

**CHANGE**

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

**JO 7110.65T  
CHG 2**

Air Traffic Organization Policy

**Effective Date:**  
March 10, 2011

**SUBJ:** Air Traffic Control

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- 1. Purpose of This Change.** This change transmits revised pages to Federal Aviation Administration Order JO 7110.65T, 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](http://faa.gov/air_traffic/publications) and [https://employees.faa.gov/tools\\_resources/orders\\_notices/](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 Disposition of Transmittal.** Retain this transmittal until superseded by a new basic order.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  
Air Traffic Organization

Date: January 6, 2011



## Explanation of Changes Change 2

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

#### **a. 1-1-10. CONSTRAINTS GOVERNING SUPPLEMENTS AND PROCEDURAL DEVIATIONS**

An editorial change was made to the Air Force contact in Table 1-1-3, Military Operations Interface Offices.

#### **b. 1-2-1. WORD MEANINGS**

The change clarifies that unless specifically identified, use of the term “runway” does not include helipads.

#### **c. 2-1-4. OPERATIONAL PRIORITY**

This editorial change removes an obsolete reference.

#### **d. 2-1-17. RADIO COMMUNICATIONS TRANSFER**

The change adds the requirement for controllers to take appropriate action to establish communications with aircraft within a reasonable amount of time. This change cancels and incorporates N JO 7110.535, Aircraft Communication Status, effective October 1, 2010.

#### **e. 2-1-25. SUPERVISORY NOTIFICATION; and 2-4-3. PILOT ACKNOWLEDGEMENT/READ BACK**

The change adds the requirement to report suspicious aircraft/pilot activity to the FLM/CIC. This change cancels and incorporates N JO 7110.535, Aircraft Communication Status, effective October 1, 2010.

#### **f. 2-6-4. WEATHER AND CHAFF SERVICES**

This editorial change enhances Example and Phraseology for consistency.

#### **g. 3-1-5. VEHICLES/EQUIPMENT/ PERSONNEL ON RUNWAYS**

This editorial change clarifies phraseology.

#### **h. 3-1-15. GROUND OPERATIONS RELATED TO THREE-HOUR TARMAC RULE**

This new paragraph helps facilitate the successful management of the requirements contained in the “Enhancing Airline Passenger Protections” rule through the addition of the Three-hour Tarmac Rule procedures and phraseology to FAA Order JO 7110.65. This change cancels and incorporates N JO 7110.524, Enhancing Airline Passenger Protections (Three-hour Tarmac Rule), effective April 29, 2010.

#### **i. 3-3-7. FAR FIELD MONITOR (FFM) REMOTE SENSING STATUS UNIT**

This removes the subparagraph referring to the setting of the GRN-27 FFM remote status sensing unit.

#### **j. 3-7-1. GROUND TRAFFIC MOVEMENT**

In accordance with the Runway Safety Call-to-Action Committee Recommendations and the SRM Document, dated May 19, 2009, this change replaces all references of “Taxi Into Position and Hold (TIPH)” with “Line Up and Wait (LUAW).” This change adds the provision of LOA usage to movement area operations. All guidance relating to take off clearances and LUAW has been removed and added to Paragraph 3-9-4, Line Up and Wait, and Paragraph 3-9-9, Takeoff Clearance respectively. Lastly, reference to the Jetstar has been changed to a Citation. This change cancels and incorporates N JO 7110.547, Line Up and Wait, effective January 10, 2010.

#### **k. 3-7-2. TAXI AND GROUND MOVEMENT OPERATIONS**

This change removes the procedure “Taxi To” when authorizing an aircraft to taxi to an assigned takeoff runway, thus allowing an aircraft to cross all runways/taxiways which the taxi route intersects except the assigned runway. Changes will be made to the AIM and AIP removing “Taxi To.” The 14 CFR 91.129(i) will be changed after the completion of the rulemaking period. This change also establishes the requirement that an explicit runway crossing clearance be issued for each runway (active/inactive or closed) crossing and requires an aircraft/vehicle to have crossed the previous runway before another runway crossing clearance may be issued. At airports where the taxi route between runway centerlines is less than 1,000 feet, multiple runway crossings may be issued after receiving approval from the Terminal Services Director of Operations. This change cancels and incorporates N JO 7110.532, Taxi and Ground Movement Operations, effective June 30, 2010.

#### **l. 3-9-4. TAXI INTO POSITION AND HOLD (TIPH)**

In accordance with the Runway Safety Call-to-Action Committee Recommendations and the SRM Document dated May 19, 2009, this change replaces all references of “taxi into position and hold (TIPH)” with “Line Up and Wait (LUAW).” This change adds the requirement to

include the departure runway in all LUAW clearances. LUAW procedures concerning ASDE are placed in a separate paragraph. Intersection departure guidance from para 3-7-1 has been removed from Section 7 and included as it pertains to LUAW in paragraph 3-9-4. This change cancels and incorporates N JO 7110.547, Line Up and Wait, effective January 10, 2010.

**m. 3-9-6. SAME RUNWAY SEPARATION**

In accordance with the Runway Safety Call-to-Action Committee Recommendations and the SRM Document, dated May 19, 2009, this change replaces all references of “Taxi Into Position and Hold (TIPH)” with “Line Up and Wait (LUAW).” In addition to the LUAW changes, changes to the 3-minute “Hold for Wake Turbulence” criteria have been clarified to restrict ATC from soliciting/initiating a waiver to this requirement. Lastly, a grammatical change (subject/verb agreement) was required to more accurately specify the type of operation conducted by the heavy jet/B757 during opposite direction operations. This change cancels and incorporates N JO 7110.547, Line Up and Wait, effective January 10, 2010.

**n. 3-9-9. TAKEOFF CLEARANCE**

All guidance regarding intersection departure clearances has been removed from Paragraph 3-7-1, Ground Traffic Movement, and inserted into Paragraph 3-9-9, Takeoff Clearance. This change cancels and incorporates N JO 7110.547, Line Up and Wait, effective January 10, 2010.

**o. 3-10-5. LANDING CLEARANCE; and 3-12-2. DEPARTURE SEPARATION**

In accordance with the Runway Safety Call-to-Action Committee Recommendations and the SRM Document, dated May 19, 2009, this change replaces all references of “Taxi Into Position and Hold (TIPH)” with “Line Up and Wait (LUAW).” This change cancels and incorporates N JO 7110.547, Line Up and Wait, effective January 10, 2010.

**p. 3-10-6. ANTICIPATING SEPARATION**

In accordance with the Runway Safety Call-to-Action Committee Recommendations and the SRM Document, dated May 19, 2009, this change replaces all references of “Taxi Into Position and Hold (TIPH)” with “Line Up and Wait (LUAW).” Additionally, since all landing clearances must now include the runway number, phraseology examples were updated to reflect this requirement. Proper application of the use of anticipated separation for landing clearances during LUAW operations has been further delineated to harmonize with Paragraph 3-10-5, Landing Clearance, as well as to clear up previous ambiguities associated with these paragraphs. This change cancels and incorporates N JO 7110.547, Line Up and Wait, effective January 10, 2010.

**q. 3-11-2. HELICOPTER TAKEOFF CLEARANCE**

Remove the term “proceed as requested, use caution” and specify the use of “departure from...at your own risk” phraseology for all applicable helicopter departures from other than active runways.

**r. 3-11-6. HELICOPTER LANDING CLEARANCE**

Remove the term “proceed as requested, use caution” and specify the use of “landing at your own risk” phraseology for all applicable helicopter landings to other than active runways.

**s. 4-2-5. ROUTE OR ALTITUDE AMENDMENTS**

This editorial change restores a note that was removed in Change 1.

**t. 5-5-4. MINIMA**

This change removes use of the term broadband and replaces it with single sensor ASR.

**u. 5-5-7. PASSING OR DIVERGING**

This change revises paragraph 5-5-7a(1) by adding assigned radar vectors, and including the assignment of 15 degrees divergent radar vectors between aircraft on passing or diverging courses in the form of a note, as a correct application of this paragraph when the resultant paths measure something less due to unknown or uncontrollable weather or equipment perturbations.

**v. 5-6-1. APPLICATION**

This change adds “Confidence Maneuver” as a reason for issuing a vector. This change cancels and incorporates N JO 7110.534, Confidence Maneuver and No Radio (NORDO), effective October 1, 2010.

**w. 5-6-3. VECTORS BELOW MINIMUM ALTITUDE**

This change replaces “obstruction” with “obstacle” throughout the paragraph.

**x. 7-4-3. CLEARANCE FOR VISUAL APPROACH**

This change controller phraseology to describe the aircraft identification as “call sign” and elaborates on the term “instructions” to match those used elsewhere in the order. It also changes the requirement to allow use of an aircraft manufacturer and/or aircraft model and includes associated phraseology examples.

**y. 7-4-4. APPROACHES TO MULTIPLE RUNWAYS**

This change replaces the word “merge” from paragraph 7-4-4b(1) and replaces it with “touch” thereby providing consistency throughout this directive.

**z. 7-7-3. SEPARATION; and  
7-8-3. SEPARATION**

This change removes the condition requiring a broadband radar system or the requirement to obtain approval from the Director of Terminal Safety and Operations Support.

**aa. 9-2-22. OPEN SKIES TREATY AIRCRAFT**

This editorial change clarifies that the flight number is to be used as part of aircraft identification.

**ab. 10-4-4. COMMUNICATIONS FAILURE**

The change adds the requirement to notify the FLM/CIC of suspicious aircraft activity and references a new paragraph that requires the change. This change cancels and

incorporates N JO 7110.535, Aircraft Communication Status, effective October 1, 2010.

**ac. Appendix D. Standard Operating Practice (SOP) for the Transfer of Position Responsibility**

The change adds the requirement to brief on communication status. This change cancels and incorporates N JO 7110.535, Aircraft Communication Status, effective October 1, 2010.

**ad.** Additional editorial/format changes were made where necessary, to include recent organization name changes. Revision bars were not used because of the insignificant nature of these changes.



**PAGE CONTROL CHART**

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# Chapter 1. General

## Section 1. Introduction

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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](http://faa.gov/air_traffic/publications) and [http://employees.faa.gov/tools\\_resources/orders\\_notices/](http://employees.faa.gov/tools_resources/orders_notices/).

### 1-1-4. WHAT THIS ORDER CANCELS

FAA Order JO 7110.65S, Air Traffic Control, dated February 14, 2008, 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 7110.65T	8/27/09	2/11/10
Change 1	2/11/10	8/26/10
Change 2	7/29/10	3/10/11
Change 3	3/10/11	8/25/11
JO 7110.65U	8/25/11	2/9/12

### 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 shall 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 shall 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 *NIMA Customer Account Representative
U.S. Navy CNO (N885F)	664-7727	(703) 604-7727
*NIMA-National Imagery and Mapping Agency		

### 1-1-8. RECOMMENDATIONS FOR PROCEDURAL CHANGES

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 to Headquarters, FAA, Vice President, Mission Support Services, attention: Airspace Services.

**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.

## Section 2. Terms of Reference

### 1-2-1. WORD MEANINGS

As used in this order:

**a.** “Shall” or “must” means a procedure is mandatory.

**b.** “Shall not” or “must not” means a procedure is prohibited.

**c.** “Should” means a procedure is recommended.

**d.** “May” or “need not” means a procedure is optional.

**e.** “Will” means futurity, not a requirement for the application of a procedure.

**f.** Singular words include the plural.

**g.** Plural words include the singular.

**h.** “Aircraft” means the airframe, crew members, or both.

**i.** “Approved separation” means separation in accordance with the applicable minima in this order.

**j.** “Altitude” means indicated altitude mean sea level (MSL), flight level (FL), or both.

**k.** “Miles” means nautical miles unless otherwise specified, and means statute miles in conjunction with visibility.

**l.** “Course,” “bearing,” “azimuth,” “heading,” and “wind direction” information shall always be magnetic unless specifically stated otherwise.

**m.** “Time” when used for ATC operational activities, is the hour and the minute in Coordinated Universal Time (UTC). Change to the next minute is made at the minute plus 30 seconds, except time checks are given to the nearest quarter minute.

**n.** “Runway” means the runway used by aircraft and, unless otherwise specified, does not include helipads and/or their accompanying takeoff/landing courses. (See Pilot/Controller Glossary terms – Runway and Helipad.)

**o.** Flight operations in accordance with the options of “due regard” or “operational” obligates the authorized state aircraft commander to:

**1.** Separate his/her aircraft from all other air traffic; and

**2.** Assure that an appropriate monitoring agency assumes responsibility for search and rescue actions; and

**3.** Operate under at least one of the following conditions:

**(a)** In visual meteorological conditions (VMC); or

**(b)** Within radar surveillance and radio communications of a surface radar facility; or

**(c)** Be equipped with airborne radar that is sufficient to provide separation between his/her aircraft and any other aircraft he/she may be controlling and other aircraft; or

**(d)** Operate within Class G airspace.

**(e)** An understanding between the pilot and controller regarding the intent of the pilot and the status of the flight should be arrived at before the aircraft leaves ATC frequency.

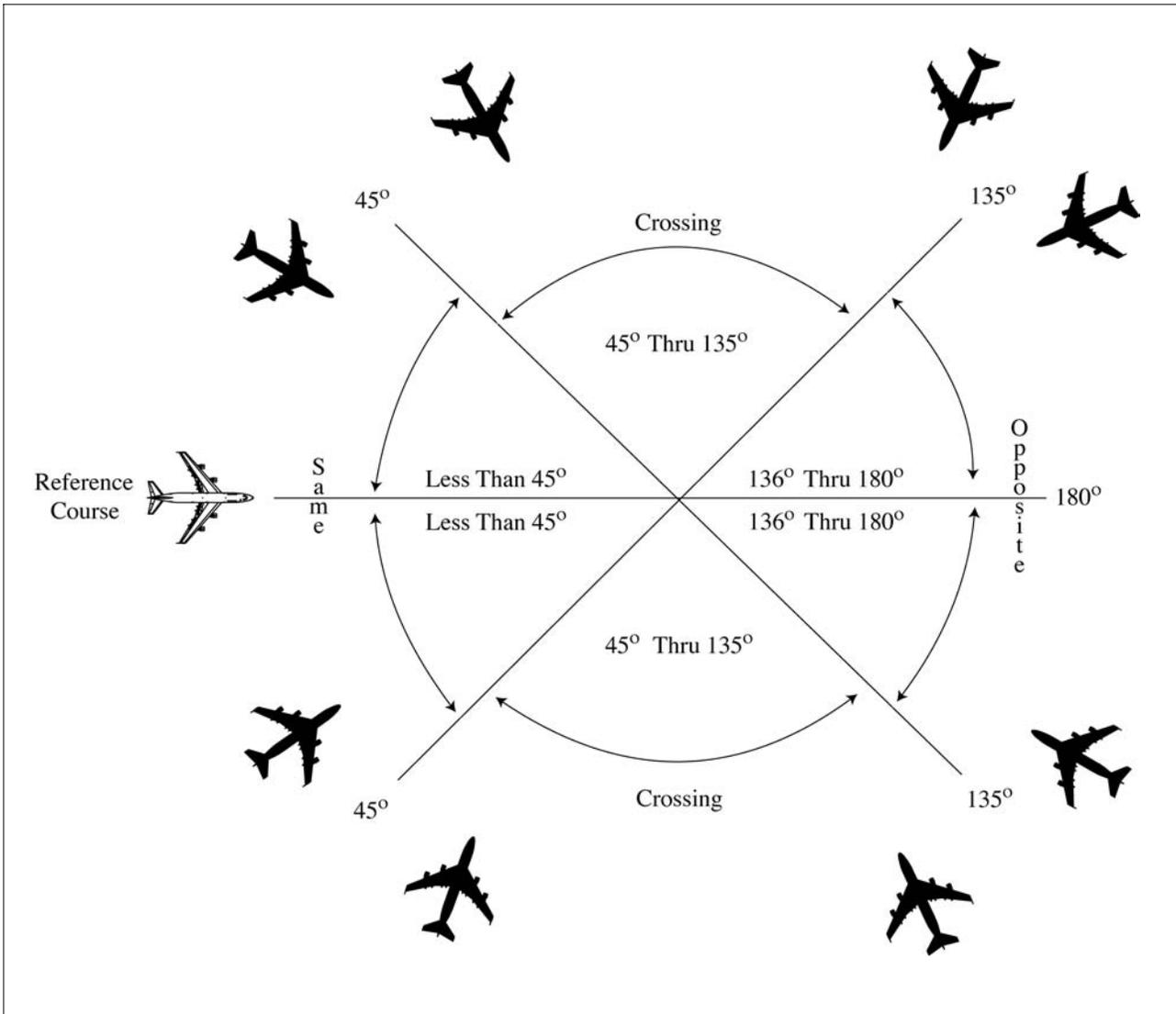
#### **NOTE-**

**1.** A pilot’s use of the phrase “Going Tactical” does not indicate “Due Regard.” An understanding between the pilot and controller regarding the intent of the pilot and the status of the flight should be arrived at before the aircraft leaves air traffic control (ATC) frequency.

**2.** The above conditions provide for a level of safety equivalent to that normally given by International Civil Aviation Organization (ICAO) ATC agencies and fulfills U.S. Government obligations under Article 3 of the Chicago Convention of 1944 (Reference (d)), which stipulates there must be “due regard for the safety of navigation of civil aircraft” when flight is not being conducted under ICAO flight procedures.

**p.** “CFR” means Code of Federal Regulations.

FIG 1-2-1  
Divergence



**1-2-2. COURSE DEFINITIONS**

The following definitions shall be used in the application of the separation criteria in this order.

**NOTE-**

The term “protected airspace,” as used in this paragraph, is the airspace equal to one half the required applicable lateral separation on either side of an aircraft along its projected flight path. If the protected airspace of two aircraft does not overlap, applicable lateral separation is ensured.

a. **SAME COURSES** are courses whose protected airspaces are coincident, overlap, or intersect and whose angular difference is less than 45 degrees. (See FIG 1-2-1.)

b. **CROSSING COURSES** are intersecting courses whose angular difference is 45 through 135 degrees inclusive. (See FIG 1-2-1.)

c. **OPPOSITE/RECIPROCAL COURSES** are courses whose protected airspaces are coincident, overlap, or intersect and whose angular difference is greater than 135 degrees through 180 degrees inclusive. (See FIG 1-2-1.)

**1-2-3. NOTES**

Statements of fact, or of a prefatory or explanatory nature relating to directive material, are set forth as notes.

**j.** Provide maximum assistance to expedite the movement of interceptor aircraft on active air defense missions until the unknown aircraft is identified.

**k.** Expedite movement of Special Air Mission aircraft when SCOOT is indicated in the remarks section of the flight plan or in air/ground communications.

**NOTE-**

The term “SCOOT” will not be part of the call sign but may be used when the aircraft is airborne to indicate a request for special handling.

**REFERENCE-**

FAAO JO 7610.4, Para 12-7-1, Applications.

**l.** When requested, provide priority handling to TEAL and NOAA mission aircraft.

**NOTE-**

Priority handling may be requested by the pilot, or via telephone from CARCAH or the 53rd Weather Reconnaissance Squadron (53WRS) operations center personnel, or in the remarks section of the flight plan.

**REFERENCE-**

FAAO JO 7110.65, Para 9-2-19, Weather Reconnaissance Flights.

**m.** IFR aircraft shall have priority over SVFR aircraft.

**REFERENCE-**

FAAO JO 7110.65, Chapter 7, Section 5, Special VFR (SVFR).

**n.** Providing priority and special handling to expedite the movement of OPEN SKIES observation and demonstration flights.

**NOTE-**

An OPEN SKIES aircraft has priority over all “regular” air traffic. “Regular” is defined as all aircraft traffic other than:

1. Emergencies.
2. Aircraft directly involved in presidential movement.
3. Forces or activities in actual combat.
4. Lifeguard, MED EVAC, AIR EVAC and active SAR missions.

**REFERENCE-**

FAAO JO 7110.65, Para 9-2-22, OPEN SKIES Treaty Aircraft.

FAAO JO 7210.3, Para 5-3-7, OPEN SKIES Treaty Aircraft.

Treaty on OPEN SKIES, Treaty Document, 102-37.

**o.** Aircraft operating under the North American Route Program (NRP) and in airspace identified in the High Altitude Redesign (HAR) program, are not subject to route limiting restrictions (e.g., published preferred IFR routes, letter of agreement requirements, standard operating procedures).

**REFERENCE-**

FAAO JO 7110.65, Para 2-3-2, En Route Data Entries.

FAAO JO 7110.65, Para 2-2-15, North American Route Program

(NRP) Information.

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

FAAO JO 7210.3, Chapter 17, Section 16, North American Route Program.

**p.** If able, provide priority handling to diverted flights. Priority handling may be requested via use of “DVRSN” in the remarks section of the flight plan or by the flight being placed on the Diversion Recovery Tool (DRT).

**REFERENCE-**

FAAO JO 7210.3, Para 17-4-5, Diversion Recovery.

## 2-1-5. EXPEDITIOUS COMPLIANCE

**a.** Use the word “immediately” only when expeditious compliance is required to avoid an imminent situation.

**b.** Use the word “expedite” only when prompt compliance is required to avoid the development of an imminent situation. If an “expedite” climb or descent clearance is issued by ATC, and subsequently the altitude to maintain is changed or restated without an expedite instruction, the expedite instruction is canceled.

**c.** In either case, if time permits, include the reason for this action.

## 2-1-6. SAFETY ALERT

Issue a safety alert to an aircraft if you are aware the aircraft is in a position/altitude which, in your judgment, places it in unsafe proximity to terrain, obstructions, or other aircraft. Once the pilot informs you action is being taken to resolve the situation, you may discontinue the issuance of further alerts. Do not assume that because someone else has responsibility for the aircraft that the unsafe situation has been observed and the safety alert issued; inform the appropriate controller.

**NOTE-**

**1.** The issuance of a safety alert is a first priority (see para 2-1-2, Duty Priority) once the controller observes and recognizes a situation of unsafe aircraft proximity to terrain, obstacles, or other aircraft. Conditions, such as workload, traffic volume, the quality/limitations of the radar system, and the available lead time to react are factors in determining whether it is reasonable for the controller to observe and recognize such situations. While a controller cannot see immediately the development of every situation where a safety alert must be issued, the controller must remain vigilant for such situations and issue a safety alert when the situation is recognized.

**2.** Recognition of situations of unsafe proximity may result from MSAW/E-MSAW/LAAS, automatic altitude readouts,

*Conflict/Mode C Intruder Alert, observations on a PAR scope, or pilot reports.*

**3.** *Once the alert is issued, it is solely the pilot's prerogative to determine what course of action, if any, will be taken.*

**a.** **Terrain/Obstruction Alert.** Immediately issue/initiate an alert to an aircraft if you are aware the aircraft is at an altitude which, in your judgment, places it in unsafe proximity to terrain/obstructions. Issue the alert as follows:

**PHRASEOLOGY-**

*LOW ALTITUDE ALERT (call sign),*

*CHECK YOUR ALTITUDE IMMEDIATELY.*

*THE (as appropriate) MEA/MVA/MOCA/MIA IN YOUR AREA IS (altitude),*

*or if an aircraft is past the final approach fix (nonprecision approach),*

*or the outer marker,*

*or the fix used in lieu of the outer marker (precision approach),*

*and, if known, issue*

*THE (as appropriate) MDA/DH IS (altitude).*

**b.** **Aircraft Conflict/Mode C Intruder Alert.** Immediately issue/initiate an alert to an aircraft if you are aware of another aircraft at an altitude which you believe places them in unsafe proximity. If feasible, offer the pilot an alternate course of action.

**c.** When an alternate course of action is given, end the transmission with the word "immediately."

**PHRASEOLOGY-**

*TRAFFIC ALERT (call sign) (position of aircraft) ADVISE YOU TURN LEFT/RIGHT (heading),*

*and/or*

*CLIMB/DESCEND (specific altitude if appropriate) IMMEDIATELY.*

**REFERENCE-**

*FAAO JO 7110.65, Para 5-14-1, Conflict Alert (CA) and Mode C Intruder (MCI) Alert.*

*FAAO JO 7110.65, Para 5-14-2, En Route Minimum Safe Altitude Warning (E-MSAW).*

*FAAO JO 7110.65, Para 5-15-6, CA/MCI.*

*FAAO JO 7110.65, Para 5-2-23, Altitude Filters.*

## **2-1-7. INFLIGHT EQUIPMENT MALFUNCTIONS**

**a.** When a pilot reports an inflight equipment malfunction, determine the nature and extent of any special handling desired.

**NOTE-**

*Inflight equipment malfunctions include partial or complete failure of equipment, which may affect either safety, separation standards, and/or the ability of the flight to proceed under IFR, or in Reduced Vertical Separation Minimum (RVSM) airspace, in the ATC system. Controllers may expect reports from pilots regarding VOR, TACAN, ADF, GPS, RVSM capability, or low frequency navigation receivers, impairment of air-ground communications capability, or other equipment deemed appropriate by the pilot (e.g., airborne weather radar). Pilots should communicate the nature and extent of any assistance desired from ATC.*

**b.** Provide the maximum assistance possible consistent with equipment, workload, and any special handling requested.

**c.** Relay to other controllers or facilities who will subsequently handle the aircraft, all pertinent details concerning the aircraft and any special handling required or being provided.

## **2-1-8. MINIMUM FUEL**

If an aircraft declares a state of "minimum fuel," inform any facility to whom control jurisdiction is transferred of the minimum fuel problem and be alert for any occurrence which might delay the aircraft en route.

**NOTE-**

*Use of the term "minimum fuel" indicates recognition by a pilot that his/her fuel supply has reached a state where, upon reaching destination, he/she cannot accept any undue delay. This is not an emergency situation but merely an advisory that indicates an emergency situation is possible should any undue delay occur. A minimum fuel advisory does not imply a need for traffic priority. Common sense and good judgment will determine the extent of assistance to be given in minimum fuel situations. If, at any time, the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, the pilot should declare an emergency and report fuel remaining in minutes.*

## **2-1-9. REPORTING ESSENTIAL FLIGHT INFORMATION**

Report as soon as possible to the appropriate AFSS/FSS, airport manager's office, ARTCC,

approach control facility, operations office, or military operations office any information concerning components of the NAS or any flight conditions which may have an adverse effect on air safety.

**NOTE-**

*AFSSs/FSSs are responsible for classifying and disseminating Notices to Airmen.*

**REFERENCE-**

*FAAO JO 7110.65, Para 3-3-3, Timely Information.*

*FAAO JO 7110.65, Para 5-1-6, Service Limitations.*

*FAAO JO 7210.3, Para 3-1-2, Periodic Maintenance.*

*USN, See OPNAVINST 3721.30.*

## 2-1-10. NAVAID MALFUNCTIONS

a. When an aircraft reports a ground-based NAVAID malfunction, take the following actions:

1. Request a report from a second aircraft.

2. If the second aircraft reports normal operations, continue use and inform the first aircraft. Record the incident on FAA Form 7230-4 or appropriate military form.

3. If the second aircraft confirms the malfunction or in the absence of a second aircraft report, activate the standby equipment or request the monitor facility to activate.

4. If normal operation is reported after the standby equipment is activated, continue use, record the incident on FAA Form 7230-4 or appropriate military form, and notify technical operations personnel (the Systems Engineer of the ARTCC when an en route aid is involved).

5. If continued malfunction is reported after the standby equipment is activated or the standby equipment cannot be activated, inform technical operations personnel and request advice on whether or not the aid should be shut down. In the absence of a second aircraft report, advise the technical operations personnel of the time of the initial aircraft report and the estimated time a second aircraft report could be obtained.

b. When an aircraft reports a GPS anomaly, request the following information and/or take the following actions:

1. Record the following minimum information:

(a) Aircraft call sign and type.

(b) Location.

(c) Altitude.

(d) Date/time of occurrence.

2. Record the incident on FAA Form 7230-4 or appropriate military form.

3. Broadcast the anomaly report to other aircraft as necessary.

**PHRASEOLOGY-**

**ATTENTION ALL AIRCRAFT, GPS REPORTED UNRELIABLE IN VICINITY/AREA (position).**

**EXAMPLE-**

*“Attention all aircraft, GPS reported unreliable in the area 30 miles south of Waco VOR.”*

c. When an aircraft reports a Wide Area Augmentation System (WAAS) anomaly, request the following information and/or take the following actions:

1. Determine if the pilot has lost all WAAS service.

**PHRASEOLOGY-**

**ARE YOU RECEIVING ANY WAAS SERVICE?**

2. If the pilot reports receipt of any WAAS service, acknowledge the report and continue normal operations.

3. If the pilot reports loss of all WAAS service, report as a GPS anomaly using procedures in subpara 2-1-10b.

## 2-1-11. USE OF MARSА

a. MARSА may only be applied to military operations specified in a letter of agreement or other appropriate FAA or military document.

**NOTE-**

*Application of MARSА is a military command prerogative. It will not be invoked indiscriminately by individual units or pilots. It will be used only for IFR operations requiring its use. Commands authorizing MARSА will ensure that its implementation and terms of use are documented and coordinated with the control agency having jurisdiction over the area in which the operations are conducted. Terms of use will assign responsibility and provide for separation among participating aircraft.*

b. ATC facilities do not invoke or deny MARSА. Their sole responsibility concerning the use of MARSА is to provide separation between military aircraft engaged in MARSА operations and other nonparticipating IFR aircraft.

c. DOD shall ensure that military pilots requesting special-use airspace/ATCAAs have coordinated with

the scheduling agency, have obtained approval for entry, and are familiar with the appropriate MARSAs procedures. ATC is not responsible for determining which military aircraft are authorized to enter special-use airspace/ATCAAs.

**REFERENCE-**

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

## 2-1-12. MILITARY PROCEDURES

Military procedures in the form of additions, modifications, and exceptions to the basic FAA procedure are prescribed herein when a common procedure has not been attained or to fulfill a specific requirement. They shall be applied by:

- a. ATC facilities operated by that military service.

**EXAMPLE-**

1. An Air Force facility providing service for an Air Force base would apply USAF procedures to all traffic regardless of class.

2. A Navy facility providing service for a Naval Air Station would apply USN procedures to all traffic regardless of class.

- b. ATC facilities, regardless of their parent organization (FAA, USAF, USN, USA), supporting a designated military airport exclusively. This designation determines which military procedures are to be applied.

**EXAMPLE-**

1. An FAA facility supports a USAF base exclusively; USAF procedures are applied to all traffic at that base.

2. An FAA facility provides approach control service for a Naval Air Station as well as supporting a civil airport; basic FAA procedures are applied at both locations by the FAA facility.

3. A USAF facility supports a USAF base and provides approach control service to a satellite civilian airport; USAF procedures are applied at both locations by the USAF facility.

**REFERENCE-**

FAAO JO 7110.65, Para 1-2-5, Annotations.

- c. Other ATC facilities when specified in a letter of agreement.

