pilot to alter his/her traffic pattern so as to make a short final approach.

(See TRAFFIC PATTERN.)

MAN PORTABLE AIR DEFENSE SYSTEMS (MANPADS)– MANPADS are lightweight, shoulder-launched, missile systems used to bring down aircraft and create mass casualties. The potential for MANPADS use against airborne aircraft is real and

requires familiarity with the subject. Terrorists choose MANPADS because the weapons are low cost, highly mobile, require minimal set-up time, and are easy to use and maintain. Although the weapons have limited range, and their accuracy is affected by poor visibility and adverse weather, they can be fired from anywhere on land or from boats where there is unrestricted visibility to the target.

MANDATORY ALTITUDE– An altitude depicted on an instrument Approach Procedure Chart requiring the aircraft to maintain altitude at the depicted value.

MANPADS–

(See MAN PORTABLE AIR DEFENSE SYSTEMS.)

MAP–

(See MISSED APPROACH POINT.)

MARKER BEACON– An electronic navigation facility transmitting a 75 MHz vertical fan or boneshaped radiation pattern. Marker beacons are identified by their modulation frequency and keying code, and when received by compatible airborne equipment, indicate to the pilot, both aurally and visually, that he/she is passing over the facility.

(See INNER MARKER.)

(See MIDDLE MARKER.)

(See OUTER MARKER.)

(Refer to AIM.)

MARSA–

(See MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT.)

MAWP– Missed Approach Waypoint

MAXIMUM AUTHORIZED ALTITUDE– A published altitude representing the maximum usable altitude or flight level for an airspace structure or route segment. It is the highest altitude on a Federal airway, jet route, area navigation low or high route, or other direct route for which an MEA is designated in 14 CFR Part 95 at which adequate reception of navigation aid signals is assured.

MAYDAY–The international radiotelephony distress signal. When repeated three times, it indicates

imminent and grave danger and that immediate assistance is requested.

(See PAN-PAN.)

(Refer to AIM.)

MCA–

(See MINIMUM CROSSING ALTITUDE.)

MDA–

(See MINIMUM DESCENT ALTITUDE.)

MEA–

(See MINIMUM EN ROUTE IFR ALTITUDE.)

MEARTS–

(See MICRO-EN ROUTE AUTOMATED RADAR TRACKING SYSTEM.)

METEOROLOGICAL IMPACT STATEMENT–

An unscheduled planning forecast describing conditions expected to begin within 4 to 12 hours which may impact the flow of air traffic in a specific center's (ARTCC) area.

METER FIX ARC– A semicircle, equidistant from a meter fix, usually in low altitude relatively close to the meter fix, used to help CTAS/HOST calculate a meter time, and determine appropriate sector meter list assignments for aircraft not on an established arrival route or assigned a meter fix.

METER FIX TIME/SLOT TIME– A calculated time to depart the meter fix in order to cross the vertex at the ACLT. This time reflects descent speed adjustment and any applicable time that must be absorbed prior to crossing the meter fix.

METER LIST–

(See ARRIVAL SECTOR ADVISORY LIST.)

METER LIST DISPLAY INTERVAL– A dynamic parameter which controls the number of minutes prior to the flight plan calculated time of arrival at the meter fix for each aircraft, at which time the TCLT is frozen and becomes an ACLT; i.e., the VTA is updated and consequently the TCLT modified as appropriate until frozen at which time updating is suspended and an ACLT is assigned. When frozen, the flight entry is inserted into the arrival sector's meter list for display on the sector PVD/MDM. MLDI is used if filed true airspeed is less than or equal to freeze speed parameters (FSPD).

METERING– A method of time-regulating arrival traffic flow into a terminal area so as not to exceed a predetermined terminal acceptance rate.

METERING AIRPORTS– Airports adapted for metering and for which optimum flight paths are defined. A maximum of 15 airports may be adapted.

METERING FIX– A fix along an established route from over which aircraft will be metered prior to entering terminal airspace. Normally, this fix should be established at a distance from the airport which will facilitate a profile descent 10,000 feet above airport elevation (AAE) or above.

METERING POSITION(S)– Adapted PVDs/MDMs and associated "D" positions eligible for display of a metering position list. A maximum of four PVDs/MDMs may be adapted.

METERING POSITION LIST– An ordered list of data on arrivals for a selected metering airport displayed on a metering position PVD/MDM.

MFT–

(See METER FIX TIME/SLOT TIME.)

MHA–

(See MINIMUM HOLDING ALTITUDE.)

MIA–

(See MINIMUM IFR ALTITUDES.)

MICROBURST– A small downburst with outbursts of damaging winds extending 2.5 miles or less. In spite of its small horizontal scale, an intense microburst could induce wind speeds as high as 150 knots

(Refer to AIM.)

MICRO-EN ROUTE AUTOMATED RADAR TRACKING SYSTEM (MEARTS)– An automated radar and radar beacon tracking system capable of employing both short-range (ASR) and long-range (ARSR) radars. This microcomputer driven system provides improved tracking, continuous data recording, and use of full digital radar displays.

MICROWAVE LANDING SYSTEM– A precision instrument approach system operating in the microwave spectrum which normally consists of the following components:

- a. Azimuth Station.
 - b. Elevation Station.
 - c. Precision Distance Measuring Equipment.
- (See MLS CATEGORIES.)

MID RVR–

(See VISIBILITY.)

MIDDLE COMPASS LOCATOR–

(See COMPASS LOCATOR.)

MIDDLE MARKER– A marker beacon that defines a point along the glideslope of an ILS normally located at or near the point of decision height (ILS Category I). It is keyed to transmit alternate dots and dashes, with the alternate dots and dashes keyed at the rate of 95 dot/dash combinations per minute on a 1300 Hz tone, which is received aurally and visually by compatible airborne equipment.

(See INSTRUMENT LANDING SYSTEM.)

(See MARKER BEACON.)

(Refer to AIM.)

MILES-IN-TRAIL– A specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight.

MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT– A condition whereby the military services involved assume responsibility for separation between participating military aircraft in the ATC system. It is used only for required IFR operations which are specified in letters of agreement or other appropriate FAA or military documents.

MILITARY LANDING ZONE– A landing strip used exclusively by the military for training. A military landing zone does not carry a runway designation.

MILITARY OPERATIONS AREA–

(See SPECIAL USE AIRSPACE.)

MILITARY TRAINING ROUTES– Airspace of defined vertical and lateral dimensions established for the conduct of military flight training at airspeeds in excess of 250 knots IAS.

(See IFR MILITARY TRAINING ROUTES.)

(See VFR MILITARY TRAINING ROUTES.)

MINIMA–

(See MINIMUMS.)

MINIMUM CROSSING ALTITUDE– The lowest altitude at certain fixes at which an aircraft must cross when proceeding in the direction of a higher minimum en route IFR altitude (MEA).

(See MINIMUM EN ROUTE IFR ALTITUDE.)

MINIMUM DESCENT ALTITUDE– The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a

standard instrument approach procedure where no electronic glideslope is provided.

(See NONPRECISION APPROACH PROCEDURE.)

MINIMUM EN ROUTE IFR ALTITUDE (MEA)– The lowest published altitude between radio fixes which assures acceptable navigational signal coverage and meets obstacle clearance requirements between those fixes. The MEA prescribed for a Federal airway or segment thereof, area navigation low or high route, or other direct route applies to the entire width of the airway, segment, or route between the radio fixes defining the airway, segment, or route.

(Refer to 14 CFR Part 91.)

(Refer to 14 CFR Part 95.)

(Refer to AIM.)

MINIMUM FRICTION LEVEL– The friction level specified in AC 150/5320-12, Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces, that represents the minimum recommended wet pavement surface friction value for any turbojet aircraft engaged in LAHSO. This value will vary with the particular friction measurement equipment used.

MINIMUM FUEL– Indicates that an aircraft's fuel supply has reached a state where, upon reaching the destination, it can accept little or no delay. This is not an emergency situation but merely indicates an emergency situation is possible should any undue delay occur.

(Refer to AIM.)

MINIMUM HOLDING ALTITUDE– The lowest altitude prescribed for a holding pattern which assures navigational signal coverage, communications, and meets obstacle clearance requirements.

MINIMUM IFR ALTITUDES (MIA)– Minimum altitudes for IFR operations as prescribed in 14 CFR Part 91. These altitudes are published on aeronautical charts and prescribed in 14 CFR Part 95 for airways and routes, and in 14 CFR Part 97 for standard instrument approach procedures. If no applicable minimum altitude is prescribed in 14 CFR Part 95 or 14 CFR Part 97, the following minimum IFR altitude applies:

a. In designated mountainous areas, 2,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

b. Other than mountainous areas, 1,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

c. As otherwise authorized by the Administrator or assigned by ATC.

(See MINIMUM CROSSING ALTITUDE.)

(See MINIMUM EN ROUTE IFR ALTITUDE.)

(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)

(See MINIMUM SAFE ALTITUDE.)

(See MINIMUM VECTORING ALTITUDE.)

(Refer to 14 CFR Part 91.)

MINIMUM NAVIGATION PERFORMANCE SPECIFICATION– A set of standards which require aircraft to have a minimum navigation performance capability in order to operate in MNPS designated airspace. In addition, aircraft must be certified by their State of Registry for MNPS operation.

MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE– Designated airspace in which MNPS procedures are applied between MNPS certified and equipped aircraft. Under certain conditions, non-MNPS aircraft can operate in MNPSA. However, standard oceanic separation minima is provided between the non-MNPS aircraft and other traffic. Currently, the only designated MNPSA is described as follows:

a. Between FL 285 and FL 420;

b. Between latitudes 27°N and the North Pole;

c. In the east, the eastern boundaries of the CTAs Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik;

d. In the west, the western boundaries of CTAs Reykjavik and Gander Oceanic and New York Oceanic excluding the area west of 60°W and south of 38°30'N.

MINIMUM OBSTRUCTION CLEARANCE ALTITUDE (MOCA)– The lowest published altitude in effect between radio fixes on VOR airways, off-airway routes, or route segments which meets obstacle clearance requirements for the entire route segment and which assures acceptable navigational signal coverage only within 25 statute (22 nautical) miles of a VOR.

(Refer to 14 CFR Part 91.)

(Refer to 14 CFR Part 95.)

MINIMUM RECEPTION ALTITUDE– The lowest altitude at which an intersection can be determined.

(Refer to 14 CFR Part 95.)

MINIMUM SAFE ALTITUDE–

a. The minimum altitude specified in 14 CFR Part 91 for various aircraft operations.

b. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes will be identified as Minimum Sector Altitudes or Emergency Safe Altitudes and are established as follows:

1. Minimum Sector Altitudes. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance within a 25-mile radius of the navigation facility upon which the procedure is predicated. Sectors depicted on approach charts must be at least 90 degrees in scope. These altitudes are for emergency use only and do not necessarily assure acceptable navigational signal coverage.

(See ICAO term Minimum Sector Altitude.)

2. Emergency Safe Altitudes. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance in nonmountainous areas and 2,000 feet of obstacle clearance in designated mountainous areas within a 100-mile radius of the navigation facility upon which the procedure is predicated and normally used only in military procedures. These altitudes are identified on published procedures as “Emergency Safe Altitudes.”

MINIMUM SAFE ALTITUDE WARNING– A function of the ARTS III computer that aids the controller by alerting him/her when a tracked Mode C equipped aircraft is below or is predicted by the computer to go below a predetermined minimum safe altitude.

(Refer to AIM.)

MINIMUM SECTOR ALTITUDE [ICAO]– The lowest altitude which may be used under emergency conditions which will provide a minimum clearance of 300 m (1,000 feet) above all obstacles located in an area contained within a sector of a circle of 46 km (25 NM) radius centered on a radio aid to navigation.

MINIMUMS– Weather condition requirements established for a particular operation or type of

operation; e.g., IFR takeoff or landing, alternate airport for IFR flight plans, VFR flight, etc.

(See IFR CONDITIONS.)

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See LANDING MINIMUMS.)

(See VFR CONDITIONS.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

MINIMUM VECTORING ALTITUDE (MVA)– The lowest MSL altitude at which an IFR aircraft will be vectored by a radar controller, except as otherwise authorized for radar approaches, departures, and missed approaches. The altitude meets IFR obstacle clearance criteria. It may be lower than the published MEA along an airway or J-route segment. It may be utilized for radar vectoring only upon the controller's determination that an adequate radar return is being received from the aircraft being controlled. Charts depicting minimum vectoring altitudes are normally available only to the controllers and not to pilots.

(Refer to AIM.)

MINUTES-IN-TRAIL– A specified interval between aircraft expressed in time. This method would more likely be utilized regardless of altitude.

MIS–

(See METEOROLOGICAL IMPACT STATEMENT.)

MISSED APPROACH–

a. A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. The route of flight and altitude are shown on instrument approach procedure charts. A pilot executing a missed approach prior to the Missed Approach Point (MAP) must continue along the final approach to the MAP.

b. A term used by the pilot to inform ATC that he/she is executing the missed approach.

c. At locations where ATC radar service is provided, the pilot should conform to radar vectors when provided by ATC in lieu of the published missed approach procedure.

(See MISSED APPROACH POINT.)

(Refer to AIM.)

MISSED APPROACH POINT– A point prescribed in each instrument approach procedure at which a

missed approach procedure shall be executed if the required visual reference does not exist.

(See MISSED APPROACH.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

MISSED APPROACH PROCEDURE [ICAO]– The procedure to be followed if the approach cannot be continued.

MISSED APPROACH SEGMENT–

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

MLDI–

(See METER LIST DISPLAY INTERVAL.)

MLS–

(See MICROWAVE LANDING SYSTEM.)

MLS CATEGORIES– **MLS Category I.** An MLS approach procedure which provides for an approach to a height above touchdown of not less than 200 feet and a runway visual range of not less than 1,800 feet.

MM–

(See MIDDLE MARKER.)

MNPS–

(See MINIMUM NAVIGATION PERFORMANCE SPECIFICATION.)

MNPSA–

(See MINIMUM NAVIGATION PERFORMANCE–SPECIFICATION AIRSPACE.)

MOA–

(See MILITARY OPERATIONS AREA.)

MOCA–

(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)

MODE– The letter or number assigned to a specific pulse spacing of radio signals transmitted or received by ground interrogator or airborne transponder components of the Air Traffic Control Radar Beacon System (ATCRBS). Mode A (military Mode 3) and Mode C (altitude reporting) are used in air traffic control.

(See INTERROGATOR.)

(See RADAR.)

(See TRANSPONDER.)

(See ICAO term MODE.)

(Refer to AIM.)

MODE (SSR MODE) [ICAO]– The letter or number assigned to a specific pulse spacing of the

interrogation signals transmitted by an interrogator. There are 4 modes, A, B, C and D specified in Annex 10, corresponding to four different interrogation pulse spacings.

MODE C INTRUDER ALERT– A function of certain air traffic control automated systems designed to alert radar controllers to existing or pending situations between a tracked target (known IFR or VFR aircraft) and an untracked target (unknown IFR or VFR aircraft) that requires immediate attention/action.

(See **CONFLICT ALERT**.)

MONITOR– (When used with communication transfer) listen on a specific frequency and stand by for instructions. Under normal circumstances do not establish communications.

MONITOR ALERT (MA)– A function of the TFMS that provides traffic management personnel with a tool for predicting potential capacity problems in individual operational sectors. The MA is an indication that traffic management personnel need to analyze a particular sector for actual activity and to determine the required action(s), if any, needed to control the demand.

MONITOR ALERT PARAMETER (MAP)– The number designated for use in monitor alert processing by the TFMS. The MAP is designated for each operational sector for increments of 15 minutes.

MOSAIC/MULTI-SENSOR MODE– Accepts positional data from multiple radar or ADS-B sites. Targets are displayed from a single source within a radar sort box according to the hierarchy of the sources assigned.

MOVEMENT AREA– The runways, taxiways, and other areas of an airport/heliport which are utilized

for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports/heliports with a tower, specific approval for entry onto the movement area must be obtained from ATC.

(See **ICAO term MOVEMENT AREA**.)

MOVEMENT AREA [ICAO]– That part of an aerodrome to be used for the takeoff, landing and taxiing of aircraft, consisting of the maneuvering area and the apron(s).

MOVING TARGET INDICATOR– An electronic device which will permit radar scope presentation only from targets which are in motion. A partial remedy for ground clutter.

MRA–

(See **MINIMUM RECEPTION ALTITUDE**.)

MSA–

(See **MINIMUM SAFE ALTITUDE**.)

MSAW–

(See **MINIMUM SAFE ALTITUDE WARNING**.)

MTI–

(See **MOVING TARGET INDICATOR**.)

MTR–

(See **MILITARY TRAINING ROUTES**.)

MULTICOM– A mobile service not open to public correspondence used to provide communications essential to conduct the activities being performed by or directed from private aircraft.

MULTIPLE RUNWAYS– The utilization of a dedicated arrival runway(s) for departures and a dedicated departure runway(s) for arrivals when feasible to reduce delays and enhance capacity.

MVA–

(See **MINIMUM VECTORING ALTITUDE**.)

N

NAS–

(See NATIONAL AIRSPACE SYSTEM.)

NATIONAL AIRSPACE SYSTEM– The common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, and manpower and material. Included are system components shared jointly with the military.

NATIONAL BEACON CODE ALLOCATION PLAN AIRSPACE– Airspace over United States territory located within the North American continent between Canada and Mexico, including adjacent territorial waters outward to about boundaries of oceanic control areas (CTA)/Flight Information Regions (FIR).

(See FLIGHT INFORMATION REGION.)

NATIONAL FLIGHT DATA CENTER– A facility in Washington D.C., 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.)

NATIONAL FLIGHT DATA DIGEST– A daily (except weekends and Federal holidays) publication of flight information appropriate to aeronautical charts, aeronautical publications, Notices to Airmen, or other media serving the purpose of providing operational flight data essential to safe and efficient aircraft operations.

NATIONAL SEARCH AND RESCUE PLAN– An interagency agreement which provides for the effective utilization of all available facilities in all types of search and rescue missions.

NAVAID–

(See NAVIGATIONAL AID.)

NAVAID CLASSES– VOR, VORTAC, and TACAN aids are classed according to their operational use. The three classes of NAVAIDs are:

a. T– Terminal.

b. L– Low altitude.

c. H– High altitude.

Note: The normal service range for T, L, and H class aids is found in the AIM. Certain operational requirements make it necessary to use some of these aids at greater service ranges than specified. Extended range is made possible through flight inspection determinations. Some aids also have lesser service range due to location, terrain, frequency protection, etc. Restrictions to service range are listed in Airport/Facility Directory.

NAVIGABLE AIRSPACE– Airspace at and above the minimum flight altitudes prescribed in the CFRs including airspace needed for safe takeoff and landing.

