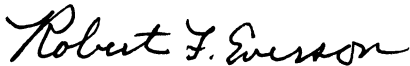



SUBJ: AIR TRAFFIC CONTROL

- 1. PURPOSE.** This change transmits revised pages to Order JO 7110.65S, Air Traffic Control, and the Briefing Guide.
- 2. DISTRIBUTION.** This change is distributed to select offices in Washington headquarters, regional offices, the William J. Hughes Technical Center, and the Mike Monroney Aeronautical Center; to all air traffic field facilities and international aviation field offices; and to interested aviation public.
- 3. EFFECTIVE DATE.** March 12, 2009.
- 4. EXPLANATION OF CHANGES.** 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 information.
- 5. DISPOSITION OF TRANSMITTAL.** Retain this transmittal until superseded by a new basic order.
- 6. PAGE CONTROL CHART.** See the Page Control Chart attachment.



 Nancy B. Kalinowski
Vice President, System Operations Services

Date: DEC 3 2008

Air Traffic Control Explanation of Changes

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

a. 1-2-6. ABBREVIATIONS

This change deletes the following from Table 1-2-1:

Abbreviation	Meaning
ETMS	Enhanced Traffic Management System

This change adds the following to Table 1-2-1:

Abbreviation	Meaning
TFMS	Traffic Flow Management System

b. 2-1-28. RVSM OPERATIONS

This change removes any reference to STORM flights and the DOD Priority Mission website.

c. 2-3-5. AIRCRAFT IDENTITY

This change adds Tables 2-3-8 and 2-3-9 to highlight aircraft identity used for the President/Vice President and their families. Additionally, Air Force One and Air Force Two were changed to AF1 and AF2 respectively and Army One and Army Two were changed to RR1 and RR2 respectively. Also changed were Air Force One Foxtrot and Air Force Two Foxtrot to AF1F and AF2F respectively and Army One Foxtrot and Army Two Foxtrot to RR1F and RR2F respectively.

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

This change now makes it a requirement to issue the route to follow for all aircraft and vehicles on the movement area at tower controlled airports. This change cancels and incorporates N JO 7110.482, Taxi and Ground Movement Operations, effective May 19, 2008.

e. 3-9-9. TAKEOFF CLEARANCE

This change provides guidance on when a takeoff clearance can be issued. This change cancels and incorporates N JO 7110.487, Takeoff Clearance, effective August 11, 2008.

f. 8-7-4. LATERAL SEPARATION

8-8-4. LATERAL SEPARATION

This change details the procedures to be followed in applying 50 NM lateral separation. This change cancels and incorporates N JO 7110.486, Lateral Separation, effective June 5, 2008.

g. APPENDIX A. AIRCRAFT INFORMATION FIXED-WING AIRCRAFT

This change provides additional aircraft type designators and other information.

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

PAGE CONTROL CHART**7110.65S CHG 2****March 12, 2009**

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1-2-4. REFERENCES

As used in this order, references direct attention to an additional or supporting source of information such as FAA, NWS, and other agencies’ orders, directives, notices, CFRs, and Advisory Circulars (ACs).

1-2-5. ANNOTATIONS

Revised, reprinted, or new pages are marked as follows:

a. The change number and the effective date are printed on each revised or additional page.

b. A page that does not require a change is reprinted in its original form.

c. Bold vertical lines in the margin of changed pages indicate the location of substantive revisions to the order. Bold vertical lines adjacent to the title of a chapter, section, or paragraph means that extensive changes have been made to that chapter, section, or paragraph.

d. Paragraphs/sections annotated with *EN ROUTE*, *OCEANIC*, or *TERMINAL* are only to be applied by the designated type facility. When they are not so designated, the paragraphs/sections apply to all types of facilities (en route, oceanic, and terminal).

e. The annotation, *USAF* for the U.S. Air Force, *USN* for the U.S. Navy, and *USA* for the U.S. Army denotes that the procedure immediately following the annotation applies only to the designated service.

*REFERENCE-
FAAO JO 7110.65, Para 2-1-12, Military Procedures.*

f. **WAKE TURBULENCE APPLICATION** inserted within a paragraph means that the remaining information in the paragraph requires the application of wake turbulence procedures.

g. The annotation *PHRASEOLOGY* denotes the prescribed words and/or phrases to be used in communications.

NOTE-
Controllers may, after first using the prescribed phraseology for a specific procedure, rephrase the message to ensure the content is understood. Good judgment shall be exercised when using nonstandard phraseology.

h. The annotation *EXAMPLE* provides a sample of the way the prescribed phraseology associated with the preceding paragraph(s) will be used. If the preceding paragraph(s) does (do) not include specific prescribed phraseology, the *EXAMPLE* merely denotes suggested words and/or phrases that may be used in communications.

NOTE-
The use of the exact text contained in an example not preceded with specific prescribed phraseology is not mandatory. However, the words and/or phrases are expected, to the extent practical, to approximate those used in the example.

1-2-6. ABBREVIATIONS

As used in this manual, the following abbreviations have the meanings indicated. (See TBL 1-2-1.)

**TBL 1-2-1
FAA Order JO 7110.65 Abbreviations**

Abbreviation	Meaning
AAR	Airport acceptance rate
AC	Advisory Circular
ACC	Area Control Center
ACD	ARTS Color Display
ACE-IDS . . .	ASOS Controller Equipment- Information Display System
ACL	Aircraft list
ACLS	Automatic Carrier Landing System
ADC	Aerospace Defense Command
ADIZ	Air Defense Identification Zone (to be pronounced “AY DIZ”)
ADS	Automatic Dependent Surveillance
ADS-B	Automatic Dependent Surveillance Broadcast
ADS-C	Automatic Dependent Surveillance Contract
AFP	Airspace Flow Program
AFSS	Automated Flight Service Station
AIDC	ATS Interfacility Data Communications
AIM	Aeronautical Information Manual
AIRMET . . .	Airmen’s meteorological information
ALERFA . . .	Alert phase code (Alerting Service)
ALNOT	Alert notice
ALS	Approach Light System
ALTRV	Altitude reservation
AMASS	Airport Movement Area Safety System

Abbreviation	Meaning
AMB	Ambiguity-A disparity greater than 2 miles exists between the position declared for a target by ATIS and another facility's computer declared position during interfacility handoff
AMVER	Automated Mutual Assistance Vessel Rescue System
ANG	Air National Guard
APR	ATC preferred route
APREQ	Approval Request
ARINC	Aeronautical Radio Incorporated
ARIP	Air refueling initial point
ARSR	Air route surveillance radar
ARTCC	Air Route Traffic Control Center
ARTS	Automated Radar Terminal System
ASD	Aircraft Situation Display
ASDE	Airport surface detection equipment
ASDE-X	Airport Surface Detection Equipment System - Model X
ASF	Airport Stream Filters
ASOS	Automated Surface Observing System
ASR	Airport surveillance radar
ATC	Air traffic control
ATCAA	ATC assigned airspace
ATCSCC	David J. Hurley Air Traffic Control System Command Center
ATD	Along-Track Distance
ATIS	Automatic Terminal Information Service
ATO	Air Traffic Organization
ATO COO	Air Traffic Organization Chief Operating Officer
ATS	Air Traffic Service
AWOS	Automated Weather Observing System
BASE	Cloud base
CA	Conflict Alert
CARCAH	Chief, Aerial Reconnaissance Coordination, All Hurricanes
CARF	Central Altitude Reservation Function
CARTS	Common ARTS
CAT	Clear air turbulence
CDT	Controlled departure time
CENRAP	Center Radar ARTS Presentation
CEP	Central East Pacific
CERAP	Combined Center/RAPCON
CFR	Code of Federal Regulations
CIC	Controller-in-Charge

Abbreviation	Meaning
CNS	Continuous
CPDLC	Controller Pilot Data Link Communications
CPME	Calibration Performance Monitor Equipment
CTA	Control Area
CTRD	Certified Tower Radar Display
CVFP	Charted Visual Flight Procedure
CWA	Center Weather Advisory
DARC	Direct Access Radar Channel
DETRESFA	Distress Phase code (Alerting Service)
DF	Direction finder
DH	Decision height
DL	Departure List
DME	Distance measuring equipment compatible with TACAN
DOE	Department of Energy
DP	Instrument Departure Procedure
DR	Dead reckoning
DRT	Diversion recovery tool
DSR	Display System Replacement
DTAS	Digital Terminal Automation Systems
DTM	Digital Terrain Map
DVFR	Defense Visual Flight Rules
DVRSN	Diversion
EA	Electronic Attack
EAS	En Route Automation System
EDCT	Expect Departure Clearance Time
EFC	Expect further clearance
ELP	Emergency Landing Pattern
ELT	Emergency locator transmitter
EOS	End Service
EOVM	Emergency obstruction video map
ERIDS	En Route Information Display System
ETA	Estimated time of arrival
FAA	Federal Aviation Administration
FAAO	FAA Order
FANS	Future Air Navigation System
FDIO	Flight Data Input/Output
FDP	Flight data processing
FIR	Flight Information Region
FL	Flight level
FLIP	Flight Information Publication
FLM	Front-Line Manager

Abbreviation	Meaning
FLY	Fly or flying
FMS	Flight Management System
FMSP	Flight Management System Procedure
FSM	Flight Schedule Monitor
FSS	Flight Service Station
GCA	Ground controlled approach
GNSS	Global Navigation Satellite System
GPD	Graphics Plan Display
GPS	Global Positioning System
GS	Ground stop
HAR	High Altitude Redesign
HERT	Host Embedded Route Text
HF/RO	High Frequency/Radio Operator
HIRL	High intensity runway lights
IAFDOF	Inappropriate Altitude for Direction of Flight
ICAO	International Civil Aviation Organization
IDENT	Aircraft identification
IDS	Information Display System
IFR	Instrument flight rules
IFSS	International Flight Service Station
ILS	Instrument Landing System
INCERFA	Uncertainty Phase code (Alerting Service)
INREQ	Information request
INS	Inertial Navigation System
IR	IFR military training route
IRU	Inertial Reference Unit
ITWS	Integrated Terminal Weather System
JATO	Jet assisted takeoff
LAHSO	Land and Hold Short Operations
LOA	Letter of Agreement
LLWAS	Low Level Wind Shear Alert System
LLWAS NE	Low Level Wind Shear Alert System Network Expansion
LLWAS-RS	Low Level Wind Shear Alert System Relocation/Sustainment
LLWS	Low Level Wind Shear
L/MF	Low/medium frequency
LORAN	Long Range Navigation System
Mach	Mach number
MALS	Medium Intensity Approach Light System
MALSR	Medium Approach Light System with runway alignment indicator lights
MAP	Missed approach point