**EXAMPLE-**

A USAF unit is using a civil airport supported by an FAA facility- USAF procedures will be applied as specified in a letter of agreement between the unit and the FAA facility

to the aircraft of the USAF unit. Basic FAA procedures will be applied to all other aircraft.

## 2-1-13. FORMATION FLIGHTS

- a. Control formation flights as a single aircraft. When individual control is requested, issue advisory information which will assist the pilots in attaining separation. When pilot reports indicate separation has been established, issue control instructions as required.

**NOTE-**

1. Separation responsibility between aircraft within the formation during transition to individual control rests with the pilots concerned until standard separation has been attained.

2. Formation join-up and breakaway will be conducted in VFR weather conditions unless prior authorization has been obtained from ATC or individual control has been approved.

**REFERENCE-**

FAAO JO 7110.65, Para 5-5-8, Additional Separation for Formation Flights.

P/CG Term- Formation Flight.

- b. Military and civil formation flights in RVSM airspace.

- 1. Utilize RVSM separation standards for a formation flight, which consists of all RVSM approved aircraft.

- 2. Utilize non-RVSM separation standards for a formation flight above FL 290, which does not consist of all RVSM approved aircraft.

- 3. If aircraft are requesting to form a formation flight to FL 290 or above, the controller who issues the clearance creating the formation flight is responsible for ensuring that the proper equipment suffix is entered for the lead aircraft.

- 4. If the flight departs as a formation, and is requesting FL 290 or above, the first center sector shall ensure that the proper equipment suffix is entered.

- 5. If the formation flight is below FL 290 and later requests FL 290 or above, the controller receiving the RVSM altitude request shall ensure the proper equipment suffix is entered.

- 6. Upon break-up of the formation flight, the controller initiating the break-up shall 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, AFSS/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 3-1-11, 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; except when instructing the aircraft to change frequency for final approach guidance include the name of the facility.

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 shall 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 and the position, altitude if known, and direction of flight of the heavy jet or B757 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 shall 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.

**PHRASEOLOGY-**

TRAFFIC, (number) MILES/MINUTES (direction) OF (airport or fix), (direction)-BOUND,

*and if known,*

*(type of aircraft and altitude),*

ESTIMATED (fix) (time),

or

*TRAFFIC, NUMEROUS AIRCRAFT VICINITY (location).*

*If altitude is unknown,*

*ALTITUDE UNKNOWN.*

**EXAMPLE-**

*“Traffic, one zero miles east of Forsythe V-O-R, Southbound, M-D Eighty, descending to one six thousand.”*

*“Traffic, reported one zero miles west of Downey V-O-R, northbound, Apache, altitude unknown, estimated Joliet V-O-R one three one five.”*

*“Traffic, eight minutes west of Chicago Heights V-O-R, westbound, Mooney, eight thousand, estimated Joliet V-O-R two zero three five.”*

*“Traffic, numerous aircraft, vicinity of Delia airport.”*

c. For aircraft displaying Mode C, not radar identified, issue indicated altitude.

**EXAMPLE-**

*“Traffic, one o’clock, six miles, eastbound, altitude indicates six thousand five hundred.”*

**REFERENCE-**

*FAAO JO 7110.65, Para 3-1-6, Traffic Information.*

*FAAO JO 7110.65, Para 7-2-1, Visual Separation.*

*FAAO JO 7110.65, Para 7-6-10, VFR Departure Information.*

## 2-1-22. BIRD ACTIVITY INFORMATION

a. Issue advisory information on pilot-reported, tower-observed, or radar-observed and pilot-verified bird activity. Include position, species or size of birds, if known, course of flight, and altitude. Do this for at least 15 minutes after receipt of such information from pilots or from adjacent facilities unless visual observation or subsequent reports reveal the activity is no longer a factor.

**EXAMPLE-**

*“Flock of geese, one o’clock, seven miles, northbound, last reported at four thousand.”*

*“Flock of small birds, southbound along Mohawk River, last reported at three thousand.”*

*“Numerous flocks of ducks, vicinity Lake Winnebago, altitude unknown.”*

b. Relay bird activity information to adjacent facilities and to AFSSs/FSSs whenever it appears it will become a factor in their areas.

## 2-1-23. TRANSFER OF POSITION RESPONSIBILITY

The transfer of position responsibility shall be accomplished in accordance with the “Standard Operating Practice (SOP) for the Transfer of Position Responsibility,” and appropriate facility directives each time operational responsibility for a position is transferred from one specialist to another.

## 2-1-24. WHEELS DOWN CHECK

*USA/USAF/USN*

Remind aircraft to check wheels down on each approach unless the pilot has previously reported wheels down for that approach.

**NOTE-**

*The intent is solely to remind the pilot to lower the wheels, not to place responsibility on the controller.*

a. Tower shall issue the wheels down check at an appropriate place in the pattern.

**PHRASEOLOGY-**

*CHECK WHEELS DOWN.*

b. Approach/arrival control, GCA shall issue the wheels down check as follows:

1. To aircraft conducting ASR, PAR, or radar monitored approaches, before the aircraft starts descent on final approach.

2. To aircraft conducting instrument approaches and remaining on the radar facility’s frequency, before the aircraft passes the outer marker/final approach fix.

**PHRASEOLOGY-**

*WHEELS SHOULD BE DOWN.*

## 2-1-25. SUPERVISORY NOTIFICATION

Ensure supervisor/controller-in-charge (CIC) is aware of conditions which impact sector/position operations including, but not limited to, the following:

- a. Weather.
- b. Equipment status.
- c. Potential sector overload.
- d. Emergency situations.
- e. Special flights/operations.

f. Possible suspicious aircraft/pilot activity as prescribed in FAA Order JO 7610.4, paragraph 7-3-1.

## 2-1-26. PILOT DEVIATION NOTIFICATION

When it appears that the actions of a pilot constitute a pilot deviation, notify the pilot, workload permitting.

### PHRASEOLOGY-

(Identification) *POSSIBLE PILOT DEVIATION ADVISE YOU CONTACT (facility) AT (telephone number).*

### REFERENCE-

FAAO 8020.11, *Aircraft Accident and Incident Notification, Investigation, and Reporting, Para 84, Pilot Deviations.*

## 2-1-27. TCAS RESOLUTION ADVISORIES

a. When an aircraft under your control jurisdiction informs you that it is responding to a TCAS Resolution Advisory (RA), do not issue control instructions that are contrary to the RA procedure that a crew member has advised you that they are executing. Provide safety alerts regarding terrain or obstructions and traffic advisories for the aircraft responding to the RA and all other aircraft under your control jurisdiction, as appropriate.

b. Unless advised by other aircraft that they are also responding to a TCAS RA, do not assume that other aircraft in the proximity of the responding aircraft are involved in the RA maneuver or are aware of the responding aircraft's intended maneuvers. Continue to provide control instructions, safety alerts, and traffic advisories as appropriate to such aircraft.

c. Once the responding aircraft has begun a maneuver in response to an RA, the controller is not responsible for providing standard separation between the aircraft that is responding to an RA and any other aircraft, airspace, terrain or obstructions. Responsibility for standard separation resumes when one of the following conditions are met:

1. The responding aircraft has returned to its assigned altitude, or

2. A crew member informs you that the TCAS maneuver is completed and you observe that standard separation has been reestablished, or

3. The responding aircraft has executed an alternate clearance and you observe that standard separation has been reestablished.

### NOTE-

1. *AC 120-55A, Air Carrier Operational Approval and Use of TCAS II, suggests pilots use the following phraseology to notify controllers during TCAS events. When a TCAS RA may affect an ATC clearance, inform ATC when beginning the maneuver, or as soon as workload permits.*

### EXAMPLE-

1. "New York Center, United 321, TCAS climb."

### NOTE-

2. *When the RA has been resolved, the flight crew should advise ATC they are returning to their previously assigned clearance or subsequent amended clearance.*

### EXAMPLE-

2. "New York Center, United 321, clear of conflict, returning to assigned altitude."

## 2-1-28. RVSM OPERATIONS

Controller responsibilities shall include but not be limited to the following:

a. Non-RVSM aircraft operating in RVSM airspace.

1. Ensure non-RVSM aircraft are not permitted in RVSM airspace unless they meet the criteria of excepted aircraft and are previously approved by the operations supervisor/CIC. The following aircraft are excepted: DOD, DOD certified aircraft operated by NASA (T38, F15, F18, WB57, S3, and U2 aircraft only), Lifeguard, manufacturer aircraft being flown for development/certification, and Foreign State aircraft. These exceptions are accommodated on a workload or traffic-permitting basis.

### NOTE-

*The operations supervisor/CIC is responsible for system acceptance of a non-RVSM aircraft beyond the initial sector-to-sector coordination following the pilot request to access the airspace. Operations supervisor/CIC responsibilities are defined in FAAO JO 7210.3, Chapter 6, Section 9, Reduced Vertical Separation Minimum (RVSM).*

2. Ensure sector-to-sector coordination for all non-RVSM aircraft operations within RVSM airspace.

3. Inform the operational supervisor/CIC when a non-RVSM exception flight is denied clearance into RVSM airspace or is removed from RVSM airspace.

**b.** Non-RVSM aircraft transitioning RVSM airspace.

Ensure that operations supervisors/CICs are made aware when non-RVSM aircraft are transitioning through RVSM airspace.

**c.** Apply appropriate separation standards and remove any aircraft from RVSM airspace that advises it is unable RVSM due to equipment while en route.

**d.** Use “negative RVSM” in all verbal ground-to-ground communications involving non-RVSM aircraft while cleared to operate within RVSM airspace.

**EXAMPLE-**

*“Point out Baxter21 climbing to FL 360, negative RVSM.”*

**e.** For the following situations, use the associated phraseology:

- 1.** To deny clearance into RVSM airspace.

**PHRASEOLOGY-**

*“UNABLE CLEARANCE INTO RVSM AIRSPACE.”*

**2.** To request a pilot to report when able to resume RVSM.

**PHRASEOLOGY-**

*“REPORT ABLE TO RESUME RVSM.”*

**f.** In the event of a change to an aircraft’s navigational capability amend the equipment suffix in order to properly identify non-RVSM aircraft on the controller display.

## **2-1-29. TERRAIN AWARENESS WARNING SYSTEM (TAWS) ALERTS**

**a.** When an aircraft under your control jurisdiction informs you that it is responding to a TAWS (or other on-board low altitude) alert, do not issue control instructions that are contrary to the TAWS procedure that a crew member has advised you that they are executing. Provide safety alerts regarding terrain or obstructions and traffic advisories for the aircraft responding to the TAWS alert and all other aircraft under your control jurisdiction, as appropriate.

**b.** Once the responding aircraft has begun a maneuver in response to TAWS alert, the controller is not responsible for providing standard separation between the aircraft that is responding to a TAWS alert and any other aircraft, airspace, terrain or obstructions. Responsibility for standard separation resumes when one of the following conditions are met:

- 1.** The responding aircraft has returned to its assigned altitude, or

- 2.** A crew member informs you that the TAWS maneuver is completed and you observe that standard separation has been reestablished, or

- 3.** The responding aircraft has executed an alternate clearance and you observe that standard separation has been reestablished.



## Section 4. Radio and Interphone Communications

### 2-4-1. RADIO COMMUNICATIONS

Use radio frequencies for the special purposes for which they are intended. A single frequency may be used for more than one function except as follows:

**TERMINAL.** When combining positions in the tower, do not use ground control frequency for airborne communications.

**NOTE-**

*Due to the limited number of frequencies assigned to towers for the ground control function, it is very likely that airborne use of a ground control frequency could cause interference to other towers or interference to your aircraft from another tower. When combining these functions, it is recommended combining them on local control. The ATIS may be used to specify the desired frequency.*

### 2-4-2. MONITORING

Monitor interphones and assigned radio frequencies continuously.

**NOTE-**

*Although all FAA facilities, including RAPCONs and RATCFs, are required to monitor all assigned frequencies continuously, USAF facilities may not monitor all unpublished discrete frequencies.*

### 2-4-3. PILOT ACKNOWLEDGMENT/READ BACK

**a.** When issuing clearances or instructions, ensure acknowledgment by the pilot. If no acknowledgment is received, attempt to re-establish contact. If attempts are unsuccessful, advise the FLM/CIC.

**NOTE-**

*Pilots may acknowledge clearances, instructions, or other information by using "Wilco," "Roger," "Affirmative," or other words or remarks.*

**REFERENCE-**

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

**b.** If altitude, heading, or other items are read back by the pilot, ensure the read back is correct. If incorrect or incomplete, make corrections as appropriate.

### 2-4-4. AUTHORIZED INTERRUPTIONS

As necessary, authorize a pilot to interrupt his/her communications guard.

**NOTE-**

*Some users have adopted procedures to insure uninterrupted receiving capability with ATC when a pilot with only one operative communications radio must interrupt his/her communications guard because of a safety related problem requiring airborne communications with his/her company. In this event, pilots will request approval to abandon guard on the assigned ATC frequency for a mutually agreeable time period. Additionally, they will inform controllers of the NAVAID voice facility and the company frequency they will monitor.*

### 2-4-5. AUTHORIZED TRANSMISSIONS

Transmit only those messages necessary for air traffic control or otherwise contributing to air safety.

**REFERENCE-**

*FAAO JO 7210.3, Para 3-2-2, Authorized Messages Not Directly Associated with Air Traffic Services.*

### 2-4-6. FALSE OR DECEPTIVE COMMUNICATIONS

Take action to detect, prevent, and report false, deceptive, or phantom controller communications to an aircraft or controller. The following shall be accomplished when false or deceptive communications occur:

**a.** Correct false information.

**b.** Broadcast an alert to aircraft operating on all frequencies within the area where deceptive or phantom transmissions have been received.

**EXAMPLE-**

*"Attention all aircraft. False ATC instructions have been received in the area of Long Beach Airport. Exercise extreme caution on all frequencies and verify instructions."*

**c.** Collect pertinent information regarding the incident.

**d.** Notify the operations supervisor of the false, deceptive, or phantom transmission and report all relevant information pertaining to the incident.

## 2-4-7. AUTHORIZED RELAYS

a. Relay operational information to aircraft or aircraft operators as necessary. Do not agree to handle such messages on a regular basis. Give the source of any such message you relay.

b. Relay official FAA messages as required.

### NOTE-

The FAA Administrator and Deputy Administrator will sometimes use code phrases to identify themselves in air-to-ground communications as follows:

Administrator: "SAFEAIR ONE."

Deputy Administrator: "SAFEAIR TWO."

### EXAMPLE-

"Miami Center, Jetstar One, this is SAFEAIR ONE, (message)."

c. Relay operational information to military aircraft operating on, or planning to operate on IRs.

## 2-4-8. RADIO MESSAGE FORMAT

Use the following format for radio communications with an aircraft:

a. Sector/position on initial radio contact:

1. Identification of aircraft.
2. Identification of ATC unit.
3. Message (if any).
4. The word "over" if required.

b. Subsequent radio transmissions from the same sector/position shall use the same format, except the identification of the ATC unit may be omitted.

**TERMINAL.** You may omit aircraft identification after initial contact when conducting the final portion of a radar approach.

### REFERENCE-

FAAO JO 7110.65, Para 2-4-20, Aircraft Identification.

## 2-4-9. ABBREVIATED TRANSMISSIONS

Transmissions may be abbreviated as follows:

a. Use the identification prefix and the last 3 digits or letters of the aircraft identification after communications have been established. Do not abbreviate similar sounding aircraft identifications or the identification of an air carrier or other civil aircraft having an FAA authorized call sign.

### REFERENCE-

FAAO JO 7110.65, Para 2-4-20, Aircraft Identification.

b. Omit the facility identification after communication has been established.

c. Transmit the message immediately after the callup (without waiting for the aircraft's reply) when the message is short and receipt is generally assured.

d. Omit the word "over" if the message obviously requires a reply.

## 2-4-10. INTERPHONE TRANSMISSION PRIORITIES

Give priority to interphone transmissions as follows:

a. First priority. Emergency messages including essential information on aircraft accidents or suspected accidents. After an actual emergency has passed, give a lower priority to messages relating to that accident.

b. Second priority. Clearances and control instructions.

c. Third priority. Movement and control messages using the following order of preference when possible:

1. Progress reports.
2. Departure or arrival reports.
3. Flight plans.

d. Fourth priority. Movement messages on VFR aircraft.

## 2-4-11. PRIORITY INTERRUPTION

Use the words "emergency" or "control" for interrupting lower priority messages when you have an emergency or control message to transmit.

2. When a deviation cannot be approved as requested and the situation permits, suggest an alternative course of action.

**PHRASEOLOGY-**

*UNABLE DEVIATION (state possible alternate course of action).*

*FLY HEADING (heading),*

*or*

*PROCEED DIRECT (name of NAVAID).*

b. In areas of significant weather, plan ahead and be prepared to suggest, upon pilot request, the use of alternative routes/altitudes.

**PHRASEOLOGY-**

*DEVIATION APPROVED, (restrictions if necessary), ADVISE WHEN ABLE TO:*

*RETURN TO COURSE,*

*or*

*RESUME OWN NAVIGATION,*

*or*

*FLY HEADING (heading),*

*or*

*PROCEED DIRECT (name of NAVAID).*

**NOTE-**

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

**REFERENCE-**

*AIM, Para 7-1-14, ATC Inflight Weather Avoidance Assistance.*

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

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

1. LIGHT.
2. MODERATE.
3. HEAVY.
4. EXTREME.

**NOTE-**

*Weather and Radar Processor (WARP) does not display light intensity.*

**PHRASEOLOGY-**

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

**EXAMPLE-**

1. “Area of extreme precipitation between eleven o’clock and one o’clock, one zero miles moving east at two zero knots, tops flight level three niner zero.”
2. “Area of heavy precipitation between ten o’clock and two o’clock, one five miles. Area is two five miles in diameter.”
3. “Area of heavy to extreme precipitation between ten o’clock and two o’clock, one five miles. Area is two five miles in diameter.”

**REFERENCE-**

*P/CG Term- Precipitation Radar Weather Descriptions.*

e. When precipitation intensity information is not available.

**PHRASEOLOGY-**

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

**EXAMPLE-**

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

**NOTE-**

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

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

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

**PHRASEOLOGY-**

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

**EXAMPLE-**

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

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

g. When operational/equipment limitations exist, controllers shall ensure that the highest available level of precipitation intensity within their area of jurisdiction is displayed.

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

**NOTE-**

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

**2-6-5. CALM WIND CONDITIONS**

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

**REFERENCE-**

FAAO JO 7110.65, Para 3-5-3, Tailwind Components.  
FAAO JO 7110.65, Para 3-10-4, Intersecting Runway Separation.

**2-6-6. REPORTING WEATHER CONDITIONS**

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

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

2. Forward tower visibility observations to the weather observer.

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

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

1. When the official weather changes to a condition which is below 1,000-foot ceiling or below the highest circling minimum, whichever is greater, or less than 3 miles visibility, and when it improves to a condition which is better than those above.

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

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

d. If the receiving facility informs you that weather reports are not required for a specific time period, discontinue the reports. The time period specified should not exceed the duration of the receiving controller's tour of duty.

e. **EN ROUTE.** When you determine that weather reports for an airport will not be required for a specific time period, inform the AFSS/FSS or tower of this determination. The time period specified should not exceed the duration of receiving controller's tour of duty.

**REFERENCE-**

FAAO JO 7110.65, Para 3-10-2, Forwarding Approach Information by Nonapproach Control Facilities.

**2-6-7. DISSEMINATING WEATHER INFORMATION**

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

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

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

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

**NOTE-**  
*USAF controllers do not serve as official weather observers.*

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

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

**4.** The information is obtained from an official Automated Weather Observation System (AWOS) or an Automated Surface Observation System (ASOS).

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



# Chapter 3. Airport Traffic Control– Terminal

## Section 1. General

### 3-1-1. PROVIDE SERVICE

Provide airport traffic control service based only upon observed or known traffic and airport conditions.

**NOTE-**

*When operating in accordance with CFRs, it is the responsibility of the pilot to avoid collision with other aircraft. However, due to the limited space around terminal locations, traffic information can aid pilots in avoiding collision between aircraft operating within Class B, Class C, or Class D surface areas and the terminal radar service areas, and transiting aircraft operating in proximity to terminal locations.*

### 3-1-2. PREVENTIVE CONTROL

Provide preventive control service only to aircraft operating in accordance with a letter of agreement. When providing this service, issue advice or instructions only if a situation develops which requires corrective action.

**NOTE-**

*Preventive control differs from other airport traffic control in that repetitious, routine approval of pilot action is eliminated. Controllers intervene only when they observe a traffic conflict developing.*

### 3-1-3. USE OF ACTIVE RUNWAYS

The local controller has primary responsibility for operations conducted on the active runway and must control the use of those runways. Positive coordination and control is required as follows:

**NOTE-**

*Exceptions may be authorized only as provided in para 1-1-10, Constraints Governing Supplements and Procedural Deviations, and FAAO JO 7210.3, Facility Operation and Administration, para 10-1-7, Use of Active Runways, where justified by extraordinary circumstances at specific locations.*

**REFERENCE-**

*FAAO JO 7110.65, Para 1-1-10, Constraints Governing Supplements and Procedural Deviations.  
FAAO JO 7210.3, Para 10-1-7, Use of Active Runways.*

a. Ground control must obtain approval from local control before authorizing an aircraft or a vehicle to cross or use any portion of an active runway. The coordination shall include the point/intersection at the runway where the operation will occur.

**PHRASEOLOGY-**

*CROSS (runway) AT (point/intersection).*

b. When the local controller authorizes another controller to cross an active runway, the local controller shall verbally specify the runway to be crossed and the point/intersection at the runway where the operation will occur preceded by the word “cross.”

**PHRASEOLOGY-**

*CROSS (runway) AT (point/intersection).*

c. The ground controller shall advise the local controller when the coordinated runway operation is complete. This may be accomplished verbally or through visual aids as specified by a facility directive.

d. **USA/USAF/USN NOT APPLICABLE.** Authorization for aircraft/vehicles to taxi/proceed on or along an active runway, for purposes other than crossing, shall be provided via direct communications on the appropriate local control frequency. This authorization may be provided on the ground control frequency after coordination with local control is completed for those operations specifically described in a facility directive.

**NOTE-**

*The USA, USAF, and USN establish local operating procedures in accordance with, respectively, USA, USAF, and USN directives.*

e. The local controller shall coordinate with the ground controller before using a runway not previously designated as active.

**REFERENCE-**

*FAAO JO 7110.65, Para 3-1-4, Coordination Between Local and Ground Controllers.*

### 3-1-4. COORDINATION BETWEEN LOCAL AND GROUND CONTROLLERS

Local and ground controllers shall exchange information as necessary for the safe and efficient use of airport runways and movement areas. This may be accomplished via verbal means, flight progress strips, other written information, or automation displays. As a minimum, provide aircraft identification and applicable runway/intersection/taxiway information as follows:

a. Ground control shall notify local control when a departing aircraft has been taxied to a runway other than one previously designated as active.

**REFERENCE-**

FAAO JO 7110.65, Para 3-1-3, Use of Active Runways.  
FAAO JO 7210.3, Para 10-1-6, Selecting Active Runways.

b. Ground control must notify local control of any aircraft taxied to an intersection for takeoff. This notification may be accomplished by verbal means or by flight progress strips.

**REFERENCE-**

FAAO JO 7110.65, Para 3-9-7, Wake Turbulence Separation for Intersection Departures.

c. When the runways in use for landing/departing aircraft are not visible from the tower or the aircraft using them are not visible on radar, advise the local/ground controller of the aircraft's location before releasing the aircraft to the other controller.

### 3-1-5. VEHICLES/EQUIPMENT/ PERSONNEL ON RUNWAYS

a. Ensure that the runway to be used is free of all known ground vehicles, equipment, and personnel before a departing aircraft starts takeoff or a landing aircraft crosses the runway threshold.

b. Vehicles, equipment, and personnel in direct communications with the control tower may be authorized to operate up to the edge of an active runway surface when necessary. Provide advisories as specified in para 3-1-6, Traffic Information, and para 3-7-5, Precision Approach Critical Area, as appropriate.

**PHRASEOLOGY-**

PROCEED AS REQUESTED; (and if necessary, additional instructions or information).

**NOTE-**

Establishing hold lines/signs is the responsibility of the airport manager. Standards for surface measurements, markings, and signs are contained in the following Advisory Circulars; 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 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-**

FAAO JO 7110.65, Para 3-7-4, Runway Proximity.  
FAAO JO 7110.65, Para 3-8-2, Touch-and-Go or Stop-and-Go or Low Approach.  
FAAO JO 7110.65, Para 3-10-10, Altitude Restricted Low Approach.  
AC 150/5300-13, Airport Design.  
AC 150/5340-1G, Standards for Airport Markings.  
14 CFR Section 91.129, Operations in Class D Airspace.  
AIM, Para 2-2-3, Obstruction Lights.  
P/CG Term- Runway in Use/Active Runway/Duty Runway.

### 3-1-6. TRAFFIC INFORMATION

a. Describe vehicles, equipment, or personnel on or near the movement area in a manner which will assist pilots in recognizing them.

**EXAMPLE-**

“Mower left of runway two seven.”  
“Trucks crossing approach end of runway two five.”  
“Workman on taxiway Bravo.”  
“Aircraft left of runway one eight.”

b. Describe the relative position of traffic in an easy to understand manner, such as “to your right” or “ahead of you.”

**EXAMPLE-**

“Traffic, U.S. Air MD-Eighty on downwind leg to your left.”  
“King Air inbound from outer marker on straight-in approach to runway one seven.”

c. When using a CTRD, you may issue traffic advisories using the standard radar phraseology prescribed in para 2-1-21, Traffic Advisories.

**REFERENCE-**

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

### 3-1-7. POSITION DETERMINATION

Determine the position of an aircraft before issuing taxi instructions or takeoff clearance.

**NOTE-**

The aircraft's position may be determined visually by the controller, by pilots, or through the use of the ASDE.

**NOTE-**

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

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

**REFERENCE-**

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

**3-1-10. OBSERVED ABNORMALITIES**

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

**PHRASEOLOGY-**

(Item) APPEAR/S (observed condition).

**EXAMPLE-**

"Landing gear appears up."

"Landing gear appears down and in place."

"Rear baggage door appears open."

**3-1-11. SURFACE AREA RESTRICTIONS**

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

**NOTE-**

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

**REFERENCE-**

FAAO JO 7110.65, Para 2-1-16, Surface Areas.

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

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

**REFERENCE-**

FAAO JO 7210.3, Para 5-4-7, Aerobatic Practice Areas.

**NOTE-**

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

**3-1-12. VISUALLY SCANNING RUNWAYS**

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

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

**3-1-13. ESTABLISHING TWO-WAY COMMUNICATIONS**

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

**PHRASEOLOGY-**

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

**REFERENCE-**

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

### **3-1-14. GROUND OPERATIONS WHEN VOLCANIC ASH IS PRESENT**

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

- a. Avoid requiring aircraft to come to a full stop while taxiing.
- b. Provide for a rolling takeoff for all departures.

**NOTE-**

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

**REFERENCE-**

*AIM, Para 7-5-9, Flight Operations in Volcanic Ash.*

### **3-1-15. GROUND OPERATIONS RELATED TO THREE-HOUR TARMAC RULE**

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

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

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

**NOTE-**

*Facility procedures, including actions that constitute a significant disruption, vary by airport and must be identified in the facility directive pertaining to the Three-hour Tarmac Rule.*

**PHRASEOLOGY-**

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

*or*

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

*or*

*(Identification) UNABLE DUE TO OPERATIONAL DISRUPTION.*

**REFERENCE-**

*DOT Rule, Enhancing Airline Passenger Protections, 14 CFR, Part 259, commonly referred to as the Three-hour Tarmac Rule.*

**REFERENCE-**

FAAO JO 7210.3, Para 10-4-1, Automatic Terminal Information Service (ATIS).

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

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

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

**PHRASEOLOGY-**

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

**3.** Advise the airport management that runway braking action reports of “fair,” “poor,” or “nil” have been received.

**REFERENCE-**

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

**4.** Solicit PIREPs of runway braking action.

**REFERENCE-**

FAAO JO 7110.65, Para 2-6-3, PIREP Information.

**c.** Include runway friction measurement/values received from airport management on the ATIS. Furnish the information when requested by the pilot in accordance with para 3-3-4, Braking Action.

**REFERENCE-**

FAAO JO 7110.65, Para 2-9-3, Content.  
FAAO JO 7110.65, Para 3-9-1, Departure Information.  
FAAO JO 7110.65, Para 3-10-1, Landing Information.  
FAAO JO 7110.65, Para 4-7-12, Airport Conditions.

**3-3-6. ARRESTING SYSTEM OPERATION**

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

**NOTE-**

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

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

**REFERENCE-**

FAAO JO 7610.4, Chapter 9, Section 3. Aircraft Arresting System, Single Frequency Approach (SFA), Simulated Flameout (SFO)/Emergency Landing Pattern (ELP) Operations, Celestial Navigation (CELNAV) Training, Para 9-3-1 through Para 9-3-8.

**b.** Raise aircraft arresting systems whenever:

**1.** Requested by a pilot.

**NOTE-**

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

“BARRIER - BARRIER - BARRIER”

or

“CABLE - CABLE - CABLE.”

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

**NOTE-**

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

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

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

**PHRASEOLOGY-**

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

**d.** Inform civil and U.S. Army aircraft whenever rubber supported cables are in place at the approach end of the landing runway, and include the distance of the cables from the threshold. This information may be omitted if it is published in the “Notices to Airmen” publication/DOD FLIP.

**EXAMPLE-**

“Runway One Four arresting cable one thousand feet from threshold.”

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

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

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

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

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

**REFERENCE-**  
FAAO JO 7110.65, Para 4-7-12, Airport Conditions.

### 3-3-7. FAR FIELD MONITOR (FFM) REMOTE STATUS UNIT

a. To meet the demand for more facilities capable of operating under CAT III weather, Type II equipment is being upgraded to Integrity Level 3. This integrity level will support operations which place a high degree of reliance on ILS guidance for positioning through touchdown.

b. Installation of the FFM remote status indicating units is necessary to attain the integrity necessary to meet internationally agreed upon reliability values in support of CAT III operations on Type II ILS equipment. The remote status indicating unit used in conjunction with Type II equipment adds a third integrity test; thereby, producing an approach aid which has integrity capable of providing Level 3 service.

c. The remote status sensing unit, when installed in the tower cab, will give immediate indications of

localizer out-of-tolerance conditions. The alarm in the FFM remote status sensing unit indicates an inoperative or an out-of-tolerance localizer signal; e.g., the course may have shifted due to equipment malfunction or vehicle/aircraft encroachment into the critical area.

d. Operation of the FFM remote sensing unit will be based on the prevailing weather. The FFM remote sensing unit must be operational when the weather is below CAT I ILS minimums.

e. When the remote status unit indicates that the localizer FFM is in alarm (aural warning following the preset delay) and:

1. The aircraft is outside the middle marker (MM), check for encroachment those portions of the critical area that can be seen from the tower. It is understood that the entire critical area may not be visible due to low ceilings and poor visibility. The check is strictly to determine possible causal factors for the out-of-tolerance situation. If the alarm has not cleared prior to the aircraft's arriving at the MM, immediately issue an advisory that the FFM remote status sensing unit indicates the localizer is unreliable.