(Refer to 14 CFR Part 91.)

NAVIGATION REFERENCE SYSTEM (NRS)– The NRS is a system of waypoints developed for use within the United States for flight planning and navigation without reference to ground based navigational aids. The NRS waypoints are located in a grid pattern along defined latitude and longitude lines. The initial use of the NRS will be in the high altitude environment in conjunction with the High Altitude Redesign initiative. The NRS waypoints are intended for use by aircraft capable of point-to-point navigation.

NAVIGATION SPECIFICATION [ICAO]– A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

a. RNP specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP; e.g., RNP 4, RNP APCH.

b. RNAV specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV; e.g., RNAV 5, RNAV 1.

Note: The Performance-based Navigation Manual (Doc 9613), Volume II contains detailed guidance

on navigation specifications.

NAVIGATIONAL AID– Any visual or electronic device airborne or on the surface which provides point-to-point guidance information or position data to aircraft in flight.

(See AIR NAVIGATION FACILITY.)

NBCAP AIRSPACE–

(See NATIONAL BEACON CODE ALLOCATION PLAN AIRSPACE.)

NDB–

(See NONDIRECTIONAL BEACON.)

NEGATIVE– “No,” or “permission not granted,” or “that is not correct.”

NEGATIVE CONTACT– Used by pilots to inform ATC that:

a. Previously issued traffic is not in sight. It may be followed by the pilot’s request for the controller to provide assistance in avoiding the traffic.

b. They were unable to contact ATC on a particular frequency.

NFDC–

(See NATIONAL FLIGHT DATA CENTER.)

NFDD–

(See NATIONAL FLIGHT DATA DIGEST.)

NIGHT– The time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the Air Almanac, converted to local time.

(See ICAO term NIGHT.)

NIGHT [ICAO]– The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise as may be specified by the appropriate authority.

Note: Civil twilight ends in the evening when the center of the sun’s disk is 6 degrees below the horizon and begins in the morning when the center of the sun’s disk is 6 degrees below the horizon.

NO GYRO APPROACH– A radar approach/vector provided in case of a malfunctioning gyro-compass or directional gyro. Instead of providing the pilot with headings to be flown, the controller observes the radar track and issues control instructions “turn right/left” or “stop turn” as appropriate.

(Refer to AIM.)

NO GYRO VECTOR–

(See NO GYRO APPROACH.)

NO TRANSGRESSION ZONE (NTZ)– The NTZ is a 2,000 foot wide zone, located equidistant between parallel runway or SOIA final approach courses in which flight is normally not allowed.

NONAPPROACH CONTROL TOWER– Authorizes aircraft to land or takeoff at the airport controlled by the tower or to transit the Class D airspace. The primary function of a nonapproach control tower is the sequencing of aircraft in the traffic pattern and on the landing area. Nonapproach control towers also separate aircraft operating under instrument flight rules clearances from approach controls and centers. They provide ground control services to aircraft, vehicles, personnel, and equipment on the airport movement area.

NONCOMMON ROUTE/PORTION– That segment of a North American Route between the inland navigation facility and a designated North American terminal.

NONCOMPOSITE SEPARATION– Separation in accordance with minima other than the composite separation minimum specified for the area concerned.

NONDIRECTIONAL BEACON– An L/MF or UHF radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his/her bearing to or from the radio beacon and “home” on or track to or from the station. When the radio beacon is installed in conjunction with the Instrument Landing System marker, it is normally called a Compass Locator.

(See AUTOMATIC DIRECTION FINDER.)

(See COMPASS LOCATOR.)

NONMOVEMENT AREAS– Taxiways and apron (ramp) areas not under the control of air traffic.

NONPRECISION APPROACH–

(See NONPRECISION APPROACH PROCEDURE.)

NONPRECISION APPROACH PROCEDURE– A standard instrument approach procedure in which no electronic glideslope is provided; e.g., VOR, TACAN, NDB, LOC, ASR, LDA, or SDF approaches.

NONRADAR– Precedes other terms and generally means without the use of radar, such as:

a. Nonradar Approach. Used to describe instrument approaches for which course guidance on final approach is not provided by ground-based precision or surveillance radar. Radar vectors to the final approach course may or may not be provided by ATC. Examples of nonradar approaches are VOR, NDB, TACAN, ILS, RNAV, and GLS approaches.

(See FINAL APPROACH COURSE.)

(See FINAL APPROACH-IFR.)

(See INSTRUMENT APPROACH PROCEDURE.)

(See RADAR APPROACH.)

b. Nonradar Approach Control. An ATC facility providing approach control service without the use of radar.

(See APPROACH CONTROL FACILITY.)

(See APPROACH CONTROL SERVICE.)

c. Nonradar Arrival. An aircraft arriving at an airport without radar service or at an airport served by a radar facility and radar contact has not been established or has been terminated due to a lack of radar service to the airport.

(See RADAR ARRIVAL.)

(See RADAR SERVICE.)

d. Nonradar Route. A flight path or route over which the pilot is performing his/her own navigation. The pilot may be receiving radar separation, radar monitoring, or other ATC services while on a nonradar route.

(See RADAR ROUTE.)

e. Nonradar Separation. The spacing of aircraft in accordance with established minima without the use of radar; e.g., vertical, lateral, or longitudinal separation.

(See RADAR SEPARATION.)

(See ICAO term NONRADAR SEPARATION.)

NONRADAR SEPARATION [ICAO]– The separation used when aircraft position information is derived from sources other than radar.

NON-RESTRICTIVE ROUTING (NRR)– Portions of a proposed route of flight where a user can flight plan the most advantageous flight path with no requirement to make reference to ground-based NAVAIDs.

NOPAC–

(See NORTH PACIFIC.)

NORDO (No Radio)– Aircraft that cannot or do not communicate by radio when radio communication is required are referred to as “NORDO.”

(See LOST COMMUNICATIONS.)

NORMAL OPERATING ZONE (NOZ)– The NOZ is the operating zone within which aircraft flight remains during normal independent simultaneous parallel ILS approaches.

NORTH AMERICAN ROUTE– A numerically coded route preplanned over existing airway and route systems to and from specific coastal fixes serving the North Atlantic. North American Routes consist of the following:

a. Common Route/Portion. That segment of a North American Route between the inland navigation facility and the coastal fix.

b. Noncommon Route/Portion. That segment of a North American Route between the inland navigation facility and a designated North American terminal.

c. Inland Navigation Facility. A navigation aid on a North American Route at which the common route and/or the noncommon route begins or ends.

d. Coastal Fix. A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

NORTH AMERICAN ROUTE PROGRAM (NRP)– The NRP is a set of rules and procedures which are designed to increase the flexibility of user flight planning within published guidelines.

NORTH MARK– A beacon data block sent by the host computer to be displayed by the ARTS on a 360 degree bearing at a locally selected radar azimuth and distance. The North Mark is used to ensure correct range/azimuth orientation during periods of CENRAP.

NORTH PACIFIC– An organized route system between the Alaskan west coast and Japan.

NOTAM–

(See NOTICE TO AIRMEN.)

NOTAM [ICAO]– A notice containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

a. I Distribution– Distribution by means of telecommunication.

b. II Distribution– Distribution by means other than telecommunications.

NOTICE TO AIRMEN– A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the National Airspace System) the timely knowledge of which is essential to personnel concerned with flight operations.

a. NOTAM(D)– A NOTAM given (in addition to local dissemination) distant dissemination beyond the area of responsibility of the Flight Service Station. These NOTAMs will be stored and available until canceled.

b. FDC NOTAM– A NOTAM regulatory in nature, transmitted by USNOF and given system wide dissemination.

(See ICAO term NOTAM.)

NOTICES TO AIRMEN PUBLICATION– A publication issued every 28 days, designed primarily

for the pilot, which contains current NOTAM information considered essential to the safety of flight as well as supplemental data to other aeronautical publications. The contraction NTAP is used in NOTAM text.

(See NOTICE TO AIRMEN.)

NRR–

(See NON-RESTRICTIVE ROUTING.)

NRS–

(See NAVIGATION REFERENCE SYSTEM.)

NTAP–

(See NOTICES TO AIRMEN PUBLICATION.)

NUMEROUS TARGETS VICINITY (LOCATION)– A traffic advisory issued by ATC to advise pilots that targets on the radar scope are too numerous to issue individually.

(See TRAFFIC ADVISORIES.)

O

OBSTACLE– An existing object, object of natural growth, or terrain at a fixed geographical location or which may be expected at a fixed location within a prescribed area with reference to which vertical clearance is or must be provided during flight operation.

OBSTACLE DEPARTURE PROCEDURE (ODP)– A preplanned instrument flight rule (IFR) departure procedure printed for pilot use in textual or graphic form to provide obstruction clearance via the least onerous route from the terminal area to the appropriate en route structure. ODPs are recommended for obstruction clearance and may be flown without ATC clearance unless an alternate departure procedure (SID or radar vector) has been specifically assigned by ATC.

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See STANDARD INSTRUMENT DEPARTURES.)

(Refer to AIM.)

OBSTACLE FREE ZONE– The OFZ is a three dimensional volume of airspace which protects for the transition of aircraft to and from the runway. The OFZ clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible NAVAID locations that are fixed by function. Additionally, vehicles, equipment, and personnel may be authorized by air traffic control to enter the area using the provisions of FAAO JO 7110.65, Para 3–1–5, VEHICLES/EQUIPMENT/PERSONNEL ON RUNWAYS. The runway OFZ and when applicable, the inner-approach OFZ, and the inner-transitional OFZ, comprise the OFZ.

a. Runway OFZ. The runway OFZ is a defined volume of airspace centered above the runway. The runway OFZ is the airspace above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline. The runway OFZ extends 200 feet beyond each end of the runway. The width is as follows:

1. For runways serving large airplanes, the greater of:

(a) 400 feet, or

(b) 180 feet, plus the wingspan of the most demanding airplane, plus 20 feet per 1,000 feet of airport elevation.

2. For runways serving only small airplanes:

(a) 300 feet for precision instrument runways.

(b) 250 feet for other runways serving small airplanes with approach speeds of 50 knots, or more.

(c) 120 feet for other runways serving small airplanes with approach speeds of less than 50 knots.

b. Inner-approach OFZ. The inner-approach OFZ is a defined volume of airspace centered on the approach area. The inner-approach OFZ applies only to runways with an approach lighting system. The inner-approach OFZ begins 200 feet from the runway threshold at the same elevation as the runway threshold and extends 200 feet beyond the last light unit in the approach lighting system. The width of the inner-approach OFZ is the same as the runway OFZ and rises at a slope of 50 (horizontal) to 1 (vertical) from the beginning.

c. Inner-transitional OFZ. The inner transitional surface OFZ is a defined volume of airspace along the sides of the runway and inner-approach OFZ and applies only to precision instrument runways. The inner-transitional surface OFZ slopes 3 (horizontal) to 1 (vertical) out from the edges of the runway OFZ and inner-approach OFZ to a height of 150 feet above the established airport elevation.

(Refer to AC 150/5300-13, Chapter 3.)

(Refer to FAAO JO 7110.65, Para 3–1–5, VEHICLES/EQUIPMENT/PERSONNEL ON RUNWAYS.)

OBSTRUCTION– Any object/obstacle exceeding the obstruction standards specified by 14 CFR Part 77, Subpart C.

OBSTRUCTION LIGHT– A light or one of a group of lights, usually red or white, frequently mounted on a surface structure or natural terrain to warn pilots of the presence of an obstruction.

OCEANIC AIRSPACE– Airspace over the oceans of the world, considered international airspace, where oceanic separation and procedures per the International Civil Aviation Organization are applied. Responsibility for the provisions of air traffic control

service in this airspace is delegated to various countries, based generally upon geographic proximity and the availability of the required resources.

OCEANIC DISPLAY AND PLANNING SYSTEM– An automated digital display system which provides flight data processing, conflict probe, and situation display for oceanic air traffic control.

OCEANIC NAVIGATIONAL ERROR REPORT– A report filed when an aircraft exiting oceanic airspace has been observed by radar to be off course. ONER reporting parameters and procedures are contained in FAAO 7110.82, Monitoring of Navigational Performance In Oceanic Areas.

OCEANIC PUBLISHED ROUTE– A route established in international airspace and charted or described in flight information publications, such as Route Charts, DOD Enroute Charts, Chart Supplements, NOTAMs, and Track Messages.

OCEANIC TRANSITION ROUTE– An ATS route established for the purpose of transitioning aircraft to/from an organized track system.

ODAPS–

(See OCEANIC DISPLAY AND PLANNING SYSTEM.)

ODP–

(See OBSTACLE DEPARTURE PROCEDURE.)

OFF COURSE– A term used to describe a situation where an aircraft has reported a position fix or is observed on radar at a point not on the ATC-approved route of flight.

OFF-ROUTE VECTOR– A vector by ATC which takes an aircraft off a previously assigned route. Altitudes assigned by ATC during such vectors provide required obstacle clearance.

OFFSET PARALLEL RUNWAYS– Staggered runways having centerlines which are parallel.

OFFSHORE/CONTROL AIRSPACE AREA– That portion of airspace between the U.S. 12 NM limit and the oceanic CTA/FIR boundary within which air traffic control is exercised. These areas are established to provide air traffic control services. Offshore/Control Airspace Areas may be classified as either Class A airspace or Class E airspace.

OFT–

(See OUTER FIX TIME.)

OM–

(See OUTER MARKER.)

ON COURSE–

a. Used to indicate that an aircraft is established on the route centerline.

b. Used by ATC to advise a pilot making a radar approach that his/her aircraft is lined up on the final approach course.

(See ON-COURSE INDICATION.)

ON-COURSE INDICATION– An indication on an instrument, which provides the pilot a visual means of determining that the aircraft is located on the centerline of a given navigational track, or an indication on a radar scope that an aircraft is on a given track.

ONE-MINUTE WEATHER– The most recent one minute updated weather broadcast received by a pilot from an uncontrolled airport ASOS/AWSS/AWOS.

ONER–

(See OCEANIC NAVIGATIONAL ERROR REPORT.)

OPERATIONAL–

(See DUE REGARD.)

OPERATIONS SPECIFICATIONS [ICAO]– The authorizations, conditions and limitations associated with the air operator certificate and subject to the conditions in the operations manual.

OPPOSITE DIRECTION AIRCRAFT– Aircraft are operating in opposite directions when:

a. They are following the same track in reciprocal directions; or

b. Their tracks are parallel and the aircraft are flying in reciprocal directions; or

c. Their tracks intersect at an angle of more than 135°.

OPTION APPROACH– An approach requested and conducted by a pilot which will result in either a touch-and-go, missed approach, low approach, stop-and-go, or full stop landing.

(See CLEARED FOR THE OPTION.)

(Refer to AIM.)

ORGANIZED TRACK SYSTEM– A series of ATS routes which are fixed and charted; i.e., CEP, NOPAC, or flexible and described by NOTAM; i.e., NAT TRACK MESSAGE.

OROCA– An off-route altitude which provides obstruction clearance with a 1,000 foot buffer in nonmountainous terrain areas and a 2,000 foot buffer in designated mountainous areas within the United States. This altitude may not provide signal coverage from ground-based navigational aids, air traffic control radar, or communications coverage.

OTR–

(See OCEANIC TRANSITION ROUTE.)

OTS–

(See ORGANIZED TRACK SYSTEM.)

OUT– The conversation is ended and no response is expected.

OUTER AREA (associated with Class C airspace)– Nonregulatory airspace surrounding designated Class C airspace airports wherein ATC provides radar vectoring and sequencing on a full-time basis for all IFR and participating VFR aircraft. The service provided in the outer area is called Class C service which includes: IFR/IFR–standard IFR separation; IFR/VFR–traffic advisories and conflict resolution; and VFR/VFR–traffic advisories and, as appropriate, safety alerts. The normal radius will be 20 nautical miles with some variations based on site-specific requirements. The outer area extends outward from the primary Class C airspace airport and extends from the lower limits of radar/radio coverage up to the ceiling of the approach control’s delegated airspace excluding the Class C charted area and other airspace as appropriate.

(See CONFLICT RESOLUTION.)

(See CONTROLLED AIRSPACE.)

OUTER COMPASS LOCATOR–

(See COMPASS LOCATOR.)

OUTER FIX– A general term used within ATC to describe fixes in the terminal area, other than the final approach fix. Aircraft are normally cleared to these fixes by an Air Route Traffic Control Center or an Approach Control Facility. Aircraft are normally cleared from these fixes to the final approach fix or final approach course.

OR

OUTER FIX– An adapted fix along the converted route of flight, prior to the meter fix, for which crossing times are calculated and displayed in the metering position list.

OUTER FIX ARC– A semicircle, usually about a 50–70 mile radius from a meter fix, usually in high altitude, which is used by CTAS/HOST to calculate outer fix times and determine appropriate sector meter list assignments for aircraft on an established arrival route that will traverse the arc.

OUTER FIX TIME– A calculated time to depart the outer fix in order to cross the vertex at the ACLT. The time reflects descent speed adjustments and any applicable delay time that must be absorbed prior to crossing the meter fix.

OUTER MARKER– A marker beacon at or near the glideslope intercept altitude of an ILS approach. It is keyed to transmit two dashes per second on a 400 Hz tone, which is received aurally and visually by compatible airborne equipment. The OM is normally located four to seven miles from the runway threshold on the extended centerline of the runway.

(See INSTRUMENT LANDING SYSTEM.)

(See MARKER BEACON.)

(Refer to AIM.)

OVER– My transmission is ended; I expect a response.

OVERHEAD MANEUVER– A series of predetermined maneuvers prescribed for aircraft (often in formation) for entry into the visual flight rules (VFR) traffic pattern and to proceed to a landing. An overhead maneuver is not an instrument flight rules (IFR) approach procedure. An aircraft executing an overhead maneuver is considered VFR and the IFR flight plan is cancelled when the aircraft reaches the “initial point” on the initial approach portion of the maneuver. The pattern usually specifies the following:

- a. The radio contact required of the pilot.
- b. The speed to be maintained.
- c. An initial approach 3 to 5 miles in length.
- d. An elliptical pattern consisting of two 180 degree turns.
- e. A break point at which the first 180 degree turn is started.
- f. The direction of turns.
- g. Altitude (at least 500 feet above the conventional pattern).
- h. A “Roll-out” on final approach not less than 1/4 mile from the landing threshold and not less than 300 feet above the ground.

OVERLYING CENTER– The ARTCC facility that is responsible for arrival/departure operations at a specific terminal.

P

P TIME–

(See PROPOSED DEPARTURE TIME.)

P-ACP–

(See PREARRANGED COORDINATION PROCEDURES.)

PAN-PAN– The international radio-telephony urgency signal. When repeated three times, indicates uncertainty or alert followed by the nature of the urgency.

(See MAYDAY.)