Abbreviation	Meaning
MARSA	Military authority assumes responsibility for separation of aircraft
MCA	Minimum crossing altitude
MCI	Mode C Intruder
MDA	Minimum descent altitude
MDM	Main display monitor
MEA	Minimum en route (IFR) altitude
MEARTS	Micro En Route Automated Radar Tracking System
METAR	Aviation Routine Weather Report
MIA	Minimum IFR altitude
MIAWS	Medium Intensity Airport Weather System
MIRL	Medium intensity runway lights
MLS	Microwave Landing System
MNPS	Minimum Navigation Performance Specification
MNT	Mach Number Technique
MOA	Military operations area
MOCA	Minimum obstruction clearance altitude
MRA	Minimum reception altitude
MSAW	Minimum Safe Altitude Warning
MSL	Mean sea level
MTI	Moving target indicator
MTR	Military training route
MVA	Minimum vectoring altitude
NADIN	National Airspace Data Interchange Network
NAR	National Automation Request
NAS	National Airspace System
NAT	ICAO North Atlantic Region
NBCAP	National Beacon Code Allocation Plan
NDB	Nondirectional radio beacon
NHOP	National Hurricane Operations Plan
NIDS	National Institute for Discovery Sciences
NM	Nautical mile
NOAA	National Oceanic and Atmospheric Administration
NOPAC	North Pacific
NORAD	North American Aerospace Defense Command
NOS	National Ocean Service
NOTAM	Notice to Airmen
NRP	North American Route Program
NRR	Nonrestrictive Route
NRS	Navigation Reference System

Abbreviation	Meaning
NTZ	No transgression zone
NWS	National Weather Service
NWSOP	National Winter Storm Operations Plan
ODALS	Omnidirectional Approach Lighting System
ODP	Obstacle Departure Procedure
OID	Operator Interface Device
ONER	Oceanic Navigational Error Report
OS	Operations Supervisor
OTR	Oceanic transition route
PAPI	Precision Approach Path Indicators
PAR	Precision approach radar
PAR	Preferred arrival route
PBCT	Proposed boundary crossing time
P/CG	Pilot/Controller Glossary
PDAR	Preferential departure arrival route
PDC	Pre-Departure Clearance
PDR	Preferential departure route
PIDP	Programmable indicator data processor
PPI	Plan position indicator
PTP	Point-to-point
PVD	Plan view display
RA	Radar Associate
RAIL	Runway alignment indicator lights
RAPCON . . .	Radar Approach Control Facility (USAF)
RATCF	Radar Air Traffic Control Facility (USN)
RBS	Radar bomb scoring
RCC	Rescue Coordination Center
RCLS	Runway Centerline System
RCR	Runway condition reading
RDP	Radar data processing
RE	Recent (used to qualify weather phenomena such as rain, e.g. recent rain = RERA)
REIL	Runway end identifier lights
RNAV	Area navigation
RNP	Required Navigation Performance
RTQC	Real-Time Quality Control
RVR	Runway visual range
RVSM	Reduced Vertical Separation Minimum
RVV	Runway visibility value
SAA	Special Activity Airspace
SAR	Search and rescue

Abbreviation	Meaning
SATCOM . . .	Satellite Communication
SELCAL	Selective Calling System
SFA	Single frequency approach
SFO	Simulated flameout
SID	Standard Instrument Departure
SIGMET	Significant meteorological information
SPA	Special Posting Area
SPECI	Nonroutine (Special) Aviation Weather Report
STAR	Standard terminal arrival
STARS	Standard Terminal Automation Replacement System
STMC	Supervisory Traffic Management Coordinator
STMCI	Supervisory Traffic Management Coordinator-in-charge
STOL	Short takeoff and landing
SURPIC	Surface Picture
SVFR	Special Visual Flight Rules
TAA	Terminal arrival area
TAS	Terminal Automation Systems
TACAN	TACAN UHF navigational aid (omnidirectional course and distance information)
TAWS	Terrain Awareness Warning System
TCAS	Traffic Alert and Collision Avoidance System
TCDD	Tower cab digital display
TDLS	Terminal Data Link System
TDW	Tower display workstation
TDWR	Terminal Doppler Weather Radar
TDZL	Touchdown Zone Light System
TFMS	Traffic Flow Management System
TMC	Traffic Management Coordinator
TMU	Traffic Management Unit
TRACON . . .	Terminal Radar Approach Control
TRSA	Terminal radar service area
UFO	Unidentified flying object
UHF	Ultra high frequency
URET	User request evaluation tool
USA	United States Army
USAF	United States Air Force
USN	United States Navy
UTC	Coordinated universal time
UTM	Unsuccessful transmission message
UUA	Urgent pilot weather report

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 7110.65, Para 9-2-11, Law Enforcement Operations by Civil and Military Organizations.
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 9-2-18, 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 9-2-21, 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. 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.

(d) Correction messages.

2-2-15. NORTH AMERICAN ROUTE PROGRAM (NRP) INFORMATION

a. “NRP” shall be retained in the remarks section of the flight plan if the aircraft is moved due to weather, traffic, or other tactical reasons.

NOTE-

Every effort should be made to ensure the aircraft is returned to the original filed flight plan/altitude as soon as conditions warrant.

b. If the route of flight is altered due to a pilot request, “NRP” shall be removed from the remarks section of the flight plan.

c. “NRP” shall not be entered in the remarks section of a flight plan, unless prior coordination is accomplished with the ATCSCC or as prescribed by international NRP flight operations procedures.

d. The en route facility within which an international flight entering the conterminous U.S. requests to participate in the NRP shall enter “NRP” in the remarks section of the flight plan.

REFERENCE-

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

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

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

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

d. Air traffic managers at automated terminal radar facilities may waive the requirement to use flight progress strips provided:

1. Backup systems such as multiple radar sites/systems or single site radars with CENRAP are utilized.

2. Local procedures are documented in a facility directive. These procedures should include but not be limited to:

- (a) Departure areas and/or procedures.
- (b) Arrival procedures.
- (c) Overflight handling procedures.
- (d) Transition from radar to nonradar.
- (e) Transition from ARTS to non-ARTS.
- (f) Transition from ASR to CENRAP.
- (g) Transition to or from ESL.

3. No misunderstanding will occur as a result of no strip usage.

4. Unused flight progress strips, facility developed forms and/or blank notepads shall be provided for controller use.

5. Facilities shall revert to flight progress strip usage if backup systems referred to in subpara d1 are not available.

e. Air traffic managers at FDIO locations may authorize reduced lateral spacing between fields so as to print all FDIO data to the left of the strip perforation. When using FAA Form 7230-7.2, all items will retain the same relationship to each other as they do when the full length strip (FAA Form 7230-7.1) is used.

2-3-5. AIRCRAFT IDENTITY

Indicate aircraft identity by one of the following using combinations not to exceed seven alphanumeric characters:

a. Civil aircraft, including air-carrier aircraft letter-digit registration number including the letter “T” prefix for air taxi aircraft, the letter “L” for lifeguard aircraft, 3-letter aircraft company designation or specified in FAAO JO 7340.2, Contractions, followed by the trip or flight number. Use the

operating air carrier’s company name in identifying equipment interchange flights.

EXAMPLE-
 “N12345.”
 “TN5552Q.”
 “AA1192.”
 “LN751B.”

NOTE-
 The letter “L” is not to be used for air carrier/air taxi lifeguard aircraft.

b. Military Aircraft.

1. Prefixes indicating branch of service and/or type of mission followed by the last 5 digits of the serial number (the last 4 digits for CFC and CTG). (See TBL 2-3-6 and TBL 2-3-7.)

2. Pronounceable words of 3, 4, 5, and 6 letters followed by a 4-, 3-, 2-, or 1-digit number.

EXAMPLE-
 “SAMP Three One Six.”

3. Assigned double-letter 2-digit flight number.

4. Navy or Marine fleet and training command aircraft, one of the following:

(a) The service prefix and 2 letters (use phonetic alphabet equivalent) followed by 2 or 3 digits.

**TBL 2-3-6
 Branch of Service Prefix**

Prefix	Branch
A	U.S. Air Force
C	U.S. Coast Guard
G	Air or Army National Guard
R	U.S. Army
VM	U.S. Marine Corps
VV	U.S. Navy
CFC	Canadian Forces
CTG	Canadian Coast Guard

**TBL 2-3-7
 Military Mission Prefix**

Prefix	Mission
E	Medical Air Evacuation
F	Flight Check
L	LOGAIR (USAF Contract)
RCH	AMC (Air Mobility Command)
S	Special Air Mission

(b) The service prefix and a digit and a letter (use phonetic alphabet equivalent) followed by 2 or 3 digits.

5. Aircraft carrying the President, Vice President, and/or their family members will use the identifiers in the following tables. See TBL 2-3-8 and TBL 2-3-9.

**TBL 2-3-8
President and Family**

Service	President	Family
Air Force	AF1	AF1F
Marine	VM1	VM1F
Navy	VV1	VV1F
Army	RR1	R1F
Coast Guard	C1	C1F
Guard	G1	G1F
Commercial	EXEC1	EXEC1F

**TBL 2-3-9
Vice President and Family**

Service	Vice President	Family
Air Force	AF2	AF2F
Marine	VM2	VM2F
Navy	VV2	VV2F
Army	RR2	R2F
Coast Guard	C2	C2F
Guard	G2	G2F
Commercial	EXEC2	EXEC2F

c. Special-use. Approved special-use identifiers.

2-3-6. AIRCRAFT TYPE

Use the approved codes listed in Appendix A through Appendix C to indicate aircraft type.

2-3-7. USAF/USN UNDERGRADUATE PILOTS

To identify aircraft piloted by solo USAF/USN undergraduate student pilots (who may occasionally request revised clearances because they normally are restricted to flight in VFR conditions), the aircraft identification in the flight plan shall include the letter “Z” as a suffix. Do not use this suffix, however, in ground-to-air communication.

NOTE-

USAF solo students who have passed an instrument certification check may penetrate cloud layers in climb or descent only. Requests for revised clearances to avoid clouds in level flight can still be expected. This does not change the requirement to use the letter “Z” as a suffix to the aircraft identification.

REFERENCE-

FAAO JO 7110.65, Para 2-4-20, Aircraft Identification.
FAAO JO 7610.4, Chapter 12, Section 10, USAF Undergraduate Flying Training (UFT)/Pilot Instructor Training (PIT)/Introduction To Fighter Fundamentals.

2-3-8. AIRCRAFT EQUIPMENT SUFFIX

a. Indicate, for both VFR and IFR operations, the aircraft’s radar transponder, DME, or navigation capability by adding the appropriate symbol, preceded by a slant. (See TBL 2-3-10.)

b. When forwarding this information, state the aircraft type followed by the word “slant” and the appropriate phonetic letter equivalent of the suffix.

EXAMPLE-

“Cessna Three-ten slant Tango.”
“A-Ten slant November.”
“F-Sixteen slant Papa.”
“Seven-sixty-seven slant Golf.”

c. Utilize aircraft equipment suffix /H to indicate “RVSM-capable, no transponder.”

NOTE-

/H is for ATC use only. Users are not authorized to file this suffix.