2. The aircraft is between the MM and the inner marker (IM), immediately issue an advisory that the FFM remote status sensing unit indicates the localizer is unreliable.

**PHRASEOLOGY-**  
CAUTION, MONITOR INDICATES RUNWAY (number) LOCALIZER UNRELIABLE.

3. The aircraft has passed the IM, there is no action requirement. Although the FFM has been modified with filters which dampen the effect of false alarms, you may expect alarms when aircraft are located between the FFM and the localizer antenna either on landing or on takeoff.

**REFERENCE-**  
FAAO JO 7110.65, Para 4-7-12, Airport Conditions.

## Section 7. Taxi and Ground Movement Procedures

### 3-7-1. GROUND TRAFFIC MOVEMENT

Issue by radio or directional light signals specific instructions which approve or disapprove the movement of aircraft, vehicles, equipment, or personnel on the movement area except where permitted in an LOA.

#### REFERENCE-

FAAO JO 7210.3, Para 4-3-1, Letters of Agreement  
FAAO JO 7210.3, Para 4-3-2, Appropriate Subjects

a. Do not issue *conditional* instructions that are dependent upon the movement of an arrival aircraft on or approaching the runway or a departure aircraft established on a takeoff roll. Do not say, "Line up and wait behind landing traffic," or "Taxi/proceed across Runway Three-Six behind departing/landing Citation." The above requirements do not preclude issuing instructions to follow an aircraft observed to be operating on the movement area in accordance with an ATC clearance/instruction and in such a manner that the instructions to follow are not ambiguous.

b. Do not issue unconditional instructions when authorizing movement on a runway/taxiway for the purpose of airfield checks or other airport operations. Instructions must ensure positive control with specific instructions to proceed on a runway or movement area, and as necessary, hold short instructions.

#### REFERENCE-

FAAO JO 7110.65, Para 3-1-3, USE OF ACTIVE RUNWAYS  
FAAO JO 7110.65, Para 3-7-2, TAXI AND GROUND MOVEMENT OPERATIONS

#### EXAMPLE-

"Airport 1, proceed on Runway 26R, hold short of Runway 18L."

"(Tower), Airport 1 at taxiway B8, request to inspect Runway 26R." "Airport 1 proceed as requested, hold short of Runway 18L."

"Airport 1 proceed on taxi way B, hold short of Runway 18L."

#### NOTE-

The following are examples of unconditional instructions and are not approved for use: "THE FIELD IS YOURS," "CLEARED ON ALL SURFACES," "THE AIRPORT IS YOURS," and "PROCEED ON ALL RUNWAYS AND TAXIWAYS."

c. Do not use the word "cleared" in conjunction with authorization for aircraft to taxi or equipment/vehicle/personnel operations. Use the prefix "taxi," "proceed," or "hold," as appropriate, for aircraft instructions and "proceed" or "hold" for equipment/vehicles/personnel.

d. Intersection departures may be initiated by a controller or a controller may authorize an intersection departure if a pilot requests. Issue the measured distance from the intersection to the runway end rounded "down" to the nearest 50 feet to any pilot who requests and to all military aircraft, unless use of the intersection is covered in appropriate directives.

#### NOTE-

1. Exceptions are authorized where specific military aircraft routinely make intersection takeoffs and procedures are defined in appropriate directives. The authority exercising operational control of such aircraft ensures that all pilots are thoroughly familiar with these procedures, including the usable runway length from the applicable intersection.

2. Some airports publish "declared distances" for a particular runway. These are published in the Airport Facility Directory (A/FD) or the Aeronautical Information Publication (AIP) and there is no requirement that facility personnel be aware of them. These distances are a means of satisfying airport design criteria and are intended to be used by pilots and/or operators for preflight performance planning only. There are no special markings, signing, or lighting associated with declared distances and they do not limit the actual runway available for use by an aircraft. Therefore, they cannot be used for any air traffic control purpose. If pilots inquire about the existence of declared distances, refer them to the A/FD or AIP.

#### PHRASEOLOGY-

RUNWAY (number) AT (taxiway designator) INTERSECTION DEPARTURE (remaining length) FEET AVAILABLE.

#### REFERENCE-

FAAO JO 7110.65, Para 3-9-4, Taxi into Position and Hold (TIPH).

### 3-7-2. TAXI AND GROUND MOVEMENT OPERATIONS

Issue the route for the aircraft/vehicle to follow on the movement area in concise and easy to understand terms. The taxi clearance must include the specific route to follow. When a taxi clearance to a runway is

issued to an aircraft, confirm the aircraft has the correct runway assignment.

**NOTE-**

1. A pilot's read back of taxi instructions with the runway assignment can be considered confirmation of runway assignment.

2. Movement of aircraft or vehicles on nonmovement areas is the responsibility of the pilot, the aircraft operator, or the airport management.

a. When authorizing an aircraft/vehicle to proceed on the movement area or to any point other than assigned takeoff runway, specify the route/taxi instructions. If it is the intent to hold the aircraft/vehicle short of any given point along the taxi route, issue the route and then state the holding instructions.

**NOTE-**

1. The absence of holding instructions authorizes an aircraft/vehicle to cross all taxiways that intersect the taxi route.

2. Movement of aircraft or vehicles on non-movement areas is the responsibility of the pilot, the aircraft operator, or the airport management.

**PHRASEOLOGY-**  
**HOLD POSITION.**

*HOLD FOR (reason)*

*CROSS (runway/taxiway)*

*or*

*TAXI/CONTINUE TAXIING/PROCEED/VIA (route),*

*or*

*ON (runway number or taxiways, etc.),*

*or*

*TO (location),*

*or*

*(direction),*

*or*

*ACROSS RUNWAY (number).*

*or*

*VIA (route), HOLD SHORT OF (location)*

*or*

*FOLLOW (traffic) (restrictions as necessary)*

*or*

*BEHIND (traffic).*

**EXAMPLE-**

*“Cross Runway Two-Eight Left, hold short of Runway Two-Eight Right.”*

*“Taxi/continue taxiing/proceed to the hangar.”*

*“Taxi/continue taxiing/proceed straight ahead then via ramp to the hangar.”*

*“Taxi/continue taxiing/proceed on Taxiway Charlie, hold short of Runway Two-Seven.”*

*or*

*“Taxi/continue taxiing/proceed on Charlie, hold short of Runway Two-Seven.”*

b. When authorizing an aircraft to taxi to an assigned takeoff runway, state the departure runway followed by the specific taxi route. Issue hold short restrictions when an aircraft will be required to hold short of a runway or other points along the taxi route.

**PHRASEOLOGY-**

*RUNWAY (number), TAXI VIA (route as necessary).*

*or*

*RUNWAY (number), TAXI VIA (route as necessary)(hold short instructions as necessary)."*

**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 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

**(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 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.

**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.** 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.*

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 3/4 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-**

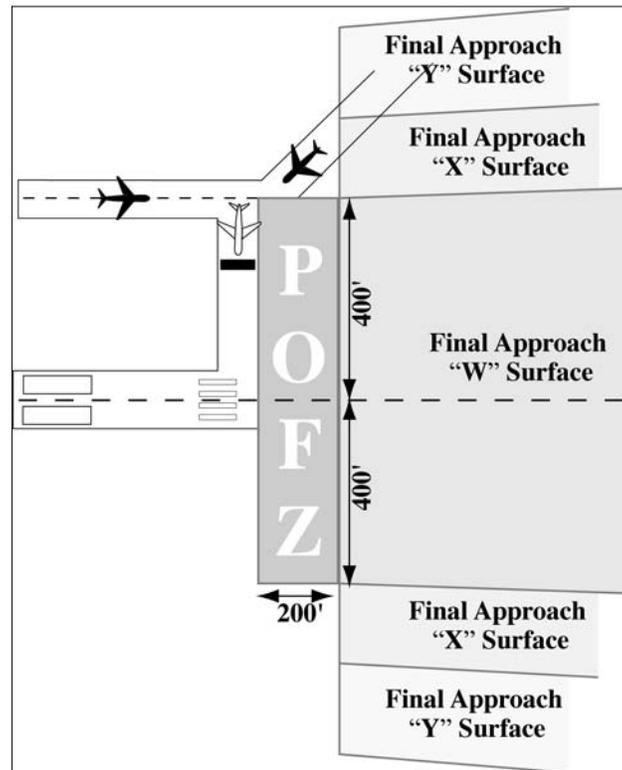
*“United 623, in the event of missed approach, taxiing aircraft right of runway.”*

*“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)



## Section 9. Departure Procedures and Separation

### 3-9-1. DEPARTURE INFORMATION

Provide current departure information, as appropriate, to departing aircraft.

a. Departure information contained in the ATIS broadcast may be omitted if the pilot states the appropriate ATIS code.

b. Issue departure information by including the following:

1. Runway in use. (May be omitted if pilot states “have the numbers.”)

2. Surface wind from direct readout dial, wind shear detection system, or automated weather observing system information display. (May be omitted if pilot states “have the numbers.”)

3. Altimeter setting. (May be omitted if pilot states “have the numbers.”)

**REFERENCE-**  
FAAO JO 7110.65, Para 2-7-1, Current Settings.

c. Time, when requested.

d. Issue the official ceiling and visibility, when available, to a departing aircraft before takeoff as follows:

1. To a VFR aircraft when weather is below VFR conditions.

2. To an IFR aircraft when weather is below VFR conditions or highest takeoff minima, whichever is greater.

**NOTE-**  
Standard takeoff minimums are published in 14 CFR Section 91.175(f). Takeoff minima other than standard are prescribed for specific airports/runways and published in a tabular form supplement to the FAA instrument approach procedures charts and appropriate FAA Forms 8260.

e. Issue the route for the aircraft/vehicle to follow on the movement area in concise and easy to understand terms. The taxi clearance must include the specific route to follow.

f. **USAF NOT APPLICABLE.** An advisory to “check density altitude” when appropriate.

**REFERENCE-**  
FAAO JO 7210.3, Para 2-10-6, Broadcast Density Altitude Advisory.

g. Issue braking action for the runway in use as received from pilots or the airport management when Braking Action Advisories are in effect.

**REFERENCE-**  
FAAO JO 7110.65, Para 2-7-2, Altimeter Setting Issuance Below Lowest Usable FL.  
FAAO JO 7110.65, Para 3-1-8, Low Level Wind Shear/Microburst Advisories.  
FAAO JO 7110.65, Para 3-3-5, Braking Action Advisories.  
P/CG Term- Braking Action Advisories.

### 3-9-2. DEPARTURE DELAY INFORMATION

USA/USAF/USN NOT APPLICABLE

When gate-hold procedures are in effect, issue the following departure delay information as appropriate:

**REFERENCE-**  
FAAO JO 7210.3, Para 10-4-3, Gate Hold Procedures.

a. Advise departing aircraft the time at which the pilot can expect to receive engine startup advisory.

**PHRASEOLOGY-**  
*GATE HOLD PROCEDURES ARE IN EFFECT. ALL AIRCRAFT CONTACT (position) ON (frequency) FOR ENGINE START TIME. EXPECT ENGINE START/TAXI (time).*

b. Advise departing aircraft when to start engines and/or to advise when ready to taxi.

**PHRASEOLOGY-**  
*START ENGINES, ADVISE WHEN READY TO TAXI,*

*or*

*ADVISE WHEN READY TO TAXI.*

c. If the pilot requests to hold in a delay absorbing area, the request shall be approved if space and traffic conditions permit.

d. Advise all aircraft on GC/FD frequency upon termination of gate hold procedures.

**PHRASEOLOGY-**  
*GATE HOLD PROCEDURES NO LONGER IN EFFECT.*

### 3-9-3. DEPARTURE CONTROL INSTRUCTIONS

Inform departing IFR, SVFR, VFR aircraft receiving radar service, and TRSA VFR aircraft of the following:

**a. Before takeoff.**

1. Issue the appropriate departure control frequency and beacon code. The departure control frequency may be omitted if a SID has been or will be assigned and the departure control frequency is published on the SID.

**PHRASEOLOGY-**

*DEPARTURE FREQUENCY (frequency), SQUAWK (code).*

2. Inform all departing IFR military turboprop/turbojet aircraft (except transport and cargo types) to change to departure control frequency. If the local controller has departure frequency override, transmit urgent instructions on this frequency. If the override capability does not exist, transmit urgent instructions on the emergency frequency.

**PHRASEOLOGY-**

*CHANGE TO DEPARTURE.*

3. **USAF.** USAF control towers are authorized to inform all departing IFR military transport/cargo type aircraft operating in formation flight to change to departure control frequency before takeoff.

**b. After takeoff.**

1. When the aircraft is about 1/2 mile beyond the runway end, instruct civil aircraft, and military transport, and cargo types to contact departure control, provided further communication with you is not required.

2. Do not request departing military turboprop/turbojet aircraft (except transport and cargo types) to make radio frequency or radar beacon changes before the aircraft reaches 2,500 feet above the surface.

**REFERENCE-**

*FAAO JO 7110.65, Para 7-2-1, Visual Separation.*

### 3-9-4. TAXI INTO POSITION AND HOLD (TIPH)

**a.** The intent of LUAW is to position aircraft for an imminent departure. Authorize an aircraft to line up and wait, except as restricted in subpara g, when

takeoff clearances cannot be issued because of traffic. Issue traffic information to any aircraft so authorized. Traffic information may be omitted when the traffic is another aircraft which has landed on or is taking off the runway and is clearly visible to the holding aircraft. Do not use conditional phrases such as “behind landing traffic” or “after the departing aircraft.”

**b. USN NOT APPLICABLE.** First state the runway number followed by the line up and wait clearance.

**PHRASEOLOGY-**

*RUNWAY (number), LINE UP AND WAIT.*

**c. Procedures.**

1. At facilities without a safety logic system or facilities with the safety logic system in the limited configuration:

**(a)** Do not issue a landing clearance to an aircraft requesting a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach on the same runway with an aircraft that is holding in position or taxiing to line up and wait until the aircraft in position starts takeoff roll.

**(b)** Do not authorize an aircraft to LUAW if an aircraft has been cleared to land, touch-and-go, stop-and-go, option, or unrestricted low approach on the same runway.

**PHRASEOLOGY-**

*RUNWAY (number), CONTINUE, TRAFFIC HOLDING IN POSITION.*

**EXAMPLE-**

*“American 528, Runway Two-Three continue, traffic holding in position.”*

2. Except when reported weather conditions are less than ceiling 800 feet or visibility less than 2 miles, facilities using the safety logic system in the full core alert mode:

**(a)** May issue a landing clearance for a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach to an arriving aircraft with an aircraft holding in position or taxiing to LUAW on the same runway, or

**(b)** May authorize an aircraft to LUAW when an aircraft has been cleared for a full stop, touch-and-go, stop-and-go, option, or unrestricted low approach on the same runway.

**REFERENCE-**

*FAAO JO 7110.65, Para 3-10-5, Landing Clearance.*

**d.** When an aircraft is authorized to line up and wait, inform it of the closest traffic requesting a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach to the same runway.

**EXAMPLE-**

*“United Five, Runway One Eight, line up and wait. Traffic a Boeing Seven Thirty Seven, six mile final.”*

**e.** *USAF/USN.* When an aircraft is authorized to line up and wait, 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 aircraft taxiing into position.

**f.** Do not authorize an aircraft to line up and wait when the departure point is not visible from the tower, unless the aircraft’s position can be verified by ASDE or the runway is used for departures only.

**g.** An aircraft may be authorized to line up and wait at an intersection between sunset and sunrise under the following conditions:

**1.** The procedure must be approved by the appropriate Director, Terminal Operations (service area) as well as the Director, Terminal Safety and Operations Support.

**2.** The procedure must be contained in a facility directive.

**3.** The runway must be used as a departure-only runway.

**4.** Only one aircraft at a time is permitted to line up and wait on the same runway.

**5.** Document on FAA Form 7230-4, Daily Record of Facility Operation, the following: “LUAW at INT of RWY (number) and TWY (name) IN EFFECT” when using runway as a departure-only runway. “LUAW at INT of RWY (number) and TWY (name) SUSPENDED” when runway is not used as a departure-only runway.

**h.** Do not authorize an aircraft to line up and wait at anytime when the intersection is not visible from the tower.

**i.** Do not authorize aircraft to simultaneously line up and wait on the same runway, between sunrise and sunset, unless the local assist/local monitor position is staffed.

**j.** *USN.* Do not authorize aircraft to line up and wait simultaneously on intersecting runways.

**PHRASEOLOGY-**  
*CONTINUE HOLDING,*

*or*

*TAXI OFF THE RUNWAY.*

**REFERENCE-**

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

**k.** When aircraft are authorized to line up and wait on runways that intersect, traffic must be exchanged between that aircraft and the aircraft that is authorized to line up and wait, depart, or arrive to the intersecting runway(s).

**EXAMPLE-**

*“United Five, Runway Four, line up and wait, traffic holding Runway Three-One.”*

*“Delta One, Runway Three-One, line up and wait, traffic holding Runway Four.”*

*Or, when issuing traffic information to an arrival aircraft and an aircraft that is holding on runway(s) that intersect(s):*

*“Delta One, Runway Four, line up and wait, traffic landing Runway Three-One.”*

*“United Five, Runway Three-One, cleared to land. Traffic holding in position Runway Four.”*

*Or, when issuing traffic information to a departing aircraft and an aircraft that is holding on runway(s) that intersect(s):*

*“Delta One, Runway Three-One, line up and wait, traffic departing Runway Four.”*

*“United Five, Runway Four, cleared for takeoff, traffic holding in position Runway Three-One.”*

**REFERENCE-**

*FAAO JO 7110.65, Para 3-9-8, Intersecting Runway Separation.*

*FAAO JO 7110.65, Para 3-10-4, Intersecting Runway Separation.*

**l.** When a local controller delivers or amends an ATC clearance to an aircraft awaiting departure and that aircraft is holding short of a runway or is holding in position on a runway, an additional clearance shall be issued to prevent the possibility of the aircraft inadvertently taxiing onto the runway and/or beginning takeoff roll. In such cases, append one of the following ATC instructions as appropriate:

- 1.** HOLD SHORT OF RUNWAY, *or*
- 2.** HOLD IN POSITION.

**m.** *USAF/USN.* When issuing additional instructions or information to an aircraft holding in takeoff

position, include instructions to continue holding or taxi off the runway, unless it is cleared for takeoff.

**PHRASEOLOGY-**  
*CONTINUE HOLDING,*

*or*

*TAXI OFF THE RUNWAY.*

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

**n.** When authorizing an aircraft to line up and wait at an intersection, state the runway intersection.

**PHRASEOLOGY-**  
*RUNWAY (number) AT (taxiway designator), LINE UP AND WAIT.*

**o.** 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 authorizing that aircraft to line up and wait.

**PHRASEOLOGY-**  
*RUNWAY (number), FULL-LENGTH, LINE UP AND WAIT.*

**EXAMPLE-**  
*“American Four Eighty Two, Runway Three-Zero full length, line up and wait.”*

**NOTE-**  
*The controller need not state the location of the aircraft departing the full length of the runway if there are no aircraft holding for departure at an intersection for that same runway.*

**3-9-5. ANTICIPATING SEPARATION**

Takeoff clearance needs not be withheld until prescribed separation exists if there is a reasonable assurance it will exist when the aircraft starts takeoff roll.

**REFERENCE-**  
*P/CG Term- Clear of the Runway.*

**3-9-6. SAME RUNWAY SEPARATION**

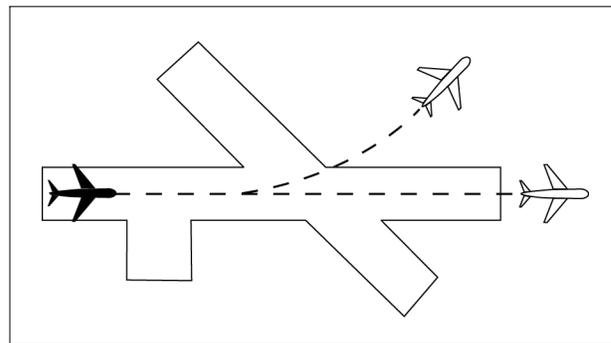
Separate a departing aircraft from a preceding departing or arriving aircraft using the same runway by ensuring that it does not begin takeoff roll until:

**a.** The other aircraft has departed and crossed the runway end or turned to avert any conflict. (See FIG 3-9-1.) If you can determine distances by reference to suitable landmarks, the other aircraft

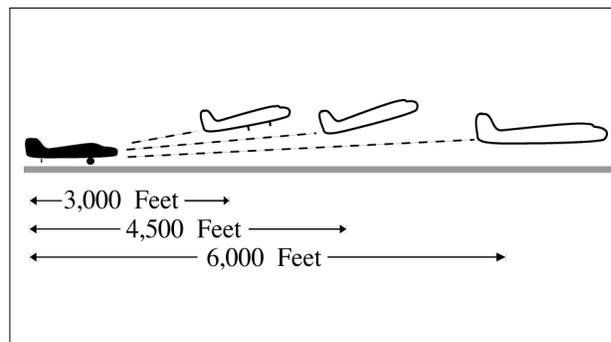
needs only be airborne if the following minimum distance exists between aircraft: (See FIG 3-9-2.)

1. When only Category I aircraft are involved- 3,000 feet.
2. When a Category I aircraft is preceded by a Category II aircraft- 3,000 feet.
3. When either the succeeding or both are Category II aircraft- 4,500 feet.
4. When either is a Category III aircraft- 6,000 feet.
5. When the succeeding aircraft is a helicopter, visual separation may be applied in lieu of using distance minima.

**FIG 3-9-1**  
**Same Runway Separation**  
**[View 1]**



**FIG 3-9-2**  
**Same Runway Separation**  
**[View 2]**



**NOTE-**  
*Aircraft same runway separation (SRS) categories are specified in Appendices A, B, and C and based upon the following definitions:*

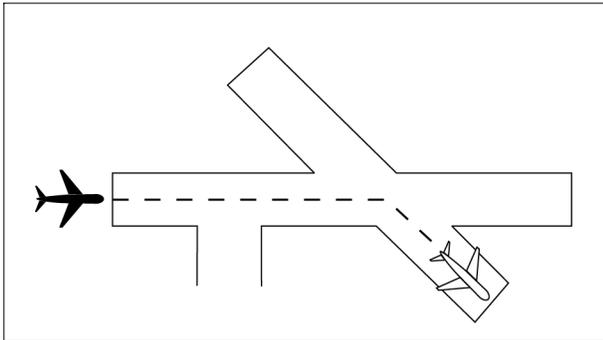
**CATEGORY I-** *small aircraft weighing 12,500 lbs. or less, with a single propeller driven engine, and all helicopters.*

**CATEGORY II-** small aircraft weighing 12,500 lbs. or less, with propeller driven twin-engines.

**CATEGORY III-** all other aircraft.

**b.** A preceding landing aircraft is clear of the runway. (See FIG 3-9-3.)

**FIG 3-9-3**  
**Preceding Landing Aircraft Clear of Runway**



**REFERENCE-**  
*P/CG Term- Clear of the Runway.*

### WAKE TURBULENCE APPLICATION

**c.** Do not issue clearances which imply or indicate approval of rolling takeoffs by heavy jet aircraft except as provided in para 3-1-14, Ground Operations When Volcanic Ash is Present.

**d.** Do not issue clearances to a small aircraft to line up and wait on the same runway behind a departing heavy jet aircraft to apply the necessary intervals.

**REFERENCE-**  
*AC 90-23, Aircraft Wake Turbulence.*

**e.** The minima in para 5-5-4, Minima, may be applied in lieu of the 2 minute requirement in subpara f. When para 5-5-4, Minima, are applied, ensure that the appropriate radar separation exists at or prior to the time an aircraft becomes airborne when taking off behind a heavy jet/B757.

**NOTE-**  
*The pilot may request additional separation; i.e., 2 minutes vs. 4 miles, but should make this request before taxiing on the runway.*

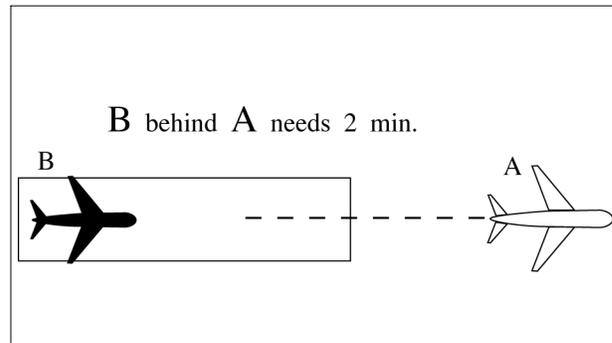
**f.** Separate IFR/VFR aircraft taking off behind a heavy jet/B757 departure by 2 minutes, when departing:

**NOTE-**  
*Takeoff clearance to the following aircraft should not be*

*issued until 2 minutes after the heavy jet/B757 begins takeoff roll.*

**1.** The same runway. (See FIG 3-9-4.)

**FIG 3-9-4**  
**2 Minute Separation**



**2.** A parallel runway separated by less than 2,500 feet.

**g.** Separate an aircraft from a heavy jet/B757 when operating on a runway with a displaced landing threshold if projected flight paths will cross-2 minutes when:

**1.** A departure follows a heavy jet/B757 arrival.

**2.** An arrival follows a heavy jet/B757 departure.

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

**i.** Separate a small aircraft behind a large aircraft that has departed or made a low/missed approach when utilizing opposite direction takeoffs on the same runway by 3 minutes unless a pilot has initiated a request to deviate from the 3-minute interval. In the latter case, issue a wake turbulence advisory before clearing the aircraft for takeoff. Controllers must not initiate or suggest a waiver of the 3-minute rule.

**NOTE-**  
*A request for takeoff does not initiate a waiver request.*

**REFERENCE-**  
*FAAO JO 7110.65, Appendix A, Appendix B, and Appendix C, Aircraft Information.*

**j.** Separate aircraft behind a heavy jet/B757 that has departed or made a low/missed approach when utilizing opposite direction takeoffs or landings on the same or parallel runways separated by less than 2,500 feet- 3 minutes.

k. Inform an aircraft when it is necessary to hold in order to provide the required 3-minute interval.

**PHRASEOLOGY-**  
*HOLD FOR WAKE TURBULENCE.*

**REFERENCE-**  
*FAAO JO 7110.65, Para 3-9-7, Wake Turbulence Separation for Intersection Departures.*

### **3-9-7. WAKE TURBULENCE SEPARATION FOR INTERSECTION DEPARTURES**

a. Apply the following wake turbulence criteria for intersection departures:

1. Separate a small aircraft taking off from an intersection on the same runway (same or opposite direction takeoff) behind a preceding departing large aircraft by ensuring that the small aircraft does not start takeoff roll until at least 3 minutes after the large aircraft has taken off.

2. Separate any aircraft taking off from an intersection on the same runway (same or opposite direction takeoff), parallel runways separated by less than 2,500 feet, and parallel runways separated by less than 2,500 feet with runway thresholds offset by 500 feet or more, by ensuring that the aircraft does not start takeoff roll until at least 3 minutes after a heavy aircraft/B757 has taken off.

**NOTE-**  
*Parallel runways separated by less than 2,500 feet with runway thresholds offset by less than 500 feet shall apply para 3-9-6, Same Runway Separation, subpara f.*

3. Separate a small aircraft weighing 12,500 lbs. or less taking off from an intersection on the same runway (same or opposite direction takeoff) behind a preceding small aircraft weighing more than 12,500 lbs. by ensuring the following small aircraft does not start takeoff roll until at least 3 minutes after the preceding aircraft has taken off.

4. Inform an aircraft when it is necessary to hold in order to provide the required 3-minute interval.

**PHRASEOLOGY-**  
*HOLD FOR WAKE TURBULENCE.*

**NOTE-**  
*Aircraft conducting touch-and-go and stop-and-go operations are considered to be departing from an intersection.*

**REFERENCE-**  
*FAAO JO 7110.65, Para 3-8-2, Touch-and-Go or Stop-and-Go or Low Approach.*

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 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.

**EXAMPLE-**  
*“Caution wake turbulence, DC-9 on base leg.”*

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.

**EXAMPLE-**  
*“Caution wake turbulence, heavy Lockheed C5A departing runway two three.”*

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.

### 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-**

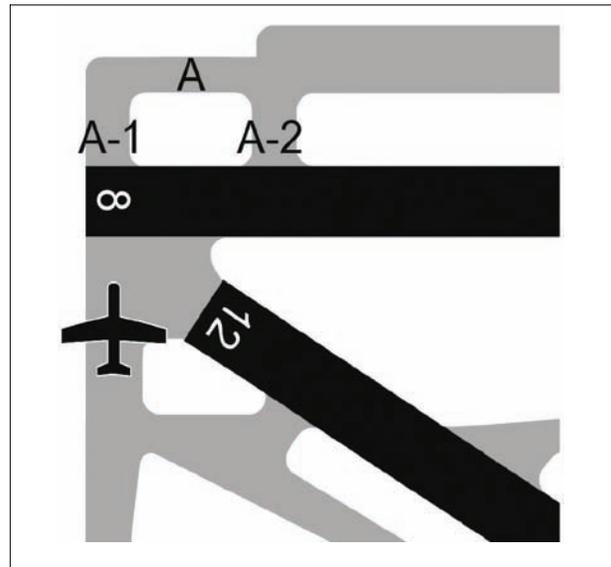
*RUNWAY (number), FULL LENGTH, CLEARED FOR TAKEOFF.*

**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.

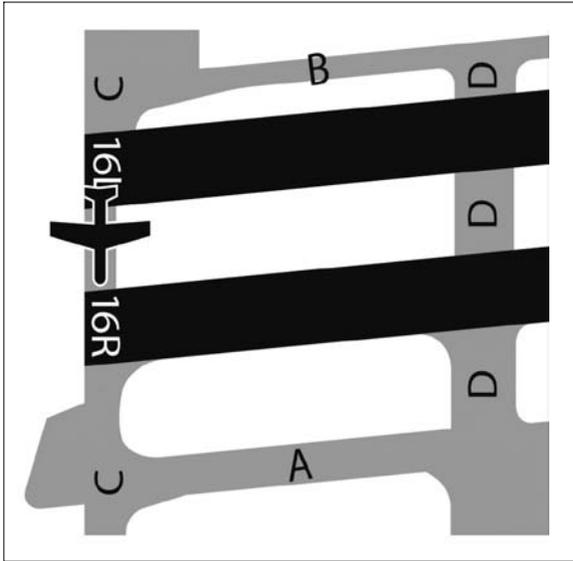
**PHRASEOLOGY-**

*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. 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.