(Refer to AIM.)

PAR–

(See PRECISION APPROACH RADAR.)

PAR [ICAO]–

(See ICAO Term PRECISION APPROACH RADAR.)

PARALLEL ILS APPROACHES– Approaches to parallel runways by IFR aircraft which, when established inbound toward the airport on the adjacent final approach courses, are radar-separated by at least 2 miles.

(See FINAL APPROACH COURSE.)

■ (See SIMULTANEOUS ILS APPROACHES.)

PARALLEL OFFSET ROUTE– A parallel track to the left or right of the designated or established airway/route. Normally associated with Area Navigation (RNAV) operations.

(See AREA NAVIGATION.)

PARALLEL RUNWAYS– Two or more runways at the same airport whose centerlines are parallel. In addition to runway number, parallel runways are designated as L (left) and R (right) or, if three parallel runways exist, L (left), C (center), and R (right).

PBCT–

(See PROPOSED BOUNDARY CROSSING TIME.)

PBN

(See ICAO Term PERFORMANCE-BASED NAVIGATION.)

PDC–

(See PRE-DEPARTURE CLEARANCE.)

PERFORMANCE-BASED NAVIGATION (PBN) [ICAO]– Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability, and functionality needed for the proposed operation in the context of a particular airspace concept.

PERMANENT ECHO– Radar signals reflected from fixed objects on the earth's surface; e.g., buildings, towers, terrain. Permanent echoes are distinguished from "ground clutter" by being definable locations rather than large areas. Under certain conditions they may be used to check radar alignment.

PHOTO RECONNAISSANCE– Military activity that requires locating individual photo targets and navigating to the targets at a preplanned angle and altitude. The activity normally requires a lateral route width of 16 NM and altitude range of 1,500 feet to 10,000 feet AGL.

PILOT BRIEFING– A service provided by the FSS to assist pilots in flight planning. Briefing items may include weather information, NOTAMS, military activities, flow control information, and other items as requested.

(Refer to AIM.)

PILOT IN COMMAND– The pilot responsible for the operation and safety of an aircraft during flight time.

(Refer to 14 CFR Part 91.)

PILOT WEATHER REPORT– A report of meteorological phenomena encountered by aircraft in flight.

(Refer to AIM.)

PILOT'S DISCRETION– When used in conjunction with altitude assignments, means that ATC has offered the pilot the option of starting climb or descent whenever he/she wishes and conducting the climb or descent at any rate he/she wishes. He/she may temporarily level off at any intermediate altitude. However, once he/she has vacated an altitude, he/she may not return to that altitude.

PIREP–

(See PILOT WEATHER REPORT.)

PITCH POINT– A fix/waypoint that serves as a transition point from a departure procedure or the low altitude ground-based navigation structure into the high altitude waypoint system.

PLANS DISPLAY– A display available in URET that provides detailed flight plan and predicted conflict information in textual format for requested Current Plans and all Trial Plans.

(See USER REQUEST EVALUATION TOOL.)

POFZ–

(See PRECISION OBSTACLE FREE ZONE.)

POINT OUT–

(See RADAR POINT OUT.)

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.

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 standard 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 standard 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.

PRECIPITATION RADAR WEATHER DESCRIPTIONS – Existing radar systems cannot detect turbulence. However, there is a direct correlation between the degree of turbulence and other weather features associated with thunderstorms and the weather radar precipitation intensity. Controllers will issue (where capable) precipitation intensity as observed by radar when using weather and radar processor (WARP) or NAS ground based digital radars with weather capabilities. When precipitation intensity information is not available, the intensity will be described as UNKNOWN. When intensity levels can be determined, they shall be described as:

- a. LIGHT (< 30 dBZ)
- b. MODERATE (30 to 40 dBZ)
- c. HEAVY (> 40 to 50 dBZ)
- d. EXTREME (> 50 dBZ)

(Refer to AC 00-45, Aviation Weather Services.)

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.

Note: The abbreviation "PAR" is also used to denote preferential arrival routes in ARTCC computers.

(See GLIDEPATH.)

(See PAR.)

(See PREFERENTIAL ROUTES.)

(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.

Note: Precision approach radars are designed to enable pilots of aircraft to be given guidance by radio communication during the final stages of the approach to land.

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 onboard 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.

PREFERENTIAL ROUTES– Preferential routes (PDRs, PARs, and PDARs) are adapted in ARTCC computers to accomplish inter/intrafacility controller coordination and to assure that flight data is posted at the proper control positions. Locations having a need for these specific inbound and outbound routes normally publish such routes in local facility bulletins, and their use by pilots minimizes flight plan route amendments. When the workload or traffic situation permits, controllers normally provide radar vectors or assign requested routes to minimize circuitous routing. Preferential routes are usually confined to one ARTCC's area and are referred to by the following names or acronyms:

a. Preferential Departure Route (PDR). A specific departure route from an airport or terminal area to an en route point where there is no further need for flow control. It may be included in an Instrument Departure Procedure (DP) or a Preferred IFR Route.

b. Preferential Arrival Route (PAR). A specific arrival route from an appropriate en route point to an airport or terminal area. It may be included in a Standard Terminal Arrival (STAR) or a Preferred IFR Route. The abbreviation "PAR" is used primarily within the ARTCC and should not be confused with the abbreviation for Precision Approach Radar.

c. Preferential Departure and Arrival Route (PDAR). A route between two terminals which are within or immediately adjacent to one ARTCC's area. PDARs are not synonymous with Preferred IFR Routes but may be listed as such as they do accomplish essentially the same purpose.

(See PREFERRED IFR ROUTES.)

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 Airport/Facility Directory. If a flight is planned to or from an area having such routes but the departure or arrival point is not listed in the Airport/Facility Directory, 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 are correlated with DPs and STARs and may be defined by airways, jet routes, direct routes between NAVAIDs, Waypoints, NAVAID radials/DME, or any combinations thereof.

(See CENTER'S AREA.)

(See INSTRUMENT DEPARTURE PROCEDURE.)

(See PREFERENTIAL ROUTES.)

(See STANDARD TERMINAL ARRIVAL.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

(Refer to NOTICES TO AIRMEN PUBLICATION.)

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 ILS PRM APPROACH and PRECISION RUNWAY MONITOR SYSTEM.)

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 10NM from the DER, and that penetrates that airport/heliport's diverse departure obstacle clearance surface (OCS).

c. An obstacle beyond 10NM from an airport/heliport that requires an obstacle departure procedure (ODP) to ensure obstacle avoidance.

(See OBSTACLE.)

(See OBSTRUCTION.)

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.)

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.)

Q

Q ROUTE– ‘Q’ is the designator assigned to published RNAV routes used by the United States.

QNE– The barometric pressure used for the standard altimeter setting (29.92 inches Hg.).

QNH– The barometric pressure as reported by a particular station.

QUADRANT– A quarter part of a circle, centered on a NAVAID, oriented clockwise from magnetic north

as follows: NE quadrant 000-089, SE quadrant 090-179, SW quadrant 180-269, NW quadrant 270-359.

QUEUING–
(See STAGING/QUEUING.)

QUICK LOOK– A feature of the EAS and ARTS which provides the controller the capability to display full data blocks of tracked aircraft from other control positions.

R

RAA–

(See REMOTE AIRPORT ADVISORY.)

RADAR– A device which, by measuring the time interval between transmission and reception of radio pulses and correlating the angular orientation of the radiated antenna beam or beams in azimuth and/or elevation, provides information on range, azimuth, and/or elevation of objects in the path of the transmitted pulses.

a. Primary Radar– A radar system in which a minute portion of a radio pulse transmitted from a site is reflected by an object and then received back at that site for processing and display at an air traffic control facility.

b. Secondary Radar/Radar Beacon (ATCRBS)– A radar system in which the object to be detected is fitted with cooperative equipment in the form of a radio receiver/transmitter (transponder). Radar pulses transmitted from the searching transmitter/receiver (interrogator) site are received in the cooperative equipment and used to trigger a distinctive transmission from the transponder. This reply transmission, rather than a reflected signal, is then received back at the transmitter/receiver site for processing and display at an air traffic control facility.

(See INTERROGATOR.)

(See TRANSPONDER.)

(See ICAO term RADAR.)

(Refer to AIM.)

RADAR [ICAO]– A radio detection device which provides information on range, azimuth and/or elevation of objects.

a. Primary Radar– Radar system which uses reflected radio signals.

b. Secondary Radar– Radar system wherein a radio signal transmitted from a radar station initiates the transmission of a radio signal from another station.

RADAR ADVISORY– The provision of advice and information based on radar observations.

(See ADVISORY SERVICE.)

RADAR ALTIMETER–

(See RADIO ALTIMETER.)

RADAR APPROACH– An instrument approach procedure which utilizes Precision Approach Radar (PAR) or Airport Surveillance Radar (ASR).

(See AIRPORT SURVEILLANCE RADAR.)

(See INSTRUMENT APPROACH PROCEDURE.)

(See PRECISION APPROACH RADAR.)

(See SURVEILLANCE APPROACH.)

(See ICAO term RADAR APPROACH.)

(Refer to AIM.)

RADAR APPROACH [ICAO]– An approach, executed by an aircraft, under the direction of a radar controller.

RADAR APPROACH CONTROL FACILITY– A terminal ATC facility that uses radar and nonradar capabilities to provide approach control services to aircraft arriving, departing, or transiting airspace controlled by the facility.

(See APPROACH CONTROL SERVICE.)

a. Provides radar ATC services to aircraft operating in the vicinity of one or more civil and/or military airports in a terminal area. The facility may provide services of a ground controlled approach (GCA); i.e., ASR and PAR approaches. A radar approach control facility may be operated by FAA, USAF, US Army, USN, USMC, or jointly by FAA and a military service. Specific facility nomenclatures are used for administrative purposes only and are related to the physical location of the facility and the operating service generally as follows:

1. Army Radar Approach Control (ARAC) (Army).

2. Radar Air Traffic Control Facility (RATCF) (Navy/FAA).

3. Radar Approach Control (RAPCON) (Air Force/FAA).

4. Terminal Radar Approach Control (TRACON) (FAA).

5. Air Traffic Control Tower (ATCT) (FAA). (Only those towers delegated approach control authority.)

RADAR ARRIVAL– An aircraft arriving at an airport served by a radar facility and in radar contact with the facility.

(See NONRADAR.)

RADAR BEACON–

(See RADAR.)

RADAR CLUTTER [ICAO]– The visual indication on a radar display of unwanted signals.

RADAR CONTACT–

a. Used by ATC to inform an aircraft that it is identified on the radar display and radar flight following will be provided until radar identification is terminated. Radar service may also be provided within the limits of necessity and capability. When a pilot is informed of “radar contact,” he/she automatically discontinues reporting over compulsory reporting points.

(See RADAR CONTACT LOST.)

(See RADAR FLIGHT FOLLOWING.)

(See RADAR SERVICE.)

(See RADAR SERVICE TERMINATED.)

(Refer to AIM.)

b. The term used to inform the controller that the aircraft is identified and approval is granted for the aircraft to enter the receiving controllers airspace.

(See ICAO term RADAR CONTACT.)

RADAR CONTACT [ICAO]– The situation which exists when the radar blip or radar position symbol of a particular aircraft is seen and identified on a radar display.

RADAR CONTACT LOST– Used by ATC to inform a pilot that radar data used to determine the aircraft’s position is no longer being received, or is no longer reliable and radar service is no longer being provided. The loss may be attributed to several factors including the aircraft merging with weather or ground clutter, the aircraft operating below radar line of sight coverage, the aircraft entering an area of poor radar return, failure of the aircraft transponder, or failure of the ground radar equipment.

(See CLUTTER.)

(See RADAR CONTACT.)

RADAR ENVIRONMENT– An area in which radar service may be provided.

(See ADDITIONAL SERVICES.)

(See RADAR CONTACT.)

(See RADAR SERVICE.)

(See TRAFFIC ADVISORIES.)

RADAR FLIGHT FOLLOWING– The observation of the progress of radar identified aircraft, whose primary navigation is being provided by the pilot,

wherein the controller retains and correlates the aircraft identity with the appropriate target or target symbol displayed on the radar scope.

(See RADAR CONTACT.)

(See RADAR SERVICE.)

(Refer to AIM.)

RADAR IDENTIFICATION– The process of ascertaining that an observed radar target is the radar return from a particular aircraft.

(See RADAR CONTACT.)

(See RADAR SERVICE.)

(See ICAO term RADAR IDENTIFICATION.)

RADAR IDENTIFICATION [ICAO]– The process of correlating a particular radar blip or radar position symbol with a specific aircraft.

RADAR IDENTIFIED AIRCRAFT– An aircraft, the position of which has been correlated with an observed target or symbol on the radar display.

(See RADAR CONTACT.)

(See RADAR CONTACT LOST.)

RADAR MONITORING–

(See RADAR SERVICE.)

RADAR NAVIGATIONAL GUIDANCE–

(See RADAR SERVICE.)

RADAR POINT OUT– An action taken by a controller to transfer the radar identification of an aircraft to another controller if the aircraft will or may enter the airspace or protected airspace of another controller and radio communications will not be transferred.

RADAR REQUIRED– A term displayed on charts and approach plates and included in FDC NOTAMs to alert pilots that segments of either an instrument approach procedure or a route are not navigable because of either the absence or unusability of a NAVAID. The pilot can expect to be provided radar navigational guidance while transiting segments labeled with this term.

(See RADAR ROUTE.)

(See RADAR SERVICE.)

RADAR ROUTE– A flight path or route over which an aircraft is vectored. Navigational guidance and altitude assignments are provided by ATC.

(See FLIGHT PATH.)

(See ROUTE.)

RADAR SEPARATION–

(See RADAR SERVICE.)

RADAR SERVICE– A term which encompasses one or more of the following services based on the use of radar which can be provided by a controller to a pilot of a radar identified aircraft.

a. Radar Monitoring– The radar flight-following of aircraft, whose primary navigation is being performed by the pilot, to observe and note deviations from its authorized flight path, airway, or route. When being applied specifically to radar monitoring of instrument approaches; i.e., with precision approach radar (PAR) or radar monitoring of simultaneous ILS, RNAV and GLS approaches, it includes advice and instructions whenever an aircraft nears or exceeds the prescribed PAR safety limit or simultaneous ILS RNAV and GLS no transgression zone.

(See ADDITIONAL SERVICES.)

(See TRAFFIC ADVISORIES.)

b. Radar Navigational Guidance– Vectoring aircraft to provide course guidance.

c. Radar Separation– Radar spacing of aircraft in accordance with established minima.

(See ICAO term RADAR SERVICE.)

RADAR SERVICE [ICAO]– Term used to indicate a service provided directly by means of radar.

a. Monitoring– The use of radar for the purpose of providing aircraft with information and advice relative to significant deviations from nominal flight path.

b. Separation– The separation used when aircraft position information is derived from radar sources.

RADAR SERVICE TERMINATED– Used by ATC to inform a pilot that he/she will no longer be provided any of the services that could be received while in radar contact. Radar service is automatically terminated, and the pilot is not advised in the following cases:

a. An aircraft cancels its IFR flight plan, except within Class B airspace, Class C airspace, a TRSA, or where Basic Radar service is provided.

b. An aircraft conducting an instrument, visual, or contact approach has landed or has been instructed to change to advisory frequency.

c. An arriving VFR aircraft, receiving radar service to a tower-controlled airport within Class B airspace, Class C airspace, a TRSA, or where sequencing service is provided, has landed; or to all

other airports, is instructed to change to tower or advisory frequency.

d. An aircraft completes a radar approach.

RADAR SURVEILLANCE– The radar observation of a given geographical area for the purpose of performing some radar function.

RADAR TRAFFIC ADVISORIES– Advisories issued to alert pilots to known or observed radar traffic which may affect the intended route of flight of their aircraft.

(See TRAFFIC ADVISORIES.)

RADAR TRAFFIC INFORMATION SERVICE–

(See TRAFFIC ADVISORIES.)

RADAR VECTORING [ICAO]– Provision of navigational guidance to aircraft in the form of specific headings, based on the use of radar.

RADIAL– A magnetic bearing extending from a VOR/VORTAC/TACAN navigation facility.

RADIO–

a. A device used for communication.

b. Used to refer to a flight service station; e.g., “Seattle Radio” is used to call Seattle FSS.

RADIO ALTIMETER– Aircraft equipment which makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the surface.

RADIO BEACON–

(See NONDIRECTIONAL BEACON.)

RADIO DETECTION AND RANGING–

(See RADAR.)

RADIO MAGNETIC INDICATOR– An aircraft navigational instrument coupled with a gyro compass or similar compass that indicates the direction of a selected NAVAID and indicates bearing with respect to the heading of the aircraft.

RAIS–

(See REMOTE AIRPORT INFORMATION SERVICE.)

RAMP–

(See APRON.)

RANDOM ALTITUDE– An altitude inappropriate for direction of flight and/or not in accordance with FAAO JO 7110.65, Para 4-5-1, VERTICAL SEPARATION MINIMA.

RANDOM ROUTE– Any route not established or charted/published or not otherwise available to all users.

RC–

(See **ROAD RECONNAISSANCE**.)

RCAG–

(See **REMOTE COMMUNICATIONS AIR/GROUND FACILITY**.)

RCC–

(See **RESCUE COORDINATION CENTER**.)

RCO–

(See **REMOTE COMMUNICATIONS OUTLET**.)

RCR–

(See **RUNWAY CONDITION READING**.)

READ BACK– Repeat my message back to me.

RECEIVER AUTONOMOUS INTEGRITY MONITORING (RAIM)– A technique whereby a civil GNSS receiver/processor determines the integrity of the GNSS navigation signals without reference to sensors or non-DoD integrity systems other than the receiver itself. This determination is achieved by a consistency check among redundant pseudorange measurements.

RECEIVING CONTROLLER– A controller/facility receiving control of an aircraft from another controller/facility.

RECEIVING FACILITY–

(See **RECEIVING CONTROLLER**.)

RECONFORMANCE– The automated process of bringing an aircraft's Current Plan Trajectory into conformance with its track.

REDUCE SPEED TO (SPEED)–

(See **SPEED ADJUSTMENT**.)

REIL–

(See **RUNWAY END IDENTIFIER LIGHTS**.)

RELEASE TIME– A departure time restriction issued to a pilot by ATC (either directly or through an authorized relay) when necessary to separate a departing aircraft from other traffic.

(See ICAO term **RELEASE TIME**.)

RELEASE TIME [ICAO]– Time prior to which an aircraft should be given further clearance or prior to which it should not proceed in case of radio failure.

REMOTE AIRPORT ADVISORY (RAA)– A remote service which may be provided by facilities, which are not located on the landing airport, but have a discrete ground-to-air communication frequency or tower frequency when the tower is closed, automated weather reporting with voice available to the pilot at the landing airport, and a continuous ASOS/AWSS/AWOS data display, other direct reading instruments, or manual observation is available to the FSS specialist.