2-3-9. CLEARANCE STATUS

Use an appropriate clearance symbol followed by a dash (-) and other pertinent information to clearly show the clearance status of an aircraft. To indicate delay status use:

a. The symbol “H” at the clearance limit when holding instructions have been included in the aircraft’s original clearance. Show detailed holding information following the dash when holding differs from the established pattern for the fix; i.e., turns, leg lengths, etc.

b. The symbols “F” or “O” to indicate the clearance limit when a delay is not anticipated.

TBL 2-3-10
Aircraft Equipment Suffixes

Suffix	Aircraft Equipment Suffixes
	NO DME
/X	No transponder
/T	Transponder with no Mode C
/U	Transponder with Mode C
	DME
/D	No transponder
/B	Transponder with no Mode C
/A	Transponder with Mode C
	TACAN ONLY
/M	No transponder
/N	Transponder with no Mode C
/P	Transponder with Mode C
	AREA NAVIGATION (RNAV)
/Y	LORAN, VOR/DME, or INS with no transponder
/C	LORAN, VOR/DME, or INS, transponder with no Mode C
/I	LORAN, VOR/DME, or INS, transponder with Mode C
	ADVANCED RNAV WITH TRANSPONDER AND MODE C (If an aircraft is unable to operate with a transponder and/or Mode C, it will revert to the appropriate code listed above under Area Navigation.)
/E	Flight Management System (FMS) with DME/DME and IRU position updating
/F	Flight Management System (FMS) with DME/DME position updating
/G	Global Navigation Satellite System (GNSS), including GPS or WAAS, with en route and terminal capability
/R	Required Navigational Performance. The aircraft meets the RNP type prescribed for the route segment(s), route(s) and/or area concerned.
	REDUCED VERTICAL SEPARATION MINIMUM (RVSM). Prior to conducting RVSM operations within the U.S., the operator must obtain authorization from the FAA or from the responsible authority, as appropriate.
/J	/E with RVSM
/K	/F with RVSM
/L	/G with RVSM
/Q	/R with RVSM
/W	RVSM

2-3-10. CONTROL SYMBOLOGY

Use authorized control and clearance symbols or abbreviations for recording clearances, reports, and instructions. Control status of aircraft must always be current. You may use:

- a. Plain language markings when it will aid in understanding information.
- b. Locally approved identifiers. Use these only within your facility and not on teletypewriter or interphone circuits.
- c. Plain sheets of paper or locally prepared forms to record information when flight progress strips are not used. (See TBL 2-3-11 and TBL 2-3-12.)
- d. Control Information Symbols. (See FIG 2-3-7 and FIG 2-3-8.)

REFERENCE-

FAAO JO 7110.65, Para 4-5-3, Exceptions.

TBL 2-3-11

Clearance Abbreviations

Abbreviation	Meaning
A	Cleared to airport (point of intended landing)
B	Center clearance delivered
C	ATC clears (when clearance relayed through non-ATC facility)
CAF	Cleared as filed
D	Cleared to depart from the fix
F	Cleared to the fix
H	Cleared to hold and instructions issued
L	Cleared to land
N	Clearance not delivered
O	Cleared to the outer marker
PD	Cleared to climb/descend at pilot's discretion
Q	Cleared to fly specified sectors of a NAVAID defined in terms of courses, bearings, radials or quadrants within a designated radius.
T	Cleared through (for landing and takeoff through intermediate point)
V	Cleared over the fix
X	Cleared to cross (airway, route, radial) at (point)
Z	Tower jurisdiction

TBL 2-3-12

Miscellaneous Abbreviations

Abbreviation	Meaning
BC	Back course approach
CT	Contact approach
FA	Final approach
FMS	Flight management system approach
GPS	GPS approach
I	Initial approach
ILS	ILS approach
MA	Missed approach
MLS	MLS approach
NDB	Nondirectional radio beacon approach
OTP	VFR conditions-on-top
PA	Precision approach
PT	Procedure turn
RA	Resolution advisory (Pilot reported TCAS event)
RH	Runway heading
RNAV	Area navigation approach
RP	Report immediately upon passing (fix/altitude)
RX	Report crossing
SA	Surveillance approach
SI	Straight-in approach
TA	TACAN approach
TL	Turn left
TR	Turn right
VA	Visual approach
VR	VOR approach

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.

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. 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.

c. 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-

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.

d. State the runway intersection when authorizing an aircraft to taxi into position to hold or when clearing an aircraft for takeoff from an intersection.

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.

e. 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.

PHRASEOLOGY-

RUNWAY (number), FULL-LENGTH, POSITION AND HOLD.

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."

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.

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 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-

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 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 nonmovement 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.”

“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).

EXAMPLE-

“Taxi to Runway Three Six via Taxiway Echo.”

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.

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).

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.”

d. 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.

e. 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.

f. 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.

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. The controller shall ensure that all runways along the taxi route that lead to the departure runway are crossed before the takeoff clearance is issued, except in subpara c.

PHRASEOLOGY-

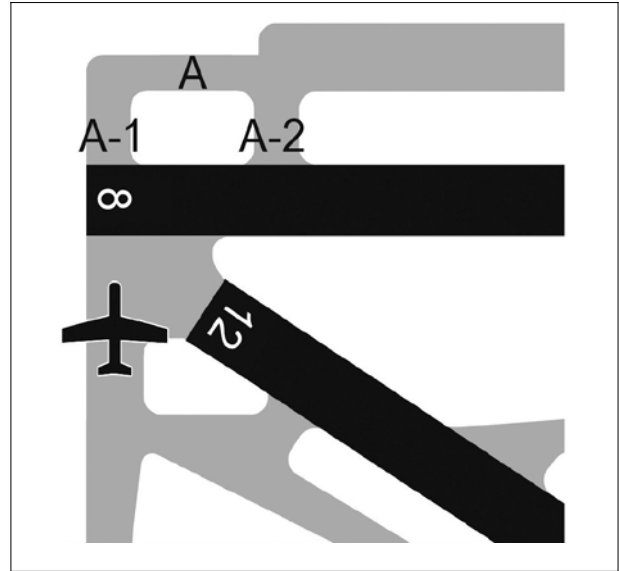
CROSS RUNWAY (number), RUNWAY (number) CLEARED FOR TAKEOFF.

EXAMPLE-

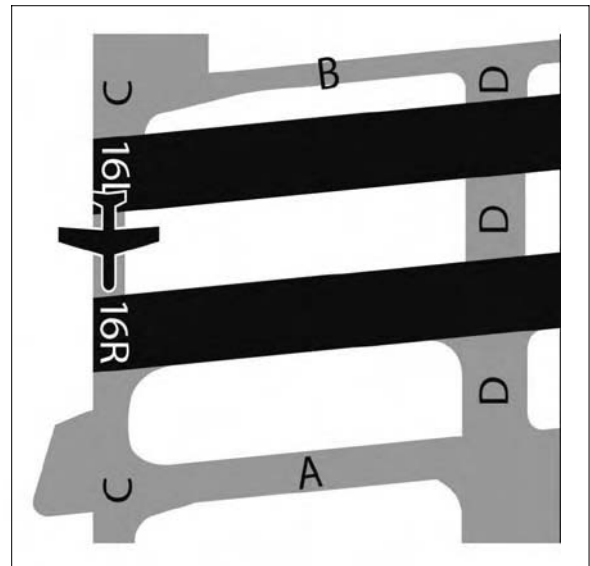
“CROSS RUNWAY TWO FOUR LEFT, RUNWAY TWO FOUR RIGHT, CLEARED FOR TAKEOFF.”

c. 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.

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



**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.

PHRASEOLOGY-

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

EXAMPLE-

“CROSS RUNWAY ONE SIX LEFT, RUNWAY ONE SIX RIGHT, CLEARED FOR TAKEOFF.”

d. *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.

e. *USA/USN*. Issue surface wind and takeoff clearance to aircraft.

PHRASEOLOGY-

WIND (surface wind in direction and velocity).

CLEARED FOR TAKEOFF.

3-9-10. CANCELLATION OF TAKEOFF CLEARANCE

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

NOTE-

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

PHRASEOLOGY-

CANCEL TAKEOFF CLEARANCE (reason).

Section 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-

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/FMSP/STAR altitude restrictions if any.

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.

Section 7. North Atlantic ICAO Region

8-7-1. APPLICATION

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

8-7-2. VERTICAL SEPARATION

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

8-7-3. LONGITUDINAL SEPARATION

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

a. Supersonic flight:

1. 10 minutes provided that:

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

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

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

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

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

b. Turbojet operations (*subsonic flight*):

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

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

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

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

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

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

(3) Within 600 NM of the common point.

3. Apply 15 minutes between all other turbojet aircraft.

c. Nonturbojet operations:

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

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

NOTE-

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

8-7-4. LATERAL SEPARATION

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

a. 50 NM between Required Navigation Performance (RNP 4 or RNP 10) approved aircraft which:

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

2. Operate in the New York Oceanic CTA/FIR outside of WATRS.

NOTE-

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

b. 60 NM or 1 degree latitude between:

1. Supersonic aircraft operating above FL 275.

2. Aircraft which meet the MNPS and which:

(a) Operate within MNPS airspace; or

(b) Are in transit to or from MNPS airspace;

or

(c) Operate for part of their flight within, above, or below MNPS airspace.

NOTE-

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

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

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

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

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

d. 120 NM or 2 degrees latitude between aircraft not covered by subparas a, b or c above.

NOTE-

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

8-7-5. PROCEDURES FOR WEATHER DEVIATIONS IN NORTH ATLANTIC (NAT) AIRSPACE

Aircraft must request an ATC clearance to deviate. Since aircraft will not fly into known areas of weather, weather deviation requests should take priority over routine requests. If there is no traffic in the horizontal dimension, ATC shall issue clearance to deviate from track; or if there is conflicting traffic in the horizontal dimension, ATC separates aircraft by establishing vertical separation. If there is conflicting traffic and ATC is unable to establish the required separation, ATC shall:

a. Advise the pilot unable to issue clearance for requested deviation;

b. Advise the pilot of conflicting traffic; and

c. Request pilot's intentions.

PHRASEOLOGY-

UNABLE (requested deviation), TRAFFIC IS (call sign, position, altitude, direction), ADVISE INTENTIONS.

NOTE-

1. *The pilot will advise ATC of intentions by the most expeditious means available.*

2. *In the event that pilot/controller communications cannot be established or a revised ATC clearance is not available, pilots will follow the procedures outlined in the Regional Supplementary Procedures, ICAO Doc. 7030.*

Section 8. Caribbean ICAO Region

8-8-1. APPLICATION

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

8-8-2. VERTICAL SEPARATION

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

8-8-3. LONGITUDINAL SEPARATION

Provide longitudinal separation between aircraft as follows:

a. Supersonic flight:

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

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

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

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

2. *15 minutes* between all other aircraft.

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

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

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

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

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

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

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

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

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

c. Turbojet operations below FL 200 (*subsonic flight*):

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

d. Nonturbojet operations.