**g. 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).*

“Read back hold short instructions.”

2. “Runway three six cleared to land, hold short of runway three three, traffic, (type aircraft) departing runway three three.”

“Traffic, (type aircraft) landing runway three six will hold short of the intersection, runway three three cleared for takeoff.”

4. Issue the measured distance from the landing threshold to the hold short point rounded “down” to the nearest 50-foot increment if requested by either aircraft.

**EXAMPLE-**

“Five thousand fifty feet available.”

5. The conditions in subparas b2, 3, and 4 shall be met in sufficient time for the pilots to take other action, if desired, and no later than the time landing clearance is issued.

6. Land and Hold Short runways must be free of any contamination as described in the current LAHSO directive, with no reports that braking action is less than good.

7. There is no tailwind for the landing aircraft restricted to hold short of the intersection. The wind may be described as “calm” when appropriate.

**REFERENCE-**  
FAAO JO 7110.65, Para 2-6-5, Calm Wind Conditions.

8. The aircraft required landing distances are listed in the current LAHSO directive.

9. STOL aircraft operations are in accordance with a letter of agreement with the aircraft operator/pilot or the pilot confirms that it is a STOL aircraft.

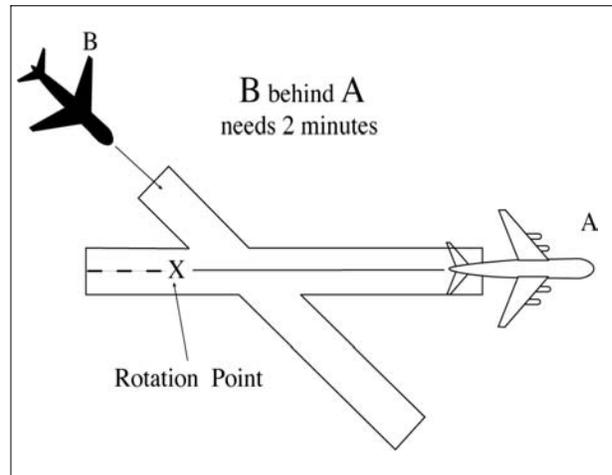
**WAKE TURBULENCE APPLICATION**

c. Separate IFR/VFR aircraft landing behind a departing heavy jet/B757 on a crossing runway if the arrival will fly through the airborne path of the departure- 2 minutes or the appropriate radar separation minima. (See FIG 3-10-10.)

d. Issue wake turbulence cautionary advisories, the position, altitude if known, and direction of flight of the heavy jet/B757 to:

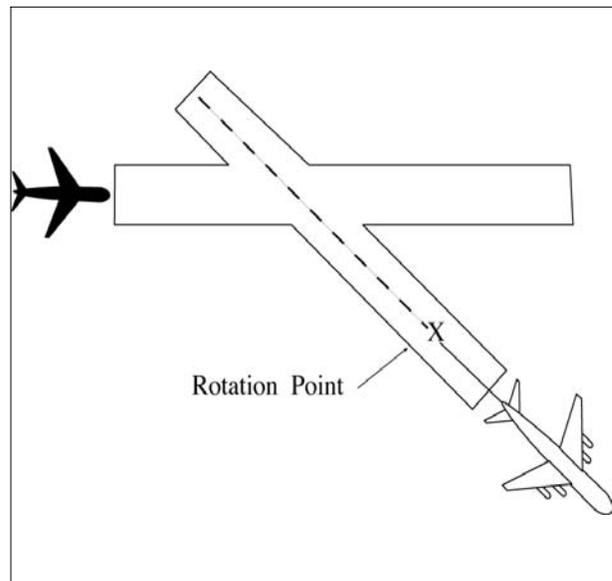
**REFERENCE-**  
AC 90-23, Aircraft Wake Turbulence, Para 12, Pilot Responsibility.

**FIG 3-10-10**  
**Intersecting Runway Separation**



1. IFR/VFR aircraft landing on crossing runways behind a departing heavy jet/B757; if the arrival flight path will cross the takeoff path behind the heavy jet/B757 and behind the heavy jet/B757 rotation point. (See FIG 3-10-11.)

**FIG 3-10-11**  
**Intersecting Runway Separation**

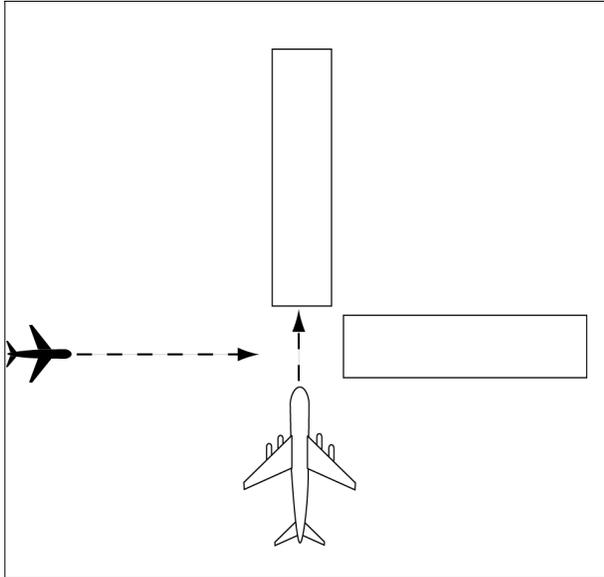


**EXAMPLE-**

“Runway niner cleared to land. Caution wake turbulence, heavy C-One Forty One departing runway one five.”

2. VFR aircraft landing on a crossing runway behind an arriving heavy jet/B757 if the arrival flight path will cross. (See FIG 3-10-12.)

FIG 3-10-12  
Intersecting Runway Separation



**EXAMPLE-**

“Runway niner cleared to land. Caution wake turbulence, Boeing Seven Fifty Seven landing runway three six.”

**REFERENCE-**

FAAO JO 7110.65, Para 7-4-4, Approaches to Multiple Runways.

### 3-10-5. LANDING CLEARANCE

a. When issuing a clearance to land, first state the runway number followed by the landing clearance. If the landing runway is changed, controllers must preface the landing clearance with “Change to runway.”

**PHRASEOLOGY-**

RUNWAY (number) CLEARED TO LAND.

Or

CHANGE TO RUNWAY (number) CLEARED TO LAND.

**b. Procedures.**

1. Facilities without a safety logic system or facilities with the safety logic system inoperative or in the limited configuration must not clear an aircraft for a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach when a departing aircraft has been instructed to line up and wait or is holding in position on the same runway. The landing clearance may be issued once the aircraft in position has started takeoff roll.

2. Facilities using safety logic in the full core alert runway configuration may issue a landing clearance, full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach to an arriving aircraft with an aircraft holding in position or taxiing to LUAW on the same runway except when reported weather conditions are less than ceiling 800 feet or visibility less than 2 miles.

c. Inform the closest aircraft that is requesting a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approaches when there is traffic authorized to line up and wait on the same runway.

**EXAMPLE-**

“Delta One, Runway One-Eight, continue, traffic holding in position.”

“Delta One, Runway One-Eight, cleared to land. Traffic holding in position.”

d. USA/USN/USAF. Issue runway identifier along with surface wind when clearing an aircraft to land, touch and go, stop and go, low approach, or the option.

**PHRASEOLOGY-**

RUNWAY (number), WIND (surface wind direction and velocity), CLEARED TO LAND.

**NOTE-**

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

### 3-10-6. ANTICIPATING SEPARATION

a. Landing clearance to succeeding aircraft in a landing sequence need not be withheld if you observe the positions of the aircraft and determine that prescribed runway separation will exist when the aircraft crosses the landing threshold. Issue traffic information to the succeeding aircraft if a preceding arrival has not been previously reported and when traffic will be departing prior to their arrival.

**EXAMPLE-**

*“American Two Forty-Five, Runway One-Eight, cleared to land, number two following a United Seven-Thirty-Seven two mile final. Traffic will depart prior to your arrival.”*

*“American Two Forty-Five, Runway One-Eight, cleared to land. Traffic will depart prior to your arrival.”*

**NOTE-**

*Landing sequence number is optional at tower facilities where the arrival sequence to the runway is established by the approach control.*

b. Anticipating separation must not be applied when conducting LUAW operations, except as authorized in paragraph 3-10-5b2. Issue applicable traffic information when using this provision.

**EXAMPLE-**

*“American Two Forty-Five, Runway One-Eight, cleared to land. Traffic will be a Boeing Seven-Fifty-Seven holding in position.”*

**REFERENCE-**

*P/CG Term- Clear of the Runway.*

### 3-10-7. LANDING CLEARANCE WITHOUT VISUAL OBSERVATION

When an arriving aircraft reports at a position where he/she should be seen but has not been visually observed, advise the aircraft as a part of the landing clearance that it is not in sight and restate the landing runway.

**PHRASEOLOGY-**

*NOT IN SIGHT, RUNWAY (number) CLEARED TO LAND.*

**NOTE-**

*Aircraft observance on the CTRD satisfies the visually observed requirement.*

### 3-10-8. WITHHOLDING LANDING CLEARANCE

Do not withhold a landing clearance indefinitely even though it appears a violation of Title 14 of the Code of Federal Regulations has been committed. The apparent violation might be the result of an emergency situation. In any event, assist the pilot to the extent possible.

### 3-10-9. RUNWAY EXITING

a. Instruct aircraft where to turn-off the runway after landing, when appropriate, and advise the aircraft to hold short of a runway or taxiway if required for traffic.

**PHRASEOLOGY-**

*TURN LEFT/RIGHT (taxiway/runway),*

*or*

*IF ABLE, TURN LEFT/RIGHT (taxiway/runway)*

*and if required*

*HOLD SHORT OF (runway).*

**NOTE-**

*Runway exiting or taxi instructions should not normally be issued to an aircraft prior to, or immediately after, touchdown.*

b. Taxi instructions shall be provided to the aircraft by the local controller when:

1. Compliance with ATC instructions will be required before the aircraft can change to ground control, or

2. The aircraft will be required to enter an active runway in order to taxi clear of the landing runway.

**EXAMPLE-**

*“U.S. Air Ten Forty Two, turn right next taxiway, cross runway two one, contact ground point seven.”*

*“U.S. Air Ten Forty Two, turn right on Alfa/next taxiway, cross Bravo, hold short of Charlie, contact ground point seven.”*

**NOTE-**

1. *An aircraft is expected to taxi clear of the runway unless otherwise directed by ATC. Pilots shall not exit the landing runway on to an intersecting runway unless authorized by ATC. In the absence of ATC instructions, an aircraft should taxi clear of the landing runway by clearing the hold position marking associated with the landing runway even if that requires the aircraft to protrude into or enter another*

taxiway/ramp area. This does not authorize an aircraft to cross a subsequent taxiway or ramp after clearing the landing runway.

**REFERENCE-**

*P/CG Term- Clear of the Runway.*

2. The pilot is responsible for ascertaining when the aircraft is clear of the runway by clearing the runway holding position marking associated with the landing runway.

c. Ground control and local control shall protect a taxiway/runway/ramp intersection if an aircraft is required to enter that intersection to clear the landing runway.

**REFERENCE-**

*FAAO JO 7210.3, Para 10-1-7, Use of Active Runways.*

d. Request a read back of runway hold short instructions when not received from the pilot.

**EXAMPLE-**

*“American Four Ninety-two, turn left at Taxiway Charlie, hold short of Runway 27 Right.”*

*or*

*“American Four Ninety-two, turn left at Charlie, hold short of Runway 27 Right.”*

*“American Four Ninety Two, Roger.”*

*“American Four Ninety-two, 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.*

### **3-10-10. ALTITUDE RESTRICTED LOW APPROACH**

A low approach with an altitude restriction of not less than 500 feet above the airport may be authorized except over an aircraft in takeoff position or a departure aircraft. Do not clear aircraft for restricted altitude low approaches over personnel unless airport authorities have advised these personnel that the approaches will be conducted. Advise the approaching aircraft of the location of applicable ground traffic, personnel, or equipment.

**NOTE-**

1. The 500 feet restriction is a minimum. Higher altitudes should be used when warranted. For example, 1,000 feet is more appropriate for heavy aircraft operating over

unprotected personnel or small aircraft on or near the runway.

2. This authorization includes altitude restricted low approaches over preceding landing or taxiing aircraft. Restricted low approaches are not authorized over aircraft in takeoff position or departing aircraft.

**PHRASEOLOGY-**

*CLEARED LOW APPROACH AT OR ABOVE (altitude). TRAFFIC (description and location).*

**REFERENCE-**

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

*FAAO JO 7110.65, Para 3-1-6, Traffic Information.*

*FAAO JO 7110.65, Para 3-2-1, Light Signals.*

*FAAO JO 7110.65, Para 3-3-3, Timely Information.*

*FAAO JO 7110.65, Para 3-9-4, Taxi into Position and Hold (TIPH).*

*FAAO JO 7110.65, Para 3-10-3, Same Runway Separation.*

### **3-10-11. CLOSED TRAFFIC**

Approve/disapprove pilot requests to remain in closed traffic for successive operations subject to local traffic conditions.

**PHRASEOLOGY-**

*LEFT/RIGHT (if required) CLOSED TRAFFIC APPROVED. REPORT (position if required),*

*or*

*UNABLE CLOSED TRAFFIC, (additional information as required).*

**NOTE-**

*Segregated traffic patterns for helicopters to runways and other areas may be established by letter of agreement or other local operating procedures.*

**REFERENCE-**

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

*FAAO JO 7110.65, Para 3-9-4, Taxi into Position and Hold (TIPH).*

*FAAO JO 7110.65, Para 3-10-3, Same Runway Separation.*

### **3-10-12. OVERHEAD MANEUVER**

Issue the following to arriving aircraft that will conduct an overhead maneuver:

a. Pattern altitude and direction of traffic. Omit either or both if standard or when you know the pilot is familiar with a nonstandard procedure.

**PHRASEOLOGY-**

*PATTERN ALTITUDE (altitude). RIGHT TURNS.*

b. Request for report on initial approach.

**PHRASEOLOGY-**

*REPORT INITIAL.*

## Section 11. Helicopter Operations

### 3-11-1. TAXI AND GROUND MOVEMENT OPERATION

a. When necessary for a wheeled helicopter to taxi on the surface, use the phraseology in para 3-7-2, Taxi and Ground Movement Operations.

**NOTE-**

Ground taxiing uses less fuel than hover-taxiing and minimizes air turbulence. However, under certain conditions, such as rough, soft, or uneven terrain, it may become necessary to hover/air-taxi for safety considerations. Helicopters with articulating rotors (usually designs with three or more main rotor blades) are subject to "ground resonance" and may, on rare occasions, suddenly lift off the ground to avoid severe damage or destruction.

b. When requested or necessary for a helicopter/VTOL aircraft to proceed at a slow speed above the surface, normally below 20 knots and in ground effect, use the following phraseology, supplemented as appropriate with the phraseology in para 3-7-2, Taxi and Ground Movement Operations.

**PHRASEOLOGY-**

**HOVER-TAXI** (supplemented, as appropriate, from para 3-7-2, Taxi and Ground Movement Operations.)

**CAUTION** (dust, blowing snow, loose debris, taxiing light aircraft, personnel, etc.).

**NOTE-**

Hover-taxiing consumes fuel at a high burn rate, and helicopter downwash turbulence (produced in ground effect) increases significantly with larger and heavier helicopters.

**REFERENCE-**

P/CG Term- Hover Taxi.

AIM, Para 4-3-17, VFR Helicopter Operations at Controlled Airports.

c. When requested or necessary for a helicopter to proceed expeditiously from one point to another, normally below 100 feet AGL and at airspeeds above 20 knots, use the following phraseology, supplemented as appropriate with the phraseology in para 3-7-2, Taxi and Ground Movement Operations.

**PHRASEOLOGY-**

**AIR-TAXI:**

**VIA** (direct, as requested, or specified route)

**TO** (location, heliport, helipad, operating/movement area, active/inactive runway).

**AVOID** (aircraft/vehicles/personnel).  
If required,

**REMAIN AT OR BELOW** (altitude).

**CAUTION** (wake turbulence or other reasons above).

**LAND AND CONTACT TOWER,**

or

**HOLD FOR** (reason- takeoff clearance, release, landing/taxiing aircraft, etc.).

**NOTE-**

Air-taxi is the preferred method for helicopter movements on airports provided ground operations/conditions permit. Air-taxi authorizes the pilot to proceed above the surface either via hover-taxi or flight at speeds more than 20 knots. Unless otherwise requested or instructed, the pilot is expected to remain below 100 feet AGL. The pilot is solely responsible for selecting a safe airspeed for the altitude/operation being conducted.

**REFERENCE-**

P/CG Term- Air Taxi.

AIM, Para 4-3-17, VFR Helicopter Operations at Controlled Airports.

### WAKE TURBULENCE APPLICATION

d. Avoid clearances which require small aircraft or helicopters to taxi in close proximity to taxiing or hover-taxi helicopters.

**REFERENCE-**

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

### 3-11-2. HELICOPTER TAKEOFF CLEARANCE

a. Issue takeoff clearances from movement areas other than active runways or in diverse directions from active runways, with additional instructions as necessary. Whenever possible, issue takeoff clearance in lieu of extended hover-taxi or air-taxi operations.

**PHRASEOLOGY-**

(Present position, taxiway, helipad, numbers) **MAKE RIGHT/LEFT TURN FOR** (direction, points of compass, heading, NAVAID radial) **DEPARTURE/DEPARTURE ROUTE** (number, name, or code), **AVOID** (aircraft/vehicles/personnel),

or

*REMAIN (direction) OF (active runways, parking areas, passenger terminals, etc.).*

*CAUTION (power lines, unlighted obstructions, trees, wake turbulence, etc.).*

**CLEARED FOR TAKEOFF.**

**b.** If takeoff is requested from non-movement areas, an area not authorized for helicopter use, or an area off the airport, and, in your judgment, the operation appears to be reasonable, use the following phraseology instead of the takeoff clearance in subpara a.

**PHRASEOLOGY-**

*DEPARTURE FROM (requested location) WILL BE AT YOUR OWN RISK (additional instructions, as necessary). USE CAUTION (if applicable).*

**c.** Unless agreed to by the pilot, do not issue downwind takeoffs if the tailwind exceeds 5 knots.

**NOTE-**

*A pilot request to takeoff from a given point in a given direction constitutes agreement.*

**3-11-3. HELICOPTER DEPARTURE SEPARATION**

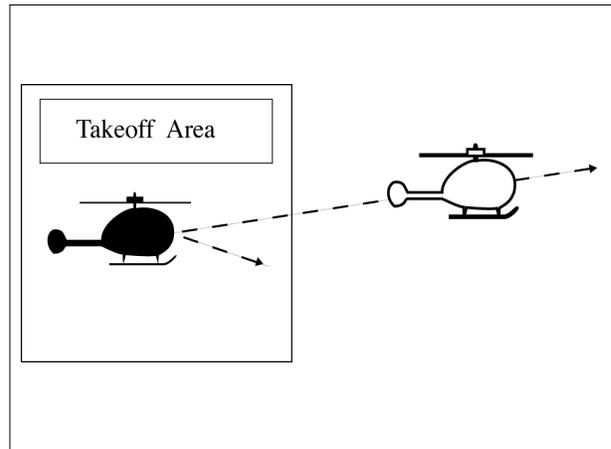
Separate a departing helicopter from other helicopters by ensuring that it does not takeoff until one of the following conditions exists:

**NOTE-**

*Helicopters performing air-taxiing operations within the boundary of the airport are considered to be taxiing aircraft.*

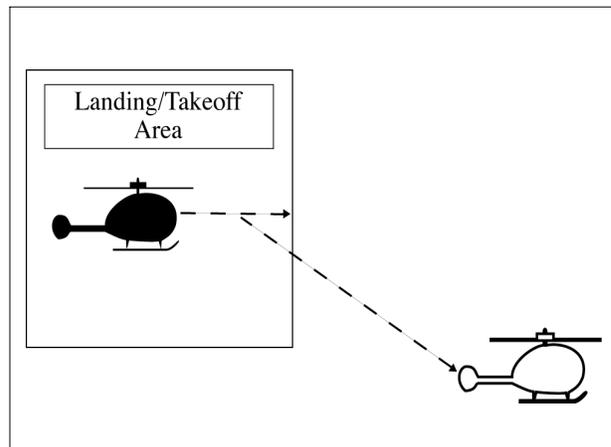
**a.** A preceding, departing helicopter has left the takeoff area. (See FIG 3-11-1.)

**FIG 3-11-1  
Helicopter Departure Separation**



**b.** A preceding, arriving helicopter has taxied off the landing area. (See FIG 3-11-2.)

**FIG 3-11-2  
Helicopter Departure Separation**



### 3-11-4. HELICOPTER ARRIVAL SEPARATION

Separate an arriving helicopter from other helicopters by ensuring that it does not land until one of the following conditions exists:

- a. A preceding, arriving helicopter has come to a stop or taxied off the landing area.  
(See FIG 3-11-3 and FIG 3-11-4.)

FIG 3-11-3

Helicopter Arrival Separation

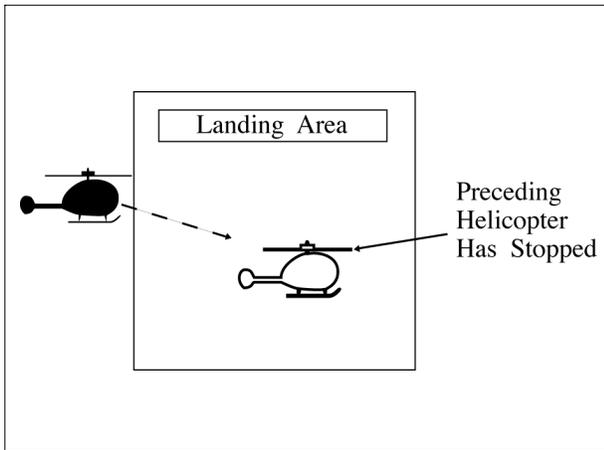
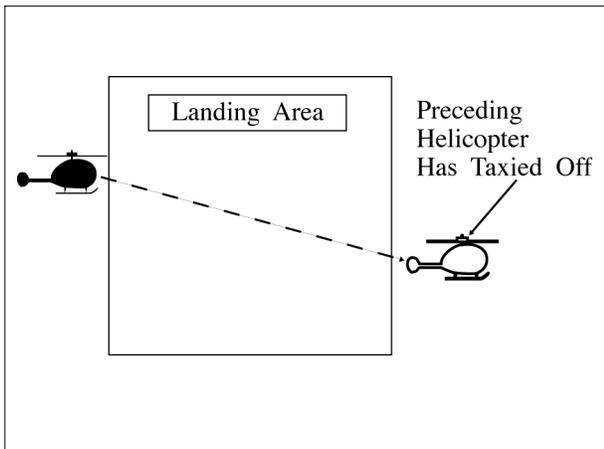


FIG 3-11-4

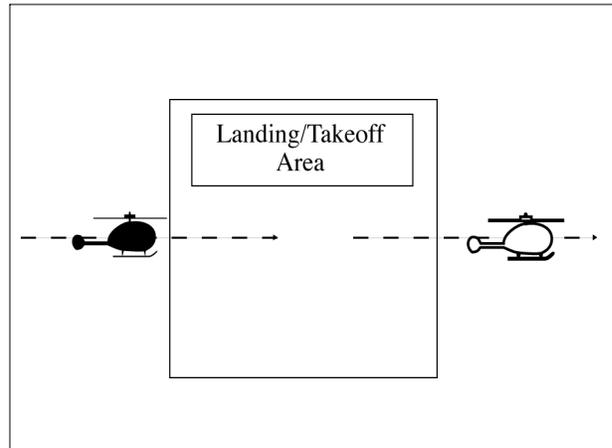
Helicopter Arrival Separation



- b. A preceding, departing helicopter has left the landing area. (See FIG 3-11-5.)

FIG 3-11-5

Helicopter Arrival Separation

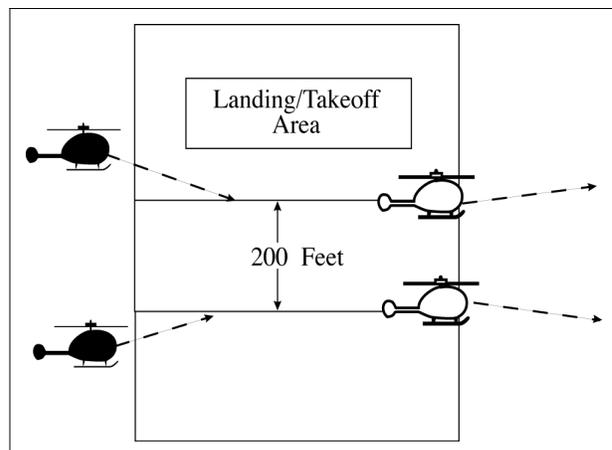


### 3-11-5. SIMULTANEOUS LANDINGS OR TAKEOFFS

Authorize helicopters to conduct simultaneous landings or takeoffs if the distance between the landing or takeoff points is at least 200 feet and the courses to be flown do not conflict. Refer to surface markings to determine the 200 foot minimum, or instruct a helicopter to remain at least 200 feet from another helicopter. (See FIG 3-11-6.)

FIG 3-11-6

Simultaneous Helicopter Landings or Takeoffs



### 3-11-6. HELICOPTER LANDING CLEARANCE

**a.** Issue landing clearances to helicopters going to movement areas other than active runways or from diverse directions to points on active runways, with additional instructions as necessary. Whenever possible, issue a landing clearance in lieu of extended hover-taxi or air-taxi operations.

**PHRASEOLOGY-**

*MAKE APPROACH STRAIGHT-IN/CIRCLING LEFT/RIGHT TURN TO (location, runway, taxiway, helipad, Maltese cross) ARRIVAL/ARRIVAL ROUTE (number, name, or code).*

*HOLD SHORT OF (active runway, extended runway centerline, other).*

*REMAIN (direction/distance; e.g., 700 feet, 1 1/2 miles) OF/FROM (runway, runway centerline, other helicopter/aircraft).*

*CAUTION (power lines, unlighted obstructions, wake turbulence, etc.).*

*CLEARED TO LAND.*

**b.** If landing is requested to non-movement areas, areas not authorized for helicopter use, or areas off the airport, and, in your judgment, the operation appears to be reasonable, use the following phraseology instead of the landing clearance in subpara a.

**PHRASEOLOGY-**

*LANDING WILL BE AT YOUR OWN RISK (additional instructions, as necessary). USE CAUTION (if applicable).*

**c.** Unless agreed to by the pilot, do not issue downwind landings if the tailwind exceeds 5 knots.

**NOTE-**

*A pilot request to land at a given point from a given direction constitutes agreement.*

## Section 12. Sea Lane Operations

### 3-12-1. APPLICATION

Where sea lanes are established and controlled, apply the provisions of this section.

### 3-12-2. DEPARTURE SEPARATION

Separate a departing aircraft from a preceding departing or arriving aircraft using the same sea lane by ensuring that it does not commence takeoff until:

a. The other aircraft has departed and crossed the end of the sea lane or turned to avert any conflict. (See FIG 3-12-1). If you can determine distances by reference to suitable landmarks, the other aircraft need only be airborne if the following minimum distance exists between aircraft:

1. When only Category I aircraft are involved- 1,500 feet.
2. When a Category I aircraft is preceded by a Category II aircraft- 3,000 feet.
3. When either the succeeding or both are Category II aircraft- 3,000 feet.
4. When either is a Category III aircraft- 6,000 feet. (See FIG 3-12-2.)

FIG 3-12-1  
Sea Lane Departure Operations

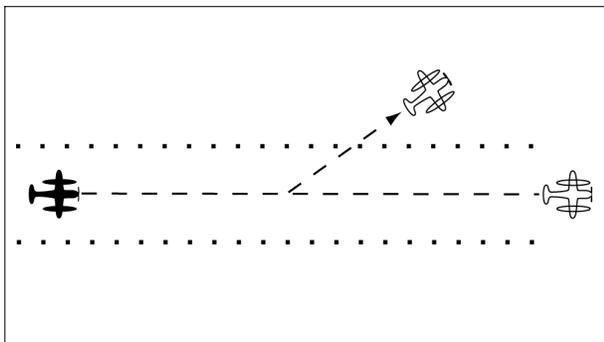
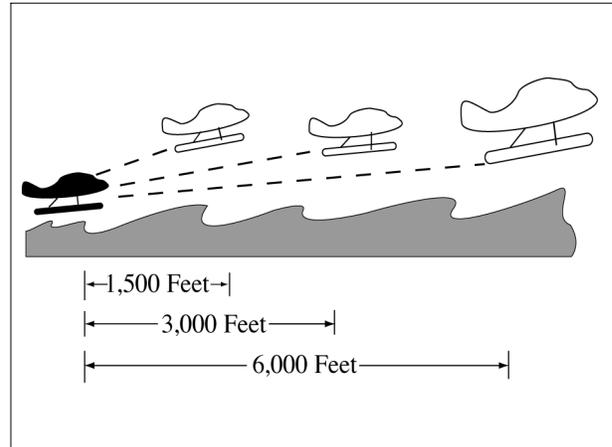


FIG 3-12-2  
Sea Lane Departure Operations



b. A preceding landing aircraft has taxied out of the sea lane.

#### NOTE-

Due to the absence of braking capability, caution should be exercised when instructing a float plane to hold a position as the aircraft will continue to move because of prop generated thrust. Therefore, clearance to line up and wait should be followed by takeoff or other clearance as soon as is practical.

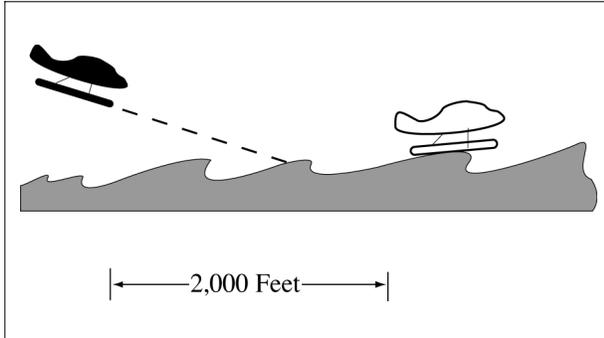
### 3-12-3. ARRIVAL SEPARATION

Separate an arriving aircraft from another aircraft using the same sea lane by ensuring that the arriving aircraft does not cross the landing threshold until one of the following conditions exists:

a. The other aircraft has landed and taxied out of the sea lane. Between sunrise and sunset, if you can determine distances by reference to suitable landmarks and the other aircraft has landed, it need not be clear of the sea lane if the following minimum distance from the landing threshold exists:

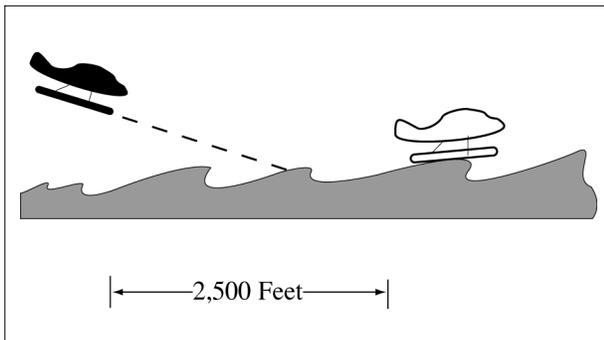
1. When a Category I aircraft is landing behind a Category I or II- 2,000 feet. (See FIG 3-12-3.)