REMOTE AIRPORT INFORMATION SERVICE (RAIS)– A temporary service provided by facilities, which are not located on the landing airport, but have communication capability and automated weather reporting available to the pilot at the landing airport.

REMOTE COMMUNICATIONS AIR/GROUND FACILITY– An unmanned VHF/UHF transmitter/receiver facility which is used to expand ARTCC air/ground communications coverage and to facilitate direct contact between pilots and controllers. RCAG facilities are sometimes not equipped with emergency frequencies 121.5 MHz and 243.0 MHz.

(Refer to AIM.)

REMOTE COMMUNICATIONS OUTLET– An unmanned communications facility remotely controlled by air traffic personnel. RCOs serve FSSs. RTRs serve terminal ATC facilities. An RCO or RTR may be UHF or VHF and will extend the communication range of the air traffic facility. There are several classes of RCOs and RTRs. The class is determined by the number of transmitters or receivers. Classes A through G are used primarily for air/ground purposes. RCO and RTR class O facilities are nonprotected outlets subject to undetected and prolonged outages. RCO (O's) and RTR (O's) were established for the express purpose of providing ground-to-ground communications between air traffic control specialists and pilots located at a satellite airport for delivering en route clearances, issuing departure authorizations, and acknowledging instrument flight rules cancellations or departure/landing times. As a secondary function, they may be used for advisory purposes whenever the aircraft is below the coverage of the primary air/ground frequency.

REMOTE TRANSMITTER/RECEIVER–

(See **REMOTE COMMUNICATIONS OUTLET**.)

REPORT– Used to instruct pilots to advise ATC of specified information; e.g., “Report passing Hamilton VOR.”

REPORTING POINT– A geographical location in relation to which the position of an aircraft is reported.

(See COMPULSORY REPORTING POINTS.)

(See ICAO term REPORTING POINT.)

(Refer to AIM.)

REPORTING POINT [ICAO]– A specified geographical location in relation to which the position of an aircraft can be reported.

REQUEST FULL ROUTE CLEARANCE– Used by pilots to request that the entire route of flight be read verbatim in an ATC clearance. Such request should be made to preclude receiving an ATC clearance based on the original filed flight plan when a filed IFR flight plan has been revised by the pilot, company, or operations prior to departure.

REQUIRED NAVIGATION PERFORMANCE (RNP)– A statement of the navigational performance necessary for operation within a defined airspace. The following terms are commonly associated with RNP:

a. Required Navigation Performance Level or Type (RNP-X). A value, in nautical miles (NM), from the intended horizontal position within which an aircraft would be at least 95-percent of the total flying time.

b. Required Navigation Performance (RNP) Airspace. A generic term designating airspace, route (s), leg (s), operation (s), or procedure (s) where minimum required navigational performance (RNP) have been established.

c. Actual Navigation Performance (ANP). A measure of the current estimated navigational performance. Also referred to as Estimated Position Error (EPE).

d. Estimated Position Error (EPE). A measure of the current estimated navigational performance. Also referred to as Actual Navigation Performance (ANP).

e. Lateral Navigation (LNAV). A function of area navigation (RNAV) equipment which calculates, displays, and provides lateral guidance to a profile or path.

f. Vertical Navigation (VNAV). A function of area navigation (RNAV) equipment which calculates,

displays, and provides vertical guidance to a profile or path.

RESCUE COORDINATION CENTER– A search and rescue (SAR) facility equipped and manned to coordinate and control SAR operations in an area designated by the SAR plan. The U.S. Coast Guard and the U.S. Air Force have responsibility for the operation of RCCs.

(See ICAO term RESCUE CO-ORDINATION CENTRE.)

RESCUE CO-ORDINATION CENTRE [ICAO]– A unit responsible for promoting efficient organization of search and rescue service and for coordinating the conduct of search and rescue operations within a search and rescue region.

RESOLUTION ADVISORY– A display indication given to the pilot by the traffic alert and collision avoidance systems (TCAS II) recommending a maneuver to increase vertical separation relative to an intruding aircraft. Positive, negative, and vertical speed limit (VSL) advisories constitute the resolution advisories. A resolution advisory is also classified as corrective or preventive

RESTRICTED AREA–

(See SPECIAL USE AIRSPACE.)

(See ICAO term RESTRICTED AREA.)

RESTRICTED AREA [ICAO]– An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

RESUME NORMAL SPEED– Used by ATC to advise a pilot to resume an aircraft’s normal operating speed. It is issued to terminate a speed adjustment where no published speed restrictions apply. It does not delete speed restrictions in published procedures of upcoming segments of flight. This does not relieve the pilot of those speed restrictions, which are applicable to 14 CFR Section 91.117.

RESUME OWN NAVIGATION– Used by ATC to advise a pilot to resume his/her own navigational responsibility. It is issued after completion of a radar vector or when radar contact is lost while the aircraft is being radar vectored.

(See RADAR CONTACT LOST.)

(See RADAR SERVICE TERMINATED.)

RESUME PUBLISHED SPEED– Used by ATC to advise a pilot to resume published speed restrictions

that are applicable to a SID, STAR, or other instrument procedure. It is issued to terminate a speed adjustment where speed restrictions are published on a charted procedure.

RMI–

(See RADIO MAGNETIC INDICATOR.)

RNAV–

(See AREA NAVIGATION (RNAV).)

RNAV APPROACH– An instrument approach procedure which relies on aircraft area navigation equipment for navigational guidance.

(See AREA NAVIGATION (RNAV).)

(See INSTRUMENT APPROACH PROCEDURE.)

ROAD RECONNAISSANCE– Military activity requiring navigation along roads, railroads, and rivers. Reconnaissance route/route segments are seldom along a straight line and normally require a lateral route width of 10 NM to 30 NM and an altitude range of 500 feet to 10,000 feet AGL.

ROGER– I have received all of your last transmission. It should not be used to answer a question requiring a yes or a no answer.

(See AFFIRMATIVE.)

(See NEGATIVE.)

ROLLOUT RVR–

(See VISIBILITY.)

ROUTE– A defined path, consisting of one or more courses in a horizontal plane, which aircraft traverse over the surface of the earth.

(See AIRWAY.)

(See JET ROUTE.)

(See PUBLISHED ROUTE.)

(See UNPUBLISHED ROUTE.)

ROUTE ACTION NOTIFICATION– URET notification that a PAR/PDR/PDAR has been applied to the flight plan.

(See ATC PREFERRED ROUTE NOTIFICATION.)

(See USER REQUEST EVALUATION TOOL.)

ROUTE SEGMENT– As used in Air Traffic Control, a part of a route that can be defined by two

navigational fixes, two NAVAIDs, or a fix and a NAVAID.

(See FIX.)

(See ROUTE.)

(See ICAO term ROUTE SEGMENT.)

ROUTE SEGMENT [ICAO]– A portion of a route to be flown, as defined by two consecutive significant points specified in a flight plan.

RSA–

(See RUNWAY SAFETY AREA.)

RTR–

(See REMOTE TRANSMITTER/RECEIVER.)

RUNWAY– A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees; e.g., Runway 1, Runway 25.

(See PARALLEL RUNWAYS.)

(See ICAO term RUNWAY.)

RUNWAY [ICAO]– A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

RUNWAY CENTERLINE LIGHTING–

(See AIRPORT LIGHTING.)

RUNWAY CONDITION READING– Numerical decelerometer readings relayed by air traffic controllers at USAF and certain civil bases for use by the pilot in determining runway braking action. These readings are routinely relayed only to USAF and Air National Guard Aircraft.

(See BRAKING ACTION.)

RUNWAY END IDENTIFIER LIGHTS–

(See AIRPORT LIGHTING.)

RUNWAY ENTRANCE LIGHTS (REL)—An array of red lights which include the first light at the hold line followed by a series of evenly spaced lights to the runway edge aligned with the taxiway centerline, and one additional light at the runway centerline in line with the last two lights before the runway edge.

RUNWAY GRADIENT– The average slope, measured in percent, between two ends or points on a runway. Runway gradient is depicted on Government aerodrome sketches when total runway gradient exceeds 0.3%.

RUNWAY HEADING– The magnetic direction that corresponds with the runway centerline extended, not

the painted runway number. When cleared to “fly or maintain runway heading,” pilots are expected to fly or maintain the heading that corresponds with the extended centerline of the departure runway. Drift correction shall not be applied; e.g., Runway 4, actual magnetic heading of the runway centerline 044, fly 044.

RUNWAY IN USE/ACTIVE RUNWAY/DUTY RUNWAY—Any runway or runways currently being used for takeoff or landing. When multiple runways are used, they are all considered active runways. In the metering sense, a selectable adapted item which specifies the landing runway configuration or direction of traffic flow. The adapted optimum flight plan from each transition fix to the vertex is determined by the runway configuration for arrival metering processing purposes.

RUNWAY LIGHTS—

(See AIRPORT LIGHTING.)

RUNWAY MARKINGS—

(See AIRPORT MARKING AIDS.)

RUNWAY OVERRUN—In military aviation exclusively, a stabilized or paved area beyond the end of a runway, of the same width as the runway plus shoulders, centered on the extended runway centerline.

RUNWAY PROFILE DESCENT—An instrument flight rules (IFR) air traffic control arrival procedure to a runway published for pilot use in graphic and/or textual form and may be associated with a STAR. Runway Profile Descents provide routing and may depict crossing altitudes, speed restrictions, and headings to be flown from the en route structure to the point where the pilot will receive clearance for and execute an instrument approach procedure. A Runway Profile Descent may apply to more than one runway if so stated on the chart.

(Refer to AIM.)

RUNWAY SAFETY AREA—A defined surface surrounding the runway prepared, or suitable, for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. The dimensions of the RSA vary and can be determined by using the criteria contained within AC 150/5300-13, Airport Design, Chapter 3. Figure 3-1 in AC 150/5300-13 depicts the RSA. The design standards dictate that the RSA shall be:

a. Cleared, graded, and have no potentially hazardous ruts, humps, depressions, or other surface variations;

b. Drained by grading or storm sewers to prevent water accumulation;

c. Capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and,

d. Free of objects, except for objects that need to be located in the runway safety area because of their function. These objects shall be constructed on low impact resistant supports (frangible mounted structures) to the lowest practical height with the frangible point no higher than 3 inches above grade.

(Refer to AC 150/5300-13, Airport Design, Chapter 3.)

RUNWAY STATUS LIGHTS (RWSL) SYSTEM—The RWSL is a system of runway and taxiway lighting to provide pilots increased situational awareness by illuminating runway entry lights (REL) when the runway is unsafe for entry or crossing, and take-off hold lights (THL) when the runway is unsafe for departure.

RUNWAY TRANSITION—

a. Conventional STARs/SIDs. The portion of a STAR/SID that serves a particular runway or runways at an airport.

b. RNAV STARs/SIDs. Defines a path(s) from the common route to the final point(s) on a STAR. For a SID, the common route that serves a particular runway or runways at an airport.

RUNWAY USE PROGRAM—A noise abatement runway selection plan designed to enhance noise abatement efforts with regard to airport communities for arriving and departing aircraft. These plans are developed into runway use programs and apply to all turbojet aircraft 12,500 pounds or heavier; turbojet aircraft less than 12,500 pounds are included only if the airport proprietor determines that the aircraft creates a noise problem. Runway use programs are coordinated with FAA offices, and safety criteria used in these programs are developed by the Office of Flight Operations. Runway use programs are administered by the Air Traffic Service as “Formal” or “Informal” programs.

a. Formal Runway Use Program—An approved noise abatement program which is defined and

acknowledged in a Letter of Understanding between Flight Operations, Air Traffic Service, the airport proprietor, and the users. Once established, participation in the program is mandatory for aircraft operators and pilots as provided for in 14 CFR Section 91.129.

b. Informal Runway Use Program– An approved noise abatement program which does not require a

Letter of Understanding, and participation in the program is voluntary for aircraft operators/pilots.

RUNWAY VISIBILITY VALUE–
(See VISIBILITY.)

RUNWAY VISUAL RANGE–
(See VISIBILITY.)

S

SAA–

(See SPECIAL ACTIVITY AIRSPACE.)

SAFETY ALERT– A safety alert issued by ATC to aircraft under their control if ATC is aware the aircraft is at an altitude which, in the controller's judgment, places the aircraft in unsafe proximity to terrain, obstructions, or other aircraft. The controller may discontinue the issuance of further alerts if the pilot advises he/she is taking action to correct the situation or has the other aircraft in sight.

a. Terrain/Obstruction Alert– A safety alert issued by ATC to aircraft under their control if ATC is aware the aircraft is at an altitude which, in the controller's judgment, places the aircraft in unsafe proximity to terrain/obstructions; e.g., "Low Altitude Alert, check your altitude immediately."

b. Aircraft Conflict Alert– A safety alert issued by ATC to aircraft under their control if ATC is aware of an aircraft that is not under their control at an altitude which, in the controller's judgment, places both aircraft in unsafe proximity to each other. With the alert, ATC will offer the pilot an alternate course of action when feasible; e.g., "Traffic Alert, advise you turn right heading zero niner zero or climb to eight thousand immediately."

Note: The issuance of a safety alert is contingent upon the capability of the controller to have an awareness of an unsafe condition. The course of action provided will be predicated on other traffic under ATC control. Once the alert is issued, it is solely the pilot's prerogative to determine what course of action, if any, he/she will take.

SAFETY LOGIC SYSTEM– A software enhancement to ASDE-3, ASDE-X, and ASDE-3X, that predicts the path of aircraft landing and/or departing, and/or vehicular movements on runways. Visual and aural alarms are activated when the safety logic projects a potential collision. The Airport Movement Area Safety System (AMASS) is a safety logic system enhancement to the ASDE-3. The Safety Logic System for ASDE-X and ASDE-3X is an integral part of the software program.

SAFETY LOGIC SYSTEM ALERTS–

a. ALERT– An actual situation involving two real safety logic tracks (aircraft/aircraft, aircraft/vehicle,

or aircraft/other tangible object) that safety logic has predicted will result in an imminent collision, based upon the current set of Safety Logic parameters.

b. FALSE ALERT–

1. Alerts generated by one or more false surface-radar targets that the system has interpreted as real tracks and placed into safety logic.

2. Alerts in which the safety logic software did not perform correctly, based upon the design specifications and the current set of Safety Logic parameters.

3. The alert is generated by surface radar targets caused by moderate or greater precipitation.

c. NUISANCE ALERT– An alert in which one or more of the following is true:

1. The alert is generated by a known situation that is not considered an unsafe operation, such as LAHSO or other approved operations.

2. The alert is generated by inaccurate secondary radar data received by the Safety Logic System.

3. One or more of the aircraft involved in the alert is not intending to use a runway (for example, helicopter, pipeline patrol, non-Mode C overflight, etc.).

d. VALID NON-ALERT– A situation in which the safety logic software correctly determines that an alert is not required, based upon the design specifications and the current set of Safety Logic parameters.

e. INVALID NON-ALERT– A situation in which the safety logic software did not issue an alert when an alert was required, based upon the design specifications.

SAIL BACK– A maneuver during high wind conditions (usually with power off) where float plane movement is controlled by water rudders/opening and closing cabin doors.

SAME DIRECTION AIRCRAFT– Aircraft are operating in the same direction when:

a. They are following the same track in the same direction; or

b. Their tracks are parallel and the aircraft are flying in the same direction; or

c. Their tracks intersect at an angle of less than 45 degrees.

SAR–

(See SEARCH AND RESCUE.)

SAY AGAIN– Used to request a repeat of the last transmission. Usually specifies transmission or portion thereof not understood or received; e.g., “Say again all after ABRAM VOR.”

SAY ALTITUDE– Used by ATC to ascertain an aircraft’s specific altitude/flight level. When the aircraft is climbing or descending, the pilot should state the indicated altitude rounded to the nearest 100 feet.

SAY HEADING– Used by ATC to request an aircraft heading. The pilot should state the actual heading of the aircraft.

SCHEDULED TIME OF ARRIVAL (STA)– A STA is the desired time that an aircraft should cross a certain point (landing or metering fix). It takes other traffic and airspace configuration into account. A STA time shows the results of the TMA scheduler that has calculated an arrival time according to parameters such as optimized spacing, aircraft performance, and weather.

SDF–

(See SIMPLIFIED DIRECTIONAL FACILITY.)

SEA LANE– A designated portion of water outlined by visual surface markers for and intended to be used by aircraft designed to operate on water.

SEARCH AND RESCUE– A service which seeks missing aircraft and assists those found to be in need of assistance. It is a cooperative effort using the facilities and services of available Federal, state and local agencies. The U.S. Coast Guard is responsible for coordination of search and rescue for the Maritime Region, and the U.S. Air Force is responsible for search and rescue for the Inland Region. Information pertinent to search and rescue should be passed through any air traffic facility or be transmitted directly to the Rescue Coordination Center by telephone.

(See FLIGHT SERVICE STATION.)

(See RESCUE COORDINATION CENTER.)

(Refer to AIM.)

SEARCH AND RESCUE FACILITY– A facility responsible for maintaining and operating a search and rescue (SAR) service to render aid to persons and property in distress. It is any SAR unit, station, NET, or other operational activity which can be usefully

employed during an SAR Mission; e.g., a Civil Air Patrol Wing, or a Coast Guard Station.

(See SEARCH AND RESCUE.)

SECNOT–

(See SECURITY NOTICE.)

SECONDARY RADAR TARGET– A target derived from a transponder return presented on a radar display.

SECTIONAL AERONAUTICAL CHARTS–

(See AERONAUTICAL CHART.)

SECTOR LIST DROP INTERVAL– A parameter number of minutes after the meter fix time when arrival aircraft will be deleted from the arrival sector list.

SECURITY NOTICE (SECNOT) – A SECNOT is a request originated by the Air Traffic Security Coordinator (ATSC) for an extensive communications search for aircraft involved, or suspected of being involved, in a security violation, or are considered a security risk. A SECNOT will include the aircraft identification, search area, and expiration time. The search area, as defined by the ATSC, could be a single airport, multiple airports, a radius of an airport or fix, or a route of flight. Once the expiration time has been reached, the SECNOT is considered to be cancelled.

SECURITY SERVICES AIRSPACE – Areas established through the regulatory process or by NOTAM, issued by the Administrator under title 14, CFR, sections 99.7, 91.141, and 91.139, which specify that ATC security services are required; i.e., ADIZ or temporary flight rules areas.

SEE AND AVOID– When weather conditions permit, pilots operating IFR or VFR are required to observe and maneuver to avoid other aircraft. Right-of-way rules are contained in 14 CFR Part 91.

SEGMENTED CIRCLE– A system of visual indicators designed to provide traffic pattern information at airports without operating control towers.