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

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

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

NOTE-

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

8-8-4. LATERAL SEPARATION

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

a. 50 NM between Required Navigation Performance (RNP 4 or RNP 10) approved aircraft which:

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

2. Operate in the New York Oceanic CTA/FIR outside of WATRS.

NOTE-

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

b. 60 NM between:

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

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

3. Aircraft which meet the MNPS and which:

(a) Operate within MNPS airspace; or

(b) Are in transit to or from MNPS airspace;

or

(c) Operate for part of their flight within, above, or below MNPS airspace.

NOTE-

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

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

1. Operate within WATRS; or

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

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

e. 120 NM between aircraft operating east of 55° West.

8-8-5. VFR CLIMB AND DESCENT

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

1. When requested by the pilot; and

2. Between sunrise and sunset.

b. Apply the following when the flight is cleared:

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

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

AIR TRACTOR, INC. (USA)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
AT-300/301/401	AT3P	1P/S	1,000		I	1
AT-302/400/402	AT3T	1T/S			I	
AT-501	AT5P	1P/S			I	
AT-502/503	AT5T	1T/S			I	
AT-602	AT6T	1T/S			I	
AT-802	AT8T	1T/S+			III	

ANTONOV (Russia)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
An-2	AN2	1P/S			I	
An-8	AN8	2T/L			III	
An-12	AN12	4T/L			III	
An-22	AN22	4T/H			III	
An-70	AN70	4T/H			III	
An-74-100/200	AN72	2J/L			III	
An-124 Ruslan	A124	4J/H			III	
An-140	A140	2T/L			III	
An-225 Mriya	A225	6J/H			III	

AVIATION DEVELOPMENT (USA)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Alaskan Bushmaster	ALBU	1P/S			I	

BEAGLE AIRCRAFT (UK)*(Also BEAGLE-AUSTER)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
A-109 Airedale	AIRD	1P/S			I	
B-121 Pup	PUP	1P/S	575	750	I	2
B-125 Bulldog	BDOG	1P/S			I	
B-206 Basset	BASS	2P/S	1,200	1,300	II	8

BEECH AIRCRAFT COMPANY (USA)

(Also CCF, COLEMILL, DINFIA, EXCALIBUR, FUJI, HAMILTON, JETCRAFTERS, RAYTHEON, SWEARINGEN, VOLPAR)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
1900 (C-12J)	B190	2T/S+	2,400	2,400	III	7
B300 Super King Air 350	B350	2T/S+	3,000	3,000	III	7
100 King Air (U-21F Ute)	BE10	2T/S	2,250	2,250	II	7
17 Stagger Wing (UC-43 Traveler, YC-43 Traveler)	BE17	1P/S	1,375	1,375	I	2
Twin Beech 18/Super H18	BE18	2P/S	1,400	1,000	II	4
18 (turbine)	B18T	2T/S	2,000	2,000	II	
19 Musketeer Sport, Sport	BE19	1P/S	680	680	I	1
200, 1300 Super King Air, Commuter (C-12A to F, C-12L/R, UC-12, RC-12, Tp101, Huron)	BE20	2T/S+	2,450	2,500	III	7
23 Musketeer, Sundowner	BE23	1P/S	740	800	I	2
24 Musketeer Super, Sierra	BE24	1P/S	1,000	1,000	I	3
300 Super King Air	BE30	2T/S+	3,000	3,000	III	6
33 Debonair, Bonanza (E-24)	BE33	1P/S	1,000	1,000	I	4
35 Bonanza	BE35	1P/S	1,200	1,200	I	3
36 Bonanza (piston)	BE36	1P/S	1,100	1,100	I	2
36 Bonanza (turbine)	B36T	1T/S			I	
400 Beechjet, Hawker 400 (T-1 Jayhawk, T-400)	BE40	2J/S+	3,300	2,200	III	8
50 Twin Bonanza (U-8D/E/G, RU-8 Seminole)	BE50	2P/S	1,600	1,600	II	4
55 Baron (T-42 Chochise, C-55, E-20)	BE55	2P/S	1,700	1,700	II	6
56 Turbo Baron	BE56	2P/S			II	
58 Baron	BE58	2P/S	1,730	1,730	II	6
60 Duke	BE60	2P/S	1,600	1,600	II	8
65 Queen Air (U-8F Seminole)	BE65	2P/S	1,300	1,300	II	5
70 Queen Air	BE70	2P/S			II	
76 Duchess	BE76	2P/S	1,500	1,500	II	4
77 Skipper	BE77	1P/S	750	750	I	1
80 Queen Air (Zamir)	BE80	2P/S	1,275	1,275	II	
88 Queen Air	BE88	2P/S			II	
95 Travel Air	BE95	2P/S	1,250	1,250	II	5
99 Airliner	BE99	2T/S	1,750	1,750	II	5
90, A90 to E90 King Air (T-44 V-C6)	BE9L	2T/S	2,000	2,000	II	5
F90 King Air	BE9T	2T/S	2,600	2,600	II	7
2000 Starship	STAR	2T/S+	2,650	2,650	III	7
Premier 1, 390	PRM1	2J/S+	3,000	3,000	III	
T34A/B, E-17 Mentor (45)	T34P	1P/S	1,150	1,150	I	1
T-34C Turbo Mentor	T34T	1T/S	1,100	1,000	I	
T-6A Texan II	TEX2*	1T/S			I	
U-21A/G, EU-21, JU-21, RU-21, Ute (A90-1 to 4)	U21	2T/S	2,000	2,000	II	
QU-22 (1074/1079)	U22	1P/S			I	

BELLANCA AIRCRAFT (USA)*(Also AERONCA, CHAMPION, DOWNER, HINDUSTAN, NORTHERN)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Aeronca Chief/Super Chief, Pushpak	AR11	1P/S	500	500	I	1
Aeronca Sedan	AR15	1P/S	500	500	I	2
14 Junior, Cruiseair, Cruiseair Senior Cruisemaster	B14A	1P/S	1,030	1,030	I	1
14 Bellanca 260/A/B/C	B14C	1P/S	1,500		I	
17 Viking, Super Viking, Turbo Viking	BL17	1P/S	1,100	1,100	I	1
19 Skyrocket	BL19	1P/S			I	
8 Decathlon, Scout	BL8	1P/S	1,000	1,000	I	2
Champion Lancer 402	CH40	2P/S	650	1,000	II	
7 ACA/ECA Champ, Citabria,	CH7A	1P/S	750	750	I	1
7 GCBC/KCAB Citabria	CH7B	1P/S	1,100	1,100	I	1
T-250 Aries	T250	1P/S			I	

BOEING COMPANY (USA)*(Also GRUMMAN, IAI, LOCKHEED-BOEING, MCDONNELL DOUGLAS, NORTHROP-GRUMMAN, ROHR)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
B-52 Stratofortress	B52	8J/H	3,000	3,000	III	
707-100 (C-137B)	B701	4J/H	3,500	3,500	III	9
707-300(C-18, C-137C, E-8J-Stars, EC-18, EC-137, KC-137, T-17)	B703	4J/H	3,500	3,500	III	9
717-200	B712	2J/L			III	7
720	B720	4J/L	3,000	3,000	III	9
727-100 (C-22)	B721	3J/L	4,500	4,500	III	7
727-200	B722	3J/L	4,500	4,500	III	7
727-100RE Super 27	R721	3J/L	4,300	4,300	III	
727-200RE Super 27	R722	3J/L	4,300	4,300	III	
737-100	B731	2J/L	3,000	3,000	III	7
737-200 (Surveiller, CT-43, VC-96)	B732	2J/L	3,000	3,000	III	7
737-300	B733	2J/L	5,500	3,500	III	7
737-400	B734	2J/L	6,500	3,500	III	8
737-500	B735	2J/L	5,500	3,500	III	7
737-600	B736	2J/L	4,000	4,000	III	7
737-700, BBJ, C-40	B737	2J/L	4,000	4,000	III	8
737-800, BBJ2	B738	2J/L	4,000	4,000	III	7
737-900	B739	2J/L	4,000	4,000	III	8
747-100	B741	4J/H	3,000	3,000	III	10
747-200 (E-4, VC-25)	B742	4J/H	3,000	3,000	III	10
747-300	B743	4J/H	3,000	3,000	III	10
747-400 (Domestic, no winglets)	B74D	4J/H	3,000	3,000	III	
747-400 (International, winglets)	B744	4J/H	3,000	3,000	III	10

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
747-400LCF Dreamlifter	BLCF	4J/H			III	
747SCA Shuttle Carrier	BSCA	4J/H			III	
747SR	B74R	4J/H	3,000	3,000	III	10
747SP	B74S	4J/H	3,000	3,000	III	9
757-200 (C-32)	B752	2J/L	3,500	2,500	III	7
757-300	B753	2J/H	3,500	2,500	III	8
767-200	B762	2J/H	3,500	3,500	III	9
767-300	B763	2J/H	3,500	3,500	III	9
767-400	B764	2J/H	3,500	3,500	III	9
777-200, 777-200ER	B772	2J/H	2,500	2,500	III	9
777-200LR, B777-200LRF	B77L	2J.H			III	
777-300	B773	2J/H	2,500	2,500	III	9
777-300ER	B77W	2J/H			III	
787-3 Dreamliner, Dreamliner (Srs. 3)	B783	2J/H			III	
787-8 Dreamliner, Dreamliner (Srs. 8)	B788	2J/H			III	
787-9 Dreamliner, Dreamliner (Srs. 9)	B789	2J/H			III	
C-135B/C/E/K Stratolifter (EC-135, NKC-135, OC-135, TC-135, WC-135)	C135	4J/H	2,000	2,000	III	
C-17 Globemaster 3	C17	4J/H			III	
C-97 Stratofreighter	C97	4P/L	2,500	3,000	III	
KC-135A Stratotanker (J57 engines)	K35A	4J/H	2,500	3,000	III	
KC 135D/E Stratotanker (TF33 engines)	K35E	4J/H	5,000	3,000	III	
KC 135R/T, C-135FR, Stratotanker (CFM56 engines)	K35R	4J/H	5,000	3,000	III	
KE-3	KE3	4J/H	3,500	3,500	III	
RC-135	R135	4J/H	3,000	3,000	III	
E-3A (TF33), E-B/C, JE-3, Sentry	E3TF	4J/H	3,500	4,000	III	
E-3A (CFM56), E-3D/F, Sentry	E3CF	4J/H			III	
E6 Mercury	E6	4J/H	3,500	3,500	III	
E-767	E767	2J/H	2,500	2,500	III	
75 Kaydet (PT-13, PT-17, PT-18, PT-27, N2S)	ST75	1P/S	840	840	I	

BOMBARDIER (Canada)*(Also CANADAIR)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
BD-100 Challenger 300	CL30	2J/S+	3,500	3,500	III	7
BD-700 Global 5000	GL5T	2J/L	3,500	3,500	III	7
BD-700 Global Express, Sentinel	GLEX	2J/L			III	7

BRITISH AEROSPACE (BAe) (UK)