**FIG 3-12-3  
Sea Lane Arrival Operations**



2. When a Category II aircraft is landing behind a Category I or II- 2,500 feet. (See FIG 3-12-4.)

**FIG 3-12-4  
Sea Lane Arrival Operations  
[View 2]**

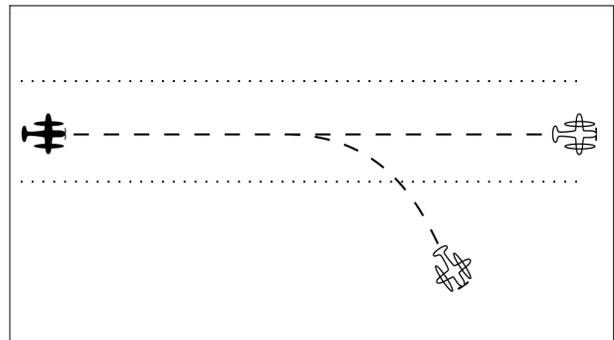


b. The other aircraft has departed and crossed the end of the sea lane or turned to avert any conflict. (See FIG 3-12-5.) If you can determine distances by reference to suitable landmarks and the other aircraft is airborne, it need not have crossed the end of the sea

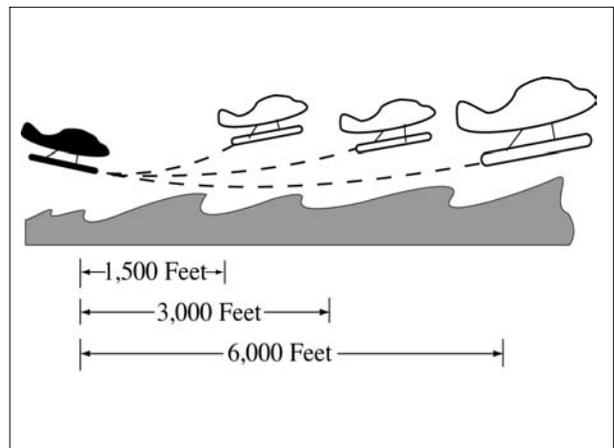
lane if the following minimum distance from the landing threshold exists:

1. When only Category I aircraft are involved- 1,500 feet.
2. When either is a Category II aircraft- 3,000 feet.
3. When either is a Category III aircraft- 6,000 feet. (See FIG 3-12-6.)

**FIG 3-12-5  
Sea Lane Arrival Operations**



**FIG 3-12-6  
Sea Lane Arrival Operations**



## Section 2. Clearances

### 4-2-1. CLEARANCE ITEMS

Issue the following clearance items, as appropriate, in the order listed below:

- a. Aircraft identification.
- b. Clearance limit.
- c. Standard Instrument Departure (SID).
- d. Route of flight including PDR/PDAR/PAR when applied.
- e. Altitude data in the order flown.
- f. Mach number, if applicable.
- g. *USAF*. When issuing a clearance to an airborne aircraft containing an altitude assignment, do not include more than one of the following in the same transmission:
  1. Frequency change.
  2. Transponder change.
  3. Heading.
  4. Altimeter setting.
  5. Traffic information containing an altitude.

- h. Holding instructions.
- i. Any special information.
- j. Frequency and beacon code information.

#### REFERENCE-

*FAAO JO 7110.65, Para 4-2-8, IFR-VFR and VFR-IFR Flights.*  
*FAAO JO 7110.65, Para 4-5-7, Altitude Information.*

### 4-2-2. CLEARANCE PREFIX

- a. Prefix a clearance, information, or a request for information which will be relayed to an aircraft through a non-ATC facility by stating "A-T-C clears," "A-T-C advises," or "A-T-C requests."
- b. Flight service stations shall prefix a clearance with the appropriate phrase: "ATC clears," "ATC advises," etc.

### 4-2-3. DELIVERY INSTRUCTIONS

Issue specific clearance delivery instructions, if appropriate.

### 4-2-4. CLEARANCE RELAY

Relay clearances verbatim.

#### REFERENCE-

*FAAO JO 7110.65, Para 10-4-4, Communications Failure.*

### 4-2-5. ROUTE OR ALTITUDE AMENDMENTS

a. Amend route of flight in a previously issued clearance by one of the following:

1. State which portion of the route is being amended and then state the amendment.

#### PHRASEOLOGY-

*CHANGE (portion of route) TO READ (new portion of route).*

2. State the amendment to the route and then state that the rest of the route is unchanged.

#### PHRASEOLOGY-

*(Amendment to route), REST OF ROUTE UNCHANGED.*

3. Issue a clearance "direct" to a point on the previously issued route.

#### PHRASEOLOGY-

*CLEARED DIRECT (fix).*

#### NOTE-

*Clearances authorizing "direct" to a point on a previously issued route do not require the phrase "rest of route unchanged." However, it must be understood where the previously cleared route is resumed. When necessary, "rest of route unchanged" may be used to clarify routing.*

4. Issue the entire route by stating the amendment.

#### EXAMPLE-

*(Cessna 21A has been cleared to the Airville Airport via V41 Delta VOR V174 Alfa VOR, direct Airville Airport, maintain 9000. After takeoff, the aircraft is rerouted via V41 Frank intersection, V71 Delta VOR, V174 Alfa VOR. The controller issues one of the following as an amended clearance):*

1. *"Cessna Two One Alfa change Victor Forty-One Delta to read Victor Forty-One Frank, Victor Seventy-One Delta."*
2. *"Cessna Two One Alfa cleared via Victor Forty-One Frank, Victor Seventy-One Delta, rest of route unchanged."*

3. “Cessna Two One Alfa cleared via Victor Forty-One Frank, Victor Seventy-One Delta, Victor One Seventy-Four Alfa V-O-R, direct Airville airport, maintain Niner Thousand.”

b. When route or altitude in a previously issued clearance is amended, restate all applicable altitude restrictions.

**EXAMPLE-**

(A departing aircraft is cleared to cross Ollis intersection at or above 3,000; Gordonsville VOR at or above 12,000; maintain FL 200. Shortly after departure the altitude to be maintained is changed to FL 240. Because altitude restrictions remain in effect, the controller issues an amended clearance as follows):

“Amend altitude. Cross Ollis intersection at or above Three Thousand; cross Gordonsville V-O-R at or above One Two Thousand; maintain Flight Level Two Four Zero.”

(Shortly after departure, altitude restrictions are no longer applicable, the controller issues an amended clearance as follows):

“Climb and maintain Flight Level Two Four Zero.”

**NOTE-**

1. Restating previously issued altitude to “maintain” is an amended clearance. If altitude to “maintain” is changed or restated, whether prior to departure or while airborne, and previously issued altitude restrictions are omitted, altitude restrictions are canceled, including SID/STAR/(ATC) altitude restrictions if any.

2. Crossing altitudes and speed restrictions not annotated as (ATC) for SIDs and DPs, including ODPs, are mandatory and cannot be canceled by ATC. ATC altitude restrictions and/or speed restrictions annotated (ATC) may be canceled by ATC. In the event of lost communications, aircraft are expected to comply with all restrictions unless ATC has previously canceled the ATC-annotated restrictions.

c. Issue an amended clearance if a speed restriction is declined because it cannot be complied with concurrently with a previously issued altitude restriction.

**EXAMPLE-**

(An aircraft is cleared to cross Gordonsville VOR at 11,000. Shortly thereafter he/she is cleared to reduce his/her airspeed to 300 knots. The pilot informs the controller he/she is unable to comply with both clearances simultaneously. The controller issues an amended clearance as follows):

“Cross Gordonsville VOR at One One Thousand. Then, reduce speed to Three Zero Zero.”

**NOTE-**

The phrase “do the best you can” or comparable phrases are not valid substitutes for an amended clearance with altitude or speed restrictions.

**REFERENCE-**

FAAO JO 7110.65, Para 2-1-18, Operational Requests.  
FAAO JO 7110.65, Section 6, Vectoring, Para 5-6-2, Methods.  
FAAO JO 7110.65, Section 7, Speed Adjustment, Para 5-7-2, Methods.

d. Air traffic control specialists should avoid route and/or altitude changes for aircraft participating in the North American Route Program (NRP) and that are displaying “NRP” in the remarks section of their flight plan. Specialists at facilities actively participating in the High Altitude Redesign (HAR) program should avoid route and/or altitude changes for aircraft participating in full HAR and high altitude Point-to-point (PTP), and that are displaying “HAR,” or “PTP” in the remarks section of their flight plan.

**NOTE-**

Air traffic control specialists retain the latitude necessary to tactically resolve conflicts. Every effort should be made to ensure the aircraft is returned to the original filed flight plan/altitude as soon as conditions warrant.

**REFERENCE-**

FAAO JO 7110.65, Para 2-1-4, Operational Priority.  
FAAO JO 7110.65, Para 2-2-15, North American Route Program (NRP) Information.  
FAAO JO 7110.65, Para 2-3-2, En Route Data Entries.  
FAAO JO 7210.3, Chapter 17, Section 16, North American Route Program.

## 4-2-6. THROUGH CLEARANCES

You may clear an aircraft through intermediate stops.

**PHRASEOLOGY-**

CLEARED THROUGH (airport) TO (fix).

## 4-2-7. ALTRV CLEARANCE

Use the phrase “via approved altitude reservation flight plan,” if the aircraft will operate in an approved ALTRV.

**PHRASEOLOGY-**

VIA APPROVED ALTITUDE RESERVATION (mission name) FLIGHT PLAN.

**NOTE-**

An ALTRV normally includes the departure, climb, cruise, and arrival phases of flight up to and including holding pattern or point/time at which ATC provides separation between aircraft.

**REFERENCE-**

FAAO JO 7110.65, Para 4-3-3, Abbreviated Departure Clearance.

**4-2-8. IFR-VFR AND VFR-IFR FLIGHTS**

**a.** Clear an aircraft planning IFR operations for the initial part of flight and VFR for the latter part to the fix at which the IFR part ends.

**b.** Treat an aircraft planning VFR for the initial part of flight and IFR for the latter part as a VFR departure. Issue a clearance to this aircraft when it requests IFR clearance approaching the fix where it proposes to start IFR operations. The phraseology **CLEARED TO (destination) AIRPORT AS FILED** may be used with abbreviated departure clearance procedures.

**REFERENCE-**

FAAO JO 7110.65, Para 4-3-3, Abbreviated Departure Clearance.

**c.** When an aircraft changes from VFR to IFR, the controller shall assign a beacon code to Mode-C equipped aircraft that will allow MSAW alarms.

**d.** When a VFR aircraft, operating below the minimum altitude for IFR operations, requests an IFR clearance and you are aware that the pilot is unable to climb in VFR conditions to the minimum IFR altitude:

**1.** Before issuing a clearance, ask if the pilot is able to maintain terrain and obstruction clearance during a climb to the minimum IFR altitude.

**NOTE-**

*Pilots of pop-up aircraft are responsible for terrain and obstacle clearance until reaching minimum instrument altitude (MIA) or minimum en route altitude (MEA). Pilot compliance with an approved FAA procedure or an ATC instruction transfers that responsibility to the FAA;*

*therefore, do not assign (or imply) specific course guidance that will (or could) be in effect below the MIA or MEA.*

**EXAMPLE-**

*“November Eight Seven Six, are you able to provide your own terrain and obstruction clearance between your present altitude and six thousand feet?”*

**2.** If the pilot is able to maintain terrain and obstruction separation, issue the appropriate clearance as prescribed in para 4-2-1, Clearance Items, and para 4-5-6, Minimum En Route Altitudes.

**3.** If unable to maintain terrain and obstruction separation, instruct the pilot to maintain VFR and to state intentions.

**4.** If appropriate, apply the provisions of para 10-2-7, VFR Aircraft In Weather Difficulty, or para 10-2-9, Radar Assistance Techniques, as necessary.

**4-2-9. CLEARANCE ITEMS**

The following guidelines shall be utilized to facilitate the processing of airfile aircraft:

**a.** Ensure the aircraft is within your area of jurisdiction unless otherwise coordinated.

**b.** Obtain necessary information needed to provide IFR service.

**c.** Issue clearance to destination, short range clearance, or an instruction to the pilot to contact a FSS or AFSS if the flight plan cannot be processed.

**NOTE-**

*These procedures do not imply that the processing of airfiles has priority over another ATC duty to be performed.*

**REFERENCE-**

FAAO JO 7110.65, Para 2-2-1, Recording Information.



## Section 5. Radar Separation

### 5-5-1. APPLICATION

**a.** Radar separation shall be applied to all RNAV aircraft operating on a random (impromptu) route at or below FL 450 and to all published Q routes in the conterminous United States.

#### EN ROUTE

**EXCEPTION.** Aircraft equipped with IFR-certified GPS systems operating on point-to-point RNAV routes within the Anchorage Air Route Traffic Control Center (ARTCC) controlled airspace (excluding oceanic airspace) where ATC surveillance coverage is not available, may be provided nonradar separation, in lieu of radar separation, when an operational advantage will be gained.

#### REFERENCE-

FAAO JO 7110.65, Para 2-1-3, Procedural Preference  
FAAO JO 7110.65, Para 4-1-2, Exceptions  
FAAO JO 7110.65, Para 6-5-4, Minima Along Other Than Established Airways or Routes

**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.

### 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 shall be issued when this procedure is used.

**NOTE-**

*This procedure shall not be provided utilizing mosaic radar systems.*

c. Target resolution shall 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:

**TERMINAL**

a. 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.

**NOTE-**

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

b. Stage A/DARC, MEARTS Mosaic Mode, 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.

c. MEARTS Mosaic Mode:

**NOTE-**

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

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

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

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

d. 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 shall be provided in accordance with para 2-1-6, Safety Alert.

#### WAKE TURBULENCE APPLICATION

e. 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 2500 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

f. **TERMINAL.** In addition to subpara e, 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.

g. **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-**

*Although all other approved separation may be discontinued, the requirements of para 5-5-4, Minima, subparas e and f shall 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 e and f 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 para 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 para 5-5-4, Minima, subpara b1.

### 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  $\frac{1}{2}$  mile.

#### **REFERENCE-**

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

#### **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:

- a. If less than 40 miles from the antenna- add *1 mile*.
- b. If 40 miles or more but not over 200 miles from the antenna- add *3 miles*.

## Section 6. Vectoring

### 5-6-1. APPLICATION

Vector aircraft:

**a.** In controlled airspace for separation, safety, noise abatement, operational advantage, confidence maneuver, or when a pilot requests. Allow aircraft operating on an RNAV route to remain on their own navigation to the extent possible.

**b.** In Class G airspace only upon pilot request and as an additional service.

**c.** At or above the MVA or the minimum IFR altitude except as authorized for radar approaches, special VFR, VFR operations, or by para 5-6-3, Vectors Below Minimum Altitude.

#### **NOTE-**

*VFR aircraft not at an altitude assigned by ATC may be vectored at any altitude. It is the responsibility of the pilot to comply with the applicable parts of CFR Title 14.*

#### **REFERENCE-**

*FAAO JO 7110.65, Para 4-5-6, Minimum En Route Altitudes.*

*FAAO JO 7110.65, Para 7-5-2, Priority.*

*FAAO JO 7110.65, Para 7-5-4, Altitude Assignment.*

*FAAO JO 7110.65, Para 7-7-5, Altitude Assignments.*

*14 CFR Section 91.119, Minimum Safe Altitudes: General.*

**d.** In airspace for which you have control jurisdiction, unless otherwise coordinated.

**e.** So as to permit it to resume its own navigation within radar coverage.

**f.** Operating special VFR only within Class B, Class C, Class D, or Class E surface areas.

**g.** Operating VFR at those locations where a special program is established, or when a pilot requests, or you suggest and the pilot concurs.

#### **REFERENCE-**

*FAAO JO 7110.65, Para 4-4-1, Route Use.*

*FAAO JO 7110.65, Para 7-2-1, Visual Separation.*

*FAAO JO 7110.65, Para 7-5-3, Separation.*

*FAAO JO 7110.65, Para 7-6-1, Application.*

*FAAO JO 7110.65, Para 9-4-4, Separation Minima.*

*FAAO JO 7210.3, Chapter 11, Section 1, Terminal VFR Radar Services.*

### 5-6-2. METHODS

**a.** Vector aircraft by specifying:

**1.** Direction of turn, if appropriate, and magnetic heading to be flown, or

#### **PHRASEOLOGY-**

*TURN LEFT/RIGHT HEADING (degrees).*

*FLY HEADING (degrees).*

*FLY PRESENT HEADING.*

*DEPART (fix) HEADING (degrees).*

**2.** The number of degrees, in group form, to turn and the direction of turn, or

#### **PHRASEOLOGY-**

*TURN (number of degrees) DEGREES LEFT/RIGHT.*

**3.** For NO-GYRO procedures, the type of vector, direction of turn, and when to stop turn.

#### **PHRASEOLOGY-**

*THIS WILL BE A NO-GYRO VECTOR,*

*TURN LEFT/RIGHT.*

*STOP TURN.*

**b.** When initiating a vector, advise the pilot of the purpose.

#### **PHRASEOLOGY-**

*VECTOR TO (fix or airway).*

*VECTOR TO INTERCEPT (name of NAVAID) (specified) RADIAL.*

*VECTOR FOR SPACING.*

*VECTOR TO FINAL APPROACH COURSE,*

*or if the pilot does not have knowledge of the type of approach,*

*VECTOR TO (approach name) FINAL APPROACH COURSE.*

#### **NOTE-**

*Determine optimum routing based on factors such as wind, weather, traffic, pilot requests, noise abatement, adjacent sector requirement, and letters of agreement.*

**c.** Issue with the vector an altitude to maintain and all appropriate altitude restrictions when:

**1.** The vector will take the aircraft off an assigned procedure which contains altitude instructions, i.e., instrument approach, nonradar SID, FMSP, etc.

2. The previously issued clearance included crossing restrictions.

**REFERENCE-**

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

d. If appropriate, advise the pilot what to expect when the vector is completed.

**PHRASEOLOGY-**

*EXPECT TO RESUME (Route, SID, STAR, FMSP, etc.).*

**NOTE-**

*You must ensure that the pilot is made aware if he/she is expected to resume a previously issued route procedure.*

e. Provide radar navigational guidance until the aircraft is:

1. Established within the airspace to be protected for the nonradar route to be flown, or

2. On a heading that will, within a reasonable distance, intercept the nonradar route to be flown, and

3. Informed of its position unless the aircraft is RNAV, FMS, or DME equipped and being vectored toward a VORTAC/TACAN or waypoint and within the service volume of the NAVAID.

**PHRASEOLOGY-**

*(Position with respect to course/fix along route),  
RESUME OWN NAVIGATION,*

*or*

*FLY HEADING (degrees). WHEN ABLE, PROCEED  
DIRECT (name of fix),*

*or*

*RESUME (name/number FMSP/SID/transition/STAR/  
procedure).*

**REFERENCE-**

FAAO JO 7110.65, Chapter 4, Section 1, NAVAID Use Limitations.

f. Aircraft instructed to resume a procedure which contains restrictions (SID/STAR/FMSP, etc.) shall be issued/reissued all applicable restrictions or shall be advised to comply with those restrictions.

**PHRASEOLOGY-**

*RESUME (name/number FMSP/SID/transition/STAR),  
COMPLY WITH RESTRICTIONS.*

**EXAMPLE-**

*“Resume the Mudde One Arrival, comply with restrictions.”*

*“Cleared direct Luxor, resume the Ksino One arrival, comply with restrictions.”*

g. Aircraft vectored off an RNAV route shall be recleared to the next waypoint or as requested by the pilot.

h. During stage A operation, update the route of flight in the computer unless an operational advantage is gained and coordination is accomplished.

i. Inform the pilot when a vector will take the aircraft across a previously assigned nonradar route.

**PHRASEOLOGY-**

*EXPECT VECTOR ACROSS (NAVAID radial)  
(airway/route/course) FOR (purpose).*

**REFERENCE-**

FAAO JO 7110.65, Para 7-6-1, Application.

### 5-6-3. VECTORS BELOW MINIMUM ALTITUDE

Except in en route automated environments in areas where more than 3 miles separation minima is required, you may vector a departing IFR aircraft, or one executing a missed approach, within 40 miles of the radar antenna and before it reaches the minimum altitude for IFR operations if separation from prominent obstacles shown on the radar scope is applied in accordance with the following:

a. If the flight path is 3 miles or more from the obstacle and the aircraft is climbing to an altitude at least 1,000 feet above the obstacle, vector the aircraft to maintain at least 3 miles separation from the obstacle until the aircraft reports leaving an altitude above the obstacle.

b. If the flight path is less than 3 miles from the obstacle and the aircraft is climbing to an altitude at least 1,000 feet above the obstacle, vector the aircraft to increase lateral separation from the obstacle until the 3 mile minimum is achieved or until the aircraft reports leaving an altitude above the obstacle.

**REFERENCE-**

*P/CG Term - Obstacle.*

*P/CG Term - Obstruction.*

*P/CG Term - Prominent Obstacle.*

c. At those locations where diverse vector areas (DVA) have been established, terminal radar facilities may vector aircraft below the MVA/MIA within those areas and along those routes described in facility directives.

**REFERENCE-**

FAAO JO 7210.3, Para 3-9-5, Establishing Diverse Vector Area/s (DVA).

## Section 4. Approaches

### 7-4-1. VISUAL APPROACH

A visual approach is an ATC authorization for an aircraft on an IFR flight plan to proceed visually to the airport of intended landing; it is not an instrument approach procedure. Also, there is no missed approach segment. An aircraft unable to complete a visual approach shall be handled as any go-around and appropriate separation must be provided.

**REFERENCE-**

FAAO JO 7110.65, Para 2-1-20, Wake Turbulence Cautionary Advisories.

FAAO JO 7110.65, Para 3-10-2, Forwarding Approach Information by Nonapproach Control Facilities.

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

FAAO JO 7110.65, Para 7-4-4, Approaches to Multiple Runways.

### 7-4-2. VECTORS FOR VISUAL APPROACH

A vector for a visual approach may be initiated if the reported ceiling at the airport of intended landing is at least 500 feet above the MVA/MIA and the visibility is 3 miles or greater. At airports without weather reporting service there must be reasonable assurance (e.g. area weather reports, PIREPs, etc.) that descent and flight to the airport can be made visually, and the pilot must be informed that weather information is not available.

**PHRASEOLOGY-**

*(Ident) FLY HEADING OR TURN RIGHT/LEFT HEADING (degrees) VECTOR FOR VISUAL APPROACH TO (airport name).*

*(If appropriate)*

**WEATHER NOT AVAILABLE.**

**NOTE-**

*At airports where weather information is not available, a pilot request for a visual approach indicates that descent and flight to the airport can be made visually and clear of clouds.*

**REFERENCE-**

FAAO JO 7110.65, Para 5-9-1, Vectors to Final Approach Course.

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

FAAO JO 7110.65, Para 7-4-3, Clearance for Visual Approach.

FAAO JO 7110.65, Para 7-4-4, Approaches to Multiple Runways.

FAAO JO 7110.65, Para 7-6-7, Sequencing.

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

### 7-4-3. CLEARANCE FOR VISUAL APPROACH

ARTCCs and approach controls may clear aircraft for visual approaches using the following procedures:

**NOTE-**

*Towers may exercise this authority when authorized by a LOA with the facility that provides the IFR service, or by a facility directive at collocated facilities.*

a. Controllers may initiate, or pilots may request, a visual approach even when an aircraft is being vectored for an instrument approach and the pilot subsequently reports:

1. The airport or the runway in sight at airports with operating control towers.
2. The airport in sight at airports without a control tower.

b. Resolve potential conflicts with all other aircraft, advise an overtaking aircraft of the distance to the preceding aircraft and speed difference, and ensure that weather conditions at the airport are VFR or that the pilot has been informed that weather is not available for the destination airport. Upon pilot request, advise the pilot of the frequency to receive weather information where AWOS/ASOS is available.

**PHRASEOLOGY-**

*(Call sign) (control instructions as required) CLEARED VISUAL APPROACH RUNWAY (number);*

*or*

*(Call sign) (control instructions as required) CLEARED VISUAL APPROACH TO (airport name)*

*(and if appropriate)*

**WEATHER NOT AVAILABLE OR VERIFY THAT YOU HAVE THE (airport) WEATHER.**

**REFERENCE-**

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

c. Clear an aircraft for a visual approach when:

1. The aircraft is number one in the approach sequence, or
2. The aircraft is to follow a preceding aircraft and the pilot reports the preceding aircraft in sight and is instructed to follow it, or

**NOTE-**

*The pilot need not report the airport/runway in sight.*

3. The pilot reports the airport or runway in sight but not the preceding aircraft. Radar separation must be maintained until visual separation is provided.

d. All aircraft following a heavy jet/B757 must be informed of the airplane manufacturer and/or model.

**EXAMPLE-**

*“Cessna Three Four Juliet, following a Boeing 757, 12 o’clock, six miles.”*

*or*

*“Cessna Three Four Juliet, following a Seven fifty seven, 12 o’clock, six miles.”*

**REFERENCE-**

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

e. Inform the tower of the aircraft’s position prior to communications transfer at controlled airports. ARTS/STARS functions may be used provided a facility directive or LOA specifies control and communication transfer points.

f. In addition to the requirements of para 7-4-2, Vectors for Visual Approach, and subparagraphs a, b, c, d, and e, ensure that the location of the destination airport is provided when the pilot is asked to report the destination airport in sight.

g. In those instances where airports are located in close proximity, also provide the location of the airport that may cause the confusion.

**EXAMPLE-**

*“Cessna Five Six November, Cleveland Burke Lakefront Airport is at 12 o’clock, 5 miles. Cleveland Hopkins Airport is at 1 o’clock 12 miles. Report Cleveland Hopkins in sight.”*

**REFERENCE-**

*FAAO JO 7110.65, Para 7-4-4, Approaches to Multiple Runways.*

#### **7-4-4. APPROACHES TO MULTIPLE RUNWAYS**

a. All aircraft must be informed that approaches are being conducted to parallel/intersecting/converging runways. This may be accomplished through use of the ATIS.

b. When conducting visual approaches to multiple runways ensure the following:

1. Do not permit the respective aircrafts’ primary radar targets to touch unless visual separation is being applied.

2. When the aircraft flight paths intersect, ensure standard separation is maintained until visual separation is provided.

c. In addition to the requirements in para 7-2-1, Visual Separation, para 7-4-1, Visual Approach, para 7-4-2, Vectors for Visual Approach, and para 7-4-3, Clearance for Visual Approach, the following conditions apply to visual approaches being conducted simultaneously to parallel, intersecting, and converging runways, as appropriate:

1. Parallel runways separated by less than 2,500 feet. Unless standard separation is provided by ATC, an aircraft must report sighting a preceding aircraft making an approach (instrument or visual) to the adjacent parallel runway. When an aircraft reports another aircraft in sight on the adjacent final approach course and visual separation is applied, controllers must advise the succeeding aircraft to maintain visual separation. However, do not permit a heavy/B757 aircraft to overtake another aircraft. Do not permit a large aircraft to overtake a small aircraft.

2. Parallel runways separated by at least 2,500 feet, but less than 4,300 feet.

(a) Standard separation is provided until the aircraft are established on a heading which will intercept the extended centerline of the runway at an angle not greater than 30 degrees, and each aircraft has been issued and the pilot has acknowledged receipt of the visual approach clearance.

**NOTE-**

*The intent of the 30 degree intercept angle is to reduce the potential for overshoots of the final, and preclude side-by-side operations with one or both aircraft in a “belly-up” configuration during the turn. Aircraft performance, speed, and the number of degrees of the turn to the final are factors to be considered by the controller when vectoring aircraft to parallel runways.*

(b) Visual approaches may be conducted to one runway while visual or instrument approaches are conducted simultaneously to other runways, provided the conditions of subpara (a) are met.

(c) Provided aircraft flight paths do not intersect, and when the provisions of subparagraphs (a) and (b) are met, it is not necessary to apply any other type

of separation with aircraft on the adjacent final approach course.

**3.** Parallel runways separated by 4,300 feet or more.

(a) When aircraft flight paths do not intersect, visual approaches may be conducted simultaneously, provided standard separation is maintained until one of the aircraft has been issued and the pilot has acknowledged receipt of the visual approach clearance.

(b) Visual approaches may be conducted to one runway while visual or instrument approaches are conducted simultaneously to other runways, provided the conditions of subpara (a) are met.

(c) Provided the aircraft flight paths do not intersect, when the provisions of subparas (a) and (b) are met, it is not necessary to apply any other type of separation with aircraft on the adjacent final approach course.

**4.** Intersecting and converging runways. Visual approaches may be conducted simultaneously with visual or instrument approaches to other runways, provided:

(a) Standard separation is maintained until the aircraft conducting the visual approach has been issued and the pilot has acknowledged receipt of the visual approach clearance.

(b) When aircraft flight paths intersect, radar separation must be maintained until visual separation is provided.

**NOTE-**

*Although simultaneous approaches may be conducted to intersecting runways, staggered approaches may be necessary to meet the airport separation requirements specified in para 3-10-4, Intersecting Runway Separation.*

**REFERENCE-**

*FAAO 7110.79, Charted Visual Flight Procedures.  
FAAO JO 7110.65, Para 7-4-5, Charted Visual Flight Procedures (CVFP). USA/USN Not Applicable.  
FAAO JO 7110.65, Para 7-7-3, Separation.*

**7-4-5. CHARTED VISUAL FLIGHT PROCEDURES (CVFP). USA/USN NOT APPLICABLE**

Clear an aircraft for a CVFP only when the following conditions are met:

**a.** There is an operating control tower.

**b.** The published name of the CVFP and the landing runway are specified in the approach clearance, the reported ceiling at the airport of intended landing is at least 500 feet above the MVA/MIA, and the visibility is 3 miles or more, unless higher minimums are published for the particular CVFP.

**c.** When using parallel or intersecting/converging runways, the criteria specified in para 7-4-4, Approaches to Multiple Runways, are applied.

**d.** An aircraft not following another aircraft on the approach reports sighting a charted visual landmark, or reports sighting a preceding aircraft landing on the same runway and has been instructed to follow that aircraft.