(Refer to AIM.)

SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE– An instrument approach procedure may have as many as four separate segments depending on how the approach procedure is structured.

a. Initial Approach– The segment between the initial approach fix and the intermediate fix or the

point where the aircraft is established on the intermediate course or final approach course.

(See ICAO term INITIAL APPROACH SEGMENT.)

b. Intermediate Approach– The segment between the intermediate fix or point and the final approach fix.

(See ICAO term INTERMEDIATE APPROACH SEGMENT.)

c. Final Approach– The segment between the final approach fix or point and the runway, airport, or missed approach point.

(See ICAO term FINAL APPROACH SEGMENT.)

d. Missed Approach– The segment between the missed approach point or the point of arrival at decision height and the missed approach fix at the prescribed altitude.

(Refer to 14 CFR Part 97.)

(See ICAO term MISSED APPROACH PROCEDURE.)

SEPARATION– In air traffic control, the spacing of aircraft to achieve their safe and orderly movement in flight and while landing and taking off.

(See SEPARATION MINIMA.)

(See ICAO term SEPARATION.)

SEPARATION [ICAO]– Spacing between aircraft, levels or tracks.

SEPARATION MINIMA– The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

(See SEPARATION.)

SERVICE– A generic term that designates functions or assistance available from or rendered by air traffic control. For example, Class C service would denote the ATC services provided within a Class C airspace area.

SEVERE WEATHER AVOIDANCE PLAN– An approved plan to minimize the affect of severe weather on traffic flows in impacted terminal and/or ARTCC areas. SWAP is normally implemented to provide the least disruption to the ATC system when flight through portions of airspace is difficult or impossible due to severe weather.

SEVERE WEATHER FORECAST ALERTS– Preliminary messages issued in order to alert users that a Severe Weather Watch Bulletin (WW) is being issued. These messages define areas of possible severe thunderstorms or tornado activity. The messages are unscheduled and issued as required by the Storm Prediction Center (SPC) at Norman, Oklahoma.

(See AIRMET.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(See SIGMET.)

SFA–

(See SINGLE FREQUENCY APPROACH.)

SFO–

(See SIMULATED FLAMEOUT.)

SHF–

(See SUPER HIGH FREQUENCY.)

SHORT RANGE CLEARANCE– A clearance issued to a departing IFR flight which authorizes IFR flight to a specific fix short of the destination while air traffic control facilities are coordinating and obtaining the complete clearance.

SHORT TAKEOFF AND LANDING AIRCRAFT– An aircraft which, at some weight within its approved operating weight, is capable of operating from a runway in compliance with the applicable STOL characteristics, airworthiness, operations, noise, and pollution standards.

(See VERTICAL TAKEOFF AND LANDING AIRCRAFT.)

SIAP–

(See STANDARD INSTRUMENT APPROACH PROCEDURE.)

SID–

(See STANDARD INSTRUMENT DEPARTURE.)

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 AWW.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(See ICAO term SIGMET INFORMATION.)

(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– 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 4300 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/MLS approaches to airports having parallel runways separated by at least 4,300 feet between centerlines. Integral parts of a total system are ILS/MLS, 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 AIRPORT/FACILITY DIRECTORY.)

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.)

SLOT TIME–

(See METER FIX TIME/SLOT TIME.)

SLOW TAXI– To taxi a float plane at low power or low RPM.

SN–

(See SYSTEM STRATEGIC NAVIGATION.)

SPEAK SLOWER– Used in verbal communications as a request to reduce speech rate.

SPECIAL ACTIVITY AIRSPACE (SAA)– Any airspace with defined dimensions within the National Airspace System wherein limitations may be imposed upon aircraft operations. This airspace may be restricted areas, prohibited areas, military operations areas, air ATC assigned airspace, and any other designated airspace areas. The dimensions of this airspace are programmed into URET and can be designated as either active or inactive by screen entry. Aircraft trajectories are constantly tested against the dimensions of active areas and alerts issued to the applicable sectors when violations are predicted.

(See USER REQUEST EVALUATION TOOL.)

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 INSTRUMENT APPROACH PROCEDURE–

(See INSTRUMENT APPROACH PROCEDURE.)

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)– A MOA is 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.

(Refer to AIM.)

d. 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.)

e. Restricted Area– 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. Restricted areas are depicted on en route charts. Where joint use is authorized, the name of the ATC controlling facility is also shown.

(Refer to 14 CFR Part 73.)

(Refer to AIM.)

f. 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 metrological 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.)

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 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.

SQUAWK (Mode, Code, Function)– Activate specific modes/codes/functions on the aircraft transponder; e.g., “Squawk three/alpha, two one zero five, low.”

(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– 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 RESERVATIONS– Altitude reservations which encompass activities in a fixed area. Stationary 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.

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.

STOL AIRCRAFT–

(See SHORT TAKEOFF AND LANDING AIRCRAFT.)

STOP ALTITUDE SQUAWK– Used by ATC to inform an aircraft to turn-off the automatic altitude reporting feature of its transponder. It is issued when the verbally reported altitude varies 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 tell the pilot to turn specified functions of the aircraft transponder off.

(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.

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.

SUPER HIGH FREQUENCY– The frequency band between 3 and 30 gigahertz (GHz). The elevation and azimuth stations of the microwave landing system

operate from 5031 MHz to 5091 MHz in this spectrum.

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.

SURPIC– A description of surface vessels in the area of a Search and Rescue incident including their predicted positions and their characteristics.

(Refer to FAAO 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**.)

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.

T

TACAN–

(See TACTICAL AIR NAVIGATION.)

TACAN-ONLY AIRCRAFT– An aircraft, normally military, possessing TACAN with DME but no VOR navigational system capability. Clearances must specify TACAN or VORTAC fixes and approaches.

TACTICAL AIR NAVIGATION– An ultra-high frequency electronic rho-theta air navigation aid which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station.

(See VORTAC.)

(Refer to AIM.)

TAILWIND– Any wind more than 90 degrees to the longitudinal axis of the runway. The magnetic direction of the runway shall be used as the basis for determining the longitudinal axis.

TAKEOFF AREA–

(See LANDING AREA.)

TAKEOFF DISTANCE AVAILABLE (TODA)– The takeoff run available plus the length of any remaining runway or clearway beyond the far end of the takeoff run available.

(See ICAO term TAKEOFF DISTANCE AVAILABLE.)

TAKEOFF DISTANCE AVAILABLE [ICAO]– The length of the takeoff run available plus the length of the clearway, if provided.

TAKEOFF HOLD LIGHTS (THL)– The THL system is composed of in-pavement lighting in a double, longitudinal row of lights aligned either side of the runway centerline. The lights are focused toward the arrival end of the runway at the “line up and wait” point, and they extend for 1,500 feet in front of the holding aircraft. Illuminated red lights indicate to an aircraft in position for takeoff or rolling that it is unsafe to takeoff because the runway is occupied or about to be occupied by an aircraft or vehicle.

TAKEOFF ROLL – The process whereby an aircraft is aligned with the runway centerline and the aircraft is moving with the intent to take off. For helicopters,

this pertains to the act of becoming airborne after departing a takeoff area.

TAKEOFF RUN AVAILABLE (TORA) – The runway length declared available and suitable for the ground run of an airplane taking off.

(See ICAO term TAKEOFF RUN AVAILABLE.)

TAKEOFF RUN AVAILABLE [ICAO]– The length of runway declared available and suitable for the ground run of an aeroplane take-off.

TARGET– The indication shown on an analog display resulting from a primary radar return or a radar beacon reply.

(See ASSOCIATED.)

(See DIGITAL TARGET.)

(See DIGITIZED RADAR TARGET.)

(See FUSED TARGET)

(See PRIMARY RADAR TARGET.)

(See RADAR.)

(See SECONDARY RADAR TARGET.)

(See TARGET SYMBOL.)

(See ICAO term TARGET.)

(See UNASSOCIATED.)

TARGET [ICAO]– In radar:

a. Generally, any discrete object which reflects or retransmits energy back to the radar equipment.

b. Specifically, an object of radar search or surveillance.

TARGET RESOLUTION– A process to ensure that correlated radar targets do not touch. Target resolution must be applied as follows:

a. Between the edges of two primary targets or the edges of the ASR-9/11 primary target symbol.

b. Between the end of the beacon control slash and the edge of a primary target.

c. Between the ends of two beacon control slashes.

Note 1: Mandatory traffic advisories and safety alerts must be issued when this procedure is used.

Note 2: This procedure must not be used when utilizing mosaic radar systems or multi-sensor mode.

TARGET SYMBOL– A computer-generated indication shown on a radar display resulting from a primary radar return or a radar beacon reply.

TARMAC DELAY– The holding of an aircraft on the ground either before departure or after landing with no opportunity for its passengers to deplane.

TARMAC DELAY AIRCRAFT– An aircraft whose pilot-in-command has requested to taxi to the ramp, gate, or alternate deplaning area to comply with the Three-hour Tarmac Rule.

TARMAC DELAY REQUEST– A request by the pilot-in-command to taxi to the ramp, gate, or alternate deplaning location to comply with the Three-hour Tarmac Rule.

TAS–

(See **TERMINAL AUTOMATION SYSTEMS**.)

TAWS–

(See **TERRAIN AWARENESS WARNING SYSTEM**.)

TAXI– The movement of an airplane under its own power on the surface of an airport (14 CFR Section 135.100 [Note]). Also, it describes the surface movement of helicopters equipped with wheels.

(See **AIR TAXI**.)

(See **HOVER TAXI**.)

(Refer to 14 CFR Section 135.100.)

(Refer to **AIM**.)

TAXI PATTERNS– Patterns established to illustrate the desired flow of ground traffic for the different runways or airport areas available for use.

TCAS–

(See **TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM**.)

TCH–

(See **THRESHOLD CROSSING HEIGHT**.)

TCLT–

(See **TENTATIVE CALCULATED LANDING TIME**.)

TDLS–

(See **TERMINAL DATA LINK SYSTEM**.)

TDZE–

(See **TOUCHDOWN ZONE ELEVATION**.)

TELEPHONE INFORMATION BRIEFING SERVICE– A continuous telephone recording of meteorological and/or aeronautical information.

(Refer to **AIM**.)

TEMPORARY FLIGHT RESTRICTION (TFR) – A TFR is a regulatory action issued by the FAA via the U.S. NOTAM System, under the authority of United States Code, Title 49. TFRs are issued within the sovereign airspace of the United States and its territories to restrict certain aircraft from operating within a defined area on a temporary basis to protect persons or property in the air or on the ground. While not all inclusive, TFRs may be issued for disaster or hazard situations such as: toxic gas leaks or spills, fumes from flammable agents, aircraft accident/incident sites, aviation or ground resources engaged in wildlife suppression, or aircraft relief activities following a disaster. TFRs may also be issued in support of VIP movements; for reasons of national security; or when determined necessary for the management of air traffic in the vicinity of aerial demonstrations or major sporting events. NAS users or other interested parties should contact a FSS for TFR information. Additionally, TFR information can be found in automated briefings, NOTAM publications, and on the internet at <http://www.faa.gov>. The FAA also distributes TFR information to aviation user groups for further dissemination.

TENTATIVE CALCULATED LANDING TIME– A projected time calculated for adapted vertex for each arrival aircraft based upon runway configuration, airport acceptance rate, airport arrival delay period, and other metered arrival aircraft. This time is either the VTA of the aircraft or the TCLT/ACLT of the previous aircraft plus the AAI, whichever is later. This time will be updated in response to an aircraft's progress and its current relationship to other arrivals.

TERMINAL AREA– A general term used to describe airspace in which approach control service or airport traffic control service is provided.

TERMINAL AREA FACILITY– A facility providing air traffic control service for arriving and departing IFR, VFR, Special VFR, and on occasion en route aircraft.

(See **APPROACH CONTROL FACILITY**.)

(See **TOWER**.)

TERMINAL AUTOMATION SYSTEMS (TAS)– TAS is used to identify the numerous automated tracking systems including ARTS IIE, ARTS IIIA, ARTS IIIE, STARS, and MEARTS.

TERMINAL DATA LINK SYSTEM (TDLS)– A system that provides Digital Automatic Terminal Information Service (D-ATIS) both on a specified

radio frequency and also, for subscribers, in a text message via data link to the cockpit or to a gate printer. TDLS also provides Pre-departure Clearances (PDC), at selected airports, to subscribers, through a service provider, in text to the cockpit or to a gate printer. In addition, TDLS will emulate the Flight Data Input/Output (FDIO) information within the control tower.

TERMINAL RADAR SERVICE AREA– Airspace surrounding designated airports wherein ATC provides radar vectoring, sequencing, and separation on a full-time basis for all IFR and participating VFR aircraft. The AIM contains an explanation of TRSA. TRSAs are depicted on VFR aeronautical charts. Pilot participation is urged but is not mandatory.

TERMINAL VFR RADAR SERVICE– A national program instituted to extend the terminal radar services provided instrument flight rules (IFR) aircraft to visual flight rules (VFR) aircraft. The program is divided into four types service referred to as basic radar service, terminal radar service area (TRSA) service, Class B service and Class C service. The type of service provided at a particular location is contained in the Airport/Facility Directory.

a. Basic Radar Service– These services are provided for VFR aircraft by all commissioned terminal radar facilities. Basic radar service includes safety alerts, traffic advisories, limited radar vectoring when requested by the pilot, and sequencing at locations where procedures have been established for this purpose and/or when covered by a letter of agreement. The purpose of this service is to adjust the flow of arriving IFR and VFR aircraft into the traffic pattern in a safe and orderly manner and to provide traffic advisories to departing VFR aircraft.

b. TRSA Service– This service provides, in addition to basic radar service, sequencing of all IFR and participating VFR aircraft to the primary airport and separation between all participating VFR aircraft. The purpose of this service is to provide separation between all participating VFR aircraft and all IFR aircraft operating within the area defined as a TRSA.

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

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

(See CONTROLLED AIRSPACE.)

(See TERMINAL RADAR SERVICE AREA.)

(Refer to AIM.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

TERMINAL-VERY HIGH FREQUENCY OMNI-DIRECTIONAL RANGE STATION– A very high frequency terminal omnirange station located on or near an airport and used as an approach aid.

(See NAVIGATIONAL AID.)

(See VOR.)

TERRAIN AWARENESS WARNING SYSTEM (TAWS)– An on-board, terrain proximity alerting system providing the aircrew ‘Low Altitude warnings’ to allow immediate pilot action.

TERRAIN FOLLOWING– The flight of a military aircraft maintaining a constant AGL altitude above the terrain or the highest obstruction. The altitude of the aircraft will constantly change with the varying terrain and/or obstruction.

TETRAHEDRON– A device normally located on uncontrolled airports and used as a landing direction indicator. The small end of a tetrahedron points in the direction of landing. At controlled airports, the tetrahedron, if installed, should be disregarded because tower instructions supersede the indicator.

(See SEGMENTED CIRCLE.)

(Refer to AIM.)

TF–

(See TERRAIN FOLLOWING.)

THAT IS CORRECT– The understanding you have is right.

THREE-HOUR TARMAC RULE– Rule that relates to Department of Transportation (DOT) requirements placed on airlines when tarmac delays are anticipated to reach 3 hours.

360 OVERHEAD–

(See OVERHEAD MANEUVER.)

THRESHOLD– The beginning of that portion of the runway usable for landing.

(See AIRPORT LIGHTING.)

(See DISPLACED THRESHOLD.)

THRESHOLD CROSSING HEIGHT– The theoretical height above the runway threshold at

which the aircraft's glideslope antenna would be if the aircraft maintains the trajectory established by the mean ILS glideslope or the altitude at which the calculated glidepath of an RNAV or GPS approaches.

(See GLIDESLOPE.)

(See THRESHOLD.)

THRESHOLD LIGHTS–

(See AIRPORT LIGHTING.)

TIBS–

(See TELEPHONE INFORMATION BRIEFING SERVICE.)

TIE-IN FACILITY– The FSS primarily responsible for providing FSS services, including telecommunications services for landing facilities or navigational aids located within the boundaries of a flight plan area (FPA). Three-letter identifiers are assigned to each FSS/FPA and are annotated as tie-in facilities in A/FDs, the Alaska Supplement, the Pacific Supplement, and FAA Order JO 7350.8, Location Identifiers. Large consolidated FSS facilities may have many tie-in facilities or FSS sectors within one facility.

(See FLIGHT PLAN AREA.)

(See FLIGHT SERVICE STATION.)

TIME GROUP– Four digits representing the hour and minutes from the Coordinated Universal Time (UTC) clock. FAA uses UTC for all operations. The term “ZULU” may be used to denote UTC. The word “local” or the time zone equivalent shall be used to denote local when local time is given during radio and telephone communications. When written, a time zone designator is used to indicate local time; e.g. “0205M” (Mountain). The local time may be based on the 24-hour clock system. The day begins at 0000 and ends at 2359.

TIS-B–

(See TRAFFIC INFORMATION SERVICE-BROADCAST.)

TMA–

(See TRAFFIC MANAGEMENT ADVISOR.)

TMPA–

(See TRAFFIC MANAGEMENT PROGRAM ALERT.)

TMU–

(See TRAFFIC MANAGEMENT UNIT.)

TODA–

(See TAKEOFF DISTANCE AVAILABLE.)

(See ICAO term TAKEOFF DISTANCE AVAILABLE.)

TOI–

(See TRACK OF INTEREST.)

TOP ALTITUDE– In reference to SID published altitude restrictions the charted “maintain” altitude contained in the procedure description or assigned by ATC.

TORA–

(See TAKEOFF RUN AVAILABLE.)

(See ICAO term TAKEOFF RUN AVAILABLE.)

TORCHING– The burning of fuel at the end of an exhaust pipe or stack of a reciprocating aircraft engine, the result of an excessive richness in the fuel air mixture.

TOTAL ESTIMATED ELAPSED TIME [ICAO]– For IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome.

(See ICAO term ESTIMATED ELAPSED TIME.)

TOUCH-AND-GO– An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway.

TOUCH-AND-GO LANDING–

(See TOUCH-AND-GO.)

TOUCHDOWN–

a. The point at which an aircraft first makes contact with the landing surface.

b. Concerning a precision radar approach (PAR), it is the point where the glide path intercepts the landing surface.

(See ICAO term TOUCHDOWN.)

TOUCHDOWN [ICAO]– The point where the nominal glide path intercepts the runway.

Note: Touchdown as defined above is only a datum and is not necessarily the actual point at which the aircraft will touch the runway.

TOUCHDOWN RVR–

(See VISIBILITY.)

TOUCHDOWN ZONE– The first 3,000 feet of the runway beginning at the threshold. The area is used for determination of Touchdown Zone Elevation in the development of straight-in landing minimums for instrument approaches.

(See ICAO term TOUCHDOWN ZONE.)