(Also AIL, AVRO, BAC, BUCURESTI, DE HAVILLAND, HANDLEY-PAGE, HAWKER-SIDDELEY, JETSTREAM, KANPUR, MCDONNELL-DOUGLAS, RAYTHEON, SCOTTISH-AVIATION, VOLPAR)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
BAe 748 (Andover, C-91)	A748	2T/L	2,500	2,000	III	5
ATP Advance Turboprop (ATP)	ATP	2T/L	3,000	3,000	III	6
BAC-111 One-Eleven	BA11	2J/L	2,400	2,400	III	7
BAC-167 Strikemaster	JPRO	1J/S			III	
BAe HS 125 Series 1/2/3/400/600	H25A	2J/S+	2,500	2,000	III	6
BAe-125-700/800 (C-29, U-125)	H25B	2J/S+	3,000	4,000	III	7
BAe-125-1000	H25C	2J/S+	3,000	4,000	III	7
BAe-146-100 Statesman	B461	4J/L	3,500	3,500	III	7
BAe-146-200 Quiet Trader, Statesman	B462	4J/L	3,500	3,500	III	7
BAe-146-300	B463	4J/L			III	7
BAe-3100 Jetstream 31 (T.Mk.3)	JS31	2T/S+	2200	2200	III	5
BAe-3200 Jetstream Super 31	JS32	2T/S+	2600	2600	III	5
BAe-4100 Jetstream 41	JS41	2T/S+	2200		III	7
Harrier, Sea Harrier	HAR*	1J/L	5,000	8,000	III	
Hawk, T-45 Goshawk, CT-155 Hawk	HAWK	1J/S+			III	
Jetstream 1	JS1	2T/S+	2,200	2,200	III	
Jetstream 3	JS3	2T/S+	2,200	2,300	III	
Jetstream 200	JS20	2T/S+	2,200	2,200	III	
Nimrod	N1M	4J/L			III	
RJ-70	RJ70	4J/L			III	7
RJ-85	RJ85	4J/L			III	7
RJ-100	RJ1H	4J/L			III	7
Tornado	TOR	2J/L			III	

BRITTEN NORMAN LTD. (A subsidiary of Pilatus Aircraft LTD.) (UK)

(Also AVIONS FAIREY, BAC, BUCURESTI, DE HAVILLAND, HAWKER-SIDDELEY, IRMA, PADC, ROMAERO, VICKERS)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
BN-2, BN-2A/B Islander, Defender, Maritime Defender	BN2P	2P/S	1,250	1,250	II	1
BN-2T Turbine Islander, Turbine Defender	BN2T	2T/S	1,500	1,500	II	1
Trident	TRID	3J/L	3,000	3,000	III	
BN-2A Mk3 Trislander	TRIS	3P/S	1,200	1,000	III	2
VC-10	VC10	4J/H	1,900	2,000	III	
Viscount	VISC	4T/L	1,200	1,500	III	10

BUSHMASTER AIRCRAFT CORP. (USA—see Aircraft Hydro Forming)

CAMAIR AIRCRAFT CORP. (USA)*(Also RILEY, TEMCO)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
480 Twin Navion 480	TNAV	2P/S	1,800	2,000	II	

CANADAIR BOMBARDIER LTD. (Canada)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
CL-41 Tutor (CT-114)	CL41	1J/S			III	
CL-44 Forty Four	CL44	4T/L			III	
CL-44-O Guppy	CL4G	4T/L			III	
CL-66, CV-580 (CC-109 Cosmopolitan)	CVLT	2T/L	1,500	1,500	III	
CL-600/Challenger 699/601/604 (CC-144, CE-144)	CL60	2J/L	2,250	3,000	III	8
CL-600 Regional Jet CRJ-100, RJ-100	CRJ1	2J/L			III	7
CL-600, Regional Jet CRJ-200, RJ-200	CRJ2	2J/L			III	7
CL-600 Regional Jet CRJ-700	CRJ7	2J/L			III	7
CL-600 Regional Jet CRJ-900	CRJ9	2J/L			III	8
T-33, CT-133 Silver Star (CL-30)	T33	1J/L	2,000	2,000	III	

CESSNA AIRCRAFT COMPANY (USA)*(Also AVIONES-COLOMBIA, COLEMILL, DINFIA, ECTOR, FMA, FUJI, REIMS, RILEY, SUMMIT, WREN)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
A-37 Dragonfly (318D/E), OA-37	A37*	2J/S	3,370	3,000	III	
120	C120	1P/S	640	640	I	1
140	C140	1P/S	640	640	I	3
150, A150, Commuter, Aerobat	C150	1P/S	670	1,000	I	1
152, A152, Aerobat	C152	1P/S	750	1,000	I	1
170	C170	1P/S	690	1,000	I	4
172, P172, R172, Skyhawk, Hawk XP, Cutlass (T-41, Mescalero)	C172	1P/S	650	1,000	I	1
172RG, Cutlass RG	C72R	1P/S	650	1,000	I	1
175, Skylark	C175	1P/S	850	1,000	I	2
177, Cardinal	C177	1P/S	850	1,000	I	2
177, Cardinal RG	C77R	1P/S	850	1,000	I	2
180, Skywagon 180 (U-17C)	C180	1P/S	1,130	1,130	I	2
182, Skylane	C182	1P/S	890	1,000	I	2
R182, TR182 (Turbo) Skylane RG	C82R	1P/S	890	1,000	I	2
185, A185 Skywagon, Skywagon 185, AgCarryall (U-17A/B)	C185	1P/S	1,000	1,000	I	2

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
188, A188, T188 AgWagon, AgPickup AgTruck, AgHusky	C188	1P/S	1,000	1,000	I	1
190	C190	1P/S	1,090	1,090	I	2
195 (LC-126)	C195	1P/S	1,200	1,200	I	
205	C205	1P/S	965	1,000	I	3
206, P206m T206m TP206, U206, TU206, (Turbo) Super Skywagon, (Turbo) Super Skyland, (Turbo) Skywagon 206, (Turbo) Stationair, Turbo Stationair 6	C206	1P/S	975	1,000	I	2
206 (turbine)	C06T	1/T/S			I	
207 (Turbo) Skywagon 207, (Turbo) Stationair 7/8	C207	1P/S	810	1,000	I	2
207 (turbine)	C07T	1T/S			I	
208 Caravan 1, (Super) Cargomaster, Grand Caravan (C-98, U27)	C208	1T/S	1,400	1,400	I	3
210, T210, (Turbo) Centurion	C210	1P/S	900	1,000	I	2
P210 Pressurized Centurion	P210	1P/S	1,000	1,000	I	
P210 (turbine)	C10T	1T/S			I	
T303 Crusader	C303	2P/S	3,500	3,000	II	2
310, T310 (U-3, L-27)	C310	2P/S	2,800	2,000	II	4
320 (Executive) Skyknight	C320	2P/S	2,900	2,000	II	5
335	C335	2P/S	2,200	2,000	II	4
336 Skymaster	C336	2P/S	1,340	1,340	II	
337, M337, MC337, T337B/C/D/E/F/H (Turbo) Super Skymaster (O-2)	C337	2P/S	1,250	1,500	II	3
T337G, P337 Pressurized Skymaster	P337	2P/S	1,250	1,500	II	3
340	C340	2P/S	2,900	2,000	II	4
401, 402, Utililiner, Businessliner	C402	2P/S	2,500	2,000	II	3
402 (turbine)	C02T	2T/S			II	
404 Titan	C404	2P/S	2,600	2,000	II	5
404 (turbine)	C04T	2T/S			II	
F406 Caravan 2, Vigilant	F406	2T/S	1,850		II	6
411	C411	2P/S	2,800	2,000	II	4
414, Chancellor 414	C414	2P/S	2,300	2,000	II	6
414 (turbine)	C14T	2T/S			II	
421, Golden Eagle, Executive Commuter	C421	2P/S			II	6
421 (turbine)	C21T	2T/S			II	
425, Corsair, Conquest 1	C425	2T/S	3,500	2,500	II	5
441 Conquest, Conquest 2	C441	2T/S	4,200	3,000	II	6
5000 Citation, Citation 1	C500	2J/S	3,100	3,500	III	6
501 Citation 1SP	C501	2J/S	4,300	3,000	III	6
525 Citationjet Citation CJ1	C525	2J/S	3,000		III	7
525A Citation CJ2	C25A	2J/S	3,870		III	
525B Citation CJ3	C25B	2J/S+			III	
526 Citationjet	C526	2J/S	3,000		III	

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
550, S550, 552 Citation 2/S2/Bravo (T-47, U-20)	C550	2J/S+	5,300	3,000	III	7
551 Citation 2SP	C551	2J/S	5,300	3,000	III	5
560 Citation 5/5 Ultra/5Ultra Encore (UC-35, OT-47, TR-20)	C560	2J/S+	6,000	3,500	III	8
650 Citation 3/6/7	C650	2J/S+	3,900	4,000	III	8
680 Citation Sovereign	C680	2J/S+			III	
750 Citation 10	C750	2J/S+	3,500	3,500	III	9
AW	CAW	1P/S			I	
O-1, TO-1, OE, L-19, TL-19 Bird Dog (305,321)	O1	1P/S	1,150	1,150	I	
T37 (318A/B/C)	T37*	2J/S	3,000	3,000	III	
T-50 Bobcat (AT-8, AT-17, UC-78, Crane)	T50	2P/S			II	
DC-6	CDC6	1P/S			I	
C-34/37/38/145/165, Airmaster	CMAS	1P/S			I	

CHAMPION (USA—see Bellanca Aircraft)**CHRISTEN INDUSTRIES, INC. (USA)***(Also AVIAT)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
A-1 Husky	HUSK	1P/S	1,500	1,500	I	

CIRRUS (USA)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
SR-20, SR-20 SRV, SRV	SR20	1P/S			I	1
SR-22	SR22	1P/S			I	1
VK-30 Cirrus	VK3P	1P/S			I	

COLEMILL (USA) (See BEECH, PIPER, CESSNA)**CONSTRUCCIONES AERONAUTICAS (CASA) (Spain)***(Also NURTANIO, NUSANTARA)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
C-212 Aviocar (T-12, TE-12, TR-12, D-3, Tp89)	C212	2T/S+	900	900	III	5

CURTISS-WRIGHT CORP. (USA)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
C-46 Commando (CW-20)	C46	2P/L	600	700	III	

DASSAULT-BREGUET (France)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
1150 Atlantic, Altantique 2	ATLA	2T/L			III	
Alpha Jet	AJET	2J/S			III	
Falcon 10/100, Mystere 10/100	FA10	2J/S+	2,300	1,600	III	8
Falcon 20/100, Mystere 20/200, Gardian (HU-25, (T-11, TM-11)	FA20	2J/S+	2,000	2,200	III	7
Falcon 50, Mystere 50 (T-16)	FA50	3J/S+	1,800	1,600	III	8
Falcon 900, Mystere 900 (T-18)	F900	3J/L	2,000	1,700	III	8
Falcon 2000	F2TH	2J/S+	2,500	1,500	III	8
Jaguar	JAGR	2J/S+			III	
Mirage 2000, Vajara	MIR2	1J/S+			III	
Mirage 3/5/50 (F-103)	MIRA	1J/S+			III	
Mirage F1 (C-14, CE-14)	MRF1	1J/S+			III	
Super Etendard	ETAR	1J/S+			III	