**PHRASEOLOGY-**

*(Ident) CLEARED (name of CVFP) APPROACH.*

**7-4-6. CONTACT APPROACH**

Clear an aircraft for a contact approach only if the following conditions are met:

**a.** The pilot has requested it.

**NOTE-**

*When executing a contact approach, the pilot is responsible for maintaining the required flight visibility, cloud clearance, and terrain/obstruction clearance. Unless otherwise restricted, the pilot may find it necessary to descend, climb, and/or fly a circuitous route to the airport to maintain cloud clearance and/or terrain/obstruction clearance. It is not in any way intended that controllers will initiate or suggest a contact approach to a pilot.*

**b.** The reported ground visibility is at least 1 statute mile.

**c.** A standard or special instrument approach procedure has been published and is functioning for the airport of intended landing.

**d.** Approved separation is applied between aircraft so cleared and other IFR or SVFR aircraft. When applying vertical separation, do not assign a fixed altitude but clear the aircraft at or below an altitude which is at least 1,000 feet below any IFR traffic but not below the minimum safe altitude prescribed in 14 CFR Section 91.119.

**NOTE-**

*14 CFR Section 91.119 specifies the minimum safe altitude to be flown:*

*(a) Anywhere.*

*(b) Over congested areas.*

*(c) Other than congested areas. To provide for an emergency landing in the event of power failure and without undue hazard to persons or property on the surface.*

*(d) Helicopters. May be operated at less than the minimums prescribed in paras (b) and (c) above if the operation is conducted without hazard to persons or property on the surface.*

**e.** An alternative clearance is issued when weather

conditions are such that a contact approach may be impracticable.

***PHRASEOLOGY-***  
***CLEARED CONTACT APPROACH,***

*And if required,*  
***AT OR BELOW*** (*altitude*) (*routing*).

***IF NOT POSSIBLE, (alternative procedures), AND ADVISE.***

## Section 7. Terminal Radar Service Area (TRSA)- Terminal

### 7-7-1. APPLICATION

Apply TRSA procedures within the designated TRSA in addition to the basic services described in Chapter 7, Visual, Section 6, Basic Radar Service to VFR Aircraft- Terminal.

**REFERENCE-**  
FAAO JO 7110.65, Para 7-2-1, Visual Separation.

### 7-7-2. ISSUANCE OF EFC

Inform the pilot when to expect further clearance when VFR aircraft are held either inside or outside the TRSA.

**REFERENCE-**  
FAAO JO 7110.65, Para 7-2-1, Visual Separation.

### 7-7-3. SEPARATION

Separate VFR aircraft from VFR/IFR aircraft by any one of the following:

a. Visual separation, as specified in para 7-2-1, Visual Separation, para 7-4-2, Vectors for Visual Approach, and para 7-6-7, Sequencing.

**NOTE-**  
Issue wake turbulence cautionary advisories in accordance with para 2-1-20, Wake Turbulence Cautionary Advisories.

b. 500 feet vertical separation.

c. Target resolution.

**NOTE-**  
Apply the provisions of para 5-5-4, Minima, subparas e and f when wake turbulence separation is required.

**REFERENCE-**  
FAAO JO 7110.65, Para 7-2-1, Visual Separation.

### 7-7-4. HELICOPTER TRAFFIC

Helicopters need not be separated from other helicopters. Traffic information shall be exchanged, as necessary.

**REFERENCE-**  
FAAO JO 7110.65, Para 7-2-1, Visual Separation.

### 7-7-5. ALTITUDE ASSIGNMENTS

a. Altitude information contained in a clearance, instruction, or advisory to VFR aircraft shall meet MVA, MSA, or minimum IFR altitude criteria.

**REFERENCE-**  
FAAO JO 7110.65, Para 4-5-2, Flight Direction.  
FAAO JO 7110.65, Para 4-5-3, Exceptions.  
FAAO JO 7110.65, Para 4-5-6, Minimum En Route Altitudes.

b. If required, issue altitude assignments, consistent with the provisions of 14 CFR Section 91.119.

**NOTE-**  
The MSAs are:

1. Over congested areas, an altitude at least 1,000 feet above the highest obstacle; and

2. Over other than congested areas, an altitude at least 500 feet above the surface.

c. When necessary to assign an altitude for separation purposes to VFR aircraft contrary to 14 CFR Section 91.159, advise the aircraft to resume altitudes appropriate for the direction of flight when the altitude assignment is no longer needed for separation or when leaving the TRSA.

**PHRASEOLOGY-**  
RESUME APPROPRIATE VFR ALTITUDES.

**REFERENCE-**  
FAAO JO 7110.65, Para 4-8-11, Practice Approaches.  
FAAO JO 7110.65, Para 5-6-1, Application.  
FAAO JO 7110.65, Para 7-2-1, Visual Separation.

### 7-7-6. APPROACH INTERVAL

The tower shall specify the approach interval.

**REFERENCE-**  
FAAO JO 7110.65, Para 7-2-1, Visual Separation.

### 7-7-7. TRSA DEPARTURE INFORMATION

a. At controlled airports within the TRSA, inform a departing aircraft proposing to operate within the TRSA when to contact departure control and the frequency to use. If the aircraft is properly equipped, ground control or clearance delivery shall issue the appropriate beacon code.

**NOTE-**  
Departing aircraft are assumed to want TRSA service unless the pilot states, "negative TRSA service," or makes a similar comment. Pilots are expected to inform the controller of intended destination and/or route of flight and altitude.

**b.** Provide separation until the aircraft leaves the TRSA.

**c.** Inform VFR participating aircraft when leaving the TRSA.

***PHRASEOLOGY-***

*LEAVING THE (name) TRSA,*

*and as appropriate,*

*RESUME OWN NAVIGATION, REMAIN THIS FREQUENCY FOR TRAFFIC ADVISORIES, RADAR SERVICE TERMINATED, SQUAWK ONE TWO ZERO ZERO.*

**d.** Aircraft departing satellite controlled airports that will penetrate the TRSA should be provided the same service as those aircraft departing the primary airport. Procedures for handling this situation shall be covered in a letter of agreement or facility directives, as appropriate.

**e.** Procedures for handling aircraft departing uncontrolled satellite airports must be advertised in a facility bulletin and service provided accordingly.

***REFERENCE-***

*FAAO JO 7110.65, Para 7-2-1, Visual Separation.*

## Section 8. Class C Service– Terminal

### 7-8-1. APPLICATION

Apply Class C service procedures within the designated Class C airspace and the associated outer area. Class C services are designed to keep ATC informed of all aircraft within Class C airspace, not to exclude operations. Two-way radio communications and operational transponder are normally required for operations within Class C airspace, but operations without radio communications or transponder can be conducted by LOA, facility directive, or special arrangement with Class C airspace controlling facility.

**REFERENCE-**

FAAO JO 7110.65, Para 7-2-1, Visual Separation.  
14 CFR Section 91.215, ATC Transponder and Altitude Reporting Equipment and Use.

### 7-8-2. CLASS C SERVICES

- a. Class C services include the following:
  1. Sequencing of all aircraft to the primary airport.
  2. Standard IFR services to IFR aircraft.
  3. Separation, traffic advisories, and safety alerts between IFR and VFR aircraft.
  4. Mandatory traffic advisories and safety alerts between VFR aircraft.
- b. Provide Class C services to all aircraft operating within Class C airspace.
- c. Provide Class C services to all participating aircraft in the outer area.
- d. Aircraft should not normally be held. However, if holding is necessary, inform the pilot of the expected length of delay.
- e. When a radar outage occurs, advise aircraft that Class C services are not available and, if appropriate, when to contact the tower.

**REFERENCE-**

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

### 7-8-3. SEPARATION

Separate VFR aircraft from IFR aircraft by any one of the following:

- a. Visual separation as specified in para 7-2-1, Visual Separation, para 7-4-2, Vectors for Visual Approach, and para 7-6-7, Sequencing.

**NOTE-**

Issue wake turbulence cautionary advisories in accordance with para 2-1-20, Wake Turbulence Cautionary Advisories.

- b. 500 feet vertical separation;
- c. Target resolution.

**NOTE-**

Apply the provisions of para 5-5-4, Minima, when wake turbulence separation is required.

**REFERENCE-**

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

### 7-8-4. ESTABLISHING TWO-WAY COMMUNICATIONS

Class C service requires pilots to establish two-way radio communications before entering Class C airspace. If the controller responds to a radio call with, “(a/c call sign) standby,” radio communications have been established and the pilot can enter Class C airspace. If workload or traffic conditions prevent immediate provision of Class C services, inform the pilot to remain outside Class C airspace until conditions permit the services to be provided.

**PHRASEOLOGY-**

(A/c call sign) **REMAIN OUTSIDE CHARLIE AIRSPACE AND STANDBY.**

**REFERENCE-**

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

**7-8-5. ALTITUDE ASSIGNMENTS**

**a.** When necessary to assign altitudes to VFR aircraft, assign altitudes that meet the MVA, MSA, or minimum IFR altitude criteria.

**b.** Aircraft assigned altitudes which are contrary to 14 CFR Section 91.159 shall be advised to resume altitudes appropriate for the direction of flight when the altitude is no longer needed for separation, when leaving the outer area, or when terminating Class C service.

***PHRASEOLOGY-***

*RESUME APPROPRIATE VFR ALTITUDES.*

***REFERENCE-***

*FAAO JO 7110.65, Para 7-2-1, Visual Separation.*

**7-8-6. EXCEPTIONS**

**a.** VFR helicopters need not be separated from IFR helicopters. Traffic information and safety alerts shall be issued as appropriate.

**b.** Hot air balloons need not be separated from IFR aircraft. Traffic information and safety alerts shall be issued as appropriate.

**7-8-7. ADJACENT AIRPORT OPERATIONS**

**a.** Aircraft that will penetrate Class C airspace after departing controlled airports within or adjacent to Class C airspace shall be provided the same services as those aircraft departing the primary airport. Procedures for handling this situation shall be covered in a LOA or a facility directive, as appropriate.

**b.** Aircraft departing uncontrolled airports within Class C airspace shall be handled using procedures advertised in a Letter to Airmen.

**7-8-8. TERMINATION OF SERVICE**

Unless aircraft are landing at secondary airports or have requested termination of service while in the outer area, provide services until the aircraft departs the associated outer area. Terminate Class C service to aircraft landing at other than the primary airport at a sufficient distance from the airport to allow the pilot to change to the appropriate frequency for traffic and airport information.

***PHRASEOLOGY-***

*CHANGE TO ADVISORY FREQUENCY APPROVED,*

*or*

*CONTACT (facility identification).*

be recleared so that requests by SAMPLER aircraft are honored. Separation standards as outlined in this order shall be applied in all cases.

**REFERENCE-**

FAAO JO 7110.65, Para 2-1-4, Operational Priority.  
FAAO JO 7110.65, Para 2-4-20, Aircraft Identification.  
FAAO JO 7610.4, Para 4-4-4, Avoidance of Hazardous Radiation Areas.

## 9-2-18. AWACS/NORAD SPECIAL FLIGHTS

Do not delay E-3 AWACS aircraft identified as “AWACS/NORAD Special” flights. The following control actions are acceptable while expediting these aircraft to the destination orbit.

- a. En route altitude changes +/- 2,000 feet from the requested flight level.
- b. Radar vectors or minor route changes that do not impede progress towards the destination orbit.

**NOTE-**

NORAD has a requirement to position E-3 AWACS aircraft at selected locations on a time-critical basis. To the extent possible these flights will utilize routes to the destination orbit that have been precoordinated with the impacted ATC facilities. To identify these flights, the words “AWACS/NORAD SPECIAL” will be included as the first item in the remarks section of the flight plan.

## 9-2-19. WEATHER RECONNAISSANCE FLIGHTS

TEAL and NOAA mission aircraft fly reconnaissance flights to gather meteorological data on winter storms, (NWSOP missions), hurricanes and tropical cyclones (NHOP missions). The routes and timing of these flights are determined by movement of the storm areas and not by traffic flows.

a. When a dropsonde release time is received from a TEAL or NOAA mission aircraft, workload and priorities permitting, controllers shall advise the mission aircraft of any traffic estimated to pass through the area of the drop at altitudes below that of the mission aircraft. This traffic advisory shall include:

1. Altitude.
2. Direction of flight.
3. ETA at the point closest to drop area (or at the fix/intersection where drop will occur).

**NOTE-**

A dropsonde is a 14-inch long cardboard cylinder about 2.75 inches in diameter, that weighs approximately 14 ounces (400 grams), and has a parachute attached. When released from the aircraft it will fall at a rate of approximately 2,500 feet per minute. Controllers should recognize that a dropsonde released at FL 310 will be a factor for traffic at FL 210 four minutes later. It is the aircraft commanders responsibility to delay release of dropsondes if traffic is a factor. Aircraft commanders will delay release of dropsondes based solely upon traffic as issued by ATC.

b. When advised that an airborne TEAL or NOAA aircraft is requesting a clearance via CARCAH, issue the clearance in accordance with Chapter 4, IFR, Section 2, Clearances.

**REFERENCE-**

FAAO JO 7110.65, Para 4-2-1, Clearance Items.  
FAAO JO 7110.65, Para 4-2-2, Clearance Prefix.  
FAAO JO 7110.65, Para 4-2-3, Delivery Instructions.

c. If a TEAL or NOAA mission aircraft must be contacted but is out of VHF, UHF, and HF radio range, advise the supervisory traffic management coordinator-in-charge.

**REFERENCE-**

FAAO JO 7210.3, Para 5-3-6, Weather Reconnaissance Flights.  
FAAO JO 7110.65, Para 2-1-4, Operational Priority.

## 9-2-20. EVASIVE ACTION MANEUVER

Approve a pilot request to conduct an evasive action maneuver only on the basis of a permissible traffic situation. Specify the following items, as necessary, when issuing approval:

**NOTE-**

The “evasive action” maneuver is performed by a bomber/fighter bomber aircraft at or above FL 250 along a 60 NM long segment of the flight plan route overlying a RBS or other site and includes:

1. Flying a zigzag pattern on both the left and right side of the flight plan route centerline. Altitude deviations are made in conjunction with the lateral maneuvering.
2. Lateral deviations from the route centerline will not normally exceed 12 miles. Altitude variations shall not exceed plus or minus 1,000 feet of the assigned flight level; i.e., confined within a 2,000 foot block.

a. Specific route segment on which the maneuver will take place.

b. Distance of maximum route deviation from the centerline in miles.

c. Altitude.

**PHRASEOLOGY-**

**CLEARED TO CONDUCT EVASIVE ACTION  
MANEUVER FROM (fix) TO (fix),**

*and*

*(number of miles) EITHER SIDE OF CENTERLINE,*

*and*

**MAINTAIN (altitude) THROUGH (altitude),**

*and*

**COMPLETE MANEUVER AT (fix) AT (altitude).**

### **9-2-21. NONSTANDARD FORMATION/ CELL OPERATIONS**

Occasionally the military is required to operate in a nonstandard cell formation and controllers should be knowledgeable of the various tactics employed and the procedures used.

**REFERENCE-**

*FAAO JO 7610.4, Chapter 12, Section 12, Formation Flight.*

**a.** Formation leaders are responsible for obtaining ATC approval to conduct nonstandard formation/cell operations.

**b.** When nonstandard formation/cell operations have been approved, controllers shall assign sufficient altitudes to allow intra-cell vertical spacing of 500 feet between each aircraft in the formation.

**c.** Control nonstandard formation/cell operations on the basis that MARSA is applicable between the participating aircraft until they establish approved separation which is acknowledged by ATC.

**d.** Apply standard separation criteria between the approved nonstandard formation/cell envelope and nonparticipating aircraft.

**e.** Clear aircraft operating in a nonstandard formation/cell to the breakup fix as the clearance limit. Forward data pertaining to route or altitude beyond the breakup point to the center concerned as a part of the routine flight plan information.

**f. EN ROUTE.** If the breakup occurs in your area, issue appropriate clearances to authorize transition from formation to individual routes or altitudes. If a breakup cannot be approved, issue an appropriate clearance for the flight to continue as a formation.

### **9-2-22. OPEN SKIES TREATY AIRCRAFT**

**a.** OPEN SKIES aircraft will be identified by the call sign "OSY" (OPEN SKIES) followed by the flight number and a one-letter mission suffix.

**EXAMPLE-**

*OSY123D*

*Mission suffixes:*

*\*F = Observation Flights (Priority).*

*\*D = Demonstration Flights (Priority).*

*\*T = Transit Flights (Nonpriority).*

**NOTE-**

**1.** Observation/Demonstration flights are conducted under rigid guidelines outlined in the Treaty of OPEN SKIES that govern sensor usage, maximum flight distances, altitudes and priorities.

**2.** Transit flights are for the sole purpose of moving an OPEN SKIES aircraft from airport to airport in preparation for an actual OPEN SKIES "F" or "D" mission.

**b.** Provide priority and special handling to expedite the movement of an OPEN SKIES observation or demonstration flight.

**REFERENCE-**

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

*FAAO JO 7210.3, Para 5-3-7, OPEN SKIES Treaty Aircraft.*

*Treaty on OPEN SKIES, Treaty Document, 102-37.*

**c.** OPEN SKIES aircraft, while maintaining compliance with ATC procedures, shall have priority over activities in Special Use Airspace (SUA) and shall be allowed to transit such airspace as filed after appropriate and timely coordination has been accomplished between the using agency and controlling agency.

**1.** OPEN SKIES Treaty flights transiting SUA will be handled in the following manner:

**(a)** The ATC facility controlling the OPEN SKIES flight shall advise the using/scheduling agency or appropriate ATC facility when the OPEN SKIES aircraft is fifteen (15) minutes from the SUA boundary; and

**(1)** For SUA that has an ATC facility providing services to the area, provide standard separation. If the ATC facility is unable to provide standard separation from the activities in the SUA, the using agency must confirm that all operations in the SUA have ceased.

**(2)** For SUA not associated with an ATC facility, the using/scheduling agency must return the SUA to the controlling agency and confirm that all operations in the SUA have ceased.

## Section 4. Control Actions

### 10-4-1. TRAFFIC RESTRICTIONS

IFR traffic which could be affected by an overdue or unreported aircraft shall be restricted or suspended unless radar separation is used. The facility responsible shall restrict or suspend IFR traffic for a period of 30 minutes following the applicable time listed in subparagraphs a thru e:

- a. The time at which approach clearance was delivered to the pilot.
- b. The EFC time delivered to the pilot.
- c. The arrival time over the NAVAID serving the destination airport.
- d. The current estimate, either the control facility's or the pilot's, whichever is later, at:
  - 1. The appropriate en route NAVAID or fix, and
  - 2. The NAVAID serving the destination airport.
- e. The release time and, if issued, the clearance void time.

**REFERENCE-**  
FAAO JO 7110.65, Para 4-3-4, Departure Restrictions, Clearance Void Times, Hold for Release, and Release Times.

### 10-4-2. LIGHTING REQUIREMENTS

a. **EN ROUTE.** At nontower or non-FSS locations, request the airport management to light all runway lights, approach lights, and all other required airport lighting systems for at least 30 minutes before the ETA of the unreported aircraft until the aircraft has been located or for 30 minutes after its fuel supply is estimated to be exhausted.

b. **TERMINAL.** Operate runway lights, approach lights, and all other required airport lighting systems for at least 30 minutes before the ETA of the unreported aircraft until the aircraft has been located or for 30 minutes after its fuel supply is estimated to be exhausted.

**REFERENCE-**  
FAAO JO 7110.65, Para 3-4-1, Emergency Lighting.

### 10-4-3. TRAFFIC RESUMPTION

After the 30-minute traffic suspension period has expired, resume normal air traffic control if the operators or pilots of other aircraft concur. This concurrence must be maintained for a period of 30 minutes after the suspension period has expired.

**REFERENCE-**  
FAAO JO 7110.65, Para 4-3-4, Departure Restrictions, Clearance Void Times, Hold for Release, and Release Times.

### 10-4-4. COMMUNICATIONS FAILURE

Take the following actions, as appropriate, if two-way radio communications are lost with an aircraft:

**NOTE-**

1. When an IFR aircraft experiences two-way radio communications failure, air traffic control is based on anticipated pilot actions. Pilot procedures and recommended practices are set forth in the AIM, CFRs, and pertinent military regulations.

2. Should the pilot of an aircraft equipped with a coded radar beacon transponder experience a loss of two-way radio capability, the pilot can be expected to adjust the transponder to reply on Mode 3/A **Code 7600**.

a. In the event of lost communications with an aircraft under your control jurisdiction use all appropriate means available to reestablish communications with the aircraft. These may include, but not be limited to, emergency frequencies, NAVAIDs that are equipped with voice capability, FSS, Aeronautical Radio Incorporated (ARINC), etc.

**NOTE-**

1. ARINC is a commercial communications corporation which designs, constructs, operates, leases or otherwise engages in radio activities serving the aviation community. ARINC has the capability of relaying information to/from subscribing aircraft throughout the country.

2. Aircraft communications addressing and reporting system (ACARS) or selective calling (SELCAL) may be utilized to reestablish radio communications with suitably equipped aircraft. ACARS can be accessed by contacting the San Francisco ARINC communications center, watch supervisor, at 925-294-8297 and 800-621-0140. Provide ARINC the aircraft call sign, approximate location, and contact instructions. In order to utilize the SELCAL system, the SELCAL code for the subject aircraft must be known. If the SELCAL code is not contained in the remarks section of the flight plan, contact the pertinent air carrier dispatch

office to determine the code. Then contact the San Francisco ARINC communications center, watch supervisor, at 925-294-8297 and 800-621-0140. Provide ARINC the aircraft call sign, SELCAL code, approximate location, and contact instructions.

**b.** Broadcast clearances through any available means of communications including the voice feature of NAVAIDs.

**NOTE-**

**1.** Some UHF equipped aircraft have VHF navigation equipment and can receive 121.5 MHz.

**2.** “Any available means” includes the use of FSS and ARINC.

**REFERENCE-**

FAAO JO 7110.65, Para 4-2-2, Clearance Prefix.

**c.** Attempt to re-establish communication by having the aircraft use its transponder or make turns to acknowledge clearances and answer questions. Request any of the following in using the transponder:

**1.** Request the aircraft to reply Mode 3/A “IDENT.”

**2.** Request the aircraft to reply on **Code 7600** or if already on **Code 7600**, the appropriate stratum code.

**3.** Request the aircraft to change to “stand-by” for sufficient time for you to be sure that the lack of a target is the result of the requested action.

**PHRASEOLOGY-**

**REPLY NOT RECEIVED**, (*appropriate instructions*).

(Action) **OBSERVED**, (*additional instructions/information if necessary*).

**d.** Broadcast a clearance for the aircraft to proceed to its filed alternate airport at the MEA if the aircraft operator concurs.

**REFERENCE-**

FAAO JO 7110.65, Para 5-2-8, Radio Failure.

FAAO JO 7110.65, Para 9-2-7, IFR Military Training Routes.

**e.** If radio communications have not been (re) established with the aircraft after 5 minutes, consider the aircraft’s or pilot’s activity to be suspicious and report it to the FLM/CIC per FAA Order JO 7610.4, Chapter 7, Hijacked/Suspicious Aircraft Reporting and Procedures, and Paragraph 2-1-25f, Supervisory Notification, of this order.

**SHORT BROTHERS LTD. (UK)**

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
330, Sherpa (C-23), SD3-30	SH33	2T/S+	1,380	1,380	III	6
360, SD3-60	SH36	2T/S+	1,400	1,400	III	6
SC-5 Belfast	BELF	4T/L			III	
SC7 Skyvan, Skyliner	SC7	2T/S	1,500	1,500	II	2

**SILVAIRE (USA)**

(Also LUSCOMBE, TEMCO)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
8 Silvaire	L8	1P/S	900	1,000	I	3

**SOCATA (See AEROSPATIALE)****STINSON (USA)**

(Also PIPER)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
10, 105, HW-75, HW-80, Voyager	S10	1P/S	750	1,000	I	
108 Voyager, Station Wagon	S108	1P/S	750	1,000	I	
L-5, U-19, OY Sentinel (V-76)	L5	1P/S	750	750	I	
SR, V-77 Reliant (AT-19)	RELI	1P/S	700	700	I	3

**SUD AVIATION (See Aerospatiale)****SWEARINGEN AVIATION (USA- see Fairchild Industries)****TAYLORCRAFT AVIATION CORP. (USA)**

(Also TAYLOR KITS)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
15 Tourist, Foursome	TA15	1P/S	800	1,000	I	
19, F-19 Sportsman	TF19	1P/S	800	1,000	I	1
20 Ranchwagon, Topper, Seabird, Zephyr 400	TA20	1P/S	1,000	1,000	I	4
A	TAYA	1P/S			I	
BC, BF, BL, Ace, Sportsman, Traveller	TAYB	1P/S			I	
DC, DCO, DF, DL (O-57, L-2)	TAYD	1P/S			I	
F-21	TF21	1P/S	1,100	1,100	I	4
F-22 Classic, Tri-Classical, Ranger, Trooper, Tracker	TF22	1P/S	875		I	

**TED SMITH AEROSTAR CORP. (USA)***(Also AEROSTAR, AICSA, MACHEN, PIPER)*

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
Aero Star	AEST	2P/S	1,800	1,500	II	5

**VFW-FOKKER (Zentralgesellschaft VFW-Fokker mbH (FRG/Netherlands))**

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
VFW 614	VF14	2J/L	3,100	3,000	III	8

**VOUGHT CORP. (USA)***(Also GLOBE, LTV, TEMCO)*

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
A-7, TA-7 Corsair	A7*	1J/L	8,000	6,000	III	
Swift	GC1	1P/S	1,000	1,000	I	2

**YAKOVLEV (RUSSIA)**

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
Yak-40	YK40	3J/S+			III	8

**ZENAIR (Canada)***(Also ZENITH)*

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
CH-600/601 Zodiac, Super Zodiac	CH60	1P/S			I	
CH-620 Gemini	CH62	2P/S			II	
CH-801 Stol	CH80	1P/S			I	
CH-2000 Zenith	CH2T	1P/S	780		I	

**b. VERBAL BRIEFING**

Relieving Specialist	Specialist Being Relieved
<p>3. Ask questions necessary to ensure a complete understanding of the operational situation.</p>	<p>1. Brief the relieving specialist on the abnormal status of items not listed on the Status Information Area(s) as well as on any items of special interest calling for verbal explanation or additional discussion.</p> <p>2. Brief on traffic if applicable.</p> <p>3. Brief communication status of all known aircraft.</p> <p>4. Completely answer any questions asked.</p>

**c. ASSUMPTION OF POSITION RESPONSIBILITY**

Relieving Specialist	Specialist Being Relieved
<p>1. Make a statement or otherwise indicate to the specialist being relieved that position responsibility has been assumed.</p>	<p>2. Release the position to the relieving specialist and mentally note the time.</p>

**d. REVIEW THE POSITION**

Relieving Specialist	Specialist Being Relieved
<p>1. Check, verify, and update the information obtained in steps 6a and b.</p> <p>2. Check position equipment in accordance with existing directives.</p>	<p>3. Review checklist, Status Information Area/s, written notes, and other prescribed sources of information and advise the relieving specialist of known omissions, updates, or inaccuracies.</p> <p>4. Observe overall position operation to determine if assistance is needed.</p> <p>5. If assistance is needed, provide or summon it as appropriate.</p> <p>6. Advise the appropriate position regarding known Status Information Area(s) omissions, updates, or inaccuracies.</p> <p>7. Sign-on the relieving specialist with the time as noted in step 6c2.</p> <p>8. Sign off the position in accordance with existing directives or otherwise indicate that the relief process is complete.</p>



# PILOT/CONTROLLER GLOSSARY

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## 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

### a. Terms Added:

CONFIDENCE MANEUVER  
LANDING DISTANCE AVAILABLE (LDA)  
LINE UP AND WAIT (LUAW)  
PROMINENT OBSTACLE  
TAKEOFF DISTANCE AVAILABLE (TODA)  
TAKEOFF RUN AVAILABLE (TORA)  
TARMAC DELAY  
TARMAC DELAY AIRCRAFT  
TARMAC DELAY REQUEST  
THREE-HOUR TARMAC RULE

### b. Terms Modified:

AIRCRAFT CLASSES  
AREA NAVIGATION (RNAV)  
CT MESSAGE  
NORDO  
NOTICES TO AIRMEN  
TARGET RESOLUTION

### c. Terms Deleted:

AREA NAVIGATION (RNAV) [ICAO]  
POSITION AND HOLD

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



**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.)

**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.

**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 channelling 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.

**AUTOLAND APPROACH-** An autoland approach is a precision instrument approach to touchdown and, in some cases, through the landing rollout. An autoland approach is performed by the aircraft autopilot which is receiving position information

and/or steering commands from onboard navigation equipment.

**Note:** Autoland and coupled approaches are flown in VFR and IFR. It is common for carriers to require their crews to fly coupled approaches and autoland approaches (if certified) when the weather conditions are less than approximately 4,000 RVR.

(See COUPLED APPROACH.)

**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 IIIIE; and ARTS IIIIE 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.)

**AZIMUTH (MLS)**- A magnetic bearing extending from an MLS navigation facility.

Note: Azimuth bearings are described as magnetic and are referred to as “azimuth” in radio telephone communications.

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 very high frequency (VHF) air/ground communications system that conveys textual air traffic control messages between controllers and pilots.

**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-** A coupled approach is an instrument approach performed by the aircraft autopilot which is receiving position information and/or steering commands from onboard navigation equipment. In general, coupled nonprecision approaches must be discontinued and flown manually at altitudes lower than 50 feet below the minimum descent altitude, and coupled precision approaches must be flown manually below 50 feet AGL.

Note: Coupled and autoland approaches are flown in VFR and IFR. It is common for carriers to require

their crews to fly coupled approaches and autoland approaches (if certified) when the weather conditions are less than approximately 4,000 FVR.

(See AUTOLAND APPROACH.)

#### 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.)



# 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 established MDA or DH is not authorized during an approach unless the aircraft is in a position from which a normal approach to the runway of intended landing can be made and adequate visual reference to required visual cues is maintained.

(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.)

**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 from the runway extended centerline in a direction away from the no transgression zone (NTZ) that increases the normal operating zone (NOZ) width. An offset requires a 50 foot increase in DH and is not authorized for CAT II and CAT III approaches.

**LOCALIZER TYPE DIRECTIONAL AID-** A NAVAID used for nonprecision instrument approaches with utility and accuracy comparable to a localizer but which is not a part of a complete ILS and is not aligned with the runway.  
(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.  
(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 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.)



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, and ILS/MLS 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.)

# 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 MLS APPROACHES-

(See PARALLEL 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/glidepath is provided; e.g., ILS, MLS, and PAR.

(See INSTRUMENT LANDING SYSTEM.)