TOUCHDOWN ZONE [ICAO]– The portion of a runway, beyond the threshold, where it is intended landing aircraft first contact the runway.

TOUCHDOWN ZONE ELEVATION– The highest elevation in the first 3,000 feet of the landing surface. TDZE is indicated on the instrument approach procedure chart when straight-in landing minimums are authorized.

(See TOUCHDOWN ZONE.)

TOUCHDOWN ZONE LIGHTING–

(See AIRPORT LIGHTING.)

TOWER– A terminal facility that uses air/ground communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area. Authorizes aircraft to land or takeoff at the airport controlled by the tower or to transit the Class D airspace area regardless of flight plan or weather conditions (IFR or VFR). A tower may also provide approach control services (radar or nonradar).

(See AIRPORT TRAFFIC CONTROL SERVICE.)

(See APPROACH CONTROL FACILITY.)

(See APPROACH CONTROL SERVICE.)

(See MOVEMENT AREA.)

(See TOWER EN ROUTE CONTROL SERVICE.)

(See ICAO term AERODROME CONTROL TOWER.)

(Refer to AIM.)

TOWER EN ROUTE CONTROL SERVICE– The control of IFR en route traffic within delegated airspace between two or more adjacent approach control facilities. This service is designed to expedite traffic and reduce control and pilot communication requirements.

TOWER TO TOWER–

(See TOWER EN ROUTE CONTROL SERVICE.)

TPX-42– A numeric beacon decoder equipment/system. It is designed to be added to terminal radar systems for beacon decoding. It provides rapid target

identification, reinforcement of the primary radar target, and altitude information from Mode C.

(See AUTOMATED RADAR TERMINAL SYSTEMS.)

(See TRANSPONDER.)

TRACEABLE PRESSURE STANDARD– The facility station pressure instrument, with certification/calibration traceable to the National Institute of Standards and Technology. Traceable pressure standards may be mercurial barometers, commissioned ASOS/AWSS or dual transducer AWOS, or portable pressure standards or DASI.

TRACK– The actual flight path of an aircraft over the surface of the earth.

(See COURSE.)

(See FLIGHT PATH.)

(See ROUTE.)

(See ICAO term TRACK.)

TRACK [ICAO]– The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (True, Magnetic, or Grid).

TRACK OF INTEREST (TOI)– Displayed data representing an airborne object that threatens or has the potential to threaten North America or National Security. Indicators may include, but are not limited to: noncompliance with air traffic control instructions or aviation regulations; extended loss of communications; unusual transmissions or unusual flight behavior; unauthorized intrusion into controlled airspace or an ADIZ; noncompliance with issued flight restrictions/security procedures; or unlawful interference with airborne flight crews, up to and including hijack. In certain circumstances, an object may become a TOI based on specific and credible intelligence pertaining to that particular aircraft/object, its passengers, or its cargo.

TRACK OF INTEREST RESOLUTION– A TOI will normally be considered resolved when: the aircraft/object is no longer airborne; the aircraft complies with air traffic control instructions, aviation regulations, and/or issued flight restrictions/security procedures; radio contact is re-established and authorized control of the aircraft is verified; the aircraft is intercepted and intent is verified to be nonthreatening/nonhostile; TOI was identified based on specific and credible intelligence that was later determined to be invalid or unreliable; or displayed data is identified and characterized as invalid.

TRAFFIC–

a. A term used by a controller to transfer radar identification of an aircraft to another controller for the purpose of coordinating separation action. Traffic is normally issued:

1. In response to a handoff or point out,
2. In anticipation of a handoff or point out, or
3. In conjunction with a request for control of an aircraft.

b. A term used by ATC to refer to one or more aircraft.

TRAFFIC ADVISORIES– Advisories issued to alert pilots to other known or observed air traffic which may be in such proximity to the position or intended route of flight of their aircraft to warrant their attention. Such advisories may be based on:

- a.** Visual observation.
- b.** Observation of radar identified and nonidentified aircraft targets on an ATC radar display, or
- c.** Verbal reports from pilots or other facilities.

Note 1: The word “traffic” followed by additional information, if known, is used to provide such advisories; e.g., “Traffic, 2 o’clock, one zero miles, southbound, eight thousand.”

Note 2: Traffic advisory service will be provided to the extent possible depending on higher priority duties of the controller or other limitations; e.g., radar limitations, volume of traffic, frequency congestion, or controller workload. Radar/nonradar traffic advisories do not relieve the pilot of his/her responsibility to see and avoid other aircraft. Pilots are cautioned that there are many times when the controller is not able to give traffic advisories concerning all traffic in the aircraft’s proximity; in other words, when a pilot requests or is receiving traffic advisories, he/she should not assume that all traffic will be issued.

(Refer to AIM.)

TRAFFIC ALERT (aircraft call sign), TURN (left/right) IMMEDIATELY, (climb/descend) AND MAINTAIN (altitude).

(See SAFETY ALERT.)

TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM– An airborne collision avoidance system based on radar beacon signals which operates independent of ground-based equipment. TCAS-I generates traffic advisories only. TCAS-II generates

traffic advisories, and resolution (collision avoidance) advisories in the vertical plane.

TRAFFIC INFORMATION–

(See TRAFFIC ADVISORIES.)

TRAFFIC INFORMATION SERVICE–BROADCAST (TIS-B)– The broadcast of ATC derived traffic information to ADS-B equipped (1090ES or UAT) aircraft. The source of this traffic information is derived from ground-based air traffic surveillance sensors, typically from radar targets. TIS-B service will be available throughout the NAS where there are both adequate surveillance coverage (radar) and adequate broadcast coverage from ADS-B ground stations. Loss of TIS-B will occur when an aircraft enters an area not covered by the GBT network. If this occurs in an area with adequate surveillance coverage (radar), nearby aircraft that remain within the adequate broadcast coverage (ADS-B) area will view the first aircraft. TIS-B may continue when an aircraft enters an area with inadequate surveillance coverage (radar); nearby aircraft that remain within the adequate broadcast coverage (ADS-B) area will not view the first aircraft.

TRAFFIC IN SIGHT– Used by pilots to inform a controller that previously issued traffic is in sight.

(See NEGATIVE CONTACT.)

(See TRAFFIC ADVISORIES.)

TRAFFIC MANAGEMENT ADVISOR (TMA)– A computerized tool which assists Traffic Management Coordinators to efficiently schedule arrival traffic to a metered airport, by calculating meter fix times and delays then sending that information to the sector controllers.

TRAFFIC MANAGEMENT PROGRAM ALERT– A term used in a Notice to Airmen (NOTAM) issued in conjunction with a special traffic management program to alert pilots to the existence of the program and to refer them to either the Notices to Airmen publication or a special traffic management program advisory message for program details. The contraction TMPA is used in NOTAM text.

TRAFFIC MANAGEMENT UNIT– The entity in ARTCCs and designated terminals directly involved in the active management of facility traffic. Usually under the direct supervision of an assistant manager for traffic management.

TRAFFIC NO FACTOR– Indicates that the traffic described in a previously issued traffic advisory is no factor.

TRAFFIC NO LONGER OBSERVED– Indicates that the traffic described in a previously issued traffic advisory is no longer depicted on radar, but may still be a factor.

TRAFFIC PATTERN– The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

a. Upwind Leg– A flight path parallel to the landing runway in the direction of landing.

b. Crosswind Leg– A flight path at right angles to the landing runway off its upwind end.

c. Downwind Leg– A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.

d. Base Leg– A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.

e. Final Approach. A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway. An aircraft making a straight-in approach VFR is also considered to be on final approach.

(See STRAIGHT-IN APPROACH VFR.)

(See TAXI PATTERNS.)

(See ICAO term AERODROME TRAFFIC CIRCUIT.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

TRAFFIC SITUATION DISPLAY (TSD)– TSD is a computer system that receives radar track data from all 20 CONUS ARTCCs, organizes this data into a mosaic display, and presents it on a computer screen. The display allows the traffic management coordinator multiple methods of selection and highlighting of individual aircraft or groups of aircraft. The user has the option of superimposing these aircraft positions over any number of background displays. These background options include ARTCC boundaries, any stratum of en route sector boundaries, fixes, airways, military and other special use airspace, airports, and geopolitical boundaries. By using the TSD, a

coordinator can monitor any number of traffic situations or the entire systemwide traffic flows.

TRAJECTORY– A URET representation of the path an aircraft is predicted to fly based upon a Current Plan or Trial Plan.

(See USER REQUEST EVALUATION TOOL.)

TRAJECTORY MODELING– The automated process of calculating a trajectory.

TRANSCRIBED WEATHER BROADCAST– A continuous recording of meteorological and aeronautical information that is broadcast on L/MF and VOR facilities for pilots. (Provided only in Alaska.)

(Refer to AIM.)

TRANSFER OF CONTROL– That action whereby the responsibility for the separation of an aircraft is transferred from one controller to another.

(See ICAO term TRANSFER OF CONTROL.)

TRANSFER OF CONTROL [ICAO]– Transfer of responsibility for providing air traffic control service.

TRANSFERRING CONTROLLER– A controller/facility transferring control of an aircraft to another controller/facility.

(See ICAO term TRANSFERRING UNIT/CONTROLLER.)

TRANSFERRING FACILITY–

(See TRANSFERRING CONTROLLER.)

TRANSFERRING UNIT/CONTROLLER [ICAO]– Air traffic control unit/air traffic controller in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit/air traffic controller along the route of flight.

Note: See definition of accepting unit/controller.

TRANSITION–

a. The general term that describes the change from one phase of flight or flight condition to another; e.g., transition from en route flight to the approach or transition from instrument flight to visual flight.

b. A published procedure (DP Transition) used to connect the basic DP to one of several en route airways/jet routes, or a published procedure (STAR Transition) used to connect one of several en route airways/jet routes to the basic STAR.

(Refer to DP/STAR Charts.)

TRANSITION POINT– A point at an adapted number of miles from the vertex at which an arrival

aircraft would normally commence descent from its en route altitude. This is the first fix adapted on the arrival speed segments.

TRANSITION WAYPOINT– The waypoint that defines the beginning of a runway or en route transition on an RNAV SID or STAR.

TRANSITIONAL AIRSPACE– That portion of controlled airspace wherein aircraft change from one phase of flight or flight condition to another.

TRANSMISSOMETER– An apparatus used to determine visibility by measuring the transmission of light through the atmosphere. It is the measurement source for determining runway visual range (RVR) and runway visibility value (RVV).

(See VISIBILITY.)

TRANSMITTING IN THE BLIND– A transmission from one station to other stations in circumstances where two-way communication cannot be established, but where it is believed that the called stations may be able to receive the transmission.

TRANSPONDER– The airborne radar beacon receiver/transmitter portion of the Air Traffic Control Radar Beacon System (ATCRBS) which automatically receives radio signals from interrogators on the ground, and selectively replies with a specific reply pulse or pulse group only to those interrogations being received on the mode to which it is set to respond.

(See INTERROGATOR.)

(See ICAO term TRANSPONDER.)

(Refer to AIM.)

TRANSPONDER [ICAO]– A receiver/transmitter which will generate a reply signal upon proper

interrogation; the interrogation and reply being on different frequencies.

TRANSPONDER CODES–

(See CODES.)

TRANSPONDER OBSERVED – Phraseology used to inform a VFR pilot the aircraft's assigned beacon code and position have been observed. Specifically, this term conveys to a VFR pilot the transponder reply has been observed and its position correlated for transit through the designated area.

TRIAL PLAN– A proposed amendment which utilizes automation to analyze and display potential conflicts along the predicted trajectory of the selected aircraft.

TRSA–

(See TERMINAL RADAR SERVICE AREA.)

TSD–

(See TRAFFIC SITUATION DISPLAY.)

TURBOJET AIRCRAFT– An aircraft having a jet engine in which the energy of the jet operates a turbine which in turn operates the air compressor.

TURBOPROP AIRCRAFT– An aircraft having a jet engine in which the energy of the jet operates a turbine which drives the propeller.

TURN ANTICIPATION– (maneuver anticipation).

TVOR–

(See TERMINAL-VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION.)

TWEB–

(See TRANSCRIBED WEATHER BROADCAST.)

TWO-WAY RADIO COMMUNICATIONS FAILURE–

(See LOST COMMUNICATIONS.)

U

UHF–

(See **ULTRAHIGH FREQUENCY**.)

ULTRAHIGH FREQUENCY– The frequency band between 300 and 3,000 MHz. The bank of radio frequencies used for military air/ground voice communications. In some instances this may go as low as 225 MHz and still be referred to as UHF.

ULTRALIGHT VEHICLE– A single-occupant aeronautical vehicle operated for sport or recreational purposes which does not require FAA registration, an airworthiness certificate, nor pilot certification. Operation of an ultralight vehicle in certain airspace requires authorization from ATC

(Refer to 14 CFR Part 103.)

UNABLE– Indicates inability to comply with a specific instruction, request, or clearance.

UNASSOCIATED– A radar target that does not display a data block with flight identification and altitude information.

(See **ASSOCIATED**.)

UNDER THE HOOD– Indicates that the pilot is using a hood to restrict visibility outside the cockpit while simulating instrument flight. An appropriately rated pilot is required in the other control seat while this operation is being conducted.

(Refer to 14 CFR Part 91.)

UNFROZEN– The Scheduled Time of Arrival (STA) tags, which are still being rescheduled by traffic management advisor (TMA) calculations. The aircraft will remain unfrozen until the time the corresponding estimated time of arrival (ETA) tag passes the preset freeze horizon for that aircraft's stream class. At this point the automatic rescheduling will stop, and the STA becomes "frozen."

UNICOM– A nongovernment communication facility which may provide airport information at certain

airports. Locations and frequencies of UNICOMs are shown on aeronautical charts and publications.

(See **AIRPORT/FACILITY DIRECTORY**.)

(Refer to **AIM**.)

UNPUBLISHED ROUTE– A route for which no minimum altitude is published or charted for pilot use. It may include a direct route between NAVAIDs, a radial, a radar vector, or a final approach course beyond the segments of an instrument approach procedure.

(See **PUBLISHED ROUTE**.)

(See **ROUTE**.)

UNRELIABLE (GPS/WAAS)– An advisory to pilots indicating the expected level of service of the GPS and/or WAAS may not be available. Pilots must then determine the adequacy of the signal for desired use.

UPWIND LEG–

(See **TRAFFIC PATTERN**.)

URET–

(See **USER REQUEST EVALUATION TOOL**.)

URGENCY– A condition of being concerned about safety and of requiring timely but not immediate assistance; a potential distress condition.

(See **ICAO term URGENCY**.)

URGENCY [ICAO]– A condition concerning the safety of an aircraft or other vehicle, or of person on board or in sight, but which does not require immediate assistance.

USAFIB–

(See **ARMY AVIATION FLIGHT INFORMATION BULLETIN**.)

USER REQUEST EVALUATION TOOL (URET)– User Request Evaluation Tool is an automated tool provided at each Radar Associate position in selected En Route facilities. This tool utilizes flight and radar data to determine present and future trajectories for all active and proposal aircraft and provides enhanced, automated flight data management.

V

VASI–

(See VISUAL APPROACH SLOPE INDICATOR.)

VCOA–

(See VISUAL CLIMB OVER AIRPORT.)

VDP–

(See VISUAL DESCENT POINT.)

VECTOR– A heading issued to an aircraft to provide navigational guidance by radar.

(See ICAO term RADAR VECTORING.)

VERIFY– Request confirmation of information; e.g., “verify assigned altitude.”

VERIFY SPECIFIC DIRECTION OF TAKEOFF (OR TURNS AFTER TAKEOFF)– Used by ATC to ascertain an aircraft’s direction of takeoff and/or direction of turn after takeoff. It is normally used for IFR departures from an airport not having a control tower. When direct communication with the pilot is not possible, the request and information may be relayed through an FSS, dispatcher, or by other means.

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

VERTEX– The last fix adapted on the arrival speed segments. Normally, it will be the outer marker of the runway in use. However, it may be the actual threshold or other suitable common point on the approach path for the particular runway configuration.

VERTEX TIME OF ARRIVAL– A calculated time of aircraft arrival over the adapted vertex for the runway configuration in use. The time is calculated via the optimum flight path using adapted speed segments.

VERTICAL NAVIGATION (VNAV)– A function of area navigation (RNAV) equipment which calculates, displays, and provides vertical guidance to a profile or path.

VERTICAL SEPARATION– Separation between aircraft expressed in units of vertical distance.

(See SEPARATION.)

VERTICAL TAKEOFF AND LANDING AIRCRAFT– Aircraft capable of vertical climbs and/or

descents and of using very short runways or small areas for takeoff and landings. These aircraft include, but are not limited to, helicopters.

(See SHORT TAKEOFF AND LANDING AIRCRAFT.)

VERY HIGH FREQUENCY– The frequency band between 30 and 300 MHz. Portions of this band, 108 to 118 MHz, are used for certain NAVAIDs; 118 to 136 MHz are used for civil air/ground voice communications. Other frequencies in this band are used for purposes not related to air traffic control.

VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION–

(See VOR.)

VERY LOW FREQUENCY– The frequency band between 3 and 30 kHz.

VFR–

(See VISUAL FLIGHT RULES.)

VFR AIRCRAFT– An aircraft conducting flight in accordance with visual flight rules.

(See VISUAL FLIGHT RULES.)

VFR CONDITIONS– Weather conditions equal to or better than the minimum for flight under visual flight rules. The term may be used as an ATC clearance/instruction only when:

a. An IFR aircraft requests a climb/descent in VFR conditions.

b. The clearance will result in noise abatement benefits where part of the IFR departure route does not conform to an FAA approved noise abatement route or altitude.

c. A pilot has requested a practice instrument approach and is not on an IFR flight plan.

Note: All pilots receiving this authorization must comply with the VFR visibility and distance from cloud criteria in 14 CFR Part 91. Use of the term does not relieve controllers of their responsibility to separate aircraft in Class B and Class C airspace or TRSAs as required by FAAO JO 7110.65. When used as an ATC clearance/instruction, the term may be abbreviated “VFR;” e.g., “MAINTAIN VFR,” “CLIMB/DESCEND VFR,” etc.

VFR FLIGHT–

(See VFR AIRCRAFT.)

VFR MILITARY TRAINING ROUTES– Routes used by the Department of Defense and associated Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training under VFR below 10,000 feet MSL at airspeeds in excess of 250 knots IAS.

VFR NOT RECOMMENDED– An advisory provided by a flight service station to a pilot during a preflight or inflight weather briefing that flight under visual flight rules is not recommended. To be given when the current and/or forecast weather conditions are at or below VFR minimums. It does not abrogate the pilot's authority to make his/her own decision.