DEHAVILLAND (Canada/UK)

(Also AIRTECH, HAWKER-SIDDELEY, OGMA, RILEY, SCENIC)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
DHC-1	DHC1	1P/S	900	1,000	I	1
DHC-2 Mk1 Beaver (U-6, L-20)	DHC2	1P/S	840	1,000	I	2
DHC-2 Mk3 Turbo Beaver	DH2T	1T/S	1,220	1,000	I	2
DHC-3 Otter (U-1, NU-1, UC)	DHC3	1P/S	750	1,000	I	1
DHC-3 Turbo Otter	DH3T	1T/S			I	
DHC-4 Caribou (C-7, CV-2)	DHC4	2P/S+	1,350	1,000	III	5
DHC-5 (C-8, CV-7, CC-115, C-115)	DHC5	2T/L	2,000	1,500	III	1
DHC-6 Twin Otter (UV-18, CC-138)	DHC6	2T/S	1,600	1,800	II	4
DHC-7 Dash 7 (O-5, EO-5)	DHC7	4T/L	4,000	4,000	III	2
DHC8 – 100 Dash 8 (E-9, CT-142, CC-142)	DH8A	2T/L	1,500	1,500	III	4
DHC8 – 200 Dash 8	DH8B	2T/L	1,500	1,500	III	4
DHC8 – 300 Dash 8	DH8C	2T/L	1,500	1,500	III	5
DHC8 – 400 Dash 8	DH8D	2T/L	2,500	2,500	III	6
DH-104 Dove, Sea Devon	DOVE	2P/S	1,420	1,420	II	4
DH-114 Heron	HERN	4P/S+	1,075	1,075	III	8

DIAMOND (Canada)*(Also HOAC)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
DA-20/22, DV-20 Katana, Speed Katana	DV20	1P/S	525	500	I	2
DA-42 TwinStar	DA42	2P/S	1,100	500	II	2

DORNIER GmbH (FRG)*(Also CASA, HINDUSTAN. Also see FAIRCHILD-DORNIER)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
228	D228	2T/S+	2,000	2,000	III	2
328	D328	2T/S+	2,000	2,000	III	7
27	DO27	1P/S	700	800	I	1
Do 28 A/B (Agur)	DO28	2P/S	1,500	1,500	II	
Do 28D/D-1/D-2, 128-2 Skyservant	D28D	2P/S	1,000	-	II	1
Do-28D-6, 128-6 Turbo Skyservant	D28T	2T/S	1,500	-	II	1

ECLIPSE AVIATION (USA)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Eclipse 500	EA50	2J/S	1,725	3,000	III	4

EMBRAER (Brazil)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
CBA-123 Vector	VECT	2T/S+			III	
EMB-110/111 Bandeirante (C-95, EC-95, P-95, R-95, SC-95)	E110	2T/S+	1,500	1,500	III	7
EMB-120 Brasilia (VC-97)	E120	2T/S+	2,300	2,300	III	7
EMB-121 Xingu (VU-9, EC-9)	E121	2T/S+			III	
EMB-135, ERJ-135/140	E135	2J/L	2,410	2,030	III	7
EMB-145, ERJ-145 (R-99)	E145	2J/L	2,350	2,190	III	7
EMB-145XR	E45X	2J/L			III	7
EMB-170/175	E170	2J/L			III	7
EMB-190/195	E190	2J/L			III	7

EXTRA (FRG)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
200	E200	1P/S	1,000	1,000	I	
230	E230	1P/S	1,500	1,500	I	
300, 350	E300	1P/S	2,500	1,500	I	
400	E400	1P/S	1,500	1,500	I	
500	E500	1T/S	1,800	1,800	I	

FAIRCHILD DORNIER (USA/FRG)

(Also CONAIR, FAIRCHILD-HILLER, FLEET, FOKKER, KAISER, PILATUS, SWEARINGEN)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
228	D228	2T/S+	2,000	2,000	III	
328	D328	2T/S+	2,000	2,000	III	
328JET, Envoy 3	J328	2J/S+			III	6
728JET, Envoy 7	J728	2J/L			III	

FAIRCHILD INDUSTRIES (USA)

(Also CONAIR, FAIRCHILD-HILLER, FLEET, FOKKER, KAISER, PILATUS, SWEARINGEN)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
A-10, OA-10 Thunderbolt 2	A10*	2J/L	6,000	5,000	III	
C-119, R4Q Flying Box Car (F-78)	C119	2P/L	750	750	III	5
C-123 Provider	C123	2P/L	890	1,000	III	
F-27, FH-227	F27	2T/L	3,000	3,000	III	5
M-62 (PT-19/23/26, T-19 Cornell)	FA62	1P/S	650	650	I	
Pilatus/Peacemaker/Porter	PC6P	1P/S	580	600	I	
PC-6 Heli-Porter	PC6T	1T/S	580	600	I	
Merlin 2	SW2	2T/S	2,350	2,500	II	6
SA-226TB, SA-227TT Merlin 3, Fairchild 300	SW3	2T/S+	2,350	2,500	III	5
SA-226AC, SA-227AC/AT Metro, Merlin 4, Expediter	SW4	2T/S+	2,400	2,500	III	5

FOKKER BV (Netherlands)

(Also FAIRCHILD, FAIRCHILD-HILLER)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
F-27 Friendship, Troopship, Maritime (C-31, D-2)	F27	2T/L	3,000	3,000	III	
F-28, Fellowship	F28	2J/L	4,650	2,000	III	7
50, Maritime Enforcer	F50	2T/L	3,500	3,500	III	3
60	F60	2T/L	3,500	3,500	III	
70	F70	2J/L	4,500	3,000	III	
100	F100	2J/L	3,500	3,500	III	7

GAF (Australia)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
N2/22/24 Nomad, Floatmaster, Missionmaster, Searchmaster	NOMA	2T/S	1,300	1,100	II	2

GATES LEARJET CORP. (USA)

(Also LEAR JET, LEARJET, SHIN MEIWA)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
23	LJ23	2J/S	4,500	4,000	III	8
24	LJ24	2J/S+	4,500	4,000	III	7
25	LJ25	2J/S+	4,500	4,000	III	9
28, 29	LJ28	2J/S+	4,500	4,000	III	7
31	LJ31	2J/S+	4,500	4,000	III	7
35, 36 (C-21, RC-35, RC-36, U-36)	LJ35	2J/S+	4,500	4,000	III	9
40	LJ40	2J/S+			III	
45	LJ45	2J/S+			III	
55	LJ55	2J/S+	5,000	4,000	III	8
60	LJ60	2J/S+	5,000	4,000	III	10

GENERAL DYNAMICS CORP. (USA)

(Also BOEING CANADA, CANADAIR, CANADIAN VICKERS, CONSOLIDATED, CONVAIR, FOKKER, GRUMMAN, KELOWNA, LOCKHEED, LOCKHEED MARTIN, MITSUBISHI, SABCA, SAMSUNG, TUSAS)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
Canso/Catalina***	CAT	2P/S+	600	600	III	7
Convair 240/340/440, Liner, HC-131	CVL P	2P/L	1,000	800	III	7
Convair 540/580/600/640	CVL T	2T/L	1,500	1,500	III	7
F-111, EF-111, (RF-111 Aardvark, Raven)	F111*	2J/L	5,000	5,000	III	
F-16 A/B/C/D/N, NF-16, TF-16 Fighting Falcon, Netz, Barak, Brakeet	F16*	1J/L	8,000	5,000	III	
F-16XL Fighting Falcon	F16X*	1J/L			III	
Valiant	VALI	1P/S	600	750	I	

GREAT LAKES (USA)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
2T-1 Sport Trainer, Sport	G2T1	1P/S	1,000	800	I	

GROB (FRG)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
G109 Ranger (Vigilant)	G109	1P/S	600	600	I	2
G115 A/B/C/D/E, Bavarian (Heron), Tutoa	G115	1P/S	1,200	1,100	I	
G-120	G120	1P/S	1,280		I	

GRUMMAN AEROSPACE CORP. (USA)

(Also AERO MOD, AMERICAN GENERAL, GRUMMAN AMERICAN, GULFSTREAM AMERICAN
MID-CONTINENT, NORTHROP GRUMMAN, SERV-AERO)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
A-6, EA-6, KA-6 Intruder, Prowler (G-128)	A6*	2J/L	7,500	5,000	III	
AA1 Trainer, Tr2, T-Cat, Lynx	AA1	1P/S	850	1,250	I	1
AA-5, Traveller, Cheetah Tiger	AA5	1P/S	660	1,000	I	1
C-1, TF Trader (G-96)	G96	2P/S+			III	
C-2 Greyhound	C2	2T/L	1,000	2,200	III	
E-2, TE-2, Hawkeye, Daya	E2	2T/L	2,690	3,000	III	
F-3F (G-11/32), Replica	F3F	1P/S			I	
F-6F Hellcat (G-50)	HCAT	1P/S+			III	
F-7F Tigercat (G-51)	TCAT	2P/S+			III	
F-9F Panther (G-79)	F9F	1J/S+			III	
F-14 Tomcat	F14*	2J/L	6,000	4,000	III	
G-164 Ag-Cat, Super Ag-Cat	G164	1P/S	1,500	1,500	I	1
G164 Turbo Ag-Cat	G64T	1T/S	1,500	1,500	I	1
G-21 A/38/39 Goose (JRF)***	G21	2P/S	1,000	1,000	II	
G-44 Widgeon (J4F)***	G44	2P/S	1,000	1,500	II	5
G-73 Mallard***	G73	2P/S+	1,600	1,600	III	6
G-73T Turbo Mallard***	G73T	2T/S+			III	
G-1159, G-1159B Gulfstream 2/2B/2SP (C-20J, VC-111)	GLF2	2J/L	5,000	4,000	III	8
GA-7 Cougar	GA7	2P/S	1,600	1,500	II	1
HU-16, SA-16, UF Albatross (G-64/111)***	U16	2P/S+	1,500	1,500	III	4
OV-1, RV-1, AO-1 Mohawk (G-134)	V1	2T/S+	2,100	1,300	III	
S-2, S2F, P-16 Tracker (G-89)	S2P	2P/S+			III	
S-2 Turbo Tracker	S2T	2T/S+			III	
X-29 (712)	X29	1J/S+			III	

GULFSTREAM AEROSPACE CORP. (USA)