(See MICROWAVE 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)**- Provides air traffic controllers with high precision secondary surveillance data for aircraft on final approach to parallel runways that have extended centerlines separated by less than 4,300 feet. High resolution color monitoring displays (FMA) are required to present surveillance track data to controllers along with detailed maps depicting approaches and no transgression zone.

**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.)

**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.

**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.)



**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 that previously issued speed control restrictions are deleted. An instruction to “resume normal speed” does not delete speed restrictions that are applicable to published procedures of upcoming segments of flight, unless specifically stated by ATC. 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.)

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 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 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.)

# 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 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 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.)

**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 MLS glidepath.

(See GLIDESLOPE.)

(See THRESHOLD.)

**THRESHOLD LIGHTS-**

(See AIRPORT LIGHTING.)

**TIBS-**

(See TELEPHONE INFORMATION BRIEFING SERVICE.)

**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.)

**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.)

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(See LOST COMMUNICATIONS.)

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# BRIEFING GUIDE



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

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Initiated By: AJV-0  
Vice President, Mission Support Services

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1. PARAGRAPH NUMBER AND TITLE: 1-2-1. WORD MEANINGS

2. BACKGROUND: Throughout recent years there have been numerous procedures prescribed for runway operations and interpretations are frequently issued describing correct procedural applications for runway operations. Rarely do these applications also pertain to helipads. However, due to the current meaning of the word "runway" in paragraph 1-2-1, confusion inevitably results as to the applicability of prescribed "runway" procedures to helipads with the corresponding potential for misapplication of procedures.

3. CHANGE:

<u>OLD</u>	<u>NEW</u>
<p><b>1-2-1. WORD MEANINGS</b>  <b>title through m</b>            (n) "Runway" means the runway used by aircraft and <u>in discussions of separation standards is applicable to helipads with</u> accompanying takeoff/landing courses. (See Pilot/Controller Glossary term – Runway.)</p>	<p><b>1-2-1. WORD MEANINGS</b>            No Change            (n) "Runway" means the runway used by aircraft and, <b><u>unless otherwise specified, does not include helipads and/or their</u></b> accompanying takeoff/landing courses. (See Pilot/Controller Glossary terms – Runway <b><u>and Helipad.</u></b>)</p>

1. PARAGRAPH NUMBER AND TITLE:

2-1-17. RADIO COMMUNICATIONS TRANSFER;  
2-1-25. SUPERVISORY NOTIFICATION;  
2-4-3. PILOT ACKNOWLEDGEMENT/READ BACK;  
10-4-4. COMMUNICATIONS FAILURE; and  
Appendix D. Standard Operating Practice (SOP) for the Transfer of Position Responsibility

2. BACKGROUND: In light of several recent loss of communication events in the National Airspace System, a multidisciplinary team reviewed and analyzed how to improve air traffic control operations regarding the establishment, transfer, and loss of communications with aircraft. This document change is based on the recommendations of the team.

3. CHANGE:

<u>OLD</u>	<u>NEW</u>
<p><b>2-1-17. RADIO COMMUNICATIONS TRANSFER</b>  <b>a through b</b><b>3</b><b>PHRASEOLOGY-</b>            Add</p>	<p><b>2-1-17. RADIO COMMUNICATIONS</b>            No Change  <b><u>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.</u></b>  <b><u>NOTE-</u></b>  <b><u>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.</u></b>            Renumbered <b><u>d</u></b> through <b><u>g</u></b></p>
<p><b>c through f</b></p>	

**OLD**

**2-1-25. SUPERVISORY NOTIFICATION**

title through e

Add

**NEW**

**2-1-25. SUPERVISORY NOTIFICATION**

No Change

**f. Possible suspicious aircraft/pilot activity as prescribed in FAA Order JO 7610.4, paragraph 7-3-1.**

**OLD**

**2-4-3. PILOT ACKNOWLEDGEMENT/  
READ BACK**

a. When issuing clearances or instructions ensure acknowledgment by the pilot.

**NEW**

**2-4-3. PILOT ACKNOWLEDGEMENT/  
READ BACK**

a. When issuing clearances or instructions, ensure acknowledgment by the pilot. **If no acknowledgment is received, attempt to re-establish contact. If attempts are unsuccessful, advise the FLM/CIC.**

**OLD**

**10-4-4. COMMUNICATIONS FAILURE**

title through **d**REFERENCE-

e. If radio communications have not been (re)established with the aircraft after five minutes, consider the aircraft's activity to be possibly suspicious and handle the flight per FAAO JO 7610.4, Chapter 7, Hijacked/Suspicious Aircraft Reporting and Procedures.

**NEW**

**10-4-4. COMMUNICATIONS FAILURE**

No Change

e. If radio communications have not been (re) established with the aircraft after 5 minutes, consider the aircraft's **or pilot's** activity to be suspicious **and report it to the FLM/CIC** per FAA **Order** JO 7610.4, Chapter 7, Hijacked/Suspicious Aircraft Reporting and Procedures, **and Paragraph 2-1-25f, Supervisory Notification, of this order.**

**OLD**

**Appendix D. Standard Operating Practice (SOP) for the Transfer of Position Responsibility**

title through **6a**NOTE-

**NEW**

**Appendix D. Standard Operating Practice (SOP) for the Transfer of Position Responsibility**

No Change

**OLD**

**b. VERBAL BRIEFING**

Relieving Specialist	Specialist Being Relieved
<p><b>3.</b> Ask questions necessary to ensure a complete understanding of the operational situation.</p>	<p><b>1.</b> Brief the relieving specialist on the abnormal status of items not listed on the Status Information Area(s) as well as on any items of special interest calling for verbal explanation or additional discussion.</p> <p><b>2.</b> Brief on traffic if applicable.</p> <p><b>4.</b> Completely answer any questions asked.</p>

**NEW**

**b. VERBAL BRIEFING**

Relieving Specialist	Specialist Being Relieved
<p>4. Ask questions necessary to ensure a complete understanding of the operational situation.</p>	<p>1. Brief the relieving specialist on the abnormal status of items not listed on the Status Information Area(s) as well as on any items of special interest calling for verbal explanation or additional discussion.</p> <p>2. Brief on traffic if applicable.</p> <p>3. <b>Brief communication status of all known aircraft.</b></p> <p>5. Completely answer any questions asked.</p>

**1. PARAGRAPH NUMBER AND TITLE:** 3-1-15. GROUND OPERATIONS RELATED TO THREE-HOUR TARMAC RULE

**2. BACKGROUND:** In response to numerous instances of passengers experiencing lengthy tarmac delays, the Department of Transportation (DOT) has issued a final ruling titled “Enhancing Airline Passenger Protections,” also referred to as the Three-Hour Tarmac Rule, effective April 29, 2010. In order to reduce coordination and/or confusion, requests for an aircraft to return to the ramp, gate, or alternate de-planing area from entities other than the pilot-in-command of that aircraft will not normally be accepted unless the aircraft operator is unable to contact the flight crew via radio or ACARS. The intent is to have a single source initiating the request and a single focal acknowledging receipt.

**3. CHANGE:**

**OLD**

Add

Add

**NEW**

**3-1-15. GROUND OPERATIONS RELATED TO THREE-HOUR TARMAC RULE**

**When a request is made by the pilot-in-command of an aircraft to return to the ramp, gate, or alternate deplaning area due to the Three-hour Tarmac Rule:**

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

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

**NOTE-**

**Facility procedures, including actions that constitute a significant disruption, vary by airport and must be identified in the facility directive pertaining to the Three-hour Tarmac Rule.**

Add

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

*or*

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

*or*

**(Identification) UNABLE DUE TO OPERATIONAL DISRUPTION.**

**REFERENCE-**  
**DOT Rule, Enhancing Airline Passenger Protections, 14 CFR, Part 259, commonly referred to as the Three-hour Tarmac Rule.**

**1. PARAGRAPH NUMBER AND TITLE:** 3-3-7. FAR FIELD MONITOR (FFM) REMOTE SENSING STATUS UNIT

**2. BACKGROUND:** The GRN-27 ILS equipment is no longer in the NAS. The requirement to set the GRN-27 FFM remote status sensing unit is no longer applicable.

**3. CHANGE:**

**OLD**

**3-3-7. FAR FIELD MONITOR (FFM) REMOTE SENSING STATUS UNIT**

**a. Background.**

**1** through **3**

**b. Procedures**

**1.** Operation of the FFM remote sensing unit will be based on the prevailing weather. The FFM remote sensing unit shall be operational when the weather is below CAT I ILS minimums.

**2.** When the weather is less than that required for CAT I operations, the GRN-27FFM remote status sensing unit shall be set at:

**(a)** “CATII when the RVR is less than 2,400 feet.

**(b)** “CATIII when the RVR is less than 1,200 feet.

**3**

**(a)** through **(c)**

**NEW**

**3-3-7. FAR FIELD MONITOR (FFM) REMOTE SENSING STATUS UNIT**

Delete

Renumbered **a** through **c**

Delete

**d.** Operation of the FFM remote sensing unit will be based on the prevailing weather. The FFM remote sensing unit **must** be operational when the weather is below CAT I ILS minimums.

Delete

Delete

Delete

Renumbered **e**

Renumbered **1** through **3**

**1. PARAGRAPH NUMBER AND TITLE:** 3-7-1. GROUND TRAFFIC MOVEMENT

**2. BACKGROUND:** In FAA directives, an air traffic controller’s instruction for a pilot to taxi onto the runway and await takeoff clearance is “position and hold.” The International Civil Aviation Organization (ICAO) equivalent of this instruction

is “line up and wait.” In July 2000, the National Transportation Safety Board (NTSB) recommended that FAA Order JO 7110.65 be amended to require the use of standard ICAO phraseology for airport surface operations (NTSB Recommendation A-00-71). In addition, the Air Traffic Procedures Advisory Committee (ATPAC) has requested the FAA to revise U.S. policy to require the use of “line up and wait” rather than “position and hold.” Lastly, the FAA Runway Safety Call to Action Committee has issued several recommendations to address improving runway safety across the National Airspace System (NAS).

In response to these recommendations, the Air Traffic Organization, Terminal Services convened a Safety Risk Management (SRM) panel of subject matter experts to evaluate safety of the committee recommendations. The objective of the SRM Panel was to identify and assess the risks associated with changing the current phraseology from “position and hold” to “line up and wait” per NTSB Recommendation A-00-71.

It has been identified that paragraph 3-7-1, Ground Traffic Movement, erroneously contains guidance for the tower local controller with regard to take-off clearances and LUAW.

A need for inclusion of letters of agreement was identified for movement area operations.

A reference to an obsolete aircraft was identified.

**3. CHANGE:**

**OLD**

**3-7-1. GROUND TRAFFIC MOVEMENT**

Issue by radio or directional light signals specific instructions which approve or disapprove the movement of aircraft, vehicles, equipment, or personnel on the movement area.

Add

**a.** Do not issue *conditional* instructions that are dependent upon the movement of an arrival aircraft on or approaching the runway or a departure aircraft established on a takeoff roll. Do not say, “Position and Hold behind landing traffic”, or “Taxi/proceed across Runway Three\_Six behind departing/landing Jetstar.” The above requirements do not preclude issuing instructions to follow an aircraft observed to be operating on the movement area in accordance with an ATC clearance/instruction and in such a manner that the instructions to follow are not ambiguous.

**b** through **d***NOTE-2*

**e.** State the runway intersection when authorizing an aircraft to taxi into position to hold or when clearing an aircraft for takeoff from an intersection.

**NEW**

**3-7-1. GROUND TRAFFIC MOVEMENT**

Issue by radio or directional light signals specific instructions which approve or disapprove the movement of aircraft, vehicles, equipment, or personnel on the movement area **except where permitted in an LOA.**

**REFERENCE-**

**FAAO JO 7210.3, Para 4-3-1, Letters of Agreement**  
**FAAO JO 7210.3, Para 4-3-2, Appropriate Subjects**

**a.** Do not issue *conditional* instructions that are dependent upon the movement of an arrival aircraft on or approaching the runway or a departure aircraft established on a takeoff roll. Do not say, “**Line up and wait** behind landing traffic,” or “Taxi/proceed across Runway Three\_Six behind departing/landing **Citation**.” The above requirements do not preclude issuing instructions to follow an aircraft observed to be operating on the movement area in accordance with an ATC clearance/instruction and in such a manner that the instructions to follow are not ambiguous.

No Change

Delete

**PHRASEOLOGY-**

RUNWAY (number) AT (taxiway designator) (further instructions as needed)

RUNWAY (number) AT (taxiway designator), POSITION AND HOLD.

If requested or required.

RUNWAY (number) AT (taxiway designator) INTERSECTION DEPARTURE, (remaining length) FEET AVAILABLE.

**f.** If two or more aircraft call the tower ready for departure, one or more at the approach and one or more at the intersection, state the location of the aircraft at the full length of the runway when authorizing that aircraft to taxi into position and hold or when clearing that aircraft for takeoff.

Delete

**PHRASEOLOGY-**

RUNWAY (number), FULL-LENGTH, POSITION AND HOLD.

Delete

or

RUNWAY (number) FULL LENGTH, CLEARED FOR TAKEOFF.

**EXAMPLE-**

“American Four Eighty Two, Runway Three Zero full length, position and hold.”

“Cherokee Five Sierra Whiskey, Runway Two Five Right full length, cleared for takeoff.”

Delete

**NOTE-**

The controller need not state the location of the aircraft departing the full length of the runway if there are no aircraft holding for departure at an intersection for that same runway.

Delete

**1. PARAGRAPH NUMBER AND TITLE: 3-7-2. TAXI AND GROUND MOVEMENT OPERATIONS**

**2. BACKGROUND:** The FAA Runway Safety Call to Action Committee issued several recommendations to address improving runway safety across the NAS. In response to the Committee’s recommendations, the Air Traffic Organization convened a Safety Risk Management (SRM) Panel to evaluate the safety of the Committee recommendations. These are two of the recommended changes from the Call to Action Committee.

**3. CHANGE:**

**OLD**

**3-7-2. TAXI AND GROUND MOVEMENT OPERATIONS**

**NEW**

**3-7-2. TAXI AND GROUND MOVEMENT OPERATIONS**

Issue the route for the aircraft/vehicle to follow on the movement area in concise and easy to understand terms. The taxi clearance shall include the specific route to follow. When a taxi clearance to a runway is issued to an aircraft, confirm the aircraft has the correct runway assignment.

**NOTE-**

a. When authorizing a vehicle to proceed on the movement area, or an aircraft to taxi to any point other than an assigned takeoff runway, absence of holding instructions authorizes an aircraft/vehicle to cross all taxiways and runways that intersect the taxi route. If it is the intent to hold the aircraft/vehicle short of any given point along the taxi route, issue the route, and then state the holding instructions.

**NOTE-**

*Movement of aircraft or vehicles on non-movement areas is the responsibility of the pilot, the aircraft operator, or the airport management.*

**PHRASEOLOGY-**

**EXAMPLE-**

*“Cross Runway Two Eight Left.”*

*“Taxi/continue taxiing/proceed to the hangar.”*

*“Taxi/continue taxiing/proceed straight ahead then via ramp to the hangar.”*

*“Taxi/continue taxiing/proceed on Taxiway Charlie, hold short of Runway Two Seven.”*

*or*

*“Taxi/continue taxiing/proceed on Charlie, hold short of Runway Two Seven.”*

b. When authorizing an aircraft to taxi to an assigned takeoff runway and hold short instructions are not issued, specify the runway preceded by “taxi to,” and issue taxi instructions. This authorizes the aircraft to “cross” all runways/taxiways which the taxi route intersects except the assigned takeoff runway. This does not authorize the aircraft to “enter” or “cross” the assigned takeoff runway at any point.

**PHRASEOLOGY-**

TAXI TO RUNWAY (number) VIA (route).

Issue the route for the aircraft/vehicle to follow on the movement area in concise and easy to understand terms. The taxi clearance must include the specific route to follow. When a taxi clearance to a runway is issued to an aircraft, confirm the aircraft has the correct runway assignment.

No Change

a. When authorizing an aircraft/vehicle to proceed on the movement area or to any point other than assigned takeoff runway, specify the route/taxi instructions. If it is the intent to hold the aircraft/vehicle short of any given point along the taxi route, issue the route and then state the holding instructions.

**NOTE-**

1. The absence of holding instructions authorizes an aircraft/vehicle to cross all taxiways that intersect the taxi route.

2. Movement of aircraft or vehicles on non-movement areas is the responsibility of the pilot, the aircraft operator, or the airport management.

No Change

**EXAMPLE-**

*“Cross Runway Two-Eight Left, hold short of Runway Two-Eight Right.”*

*“Taxi/continue taxiing/proceed to the hangar.”*

*“Taxi/continue taxiing/proceed straight ahead then via ramp to the hangar.”*

*“Taxi/continue taxiing/proceed on Taxiway Charlie, hold short of Runway Two-Seven.”*

*or*

*“Taxi/continue taxiing/proceed on Charlie, hold short of Runway Two-Seven.”*

Delete

Delete

**EXAMPLE-**

“Taxi to Runway Three Six via Taxiway Echo.”

Delete

or

“Taxi to Runway Three Six via Echo.”

**c. Specify the runway for departure, taxi instructions, and hold short restrictions when an aircraft will be required to hold short of a runway or other points along the taxi route.**

**b. When authorizing an aircraft to taxi to an assigned takeoff runway, state the departure runway followed by the specific taxi route. Issue hold short restrictions when an aircraft will be required to hold short of a runway or other points along the taxi route.**

Delete

**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.”

**PHRASEOLOGY-**

RUNWAY (number), TAXI/PROCEED VIA (route),

HOLD SHORT OF (runway number)

or

HOLD SHORT OF (location)

or

ON (taxi strip, runup, pad, etc.),

and if necessary,

TRAFFIC (traffic information),

or

FOR (reason).

**PHRASEOLOGY-**

RUNWAY (number), TAXI VIA (route **as necessary**),

or

**RUNWAY (number), TAXI VIA (route as necessary)(hold short instructions as necessary).**

**EXAMPLE-**

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

*or*

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

Add

**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.”***

Add

**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.”***

Add

**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.*

**d** through **f**

Renumbered **f** through **h**

**1. PARAGRAPH NUMBER AND TITLE:** 3-9-4. TAXI INTO POSITION AND HOLD (TIPH)

**2. BACKGROUND:** In FAA directives, an air traffic controller’s instruction for a pilot to taxi onto the runway and await takeoff clearance is “position and hold.” The International Civil Aviation Organization (ICAO) equivalent of this instruction is “line up and wait.” In July 2000, the National Transportation Safety Board (NTSB) recommended that FAA Order JO 7110.65 be amended to require the use of standard ICAO phraseology for airport surface operations (NTSB Recommendation A-00-71). In addition, the Air Traffic Procedures Advisory Committee (ATPAC) has requested the FAA to revise U.S. policy to require the use of “line up and wait” rather than “position and hold.” Lastly, the FAA Runway Safety Call to Action Committee has issued several recommendations to address improving runway safety across the National Airspace System (NAS).

In response to these recommendations, the Air Traffic Organization, Terminal Services convened a Safety Risk Management (SRM) panel of subject matter experts to evaluate safety of the committee recommendations. The objective of the SRM Panel was to identify and assess the risks associated with changing the current phraseology from “position and hold” to “line up and wait” per NTSB Recommendation A-00-71.

For consistency with other clearances, LUAW clearances must always include the departure runway.

LUAW procedures with and without the use of ASDE in full core alert mode are identified.

Intersection departure guidance regarding LUAW has been identified as being erroneously placed in 3-7-1 GROUND TRAFFIC MOVEMENT.

**3. CHANGE:**

**OLD**

**NEW**

**3-9-4. TAXI INTO POSITION AND HOLD (TIPH)**

**3-9-4. LINE UP AND WAIT (LUAW)**

**a.** The intent of **TIPH** is to position aircraft for an imminent departure. Authorize an aircraft to **taxi into position and hold**, except as restricted in subpara g, when takeoff clearances cannot be issued because of traffic. Issue traffic information to any aircraft so authorized. Traffic information may be omitted when the traffic is another aircraft which has landed on or is taking off the runway and is clearly visible to the holding aircraft. Do not use conditional phrases such as “behind landing traffic” or “after the departing aircraft.”

**a.** The intent of **LUAW** is to position aircraft for an imminent departure. Authorize an aircraft to **line up and wait**, except as restricted in subpara g, when takeoff clearances cannot be issued because of traffic. Issue traffic information to any aircraft so authorized. Traffic information may be omitted when the traffic is another aircraft which has landed on or is taking off the runway and is clearly visible to the holding aircraft. Do not use conditional phrases such as “behind landing traffic” or “after the departing aircraft.”

**b. USN NOT APPLICABLE.** First state the runway number followed by the taxi into position clearance when more than one runway is active.

**PHRASEOLOGY-**  
*RUNWAY (number), POSTION AND HOLD.*

*Or, when only one runway is active:*

POSTION AND HOLD.

Add

Add

**c.** Do not issue clearance to an aircraft requesting a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach on the same runway with an aircraft that is holding in position, taxiing into position or has been cleared to taxi into position and hold until the aircraft in position starts takeoff roll. Do not clear an aircraft to TIPH if an aircraft has been cleared to land, touch-and-go, stop-and-go, option or unrestricted low approach on the same runway.

Add

**PHRASEOLOGY-**  
*RUNWAY(number), CONTINUE, TRAFFIC HOLDING IN POSITION,*

*or*

*(when only one runway is active): CONTINUE, TRAFFIC HOLDING IN POSTION.*

**EXAMPLE-**  
*“American 528, Runway two three continue, traffic holding in position.”*

*or*

*(when only one runway is active): American 528, continue, traffic holding in position.”*

**1.** Landing clearance must be withheld if the safety logic system is inoperative or in limited configuration or conditions are less than reported ceiling 800 feet or visibility less than 2 miles.

**2.** Facilities without the safety logic system and facilities with safety logic system in the limited configuration must withhold landing clearance until the aircraft in position starts takeoff roll.

**b. USN NOT APPLICABLE.** First state the runway number followed by the line up and wait clearance.

**PHRASEOLOGY-**  
*RUNWAY (number), LINE UP AND WAIT.*

**c. Procedures.**

**1. At facilities without a safety logic system or facilities with the safety logic system in the limited configuration:**

**(a)** Do not issue **a landing** clearance to an aircraft requesting a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach on the same runway with an aircraft that is holding in position **or taxiing to line up and wait until the aircraft in position starts takeoff roll.**

**(b) Do not authorize an aircraft to LUAW if an aircraft has been cleared to land, touch-and-go, stop-and-go, option, or unrestricted low approach on the same runway.**

**PHRASEOLOGY-**  
*RUNWAY (number), CONTINUE, TRAFFIC HOLDING IN POSITION.*

**EXAMPLE-**  
*“American 528, Runway Two-Three continue, traffic holding in position.”*

Delete

**2. Except when reported weather conditions are less than ceiling 800 feet or visibility less than 2 miles, facilities using the safety logic system in the full core alert mode:**

Add

**(a) May issue a landing clearance for a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach to an arriving aircraft with an aircraft holding in position or taxiing to LUAW on the same runway, or**

Add

**(b) May authorize an aircraft to LUAW when an aircraft has been cleared for a full stop, touch-and-go, stop-and-go, option, or unrestricted low approach on the same runway.**

**REFERENCE-**  
FAAO JO 7110.65, Para 3-10-5, Landing Clearance

**d.** When an aircraft is authorized to taxi into position and hold, inform it of the closest traffic requesting a full-stop, touch-and-go, stop-and-go, option or unrestricted low approach to the same runway.

**EXAMPLE-**  
“United Five, runway one eight, position and hold. Traffic a Boeing Seven Thirty Seven, six mile final.

*or*

*(when only one runway is active): American 528, continue, traffic holding in position.”*

**e. USAF.** When an aircraft is authorized to taxi into position and hold, 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 aircraft taxiing into position.

**f.** Do not authorize an aircraft to taxi into position and hold when the departure point is not visible from the tower, unless the aircraft’s position can be verified by ASDE or the runway is used for departures only.

**g.** An aircraft may be authorized to taxi into position and hold at an intersection between sunset and sunrise. The procedure must be approved by the appropriate Director, Terminal Operations (service area) and by the Director, Terminal Safety and Operations Support, and must be contained in a facility directive. The following conditions must apply:

Add

**REFERENCE-**  
FAAO JO 7110.65, Para 3-10-5, Landing Clearance

**d.** When an aircraft is authorized to line up and wait, inform it of the closest traffic requesting a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach to the same runway.

**EXAMPLE-**  
“United Five, Runway One Eight, line up and wait. Traffic a Boeing Seven Thirty Seven, six mile final.

**e. USAF/USN.** When an aircraft is authorized to line up and wait, 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 aircraft taxiing into position.

**f.** Do not authorize an aircraft to line up and wait when the departure point is not visible from the tower, unless the aircraft’s position can be verified by ASDE or the runway is used for departures only.

**g.** An aircraft may be authorized to line up and wait at an intersection between sunset and sunrise under the following conditions:

**1. The procedure must be approved by the appropriate Director, Terminal Operations (service area) as well as the Director, Terminal Safety and Operations Support.**

Add

**2. The procedure must be contained in a facility directive.**

**1.** The runway must be used as a departure-only runway.

**2.** Only one aircraft at a time is permitted to taxi into position and hold on the same runway.

**3.** Document on FAA Form 7230-4, Daily Record of Facility Operation, the following: “TIPH at INT of RWY (number) and TWY (name) IN EFFECT” when using runway as a departure-only runway. “TIPH at INT of RWY (number) and TWY (name) SUSPENDED” when runway is not used as a departure-only runway.

**h.** Do not authorize an aircraft to taxi into position and hold at anytime when the intersection is not visible from the tower.

**i.** Do not authorize aircraft to simultaneously taxi into position and hold on the same runway, between sunrise and sunset, unless the local assist/local monitor position is staffed.

**j. USN.** Do not authorize aircraft to taxi into position to hold simultaneously on intersecting runways.

**PHRASEOLOGY-**  
*CONTINUE HOLDING,*

*or*

**TAXI OFF THE RUNWAY.**

**k.** When aircraft are authorized to taxi into position and hold on runways that intersect, traffic must be exchanged between that aircraft and the aircraft that is authorized to position and hold, depart, or arrive to the intersecting runway(s).

**3.** The runway must be used as a departure-only runway.

**4.** Only one aircraft at a time is permitted to line up and wait on the same runway.

**5.** Document on FAA Form 7230-4, Daily Record of Facility Operation, the following: “LUAW at INT of RWY (number) and TWY (name) IN EFFECT” when using runway as a departure-only runway. “LUAW at INT of RWY (number) and TWY (name) SUSPENDED” when runway is not used as a departure-only runway.

**h.** Do not authorize an aircraft to line up and wait at anytime when the intersection is not visible from the tower.

**i.** Do not authorize aircraft to simultaneously line up and wait on the same runway, between sunrise and sunset, unless the local assist/local monitor position is staffed.

**j. USN.** Do not authorize aircraft to line up and wait simultaneously on intersecting runways.

**PHRASEOLOGY-**  
*CONTINUE HOLDING,*

*or*

**TAXI OFF THE RUNWAY.**

**k.** When aircraft are authorized to line up and wait on runways that intersect, traffic must be exchanged between that aircraft and the aircraft that is authorized to line up and wait, depart, or arrive to the intersecting runway(s).

**EXAMPLE-**

“United Five, runway four, position and hold, traffic holding runway three-one.”

“Delta One, runway three-one, position and hold, traffic holding runway four.”

Or, when issuing traffic information to an arrival aircraft and an aircraft that is holding on runway(s) that intersect(s):

“Delta One, runway four, position and hold, traffic landing runway three-one.”

“United Five, runway three-one, cleared to land. Traffic holding in position runway four.”

Or, when issuing traffic information to a departing aircraft and an aircraft that is holding on runway(s) that intersect(s):

“Delta One, runway three-one, position and hold, traffic departing runway four.”

“United Five, runway four, cleared for takeoff, traffic holding in position runway three-one.”

**kREFERENCE-** through **mREFERENCE-**

Add

Add

Add

Add

Add

Add

**EXAMPLE-**

“United Five, Runway Four, line up and wait, traffic holding Runway Three-One.”

“Delta One, Runway Three-One, line up and wait, traffic holding Runway Four.”

Or, when issuing traffic information to an arrival aircraft and an aircraft that is holding on runway(s) that intersect(s):

“Delta One, Runway Four, line up and wait, traffic landing Runway Three-One.”

“United Five, Runway Three-One, cleared to land. Traffic holding in position Runway Four.”

Or, when issuing traffic information to a departing aircraft and an aircraft that is holding on runway(s) that intersect(s):

“Delta One, Runway Three-One, line up and wait, traffic departing Runway Four.”

“United Five, Runway Four, cleared for takeoff, traffic holding in position Runway Three-One.”

No Change

**n. When authorizing an aircraft to line up and wait at an intersection, state the runway intersection.**

**PHRASEOLOGY-**  
**RUNWAY (number) AT (taxiway designator), LINE UP AND WAIT.**

**o. 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 authorizing that aircraft to line up and wait.**

**PHRASEOLOGY-**  
**RUNWAY (number), FULL-LENGTH, LINE UP AND WAIT.**

**EXAMPLE-**  
**“American Four Eighty Two, Runway Three-Zero full length, line up and wait.”**

**NOTE-**  
**The controller need not state the location of the aircraft departing the full length of the runway if there are no aircraft holding for departure at an intersection for that same runway.**

---

**1. PARAGRAPH NUMBER AND TITLE:** 3-9-6. SAME RUNWAY SEPARATION

**2. BACKGROUND:** In FAA directives, an air traffic controller’s instruction for a pilot to taxi onto the runway and await takeoff clearance is “position and hold.” The International Civil Aviation Organization (ICAO) equivalent of this instruction

is “line up and wait.” In July 2000, the National Transportation Safety Board (NTSB) recommended that FAA Order JO 7110.65 be amended to require the use of standard ICAO phraseology for airport surface operations (NTSB Recommendation A-00-71). In addition, the Air Traffic Procedures Advisory Committee (ATPAC) has requested the FAA to revise U.S. policy to require the use of “line up and wait” rather than “position and hold.” Lastly, the FAA Runway Safety Call to Action Committee issued several recommendations to address improving runway safety across the National Airspace System (NAS).

In response to these recommendations, the Air Traffic Organization, Terminal Services convened a Safety Risk Management (SRM) panel of subject matter experts to evaluate safety of the Committee recommendations. The objective of the SRM Panel was to identify and assess the risks associated with changing the current phraseology from “position and hold” to “line up and wait” per NTSB Recommendation A-00-71.

### 3. CHANGE:

#### OLD

#### 3-9-6. SAME RUNWAY SEPARATION

title through c

d. Do not issue clearances to a small aircraft to taxi into position and hold on the same runway behind a departing heavy jet aircraft to apply the necessary intervals.

dREFERENCE- through h

i. Separate a small aircraft behind a large aircraft taking off or making a low/missed approach when utilizing opposite direction takeoffs on the same runway by *3 minutes* unless a pilot has initiated a request to deviate from the 3-minute interval. In the latter case, issue a wake turbulence advisory before clearing the aircraft for takeoff.