VFR-ON-TOP– ATC authorization for an IFR aircraft to operate in VFR conditions at any appropriate VFR altitude (as specified in 14 CFR and as restricted by ATC). A pilot receiving this authorization must comply with the VFR visibility, distance from cloud criteria, and the minimum IFR altitudes specified in 14 CFR Part 91. The use of this term does not relieve controllers of their responsibility to separate aircraft in Class B and Class C airspace or TRSAs as required by FAAO JO 7110.65.

VFR TERMINAL AREA CHARTS–
(See AERONAUTICAL CHART.)

VFR WAYPOINT–
(See WAYPOINT.)

VHF–
(See VERY HIGH FREQUENCY.)

VHF OMNIDIRECTIONAL RANGE/TACTICAL AIR NAVIGATION–
(See VORTAC.)

VIDEO MAP– An electronically displayed map on the radar display that may depict data such as airports, heliports, runway centerline extensions, hospital emergency landing areas, NAVAIDs and fixes, reporting points, airway/route centerlines, boundaries, handoff points, special use tracks, obstructions, prominent geographic features, map alignment indicators, range accuracy marks, minimum vectoring altitudes.

VISIBILITY– The ability, as determined by atmospheric conditions and expressed in units of

distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night. Visibility is reported as statute miles, hundreds of feet or meters.

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

a. Flight Visibility– The average forward horizontal distance, from the cockpit of an aircraft in flight, at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night.

b. Ground Visibility– Prevailing horizontal visibility near the earth's surface as reported by the United States National Weather Service or an accredited observer.

c. Prevailing Visibility– The greatest horizontal visibility equaled or exceeded throughout at least half the horizon circle which need not necessarily be continuous.

d. Runway Visibility Value (RVV)– The visibility determined for a particular runway by a transmissometer. A meter provides a continuous indication of the visibility (reported in miles or fractions of miles) for the runway. RVV is used in lieu of prevailing visibility in determining minimums for a particular runway.

e. Runway Visual Range (RVR)– An instrumentally derived value, based on standard calibrations, that represents the horizontal distance a pilot will see down the runway from the approach end. It is based on the sighting of either high intensity runway lights or on the visual contrast of other targets whichever yields the greater visual range. RVR, in contrast to prevailing or runway visibility, is based on what a pilot in a moving aircraft should see looking down the runway. RVR is horizontal visual range, not slant visual range. It is based on the measurement of a transmissometer made near the touchdown point of the instrument runway and is reported in hundreds of feet. RVR is used in lieu of RVV and/or prevailing visibility in determining minimums for a particular runway.

1. Touchdown RVR– The RVR visibility readout values obtained from RVR equipment serving the runway touchdown zone.

2. Mid-RVR– The RVR readout values obtained from RVR equipment located midfield of the runway.

3. Rollout RVR– The RVR readout values obtained from RVR equipment located nearest the rollout end of the runway.

(See ICAO term FLIGHT VISIBILITY.)

(See ICAO term GROUND VISIBILITY.)

(See ICAO term RUNWAY VISUAL RANGE.)

(See ICAO term VISIBILITY.)

VISIBILITY [ICAO]– The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night.

a. Flight Visibility–The visibility forward from the cockpit of an aircraft in flight.

b. Ground Visibility–The visibility at an aerodrome as reported by an accredited observer.

c. Runway Visual Range [RVR]–The range over which the pilot of an aircraft on the centerline of a runway can see the runway surface markings or the lights delineating the runway or identifying its centerline.

VISUAL APPROACH– An approach conducted on an instrument flight rules (IFR) flight plan which authorizes the pilot to proceed visually and clear of clouds to the airport. The pilot must, at all times, have either the airport or the preceding aircraft in sight. This approach must be authorized and under the control of the appropriate air traffic control facility. Reported weather at the airport must be ceiling at or above 1,000 feet and visibility of 3 miles or greater.

(See ICAO term VISUAL APPROACH.)

VISUAL APPROACH [ICAO]– An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

VISUAL APPROACH SLOPE INDICATOR–

(See AIRPORT LIGHTING.)

VISUAL CLIMB OVER AIRPORT (VCOA)– A departure option for an IFR aircraft, operating in visual meteorological conditions equal to or greater than the specified visibility and ceiling, to visually conduct climbing turns over the airport to the published “climb-to” altitude from which to proceed with the instrument portion of the departure. VCOA

procedures are developed to avoid obstacles greater than 3 statute miles from the departure end of the runway as an alternative to complying with climb gradients greater than 200 feet per nautical mile. These procedures are published in the ‘Take-Off Minimums and (Obstacle) Departure Procedures’ section of the Terminal Procedures Publications.

(See AIM.)

VISUAL DESCENT POINT– A defined point on the final approach course of a nonprecision straight-in approach procedure from which normal descent from the MDA to the runway touchdown point may be commenced, provided the approach threshold of that runway, or approach lights, or other markings identifiable with the approach end of that runway are clearly visible to the pilot.

VISUAL FLIGHT RULES– Rules that govern the procedures for conducting flight under visual conditions. The term “VFR” is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

(See INSTRUMENT FLIGHT RULES.)

(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

(See VISUAL METEOROLOGICAL CONDITIONS.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

VISUAL HOLDING– The holding of aircraft at selected, prominent geographical fixes which can be easily recognized from the air.

(See HOLDING FIX.)

VISUAL METEOROLOGICAL CONDITIONS– Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima.

(See INSTRUMENT FLIGHT RULES.)

(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

(See VISUAL FLIGHT RULES.)

VISUAL SEGMENT–

(See PUBLISHED INSTRUMENT APPROACH PROCEDURE VISUAL SEGMENT.)

VISUAL SEPARATION– A means employed by ATC to separate aircraft in terminal areas and en route airspace in the NAS. There are two ways to effect this separation:

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

b. A pilot sees the other aircraft involved and upon instructions from the controller provides his/her own separation by maneuvering his/her aircraft as necessary to avoid it. This may involve following another aircraft or keeping it in sight until it is no longer a factor.

(See SEE AND AVOID.)

(Refer to 14 CFR Part 91.)

VLF–

(See VERY LOW FREQUENCY.)

VMC–

(See VISUAL METEOROLOGICAL CONDITIONS.)

VOICE SWITCHING AND CONTROL SYSTEM–

The VSCS is a computer controlled switching system that provides air traffic controllers with all voice circuits (air to ground and ground to ground) necessary for air traffic control.

(See VOICE SWITCHING AND CONTROL SYSTEM.)

(Refer to AIM.)

VOR– A ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the National Airspace System. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature. Voice features may be used by ATC or FSS for transmitting instructions/information to pilots.

(See NAVIGATIONAL AID.)

(Refer to AIM.)

VOR TEST SIGNAL–

(See VOT.)

VORTAC– A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site.

(See DISTANCE MEASURING EQUIPMENT.)

(See NAVIGATIONAL AID.)

(See TACAN.)

(See VOR.)

(Refer to AIM.)

VORTICES– Circular patterns of air created by the movement of an airfoil through the air when generating lift. As an airfoil moves through the atmosphere in sustained flight, an area of low pressure is created above it. The air flowing from the high pressure area to the low pressure area around and about the tips of the airfoil tends to roll up into two rapidly rotating vortices, cylindrical in shape. These vortices are the most predominant parts of aircraft wake turbulence and their rotational force is dependent upon the wing loading, gross weight, and speed of the generating aircraft. The vortices from medium to heavy aircraft can be of extremely high velocity and hazardous to smaller aircraft.

(See AIRCRAFT CLASSES.)

(See WAKE TURBULENCE.)

(Refer to AIM.)

VOT– A ground facility which emits a test signal to check VOR receiver accuracy. Some VOTs are available to the user while airborne, and others are limited to ground use only.

(See AIRPORT/FACILITY DIRECTORY.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

VR–

(See VFR MILITARY TRAINING ROUTES.)

VSCS–

(See VOICE SWITCHING AND CONTROL SYSTEM.)

VTA–

(See VERTEX TIME OF ARRIVAL.)

VTOL AIRCRAFT–

(See VERTICAL TAKEOFF AND LANDING AIRCRAFT.)

W

WA–

(See AIRMET.)

(See WEATHER ADVISORY.)

WAAS–

(See WIDE-AREA AUGMENTATION SYSTEM.)

WAKE TURBULENCE– Phenomena resulting from the passage of an aircraft through the atmosphere. The term includes vortices, thrust stream turbulence, jet blast, jet wash, propeller wash, and rotor wash both on the ground and in the air.

(See AIRCRAFT CLASSES.)

(See JET BLAST.)

(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 area forecast, as they affect the operation of air traffic and as prepared by the NWS.

(See AIRMET.)

(See SIGMET.)

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.

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.”

WORLD AERONAUTICAL CHARTS–

(See AERONAUTICAL CHART.)

WS–

(See SIGMET.)

(See WEATHER ADVISORY.)

WST-

(See CONVECTIVE SIGMET.)

(See WEATHER ADVISORY.)

BRIEFING GUIDE

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

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1. PARAGRAPH NUMBER AND TITLE: 2-1-1. ATC SERVICE

2. BACKGROUND: One of the hallmark core values of the air traffic control system is to provide a safe, orderly, and expeditious flow of traffic. The workforce has requested the change to the classification of ATC Service within this paragraph to reflect the core values of the controller.

3. CHANGE:**OLD****2-1-1. ATC SERVICE**

The primary purpose of the ATC system is to prevent a collision between aircraft operating in the system and to organize and expedite the flow of traffic, and to provide support for National Security and Homeland Defense. In addition to its primary function, the ATC system has the capability to provide (with certain limitations) additional services. The ability to provide additional services is limited by many factors, such as the volume of traffic, frequency congestion, quality of radar, controller workload, higher priority duties, and the pure physical inability to scan and detect those situations that fall in this category. It is recognized that these services cannot be provided in cases in which the provision of services is precluded by the above factors. Consistent with the aforementioned conditions, controllers must provide additional service procedures to the extent permitted by higher priority duties and other circumstances. The provision of additional services is not optional on the part of the controller, but rather is required when the work situation permits. Provide air traffic control service in accordance with the procedures and minima in this order except when:

NEW**2-1-1. ATC SERVICE**

The primary purpose of the ATC system is to prevent a collision between aircraft operating in the system and to provide a safe, orderly and expeditious flow of traffic, and to provide support for National Security and Homeland Defense. In addition to its primary function, the ATC system has the capability to provide, with certain limitations, additional services. The ability to provide additional services is limited by many factors, such as the volume of traffic, frequency congestion, quality of radar, controller workload, higher priority duties, and the pure physical inability to scan and detect those situations that fall in this category. It is recognized that these services cannot be provided in cases in which the provision of services is precluded by the above factors. Consistent with the aforementioned conditions, controllers must provide additional service procedures to the extent permitted by higher priority duties and other circumstances. The provision of additional services is not optional on the part of the controller, but rather is required when the work situation permits. Provide air traffic control service in accordance with the procedures and minima in this order except when:

1. PARAGRAPH NUMBER AND TITLE: 2-1-17. RADIO COMMUNICATIONS

2. BACKGROUND: Effective communication is a principal tenet of ATC. When transferring radio communications within a facility, or from one facility to another facility, issuance of the facility name is not required in up/down facilities. However, for those facilities that are not co-located or do not share the same name (for example, IAD ATCT and PCT TRACON), the name of the facility is required to be issued unless otherwise described in a facility directive.

3. CHANGE:**OLD****2-1-17. RADIO COMMUNICATIONS**

Title through b

NEW**2-1-17. RADIO COMMUNICATIONS**

No Change

1. The facility name or location name and terminal function to be contacted. *TERMINAL*: Omit the location name when transferring communications to another controller within your facility; except when instructing the aircraft to change frequency for final approach guidance include the name of the facility.

Add

1. The facility name or location name and terminal function to be contacted. *TERMINAL*: Omit the location name when transferring communications to another controller within your facility, **or, when the tower and TRACON share the same name (for example, Phoenix Tower and Phoenix TRACON).**

EXCEPTION. Controllers must include the name of the facility when instructing an aircraft to change frequency for final approach guidance.

1. PARAGRAPH NUMBER AND TITLE: 2-1-20. WAKE TURBULENCE CAUTIONARY ADVISORIES

2. BACKGROUND: In 2013, Terminal Procedures was informed of a discrepancy concerning the application of Wake Turbulence Cautionary Advisories (WTCA) when IFR aircraft accept a visual approach clearance or visual separation and Heavy or B757 aircraft are involved. More specifically, controllers were issuing a WTCA when a Heavy or B757 was the trailing aircraft. This is an incorrect application of the procedure.

3. CHANGE:

OLD

2-1-20. WAKE TURBULENCE CAUTIONARY ADVISORIES

a. Issue wake turbulence cautionary advisories and the position, altitude if known, and direction of flight of the heavy jet or B757 to:

NEW

2-1-20. WAKE TURBULENCE CAUTIONARY ADVISORIES

a. Issue wake turbulence cautionary advisories, **including** the position, altitude if known, and direction of flight **to aircraft operating behind** Heavy or B757 **aircraft** to:

1. PARAGRAPH NUMBER AND TITLE: 3-4-20. RUNWAY STATUS LIGHTS (RWSL)

2. BACKGROUND: Through a collaborated effort to reduce runway incursions, the FAA tested and installed runway status lights (RWSL) at selected airports throughout the United States. This system consists of runway entrance lights (REL) and take-off hold lights (THL) which provide pilots with an increased situational awareness of when it is safe to enter/depart the runway.

3. CHANGE:

OLD

Add

Add

Add

Add

NEW

3-4-20. RUNWAY STATUS LIGHTS (RWSL)

TERMINAL

RWSL is equipped with automatic intensity settings and must be operated on a continuous basis except under the following conditions:

a. If a pilot or vehicle report indicates any portion of the RWSL system is on and is not able to accept an ATC clearance; then

Add	<u>1. ATC must visually scan the entire runway. If the runway is observed to be clear and the lights are still illuminated, then the lights must be turned off and clearance re-issued.</u>
Add	<u>2. If a portion of the runway is not visible from the tower, ATC must visually scan the ASDE-X. If the runway is observed to be clear and the lights are still illuminated, then the lights must be turned off and clearance re-issued.</u>
Add	<u>b. When the RWSL Operational Status displays “Lost Comm with System,” consider the RWSL system out of service until checked and confirmed to be operational by technical operations personnel.</u>
Add	<u>c. Once RWSL systems are turned off, they must remain off until returned to service by technical operations personnel.</u>
Add	<u>d. Upon pilot request, adjust the light intensity.</u>

1. PARAGRAPH NUMBER AND TITLE: 3-7-5. PRECISION APPROACH CRITICAL AREA

2. BACKGROUND: Numerous questions have been asked with regard to protection of the localizer critical area when it refers to a middle marker. At multiple locations the middle marker has been decommissioned. In an effort to provide guidance for these locations, a distance from the runway end is being added/substituted to represent the approximate distance where the middle marker was previously located. In addition, operators regularly conduct “AUTOLAND” or “COUPLED” approaches to satisfy maintenance, training, or reliability requirements when weather conditions are better than the required minimum specified for protecting the critical area (ceiling less than 800 feet or visibility less than 2 miles). Airline representatives requested, through the Air Traffic Procedures Advisory Committee (ATPAC), that the critical areas be protected for all aircraft conducting “autoland” approaches regardless of the weather. ATPAC and Terminal Procedures did not concur and informed the airline representatives that procedures and phraseology already exists for controllers to advise pilots conducting “autoland” and “coupled” approaches that the critical area is not protected.

3. CHANGE:

<u>OLD</u>	<u>NEW</u>
3-7-5. PRECISION APPROACH CRITICAL AREA	3-7-5. PRECISION APPROACH CRITICAL AREA

a. ILS critical area dimensions are described in FAAO 6750.16, Siting Criteria for Instrument Landing Systems. Aircraft and vehicle access to the ILS/MLS critical area must be controlled to ensure the integrity of ILS/MLS course signals whenever conditions are less than reported ceiling 800 feet or visibility less than 2 miles. Do not authorize vehicles/aircraft to operate in or over the critical area, except as specified in subpara a1, whenever an arriving aircraft is inside the ILS outer marker (OM) or the fix used in lieu of the OM unless the arriving aircraft has reported the runway in sight or is circling to land on another runway.

PHRASEOLOGY–

HOLD SHORT OF (runway) ILS/MLS CRITICAL AREA.

1. LOCALIZER CRITICAL AREA

a1 through a1(a)(2)

(b) In addition to subpara a1(a), do not authorize vehicles or aircraft operations in or over the area when an arriving aircraft is inside the middle marker when conditions are less than reported ceiling 200 feet or RVR 2,000 feet.

a2

b. Air carriers commonly conduct “coupled” or “autoland” operations to satisfy maintenance, training, or reliability program requirements. Promptly issue an advisory if the critical area will not be protected when an arriving aircraft advises that a “coupled,” “CATIII,” “autoland,” or similar type approach will be conducted and the weather is reported ceiling of 800 feet or more, and the visibility is 2 miles or more.

PHRASEOLOGY–

ILS/MLS CRITICAL AREA NOT PROTECTED.

a. ILS critical area dimensions are described in FAA **Order** 6750.16, Siting Criteria for Instrument Landing Systems. Aircraft and vehicle access to the ILS critical area must be controlled to ensure the integrity of ILS course signals whenever conditions are less than reported ceiling 800 feet or visibility less than 2 miles. Do not authorize vehicles/aircraft to operate in or over the critical area, except as specified in subparagraph a1, whenever an arriving aircraft is inside the ILS outer marker (OM) or the fix used in lieu of the OM unless the arriving aircraft has reported the runway in sight or is circling to land on another runway.

PHRASEOLOGY–

HOLD SHORT OF (runway) ILS CRITICAL AREA.

1. LOCALIZER CRITICAL AREA

No Change

(b) In addition to subparagraph a1(a), when conditions are less than reported ceiling 200 feet or RVR 2,000 feet, do not authorize vehicles or aircraft operations in or over the area when an arriving aircraft is inside the middle marker, or in the absence of a middle marker, ½ mile final.

No Change

b. **Operators** commonly conduct “coupled” or “autoland” approaches to satisfy maintenance, training, or reliability program requirements. Promptly issue an advisory if the critical area will not be protected when an arriving aircraft advises that a “coupled,” “CATIII,” “autoland,” or similar type approach will be conducted and the weather indicates a reported ceiling of 800 feet or more, or the visibility is 2 miles or more.

PHRASEOLOGY–

ILS CRITICAL AREA NOT PROTECTED.