(Also GRUMMAN, GRUMMAN AMERICAN, GULFSTREAM, GULFSTREAM AMERICAN, IA1)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
690 Jetprop Commander 840/900	AC90	2T/S	2,500	2,500	II	
695 Jetprop Commander 980/1000	AC95	2T/S	2,500	2,500	II	
AA-1 T-Cat, Lynx	AA1	1P/S	850	1,250	I	

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
AA-5 Traveler, Cheetah, Tiger	AA5	1P/S	660	1,000	I	
GA-7 Cougar	GA7	2P/S	1,600	1,500	II	
GAC 159-C, Gulfstream 1	G159	2T/S+	2,000	2,000	III	7
G-1159, G-1159B/TT Gulfstream 2/2B/2SP/2TT	GLF2	2J/L	5,000	4,000	III	
G-1159A Gulfstream 3/SRA-1, SMA-3 (C20A/B/C/D/E)	GLF3	2J/L	5,000	4,000	III	8
G-1159C Gulfstream 300/4/4SP/ 400/SRA-4 (C-20F/G/H, S102, Tp102, U-4)	GLF4	2J/L	5,000	4,000	III	8
G-1159D Gulfstream 5/500/550 (C-37)	GLF5	2J/L	5,000	4,000	III	7

HAMILTON AVIATION (USA)*(Also VOLPAR)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Westwind 2/3	B18T	2T/S	2,000	2,000	II	1
Little Liner	BE18	2P/S	1,400	1,000	II	
T-28 Nomair	T28	1P/S	2,500	2,500	I	

HANDLEY PAGE (UK)*(Also BRITISH AEROSPACE, JETSTREAM, SCOTTISH AVIATION, VOLPAR)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
HP-137 Jetstream 1	JS1	2T/S+	2,200	2,200	III	
HP-137 Jetstream 200 (T.Mk1/2)	JS20	2T/S+	2,200	2,200	III	

HELIO AIRCRAFT COMPANY (USA)

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
H-391/392/395/250/295/700/800, HT-295 Courier, Strato-Courier, Super Courier (U-10)	COUR	1P/S	850	1,000	I	1
HST-550 Stallion (AU-24)	STLN	1T/S	2,200	2,200	I	1
H-500 Twin Courier (U-5)	TCOU	2P/S	1,250	1,500	II	1

HFB (FRG)*(Also MBB)*

Model	Type Designator	Description	Performance Information			
			Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
HFB-320 Hansa	HF20	2J/S+	4,500	4,500	III	7

HOWARD (USA)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
250, 350	L18	2P/L	1,800	2,000	III	8
DGA-15 (GH Nightingale, NH)	DG15	1P/S	1,000	1,000	I	

IAI (Israel)

(Also ISRAEL AIRCRAFT INDUSTRIES, ASTRA, GULFSTREAM)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
101 Avara, 102, 201, 202	ARVA	2T/S+	1,300	1,000	III	5
1123 Westwind	WW23	2J/S+	4,000	3,500	III	7
1124 Westwind	WW24	2J/S+	4,000	3,500	III	7
1125 Gulfstream 100, (C-38)	ASTR	2J/S+	4,000	3,500	III	7
1126 Gulfstream 200	GALX	2J/S+			III	
Gulfstream 150	G150	2J/S+			III	

ILYUSHIN (Russia)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
A-50, Be-976	A50	4J/H			III	
Il-14	IL14	2P/S+			III	
Il-18/20/22/24, Bizon, Zebra	IL18	4T/L			III	
Il-28	IL28	2J/L			III	
Il-38	IL38	4J/L			III	
IL-62	IL62	4J/H	3,500	2,500	III	
IL-76/78/82, Gajaraj	IL76	4J/H	3,000	2,500	III	
Il-86/87	IL86	4J/H			III	
Il-96	IL96	4J/H			III	
Il-103	I103	1P/S			I	
Il-114	I114	2T/L			III	

JETSTREAM (UK – see British Aerospace)**LAKE AIRCRAFT (USA)**

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
LA-250/270 (Turbo) Renegade, Seawolf, SeaFury***	LA25	1P/S	700	700	I	2
LA-4/200, Buccaneer***	LA4	1P/S	1,100	1,000	I	2

LOCKHEED CORP. (USA)

(Also AERITALIA, CANADAIR, FIAT, FOKKER, HOWARD, LEAR, LOCKHEED-BOEING, LOCKHEED-MARTIN, MBB, MESSERSCHMITT, MITSUBISHI, PACAERO, ROCKWELL, SABCA)

Model	Type Designator	Description Number & Type Engines/ Weight Class	Performance Information			
			Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
B-34, PV Venture, Harpoon (L-15/137/237)	L37	2P/S+			III	
C-5 Galaxy (L-500)	C5	4J/H	2,500	2,000	III	
C-130A/B/E/F/H, CC-130, DC-130, EC-130/E/G/H/Q, HC-130, JC-130, KC-130B/F/H/R/T, LC-130, MC-130, NC-130, RC-130, TC-130, VC-130, WC-130E/H, T-10, TK-10, TL-10, Tp84 Hercules, Spectre, Aya, Karnaf, Sapeer (L-100/182/282/382)	C130	4T/L	1,500	1,500	III	
C-141 Starlifter (L-300)	C141	4J/H	3,500	3,000	III	
L-049/749/1049 Constellation, Super Constellation, Starliner (C-121, RC-121, EC-121, VC-121, WV, R7V, Warning Star)	CONI	4P/L	1,700	1,700	III	9
F-22 Raptor (L-645)	F22*	2J/L			III	
F-104, RF-104, TF-104 Starfighter (L583/683)	F104*	1J/L	5,000	4,000	III	
F-117 Nighthawk	F117	2J/L			III	
L-1011 Tri-Star (all series)	L101	3J/H	3,500	3,000	III	9
L-18 Lodestar (C-56/57/59/60, R50, XR50)	L18	2P/L	1,800	2,000	III	
L-188 Electra	L188	4T/L	1,850	2,000	III	7
L-1329 Jetstar 6/8	L29A	4J/L	4,000	3,500	III	8
L-1329-5 Jetstar 2/731	L29B	4J/L	4,000	3,000	III	9
P-2D to H, SP-2, P2V Neptune (L-426/726/826)	P2	2P/L			III	
P-3, AP-3, EP-3, NP-3, RP-3, TP-3, UP-3, VP-3, WP-3, CP-140 Orion, Aurora, Arcturus (L-85/285/685/785)	P3	4T/L	1,850	2,000	III	
P-38, F-5 Lightning (L-222/322/422)	P38	2P/S+			III	
S-3, ES-3, US-3 Viking (L-394)	S3	2J/L	2,000	2,000	III	
SR-71 Blackbird	SR71	2J/L			III	
T-33, AT-33, NT-33, RT-33 Shooting Star, T-Bird (L-580)	T33*	2J/L	2,000	2,000	III	
U-2, ER-2	U2*	1J/S+	6,000	6,000	III	

MARTIN COMPANY (USA)

Model	Type Designator	Description Number & Type Engines/ Weight Class	Performance Information			
			Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
404	M404	2P/L	1,600	1,500	III	3
B-26 Marauder (179)	B26M	2P/S+			III	
WB-57 (272)	WB57	2J/L			III	

PILOT/CONTROLLER GLOSSARY

PURPOSE

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

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

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

EXPLANATION OF CHANGES

a. Terms Added:

ATC SECURITY SERVICES
ATC SECURITY SERVICES POSITION
ATC SECURITY TRACKING
NAVIGATION SPECIFICATION [ICAO]
OPERATIONS SPECIFICATIONS
PERFORMANCE-BASED NAVIGATION (PBN) [ICAO]
SECURITY SERVICES AIRSPACE
TRANSPONDER OBSERVED

b. Terms Modified:

AREA NAVIGATION (RNAV) [ICAO]
DELAY ASSIGNMENT (DAS)
FLIGHT SERVICE STATION
MONITOR ALERT (MA)
MONITOR ALERT PARAMETER (MAP)

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

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) - RNAV provides enhanced navigational capability to the pilot. RNAV equipment can compute the airplane position, actual track and ground speed and then provide meaningful information relative to a route of flight selected by the pilot. Typical equipment will provide the pilot with distance, time, bearing and crosstrack error relative to the selected "TO" or "active" waypoint and the selected route. Several distinctly different navigational systems with different navigational performance characteristics are capable of providing area navigational functions. Present day RNAV includes INS, LORAN, VOR/DME, and GPS systems. Modern multi-sensor systems can integrate one or more of the above systems to provide a more accurate and reliable navigational system. Due to the different levels of performance, area navigational capabilities can satisfy different levels of required navigational performance (RNP). The major types of equipment are:

a. VORTAC referenced or **Course Line Computer (CLC)** systems, which account for the greatest number of RNAV units in use. To function, the CLC must be within the service range of a VORTAC.

b. OMEGA/VLF, although two separate systems, can be considered as one operationally. A long-range navigation system based upon Very Low Frequency radio signals transmitted from a total of 17 stations worldwide.

c. Inertial (INS) systems, which are totally self-contained and require no information from external references. They provide aircraft position and navigation information in response to signals resulting from inertial effects on components within the system.

d. MLS Area Navigation (MLS/RNAV), which provides area navigation with reference to an MLS ground facility.

e. LORAN-C is a long-range radio navigation system that uses ground waves transmitted at low frequency to provide user position information at ranges of up to 600 to 1,200 nautical miles at both en route and approach altitudes. The usable signal coverage areas are determined by the signal-to-noise

ratio, the envelope-to-cycle difference, and the geometric relationship between the positions of the user and the transmitting stations.

f. GPS is a space-base radio positioning, navigation, and time-transfer system. The system provides highly accurate position and velocity information, and precise time, on a continuous global basis, to an unlimited number of properly equipped users. The system is unaffected by weather, and provides a worldwide common grid reference system.

(See ICAO term AREA NAVIGATION.)

AREA NAVIGATION (RNAV) [ICAO]- 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 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.

D

D-ATIS-

(See DIGITAL-AUTOMATIC TERMINAL INFORMATION SERVICE.)

DA [ICAO]-

(See ICAO Term DECISION ALTITUDE/DECISION HEIGHT.)

DAIR-

(See DIRECT ALTITUDE AND IDENTITY READOUT.)

DANGER AREA [ICAO]- An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

Note: The term "Danger Area" is not used in reference to areas within the United States or any of its possessions or territories.

DAS-

(See DELAY ASSIGNMENT.)

DATA BLOCK-

(See ALPHANUMERIC DISPLAY.)

DEAD RECKONING- Dead reckoning, as applied to flying, is the navigation of an airplane solely by means of computations based on airspeed, course, heading, wind direction, and speed, groundspeed, and elapsed time.

DECISION ALTITUDE/DECISION HEIGHT [ICAO]- A specified altitude or height (A/H) in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Note 1: Decision altitude [DA] is referenced to mean sea level [MSL] and decision height [DH] is referenced to the threshold elevation.

Note 2: The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path.

DECISION HEIGHT- With respect to the operation of aircraft, means the height at which a decision must be made during an ILS, MLS, or PAR instrument

approach to either continue the approach or to execute a missed approach.