#### NOTE-

1. A request for takeoff does not initiate a waiver request.

2. To initiate a waiver of the 3 minute rule, the request for takeoff must be accompanied by a request to deviate from the 3-minute rule.

#### REFERENCE-

FAAO JO 7110.65, Appendix A, Appendix B, and Appendix C, Aircraft Information.

j. Separate aircraft behind a heavy jet/B757 departing or making a low/missed approach when utilizing opposite direction takeoffs or landings on the same or parallel runways separated by less than 2,500 feet- *3 minutes*.

#### NEW

#### 3-9-6. SAME RUNWAY SEPARATION

No Change

d. Do not issue clearances to a small aircraft to line up and wait on the same runway behind a departing heavy jet aircraft to apply the necessary intervals.

No Change

i. Separate a small aircraft behind a large aircraft that has departed or made a low/missed approach when utilizing opposite direction takeoffs on the same runway by *3 minutes* unless a pilot has initiated a request to deviate from the 3-minute interval. In the latter case, issue a wake turbulence advisory before clearing the aircraft for takeoff. **Controllers must not initiate or suggest a waiver of the 3-minute rule.**

#### NOTE-

A request for takeoff does not initiate a waiver request.

#### REFERENCE-

FAAO JO 7110.65, Appendix A, Appendix B, and Appendix C, Aircraft Information.

j. Separate aircraft behind a heavy jet/B757 that has departed or made a low/missed approach when utilizing opposite direction takeoffs or landings on the same or parallel runways separated by less than 2,500 feet- *3 minutes*.

### 1. PARAGRAPH NUMBER AND TITLE: 3-9-9. TAKEOFF CLEARANCE

2. **BACKGROUND:** Previous and current directives have contained guidance for takeoff clearances relating to intersection departures in Paragraph 3-7-1, Ground Traffic Movement. That paragraph is the wrong location for this procedure to be identified.

3. CHANGE:

**OLD**  
**3-9-9. TAKEOFF CLEARANCE**

title through ~~REFERENCE-~~

Add

Add

Add

Add

Add

**b.** 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 3-9-9**c.**

**c** through **e**

**NEW**  
**3-9-9. TAKEOFF CLEARANCE**

No Change

**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 3-9-9**e.**

Renumbered **e** through **g**

**1. PARAGRAPH NUMBER AND TITLE:** 3-10-5. LANDING CLEARANCE

**2. BACKGROUND:** In FAA directives, an air traffic controller’s instruction for a pilot to taxi onto the runway and await takeoff clearance is “position and hold.” The International Civil Aviation Organization (ICAO) equivalent of this instruction is “line up and wait.”

In August 2005, the National Transportation Safety Board (NTSB) recommended that FAA Order 7110.65 be amended to require the use of standard ICAO phraseology for airport surface operations (NTSB Recommendation A-00-71). In addition, the Air Traffic Procedures Advisory Committee (ATPAC) has requested the FAA to revise U.S. policy to require the use of “line up and wait” rather than “position and hold.” Additionally, the FAA Runway Safety Call to Action Committee issued several recommendations to address improving runway safety across the NAS. In response to these recommendations, the Air Traffic Organization, Terminal Service (ATO-T) convened a Safety Risk Management (SRM) panel of subject matter experts to evaluate safety of the Committee recommendations. The objective of the SRM Panel was to identify and assess the risks associated with changing the current phraseology from “position and hold” to “line up and wait” per NTSB Recommendation A-00-71.

3. CHANGE:

**OLD**  
**3-10-5. LANDING CLEARANCE**

**NEW**  
**3-10-5. LANDING CLEARANCE**

a. Issue landing clearance. Restate the landing runway whenever more than one runway is active, or an instrument approach is being conducted to a closed runway. If the landing runway is changed, controllers must preface the landing clearance with “Change to runway.”

**PHRASEOLOGY-**  
**CLEARED TO LAND,**

*or*

**RUNWAY (*designator*) CLEARED TO LAND.**

*or*

**CHANGE TO RUNWAY (*designator*) CLEARED TO LAND.**

Add

b. Do not clear an aircraft for a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach when a departing aircraft has been instructed to taxi into position and hold, is taxiing into position, or is holding in position on the same runway. The landing clearance may be issued once the aircraft in position has started takeoff roll.

Add

c. **“USN NOT APPLICABLE.”** Inform the closest aircraft that is requesting a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approaches when there is traffic authorized to taxi into position and hold on the same runway.

**EXAMPLE-**

*“Delta One, continue, traffic holding in position.”*

*or*

*“Delta One, runway one eight, continue, traffic holding in position.”*

a. **When issuing a clearance to land, first state the runway number followed by the landing clearance.** If the landing runway is changed, controllers must preface the landing clearance with “Change to runway.”

**PHRASEOLOGY-**

**RUNWAY (*number*) CLEARED TO LAND.**

*Or*

**CHANGE TO RUNWAY (*number*) CLEARED TO LAND.**

### **b. Procedures.**

**1. Facilities without a safety logic system or facilities with the safety logic system inoperative or in the limited configuration must** not clear an aircraft for a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach when a departing aircraft has been instructed to **line up and wait** or is holding in position on the same runway. The landing clearance may be issued once the aircraft in position has started takeoff roll.

**2. Facilities using safety logic in the full core alert runway configuration may issue a landing clearance, full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach to an arriving aircraft with an aircraft holding in position or taxiing to LUAW on the same runway except when reported weather conditions are less than ceiling 800 feet or visibility less than 2 miles.**

c. Inform the closest aircraft that is requesting a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approaches when there is traffic authorized to **line up and wait** on the same runway.

**EXAMPLE-**

*“Delta One, **Runway One-Eight**, continue, traffic holding in position.”*

*“Delta One, **Runway One-Eight, cleared to land.** Traffic holding in position.”*

d. During same runway operations, while TIPH is being applied, landing clearance must be withheld if the safety logic system to that runway is inoperative or in limited configuration or conditions are less than reported ceiling 800 feet or visibility less than 2-miles.

Delete

**EXAMPLE-**

*If the safety logic system is operating in full core alert runway configuration:*

Delete

*“Delta One, cleared to land. Traffic holding in position.”*

*or*

*“Delta One, runway one eight, cleared to land. Traffic holding in position.”*

**e**

Renumbered **d**

**1. PARAGRAPH NUMBER AND TITLE:** 3-10-6. ANTICIPATING SEPARATION

**2. BACKGROUND:** In FAA directives, an air traffic controller’s instruction for a pilot to taxi onto the runway and await takeoff clearance is “position and hold.” The International Civil Aviation Organization (ICAO) equivalent of this instruction is “line up and wait.” In July 2000, the National Transportation Safety Board (NTSB) recommended that FAA Order JO 7110.65 be amended to require the use of standard ICAO phraseology for airport surface operations (NTSB Recommendation A-00-71). In addition, the Air Traffic Procedures Advisory Committee (ATPAC) has requested the FAA to revise U.S. policy to require the use of “line up and wait” rather than “position and hold.” Lastly, the FAA Runway Safety Call to Action Committee has issued several recommendations to address improving runway safety across the National Airspace System (NAS).

In response to these recommendations, the Air Traffic Organization, Terminal Services convened a Safety Risk Management (SRM) panel of subject matter experts to evaluate safety of the committee recommendations. The objective of the SRM Panel was to identify and assess the risks associated with changing the current phraseology from “position and hold” to “line up and wait” per NTSB Recommendation A-00-71.

**3. CHANGE:**

**OLD**

**NEW**

**3-10-6. ANTICIPATING SEPARATION**

**3-10-6. ANTICIPATING SEPARATION**

**a.** Landing clearance to succeeding aircraft in a landing sequence need not be withheld if you observe the positions of the aircraft and determine that prescribed runway separation will exist when the aircraft cross the landing threshold. Issue traffic information to the succeeding aircraft if not previously reported and appropriate traffic holding in position or departing prior to their arrival.

**a.** Landing clearance to succeeding aircraft in a landing sequence need not be withheld if you observe the positions of the aircraft and determine that prescribed runway separation will exist when the aircraft crosses the landing threshold. Issue traffic information to the succeeding aircraft if **a preceding arrival has not been** previously reported and **when traffic will be** departing prior to their arrival.

**EXAMPLE-**

“American Two Forty-Five cleared to land, number two following United Boeing Seven-Thirty-Seven two mile final, traffic will depart prior to your arrival.”

“American Two Forty-Five cleared to land, number two following United Boeing Seven-Thirty-Seven two mile final, traffic will be an MD 88 holding in position.”

“American Two Forty-Five cleared to land, following United Boeing Seven-Thirty-Seven two mile final, traffic will depart prior to your arrival.”

**NOTE-**

Landing sequence number is optional at tower facilities where arrivals are sequenced by the approach control.

b. Anticipating separation must not be applied when conducting **TIPH** operations, except as restricted in para 3-10-5d.

Add

**REFERENCE-**

FAAO JO 7110.65, Para 3-3-2, Closed/Unsafe Runway Information.

FAAO JO 7110.65, Para 3-10-5, Landing Clearance, subpara c, not required if utilizing the provisions of Para 3-10-6, Anticipating Separation.

P/CG Term- Clear of the Runway.

**EXAMPLE-**

“American Two Forty-Five, **Runway One-Eight**, cleared to land, number two following a United Seven-Thirty-Seven two mile final. **Traffic** will depart prior to your arrival.”

“American Two Forty-Five, **Runway One-Eight**, cleared to land, **Traffic** will depart prior to your arrival.”

**NOTE-**

Landing sequence number is optional at tower facilities where the arrival sequence to the runway is established by the approach control.

b. Anticipating separation must not be applied when conducting **LUAW** operations, except as **authorized** in paragraph 3-10-5b2. **Issue applicable traffic information when using this provision.**

**EXAMPLE-**

“American Two Forty-Five, **Runway One-Eight**, cleared to land. **Traffic** will be a Boeing Seven-Fifty-Seven holding in position.”

**REFERENCE-**

P/CG Term - Clear of the Runway.

**1. PARAGRAPH NUMBER AND TITLE: 3-11-2. HELICOPTER TAKEOFF CLEARANCE**

**2. BACKGROUND:** Though it has been the subject of previous interpretations, questions still exist regarding when the term “proceed as requested” should be used and when “departure will be at your own risk” is appropriate. In all applicable scenarios, a cross sectional work group has determined that the term “at your own risk” most accurately reflects the conditions under which approval of these operations should be granted and that the phraseology “proceed as requested” implies an inappropriate assumption of responsibility for the operation by ATC. Lastly, the scenarios in which a downwind departure by a helicopter could be approved requires revision to more accurately reflect current operating practices.

**3. CHANGE:**

**OLD**

**3-11-2. HELICOPTER TAKEOFF CLEARANCE**

a. Issue takeoff clearance from movement areas other than active runways, or in diverse directions from active runways, with additional instructions, as necessary. Whenever possible, issue takeoff clearance in lieu of extended hover-taxi or air-taxi operations.

**PHRASEOLOGY-**

**NEW**

**3-11-2. HELICOPTER TAKEOFF CLEARANCE**

a. Issue takeoff clearances from movement areas other than active runways or in diverse directions from active runways, with additional instructions as necessary. Whenever possible, issue takeoff clearance in lieu of extended hover-taxi or air-taxi operations.

No Change

b. If takeoff is requested from non-movement areas and, in your judgment, the operation appears to be reasonable, use the following phraseology instead of the takeoff clearance in subpara a.

**PHRASEOLOGY-**  
*PROCEED AS REQUESTED, USE CAUTION (reason and additional instructions, as appropriate).*

c. If takeoff is requested from an area not visible, an area not authorized for helicopter use, an unlighted non-movement area at night, or an area off the airport, and traffic is not a factor, use the following phraseology.

**PHRASEOLOGY-**  
*DEPARTURE FROM (requested location) WILL BE AT YOUR OWN RISK (reason and additional instructions, as necessary).*

d. Unless requested by the pilot, do not issue downwind takeoffs if the tailwind exceeds 5 knots.

**NOTE-**  
*A pilot request to takeoff from a given point in a given direction constitutes such a request.*

b. If takeoff is requested from non-movement areas, **an area not authorized for helicopter use, or an area off the airport**, and, in your judgment, the operation appears to be reasonable, use the following phraseology instead of the takeoff clearance in subpara a.

**PHRASEOLOGY-**  
*DEPARTURE FROM (requested location) WILL BE AT YOUR OWN RISK (additional instructions, as necessary). USE CAUTION (if applicable).*

Delete

Delete

c. Unless **agreed to** by the pilot, do not issue downwind takeoffs if the tailwind exceeds 5 knots.

**NOTE-**  
*A pilot request to takeoff from a given point in a given direction constitutes agreement.*

**1. PARAGRAPH NUMBER AND TITLE:** 3-11-6. HELICOPTER LANDING CLEARANCE

**2. BACKGROUND:** Though it has been the subject of previous interpretations, questions still exist regarding when the term “proceed as requested” should be used and when “landing will be at your own risk” is appropriate. In all applicable scenarios, a cross sectional work group has determined that the term “at your own risk” most accurately reflects the conditions under which approval of these operations should be granted and that the phraseology “proceed as requested” implies an inappropriate assumption of responsibility for the operation by ATC. Lastly, the scenarios in which a downwind departure by a helicopter could be approved requires revision to more accurately reflect current operating practices.

**3. CHANGE:**

**OLD**

**3-11-6. HELICOPTER LANDING CLEARANCE**

a. Issue landing clearance for helicopters to movement areas other than active runways, or from diverse directions to points on active runways, with additional instructions, as necessary. Whenever possible, issue landing clearance in lieu of extended hover-taxi or air-taxi operations.

**NEW**

**3-11-6. HELICOPTER LANDING CLEARANCE**

a. Issue landing clearances **to** helicopters **going** to movement areas other than active runways or from diverse directions to points on active runways, with additional instructions as necessary. Whenever possible, issue **a** landing clearance in lieu of extended hover-taxi or air-taxi operations.

**PHRASEOLOGY-**

**MAKE APPROACH STRAIGHT-IN/CIRCLING LEFT/ RIGHT TURN TO** (location, runway, taxiway, helipad, Maltese cross) **ARRIVAL/ARRIVAL ROUTE** (number, name, or code).

**HOLD SHORT OF** (active runway, extended runway centerline, other).

**REMAIN** (direction/distance; e.g., 700 feet, 1 1/2 miles) **FROM** (runway, runway centerline, other helicopter/aircraft).

**CAUTION** (power lines, unlighted obstructions, wake turbulence, etc.).

**CLEARED TO LAND.**

**CONTACT GROUND.**

**AIR TAXI TO RAMP.**

**b.** If landing is requested to non-movement areas and, in your judgment, the operation appears to be reasonable, use the following phraseology instead of the landing clearance in subpara a above.

**PHRASEOLOGY-**

**PROCEED AS REQUESTED, USE CAUTION** (reason and additional instructions, as appropriate).

**c.** If landing is requested to an area not visible, an area not authorized for helicopter use, an unlighted non-movement area at night, or an area off the airport, and traffic is not a factor, use the following phraseology.

**PHRASEOLOGY-**

**LANDING AT** (requested location) **WILL BE AT YOUR OWN RISK** (reason and additional instructions, as necessary).

**TRAFFIC** (as applicable).

**or**

**TRAFFIC NOT A FACTOR.**

**d.** Unless requested by the pilot, do not issue downwind landings if the tailwind exceeds 5 knots.

**NOTE-**

A pilot request to land at a given point from a given direction constitutes such a request.

**PHRASEOLOGY-**

**MAKE APPROACH STRAIGHT-IN/CIRCLING LEFT/ RIGHT TURN TO** (location, runway, taxiway, helipad, Maltese cross) **ARRIVAL/ARRIVAL ROUTE** (number, name, or code).

**HOLD SHORT OF** (active runway, extended runway centerline, other).

**REMAIN** (direction/distance; e.g., 700 feet, 1 1/2 miles) **OF/FROM** (runway, runway centerline, other helicopter/aircraft).

**CAUTION** (power lines, unlighted obstructions, wake turbulence, etc.).

**CLEARED TO LAND.**

**b.** If landing is requested to non-movement areas, **areas not authorized for helicopter use, or areas off the airport,** and, in your judgment, the operation appears to be reasonable, use the following phraseology instead of the landing clearance in subpara a.

**PHRASEOLOGY-**

**LANDING WILL BE AT YOUR OWN RISK** (additional instructions, as necessary). **USE CAUTION** (if applicable).

Delete

Delete

**c.** Unless **agreed to** by the pilot, do not issue downwind landings if the tailwind exceeds 5 knots.

**NOTE-**

A pilot request to land at a given point from a given direction constitutes **agreement**.

**1. PARAGRAPH NUMBER AND TITLE:** 3-12-2. DEPARTURE SEPARATION

**2. BACKGROUND:** In FAA directives, an air traffic controller’s instruction for a pilot to taxi onto the runway and await takeoff clearance is “position and hold.” The International Civil Aviation Organization (ICAO) equivalent of this instruction is “line up and wait.” In July 2000, the National Transportation Safety Board (NTSB) recommended that FAA Order JO 7110.65 be amended to require the use of standard ICAO phraseology for airport surface operations (NTSB Recommendation A-00-71). In addition, the Air Traffic Procedures Advisory Committee (ATPAC) has requested the FAA to revise U.S. policy to require the use of “line up and wait” rather than “position and hold.” Lastly, the FAA Runway Safety Call to Action Committee has issued several recommendations to address improving runway safety across the National Airspace System (NAS).

In response to these recommendations, the Air Traffic Organization, Terminal Services convened a Safety Risk Management (SRM) panel of subject matter experts to evaluate safety of the committee recommendations. The objective of the SRM Panel was to identify and assess the risks associated with changing the current phraseology from “position and hold” to “line up and wait” per NTSB Recommendation A-00-71.

**3. CHANGE:**

**OLD**

**3-12-2. DEPARTURE SEPARATION**  
title through **a3**

**b.** A preceding landing aircraft has taxied out of the sea lane.

***NOTE-***  
*Due to the absence of braking capability, caution should be exercised when instructing a float plane to hold a position as the aircraft will continue to move because of prop generated thrust. Clearance to taxi into position and hold should, therefore, be followed by takeoff or other clearance as soon as practicable.*

**NEW**

**3-12-2. DEPARTURE SEPARATION**  
No Change

**b.** A preceding landing aircraft has taxied out of the sea lane.

***NOTE-***  
*Due to the absence of braking capability, caution should be exercised when instructing a float plane to hold a position as the aircraft will continue to move because of prop generated thrust. Therefore, clearance to line up and wait should be followed by takeoff or other clearance as soon as is practical.*

**1. PARAGRAPH NUMBER AND TITLE:** 5-5-4. MINIMA

**2. BACKGROUND:** The term “broadband” is a legacy term that has no official agency definition and is no longer universally used to describe types of radar systems. Additionally, other appearances of this term in paragraph 7-7-3 and 7-8-3 have been removed from this directive. In the interest of clarity, removing this legacy term and replacing it with a plain language description is in all stakeholder’s interest.

**3. CHANGE:**

**OLD**

**5-5-4. MINIMA**  
Separate aircraft by the following minima:  
Add

**a.** Broadband Radar System 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.

**NEW**

**5-5-4. MINIMA**  
Separate aircraft by the following minima:  
**TERMINAL**

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

No Change

No Change

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

No Change

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

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

**1. PARAGRAPH NUMBER AND TITLE:** 5-5-7. PASSING OR DIVERGING

**2. BACKGROUND:** FAA Order JO 7110.65, paragraph 5-5-7, Passing or Diverging, permits controllers to discontinue approved separation when aircraft are on opposite/reciprocal courses or are on same or crossing courses and one aircraft has crossed the projected course of the other and the angular difference between their courses is at least 15 degrees. When controllers attempt to apply this procedure by assigning radar vectors to both aircraft that diverge by 15 degrees, the resulting ground tracks may actually measure slightly less than 15 degrees. This is due to conditions outside of a controller's influence and include pilot technique, aircraft compass error, ambient wind and/or weather anomalies.

This is similar to the requirement for controllers to assign 1,000 feet vertical separation between IFR aircraft. In this case, true vertical values achieved are more or less than 1,000 feet due to allowable altimetry error and permitted vertical flight path tolerances for pilots. Thus, a controller who is clearly complying with the intent of this procedure should be considered to satisfy the requirement for 15 degree divergence, even if the resultant paths measure something less due to unknown or uncontrollable weather or equipment perturbations. In both instances these events should not be considered losses of standard separation. Separation standards, such as these, should not be considered absolute values after the fact, but should accommodate normal allowable equipment and ambient tolerances prevalent in the aviation system.

**3. CHANGE:**

OLD

NEW

**5-5-7. PASSING OR DIVERGING**

**5-5-7. PASSING OR DIVERGING**

title through a

No Change

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 and one aircraft has crossed the projected course of the other and the angular difference between their courses is at least 15 degrees.

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.

Add

NOTE-

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

**1. PARAGRAPH NUMBER AND TITLE:** 5-6-1. APPLICATION

**2. BACKGROUND:** This document change is proposed as a means to improve the quick identification of possibly suspicious aircraft, including those with which air traffic control personnel cannot (re-) establish radio contact. It is meant in part to prevent the occurrence of incidents similar to the October 21, 2009, Northwest Airlines (NWA) 188 flight, which departed San Diego International Airport (SAN) en route to Minneapolis St. Paul International Airport (MSP). During the course of the flight, NWA 188 ceased communicating with air traffic control. Radio contact was not re-established for over an hour, and the incident raised serious security concerns.

As directed by the Chief Operating Officer of the Air Traffic Organization, a multidisciplinary team was convened to analyze how air traffic control operations can be improved. The team reviewed the procedures pertaining to the loss of two-way communication, establishing communication, and transferring communication.

**3. CHANGE:**

**OLD**

**5-6-1. APPLICATION**  
 Vector aircraft:  
 a. In controlled airspace for separation, safety, noise abatement, operational advantage, or when a pilot requests. Allow aircraft operating on an RNAV route to remain on their own navigation to the extent possible.

**NEW**

**5-6-1. APPLICATION**  
 Vector aircraft:  
 a. In controlled airspace for separation, safety, noise abatement, operational advantage, **confidence maneuver**, or when a pilot requests. Allow aircraft operating on an RNAV route to remain on their own navigation to the extent possible.

**1. PARAGRAPH NUMBER AND TITLE:** 5-6-3. VECTORS BELOW MINIMUM ALTITUDE

**2. BACKGROUND:** The FAA has received numerous requests to provide a definition of the term “prominent obstruction.” The term “prominent obstruction” is used in FAA Order JO 7110.65, Paragraph 5 6-3, Vectors Below the Minimum Altitude; however, until now there has not been an agency definition of this term to help distinguish it from the term “obstruction,” and to assist in the proper application of para 5-6-3(a) or (b). The Flight Standards Service recommended changing the term “prominent obstruction” to “prominent obstacle”. The rationale for this change is that obstruction is defined as “any object/obstacle exceeding the obstruction standards specified by 14 CFR Part 77, Subpart C” as it relates to airports and protection of airport surfaces.

**3. CHANGE:**

**OLD**

**5-6-3. VECTORS BELOW MINIMUM ALTITUDE**  
 Except in en route automated environments in areas where more than 3 miles separation minima is required, you may vector a departing IFR aircraft, or one executing a missed approach, within 40 miles of the antenna and before it reaches the minimum altitude for IFR operations if separation from prominent obstructions shown on the radar scope is applied in accordance with the following:  
 a. If the flight path is 3 miles or more from the obstruction and the aircraft is climbing to an altitude at least 1,000 feet above the obstruction, vector the aircraft to maintain at least 3 miles separation from the obstruction until the aircraft reports leaving an altitude above the obstruction.

**NEW**

**5-6-3. VECTORS BELOW MINIMUM ALTITUDE**  
 Except in en route automated environments in areas where more than 3 miles separation minima is required, you may vector a departing IFR aircraft, or one executing a missed approach, within 40 miles of the **radar** antenna and before it reaches the minimum altitude for IFR operations if separation from prominent **obstacles** shown on the radar scope is applied in accordance with the following:  
 a. If the flight path is 3 miles or more from the **obstacle** and the aircraft is climbing to an altitude at least 1,000 feet above the **obstacle**, vector the aircraft to maintain at least 3 miles separation from the **obstacle** until the aircraft reports leaving an altitude above the **obstacle**.

**b.** If the flight path is less than 3 miles from the obstruction, and the aircraft is climbing to an altitude at least 1,000 feet above the obstruction, vector the aircraft to increase lateral separation from the obstruction until the 3 mile minimum is achieved or until the aircraft reports leaving an altitude above the obstruction.

Add

**b.** If the flight path is less than 3 miles from the **obstacle** and the aircraft is climbing to an altitude at least 1,000 feet above the **obstacle**, vector the aircraft to increase lateral separation from the obstacle until the 3 mile minimum is achieved or until the aircraft reports leaving an altitude above the **obstacle**.

REFERENCE-  
P/CG Term - Obstacle.  
P/CG Term - Obstruction.  
P/CG Term - Prominent Obstacle.

**1. PARAGRAPH NUMBER AND TITLE:** 7-4-3. CLEARANCE FOR VISUAL APPROACH

**2. BACKGROUND:** This change to aircraft descriptions is necessary to match requirements in another change to FAA Order JO 7110.65, Paragraph 2-4-21, Description of Aircraft Types. Also, minor editorial revisions to phraseology were required for continuity.

**3. CHANGE:**

**OLD**

**7-4-3. CLEARANCE FOR VISUAL APPROACH**

**title through b**

**PHRASEOLOGY-**  
*(Ident) (instructions) CLEARED VISUAL APPROACH RUNWAY (number);*

*or*

*(ident) (instructions) CLEARED VISUAL APPROACH TO (airport name)*

*(and if appropriate)*

*WEATHER NOT AVAILABLE OR VERIFY THAT YOU HAVE THE (airport) WEATHER.*

**REFERENCE-** through **c3**

**d.** All aircraft following a heavy jet/B757 must be informed of the airplane manufacturer and model.

**EXAMPLE-**  
*“Cessna Three Four Juliet, following a Boeing 757, 12 o’clock, six miles.”*

Add

**NEW**

**7-4-3. CLEARANCE FOR VISUAL APPROACH**

No Change

**PHRASEOLOGY-**  
*(Call sign) (control instructions as required) CLEARED VISUAL APPROACH RUNWAY (number);*

*or*

*(Call sign) (control instructions as required) CLEARED VISUAL APPROACH TO (airport name)*

*(and if appropriate)*

*WEATHER NOT AVAILABLE OR VERIFY THAT YOU HAVE THE (airport) WEATHER.*

No Change

**d.** All aircraft following a heavy jet/B757 must be informed of the airplane manufacturer and/or model.

**EXAMPLE-**  
*“Cessna Three Four Juliet, following a Boeing 757, 12 o’clock, six miles.”*

*or*

*“Cessna Three Four Juliet, following a Seven fifty seven, 12 o’clock, six miles.”*

**REFERENCE-**  
FAAO JO 7110.65, Para.2-4-21, Description of Aircraft Types.

**1. PARAGRAPH NUMBER AND TITLE:** 7-4-4. APPROACHES TO MULTIPLE RUNWAYS

**2. BACKGROUND:** An official FAA interpretation concerning use of the words “touch” in FAA Order JO 7110.65, Paragraph 5-5-2, Target Separation, and the word “merge” as used in FAA Order JO 7110.65, Paragraph 7-4-4, Approaches to Multiple Runways, has raised concern that the procedures specified in paragraph 7-4-4b(1) may be misunderstood. Current verbiage could lead a controller to believe that primary radar targets become “merged” only when their individual returns become indiscernible, and that primary radar targets could, in fact, “touch” as long as they don’t merge while conducting multiple approaches to runways and prior to visual separation being applied. This appears to conflict with the procedures in FAA Order JO 7110.65, paragraph 5-5-2. In addition to this change, the Eastern Service Area requested a change that would allow

**3. CHANGE:**

**OLD**

**7-4-4. APPROACHES TO MULTIPLE RUNWAYS**

title through **b**

**1.** Do not permit the respective aircrafts’ primary radar returns to merge unless visual separation is being applied.

**b2** through **c2NOTE-**

**(b)** Visual approaches may be conducted to one runway while visual or instrument approaches are conducted simultaneously to the other runway, provided the conditions of subpara (a) are met.

**(c)** through **c3(a)**

**(b)** Visual approaches may be conducted to one runway while visual or instrument approaches are conducted simultaneously to the other runway, provided the conditions of subpara (a) are met.

**(c)**

**4.** Intersecting and converging runways. Visual approaches may be conducted simultaneously with visual or instrument approaches to another runway, provided:

**NEW**

**7-4-4. APPROACHES TO MULTIPLE RUNWAYS**

No Change

**1.** Do not permit the respective aircrafts’ primary radar targets to touch unless visual separation is being applied.

No Change

**(b)** Visual approaches may be conducted to one runway while visual or instrument approaches are conducted simultaneously to other runways, provided the conditions of subpara (a) are met.

No Change

**(b)** Visual approaches may be conducted to one runway while visual or instrument approaches are conducted simultaneously to other runways, provided the conditions of subpara (a) are met.

No Change

**4.** Intersecting and converging runways. Visual approaches may be conducted simultaneously with visual or instrument approaches to other runways, provided:

**1. PARAGRAPH NUMBER AND TITLE:** 7-7-3. SEPARATION; and 7-8-3. SEPARATION

**2. BACKGROUND:** The paragraphs, contains a provision that permits target resolution as a means of separation when using broadband radar systems and that locations not using broadband radar would require individual approval by the Director of Terminal Safety and Operations Support. However, in paragraph 7-9-4, this distinction is not made and target resolution is permitted regardless of which radar system is used. The definition of Target Resolution is ”a process to ensure that correlated radar targets do not touch.” It is apparent given the definition of target resolution that there are no conditions to apply the process within Class B Service, which has nothing to do with the type of radar system being used. Therefore, the conditional use of target resolution has outlived its usefulness.

**3. CHANGE:**

**OLD**

**7-7-3. SEPARATION**

**NEW**

**7-7-3. SEPARATION**

**title through b**

**c.** Target resolution when using broadband radar systems. The application of target resolutions at locations not using broadband radar will be individually approved by the Director of Terminal Safety and Operations Support.

No Change

**c.** Target resolution.

**OLD**

**7-8-3. SEPARATION**

**title through b**

**c.** Target resolution when using broadband radar systems. The application of target resolutions at locations not using broadband radar will be individually approved by the Director of Terminal Safety and Operations Support.

**NEW**

**7-8-3. SEPARATION**

No Change

**c.** Target resolution.