1. PARAGRAPH NUMBER AND TITLE: 3-9-7. WAKE TURBULENCE SEPARATION FOR INTERSECTION DEPARTURES

2. BACKGROUND: FAA Order JO 7110.65, Paragraph 3-9-7b3, allows pilots to deviate from the 3-minute interval when “Successive touch-and-go and stop-and-go operations are conducted with a small aircraft following another small aircraft weighing more than 12,500 lbs. or a large aircraft in the pattern, or a small aircraft weighing more than 12,500 lbs. or a large aircraft departing the same runway, provided the pilot of the small aircraft is maintaining visual separation/spacing behind the preceding large aircraft.” In July 2011, Terminal Operations, issued an interpretation that controllers need not apply “visual separation” procedures to aircraft operating in a VFR traffic pattern. Provided that ATC does not take any action to reduce/alter the flight path of the succeeding aircraft, the controller is only required to issue traffic to the affected pilot, obtain confirmation from that pilot that traffic is in sight, and then issue a landing clearance with a cautionary wake turbulence advisory, when applicable.

3. CHANGE:**OLD****3-9-7. WAKE TURBULENCE SEPARATION
FOR INTERSECTION DEPARTURES****Title through 3-9-7b2**

3. Successive touch-and-go and stop-and-go operations are conducted with a small aircraft following another small aircraft weighing more than 12,500 lbs. or a large aircraft in the pattern, or a small aircraft weighing more than 12,500 lbs. or a large aircraft departing the same runway, provided the pilot of the small aircraft is maintaining visual separation/ spacing behind the preceding large aircraft. Issue a wake turbulence cautionary advisory and the position of the large aircraft.

Add

Add

Add

EXAMPLE–

“Caution wake turbulence, DC-9 on base leg.”

Add

NEW**3-9-7. WAKE TURBULENCE SEPARATION
FOR INTERSECTION DEPARTURES**

No Change

3. Successive touch-and-go and/or stop-and-go operations are authorized to the same runway or parallel runways separated by less than 2,500 feet under the following conditions:

(a) When a small aircraft is sequenced behind a small aircraft that weighs more than 12,500 lbs. or a large aircraft to the same runway or parallel runway, ensure aircraft involved have been issued appropriate traffic and have reported the traffic in sight. Issue instructions to follow (if applicable) and a wake turbulence cautionary advisory.

EXAMPLE–

“Follow DH-8 base leg, caution wake turbulence, Runway One-Eight Left, cleared touch-and-go/stop-and-go.”

“Traffic DH-8 right base Runway One-Eight Right, caution wake turbulence, Runway One-Eight Left cleared touch-and-go/stop-and-go.”

(b) When a small aircraft is landing behind a departing small aircraft that weighs more than 12,500 lbs. or a large aircraft on the same runway or parallel runway, ensure aircraft involved have been issued appropriate traffic and have reported the departing traffic in sight. Issue a wake turbulence cautionary advisory.

EXAMPLE–

“Caution wake turbulence, MD-90 departing, Runway One Eight Left, cleared touch-and-go/stop-and-go.”

“Traffic MD-90 departing Runway One-Eight Right, caution wake turbulence, Runway One-Eight Left cleared touch-and-go/stop-and-go.”

REFERENCE–

FAAO 7110.65, 2-1-20, Wake Turbulence Cautionary Advisories
Advisory Circular 90-23F, Wake Turbulence Avoidance.

4. Successive touch-and-go and stop-and-go operations are conducted with any aircraft following a heavy aircraft/B757 in the pattern, or heavy aircraft/B757 departing the same runway, provided the pilot of the aircraft is maintaining visual separation/spacing behind the preceding heavy aircraft/B757. Issue a wake turbulence cautionary advisory and the position of the heavy aircraft/B757.

Add

Add

Add

EXAMPLE–

“Caution wake turbulence, heavy Lockheed C5A departing runway two three.”

Add

4. Successive touch-and-go and/or stop-and-go operations are **authorized to the same runway or parallel runways separated by less than 2,500 feet under the following conditions:**

(a) When an aircraft is sequenced behind a heavy aircraft/B757 to the same runway or parallel runway, ensure aircraft involved have been issued appropriate traffic and/or sequencing and have reported the traffic in sight. Issue instructions to follow (if applicable) and a wake turbulence cautionary advisory.

EXAMPLE–

“Follow B757 mid-field downwind, caution wake turbulence, Runway One-Eight Left, cleared touch-and-go/stop-and-go.”

“Traffic Heavy Boeing 767 right base Runway One-Eight Right, caution wake turbulence, Runway One-Eight Left, cleared touch-and-go/stop-and-go.”

(b) When an aircraft is landing behind a departing heavy aircraft/B757 on the same runway or parallel runway, ensure aircraft involved have been issued appropriate traffic and have reported the departing traffic in sight. Issue a wake turbulence cautionary advisory.

EXAMPLE–

“Caution wake turbulence, heavy Boeing 767 departing, Runway One-Eight Left, cleared touch-and-go/stop-and-go.”

“Traffic Boeing 757 departing Runway One-Eight Right, caution wake turbulence, Runway One Eight Left, caution wake turbulence, cleared touch-and-go/stop-and-go.”

REFERENCE–

FAAO 7110.65, 2-1-20, Wake Turbulence Cautionary Advisories Advisory Circular 90-23F, Wake Turbulence Avoidance.

1. PARAGRAPH NUMBER AND TITLE:

5-3-1. APPLICATION

5-5-1. APPLICATION

2. BACKGROUND: Paragraphs 5-3-1 and 5-5-1 currently require controllers to establish and maintain radar identification of aircraft involved before providing radar service, except as provided in specific instances. This change adds a reference to new Paragraph 8-5-5 that allows when radar separation may be provided. This guidance implements the provisions of International Civil Aviation Organization (ICAO) Procedures for Air Navigation Services-Air traffic Management (PANS-ATM) Doc 4444, Paragraph 8.7.2.8.

3. CHANGE:**OLD****5-3-1 APPLICATION**

Before you provide radar service, establish and maintain radar identification on the aircraft involved, except as provided in para 5-5-1, Application, subparas b2 and 3.

REFERENCE–

FAAO JO 7110.65, Para 3-1-9, Use of Tower Radar Displays.

OLD**5-5-1. APPLICATION**

Title through **b3**

Add

Add

NEW**5-3-1 APPLICATION**

Before you provide radar service, establish and maintain radar identification of the aircraft involved, except as provided in **Paragraph** 5-5-1, Application, **subparagraphs** b2, **b3 and in Paragraph 8-5-5, Radar Identification Application.**

REFERENCE–

FAAO JO 7110.65, Para 3-1-9, Use of Tower Radar Displays.
FAAO JO 7110.65, Para 5-1-1, Presentation and Equipment Performance.

NEW**5-5-1. APPLICATION**

No Change

4. A radar-identified aircraft and one not radar-identified that is in transit from oceanic airspace or non-radar offshore airspace into an area of known radar coverage where radar separation is applied as specified in Paragraph 8-5-5, Radar Identification Application, until the transiting aircraft is radar-identified or the controller establishes other approved separation in the event of a delay or inability to establish radar identification of the transiting aircraft.

REFERENCE–

FAA Order JO 7110.65, Para 2-2-6, IFR Flight Progress Data. FAA Order JO 7110.65, Para 5-1-1, Presentation and Equipment Performance.
FAA Order JO 7110.65, Para 5-3-1, Application.
FAA Order JO 7110.65, Para 8-1-8, Use of Control Estimates.
FAA Order JO 7110.65, Para 8-5-5, Radar Separation.

1. PARAGRAPH NUMBER AND TITLE: 5-5-13. GPA 102/103 CORRECTION FACTOR

2. BACKGROUND: According to subject matter experts within the Terminal Surveillance Group and En Route NAS Engineering, the need to continue publishing this GPA 102/103 modification procedure is not necessary. This modification was removed in the late 1970's and early 1980's when Long Range Radars were modified to provide digitized target reports.

3. CHANGE:**OLD****5-5-13. GPA 102/103 CORRECTION FACTOR**

When using a radar display whose primary radar video is processed by the GPA 102/103 modification to a joint-use radar system, apply the following correction factors to the applicable minima:

NEW**5-5-13. GPA 102/103 CORRECTION FACTOR**

Delete

a. If less than 40 miles from the antenna– add 1 mile.

Delete

b. If 40 miles or more but not over 200 miles from the antenna– add 3 miles.

Delete

1. PARAGRAPH NUMBER AND TITLE: 5-9-9. SIMULTANEOUS INDEPENDENT CLOSE PARALLEL APPROACHES - HIGH UPDATE RADAR NOT REQUIRED

2. BACKGROUND: Effective August 19, 2013, AFS report (DOT-FAA-AFS-450-69) limited closely spaced parallel approaches to those airports with runway centerlines separated by a minimum of 3,600', and field elevation less than 1,000' MSL. Following the implementation of this procedure, further fast-time simulation and analysis of the operation was conducted by AFS personnel to determine if the field elevation requirement could be amended and/or raised to allow this type of operation at more airports than originally specified.

3. CHANGE:

OLD

5-9-9. SIMULTANEOUS INDEPENDENT CLOSE PARALLEL APPROACHES - HIGH UPDATE RADAR NOT REQUIRED

Title through b1

2. Parallel runway centerlines are separated by a minimum of 3,600 feet or more, and the airport elevation is less than 1,02.00 feet MSL.

NEW

5-9-9. SIMULTANEOUS INDEPENDENT CLOSE PARALLEL APPROACHES - HIGH UPDATE RADAR NOT REQUIRED

No Change

2. Parallel runway centerlines are separated by a minimum of 3,600 feet or more, and the airport elevation is less than 2,000 feet MSL.

1. PARAGRAPH NUMBER AND TITLE: 7-5-3. SEPARATION

2. BACKGROUND: The separation standards for Special VFR (SVFR) aircraft is currently described in a NOTE in Paragraph 7-5-3. This NOTE makes no mention of the use of radar separation as it only refers to Chapter 6 (Non-Radar) and Paragraph 7-5-4. This omission has caused confusion among facilities throughout the NAS with regard to the use of radar separation during SVFR operations.

3. CHANGE:

OLD

7-5-3. SEPARATION

a. Apply approved separation between:

1. SVFR aircraft
2. SVFR aircraft and IFR aircraft

NOTE–

Approved separation between SVFR fixed-wing aircraft, and between SVFR fixed-wing aircraft and IFR fixed-wing aircraft, is prescribed in Chapter 6 and Chapter 7, para 7-5-4, Altitude Assignment. Radar vectors are authorized as prescribed in para 5-6-1, Application, subparagraph f.

NEW

7-5-3. SEPARATION

a. Apply non-radar, altitude, or visual separation between:

1. SVFR aircraft
2. SVFR and IFR aircraft

NOTE–

Due to the requirement for fixed-wing aircraft to maintain 1-mile flight visibility and all SVFR aircraft to remain clear of clouds, radar separation is not authorized during SVFR operations. Radar vectors are authorized, as prescribed in Paragraph 5-6-1, Application, subparagraph f, to expedite the entrance, exit, and transition of SVFR aircraft through the appropriate surface area.

Add

b. Alternate SVFR helicopter separation minima may be established when warranted by the volume and/or complexity of local helicopter operations. Alternate SVFR helicopter separation minima must be established with an LOA with the helicopter operator which must specify, as a minimum, that the SVFR helicopters are to maintain visual reference to the surface and adhere to the following aircraft separation minima:

b1 through b1(b)

2. 1 mile between SVFR helicopters. This separation may be reduced to 200 feet if:

(a) Both helicopters are departing simultaneously on courses that diverge by at least 30 degrees and:

(1) The tower can determine this separation by reference to surface markings; or

(2) One of the departing helicopters is instructed to remain at least 200 feet from the other.

Add

Add

REFERENCE –

FAAO JO 7110.65, Chapter 6, Non-Radar

FAAO JO 7110.65, 7-2-1, Visual Separation

FAAO JO 7110.65, 7-5-4, Altitude Assignment

b. Alternate SVFR helicopter separation minima may be established when warranted by the volume and/or complexity of local helicopter operations. Alternate SVFR helicopter separation minima must be **contained in** an LOA with the helicopter operator which must specify, as a minimum, that the SVFR helicopters are to maintain visual reference to the surface and adhere to the following aircraft separation minima:

No Change

2. 1 mile between SVFR helicopters. This separation may be reduced to 200 feet if **both helicopters are departing simultaneously on courses that diverge by at least 30 degrees and:**

Delete

(a) The tower can determine this separation by reference to surface markings; or

(b) One of the departing helicopters is instructed to remain at least 200 feet from the other.

3. When applying the provisions of Alternate SVFR helicopter separation minima, towers that are delegated separation responsibility in accordance with FAA Order JO 7210.3, Paragraph 10-5-3, Functional Use of Certified Tower Radar Displays, subparagraph b5, or delegated airspace in accordance with FAA Order JO 7210.3, Paragraph 10-5-3, Functional Use of Certified Tower Radar Displays, subparagraph d, may use CTRDs to ensure that the prescribed separation exists. Radar Vectors are authorized as prescribed in Paragraph 5-6-1, Application.

4. Towers that are not delegated airspace or separation responsibility must use CTRDs in accordance with Paragraph 3-1-9, Use of Tower Radar Displays, subparagraph b.

1. PARAGRAPH NUMBER AND TITLE: 8-5-5. RADAR IDENTIFICATION APPLICATION

2. BACKGROUND: Existing International Civil Aviation Organization (ICAO) guidance provides that air traffic services providers may authorize the application of radar separation between a radar-identified aircraft and another aircraft, not yet radar-identified, that will be transitioning from an area without radar coverage to an area within which radar coverage is adequate and radar services are provided.

3. CHANGE:

OLD**NEW**

Add

8-5-5, RADAR IDENTIFICATION APPLICATION

Add

Radar separation standards may be applied between radar identified aircraft and another aircraft not yet identified that is in transit from oceanic airspace or non-radar offshore airspace into an area of known radar coverage where radar separation is applied provided:

Add

a. Direct radio communications is maintained with one of the aircraft involved and there is an ability to communicate with the other;

Add

b. The transiting aircraft is RNAV equipped;

Add

c. The performance of the radar/system is adequate;

Add

**REFERENCE—
FAA Order JO 7110.65, Para 5-1-1, Presentation and Equipment Performance**

Add

d. Flight data on the aircraft that has not been radar identified indicate that it is equipped with a standard transponder and there is no known information that the transponder is not operating;

Add

e. Radar separation standards are maintained between the radar identified aircraft and any other observed targets until the transitioning aircraft is radar identified or non-radar separation is established;

Add

f. The facility has identified areas of known radar coverage, incorporated those areas into facility standard operating procedures (SOP), and provided training to the controllers.

Add

g. This procedure is also applicable to aircraft in transit from oceanic airspace into Guam Control Area (CTA), San Juan CTA and Honolulu CTA radar coverage areas.

Add

h. EXCEPTION: This procedure is not authorized if there is insufficient time for the controller to establish other approved separation in the event of a delay or inability to establish radar identification of the transiting aircraft taking into consideration factors such as aircraft performance characteristics, type, and speed; weather, traffic conditions; workload; frequency congestion; etc.

Add

**REFERENCE—
FAA Order JO 7110.65, Para 2-2-6, IFR Flight Progress Data, Subpara 2-2-6.b.
FAA Order JO 7110.65, Para 8-1-8, use of Control Estimates**

1. PARAGRAPH NUMBER AND TITLE: 10-5-1. NAVY FLEET SUPPORT MISSIONS

2. BACKGROUND: The U.S. Navy was queried as to the accuracy of Paragraph 10-5-1, Navy Fleet Support Missions. Upon review, the U.S. Navy determined that all paragraphs in ATO Orders referencing Navy Fleet Support Missions are outdated and obsolete. Therefore, Paragraph 10-5-1 is being deleted.

3. CHANGE:

<u>OLD</u>	<u>NEW</u>
<u>10-5-1. NAVY FLEET SUPPORT MISSIONS</u>	Delete
<u>When you receive information concerning an emergency to a U.S. Navy “Special Flight Number” aircraft, do the following:</u>	Delete
<u>a. Handle Navy Fleet Support Mission aircraft as follows:</u>	Delete
<u>1. EN ROUTE. Relay immediately, via collect telephone call, all pertinent information to Fleet Operations Control at Norfolk, Virginia, telephone 804-444-6602.</u>	Delete
<u>2. TERMINAL. Inform the nearest center of all the pertinent information.</u>	Delete
<u>b. Relay the words “Special Flight Number” followed by the number given as part of the routine IFR flight information.</u>	Delete
<u>c. Honor pilot requests for changes to route, altitude, and destination, whenever possible.</u>	Delete
<u>10-6-1. Oceanic Emergency Procedures</u>	<u>10-5-1. Oceanic Emergency Procedures</u>
<u>10-7-1. Ground Missile Emergencies</u>	<u>10-6-1. Ground Missile Emergencies</u>

1. PARAGRAPH NUMBER AND TITLE: 13-2-2. CONFLICT DETECTION AND RESOLUTION

2. BACKGROUND: Chapter 13, Section 2, of the 7110.65 contains a list of Conflict Probe limitations pertaining to the Ocean21 operating system including “Paragraph 8-6-3 - Temporary Moving Airspace Reservations.” Ocean21 functionality supports the application of lateral, longitudinal, and vertical separation to temporary moving airspace reservations.

3. CHANGE:

<u>OLD</u>	<u>NEW</u>
<u>13-2-2. CONFLICT DETECTION AND RESOLUTION</u>	<u>13-2-2. CONFLICT DETECTION AND RESOLUTION</u>
<u>Title through a8(a)(8)</u>	No Change
<u>(9) Para 8-6-3-Temporary Moving Airspace Reservations</u>	Delete
<u>(10) Para 8-8-5-VFR Climb and Descent</u>	<u>(9) Para 8-8-5 VFR Climb and Descent</u>

1. PARAGRAPH NUMBER AND TITLE: 13-2-4. CONTROLLER PILOT DATA LINK COMMUNICATIONS (CPDLC)

2. BACKGROUND: Guidance concerning unanswered CPDLC messages in FAA Order 7110.65 Paragraph 13-2-4 advises controllers to assume all unanswered CPDLC messages have not been delivered. This guidance is not in compliance with guidance prescribed in the ICAO Global Operational Data Link Document (GOLD).

3. CHANGE:

OLD

13-2-4. CONTROLLER PILOT DATA LINK COMMUNICATIONS (CPDLC)

Title through b4

5. Assume that all unanswered CPDLC messages have not been delivered. On initial voice contact with aircraft preface the message with the following:

PHRASEOLOGY–

(Call Sign) CPDLC Failure, (message).

NEW

13-2-4. CONTROLLER PILOT DATA LINK COMMUNICATIONS (CPDLC)

No Change

5. **When there is uncertainty that a clearance was delivered to an aircraft via CPDLC, the controller must continue to protect the airspace associated with the clearance until an appropriate operational response is received from the flight crew. If an expected operational response to a clearance is not received, the controller will initiate appropriate action to ensure that the clearance was received by the flight crew.** On initial voice contact with aircraft preface the message with the following:

No Change