(See ICAO term DECISION ALTITUDE/DECISION HEIGHT.)

DECODER- The device used to decipher signals received from ATCRBS transponders to effect their display as select codes.

(See CODES.)

(See RADAR.)

DEFENSE VISUAL FLIGHT RULES- Rules applicable to flights within an ADIZ conducted under the visual flight rules in 14 CFR Part 91.

(See AIR DEFENSE IDENTIFICATION ZONE.)

(Refer to 14 CFR Part 91.)

(Refer to 14 CFR Part 99.)

DELAY ASSIGNMENT (DAS)- Delays are distributed to aircraft based on the traffic management program parameters. The delay assignment is calculated in 15-minute increments and appears as a table in Traffic Flow Management System (TFMS).

DELAY INDEFINITE (REASON IF KNOWN) EXPECT FURTHER CLEARANCE (TIME)- Used by ATC to inform a pilot when an accurate estimate of the delay time and the reason for the delay cannot immediately be determined; e.g., a disabled aircraft on the runway, terminal or center area saturation, weather below landing minimums, etc.

(See EXPECT FURTHER CLEARANCE (TIME).)

DELAY TIME- The amount of time that the arrival must lose to cross the meter fix at the assigned meter fix time. This is the difference between ACLT and VTA.

DEPARTURE CENTER- The ARTCC having jurisdiction for the airspace that generates a flight to the impacted airport.

DEPARTURE CONTROL- A function of an approach control facility providing air traffic control service for departing IFR and, under certain conditions, VFR aircraft.

(See APPROACH CONTROL FACILITY.)

(Refer to AIM.)

DEPARTURE SEQUENCING PROGRAM- A program designed to assist in achieving a specified interval over a common point for departures.

DEPARTURE TIME- The time an aircraft becomes airborne.

DESCENT SPEED ADJUSTMENTS- Speed deceleration calculations made to determine an accurate VTA. These calculations start at the transition point and use arrival speed segments to the vertex.

DESIRED COURSE-

a. True- A predetermined desired course direction to be followed (measured in degrees from true north).

b. Magnetic- A predetermined desired course direction to be followed (measured in degrees from local magnetic north).

DESIRED TRACK- The planned or intended track between two waypoints. It is measured in degrees from either magnetic or true north. The instantaneous angle may change from point to point along the great circle track between waypoints.

DETRESFA (DISTRESS PHASE) [ICAO]- The code word used to designate an emergency phase wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

DEVIATIONS-

a. A departure from a current clearance, such as an off course maneuver to avoid weather or turbulence.

b. Where specifically authorized in the CFRs and requested by the pilot, ATC may permit pilots to deviate from certain regulations.

(Refer to AIM.)

DF-

(See DIRECTION FINDER.)

DF APPROACH PROCEDURE- Used under emergency conditions where another instrument approach procedure cannot be executed. DF guidance for an instrument approach is given by ATC facilities with DF capability.

(See DF GUIDANCE.)

(See DIRECTION FINDER.)

(Refer to AIM.)

DF FIX- The geographical location of an aircraft obtained by one or more direction finders.

(See DIRECTION FINDER.)

DF GUIDANCE- Headings provided to aircraft by facilities equipped with direction finding equipment. These headings, if followed, will lead the aircraft to

a predetermined point such as the DF station or an airport. DF guidance is given to aircraft in distress or to other aircraft which request the service. Practice DF guidance is provided when workload permits.

(See DIRECTION FINDER.)

(See DF FIX.)

(Refer to AIM.)

DF STEER-

(See DF GUIDANCE.)

DH-

(See DECISION HEIGHT.)

DH [ICAO]-

(See ICAO Term DECISION ALTITUDE/ DECISION HEIGHT.)

DIGITAL-AUTOMATIC TERMINAL INFORMATION SERVICE (D-ATIS)- The service provides text messages to aircraft, airlines, and other users outside the standard reception range of conventional ATIS via landline and data link communications to the cockpit. Also, the service provides a computer-synthesized voice message that can be transmitted to all aircraft within range of existing transmitters. The Terminal Data Link System (TDLS) D-ATIS application uses weather inputs from local automated weather sources or manually entered meteorological data together with preprogrammed menus to provide standard information to users. Airports with D-ATIS capability are listed in the Airport/Facility Directory.

DIGITAL TARGET- A computer-generated symbol representing an aircraft's position, based on a primary return or radar beacon reply, shown on a digital display.

DIGITAL TERMINAL AUTOMATION SYSTEM (DTAS)- A system where digital radar and beacon data is presented on digital displays and the operational program monitors the system performance on a real-time basis.

DIGITIZED TARGET- A computer-generated indication shown on an analog radar display resulting from a primary radar return or a radar beacon reply.

DIRECT- Straight line flight between two navigational aids, fixes, points, or any combination thereof. When used by pilots in describing off-airway routes, points defining direct route segments become compulsory reporting points unless the aircraft is under radar contact.

DIRECT ALTITUDE AND IDENTITY READ-OUT- The DAIR System is a modification to the

power or control. The standard overhead approach starts at a relatively high altitude over a runway (“high key”) followed by a continuous 180 degree turn to a high, wide position (“low key”) followed by a continuous 180 degree turn final. The standard straight-in pattern starts at a point that results in a straight-in approach with a high rate of descent to the runway. Flameout approaches terminate in the type approach requested by the pilot (normally fullstop).

FLIGHT CHECK- A call-sign prefix used by FAA aircraft engaged in flight inspection/certification of navigational aids and flight procedures. The word “recorded” may be added as a suffix; e.g., “Flight Check 320 recorded” to indicate that an automated flight inspection is in progress in terminal areas.

(See FLIGHT INSPECTION.)

(Refer to AIM.)

FLIGHT FOLLOWING-

(See TRAFFIC ADVISORIES.)

FLIGHT INFORMATION REGION- An airspace of defined dimensions within which Flight Information Service and Alerting Service are provided.

a. Flight Information Service. A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

b. Alerting Service. A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and to assist such organizations as required.

FLIGHT INFORMATION SERVICE- A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

FLIGHT INSPECTION- Inflight investigation and evaluation of a navigational aid to determine whether it meets established tolerances.

(See FLIGHT CHECK.)

(See NAVIGATIONAL AID.)

FLIGHT LEVEL- A level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet. For example, flight level (FL) 250 represents a barometric altimeter indication of 25,000 feet; FL 255, an indication of 25,500 feet.

(See ICAO term FLIGHT LEVEL.)

FLIGHT LEVEL [ICAO]- A surface of constant atmospheric pressure which is related to a specific

pressure datum, 1013.2 hPa (1013.2 mb), and is separated from other such surfaces by specific pressure intervals.

Note 1: A pressure type altimeter calibrated in accordance with the standard atmosphere:

- a.** When set to a QNH altimeter setting, will indicate altitude;
- b.** When set to a QFE altimeter setting, will indicate height above the QFE reference datum; and
- c.** When set to a pressure of 1013.2 hPa (1013.2 mb), may be used to indicate flight levels.

Note 2: The terms ‘height’ and ‘altitude,’ used in Note 1 above, indicate altimetric rather than geometric heights and altitudes.

FLIGHT LINE- A term used to describe the precise movement of a civil photogrammetric aircraft along a predetermined course(s) at a predetermined altitude during the actual photographic run.

FLIGHT MANAGEMENT SYSTEMS- A computer system that uses a large data base to allow routes to be preprogrammed and fed into the system by means of a data loader. The system is constantly updated with respect to position accuracy by reference to conventional navigation aids. The sophisticated program and its associated data base insures that the most appropriate aids are automatically selected during the information update cycle.

FLIGHT MANAGEMENT SYSTEM PROCEDURE- An arrival, departure, or approach procedure developed for use by aircraft with a slant (/) E or slant (/) F equipment suffix.

FLIGHT PATH- A line, course, or track along which an aircraft is flying or intended to be flown.

(See COURSE.)

(See TRACK.)

FLIGHT PLAN- Specified information relating to the intended flight of an aircraft that is filed orally or in writing with an FSS or an ATC facility.

(See FAST FILE.)

(See FILED.)

(Refer to AIM.)

FLIGHT PLAN AREA- The geographical area assigned by regional air traffic divisions to a flight service station for the purpose of search and rescue for VFR aircraft, issuance of NOTAMs, pilot briefing, in-flight services, broadcast, emergency services, flight data processing, international operations, and aviation weather services. Three letter

identifiers are assigned to every flight service station and are annotated in AFDs and FAAO JO 7350.8, LOCATION IDENTIFIERS, as tie-in facilities.

(See FAST FILE.)

(See FILED.)

(Refer to AIM.)

FLIGHT RECORDER- A general term applied to any instrument or device that records information about the performance of an aircraft in flight or about conditions encountered in flight. Flight recorders may make records of airspeed, outside air temperature, vertical acceleration, engine RPM, manifold pressure, and other pertinent variables for a given flight.

(See ICAO term FLIGHT RECORDER.)

FLIGHT RECORDER [ICAO]- Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

Note: See Annex 6 Part I, for specifications relating to flight recorders.

FLIGHT SERVICE STATION (FSS) - An air traffic facility which provides pilot briefings, flight plan processing, en route radio communications, search and rescue services, and assistance to lost aircraft and aircraft in emergency situations. FSSs also relay ATC clearances, process Notices to Airmen, broadcast aviation weather and aeronautical information, and notify Customs and Border Protection of transborder flights. In addition, at selected locations, FSSs provide En Route Flight Advisory Service (Flight Watch) and Airport Advisory Service (AAS). In Alaska, designated FSSs also provide TWEB recordings and take weather observations.

FLIGHT STANDARDS DISTRICT OFFICE- An FAA field office serving an assigned geographical area and staffed with Flight Standards personnel who serve the aviation industry and the general public on matters relating to the certification and operation of air carrier and general aviation aircraft. Activities include general surveillance of operational safety, certification of airmen and aircraft, accident prevention, investigation, enforcement, etc.

FLIGHT TEST- A flight for the purpose of:

a. Investigating the operation/flight characteristics of an aircraft or aircraft component.

b. Evaluating an applicant for a pilot certificate or rating.

FLIGHT VISIBILITY-

(See VISIBILITY.)

FLIGHT WATCH- A shortened term for use in air-ground contacts to identify the flight service station providing En Route Flight Advisory Service; e.g., "Oakland Flight Watch."

(See EN ROUTE FLIGHT ADVISORY SERVICE.)

FLIP-

(See DOD FLIP.)

FLY HEADING (DEGREES)- Informs the pilot of the heading he/she should fly. The pilot may have to turn to, or continue on, a specific compass direction in order to comply with the instructions. The pilot is expected to turn in the shorter direction to the heading unless otherwise instructed by ATC.

FLY-BY WAYPOINT- A fly-by waypoint requires the use of turn anticipation to avoid overshoot of the next flight segment.

FLY-OVER WAYPOINT- A fly-over waypoint precludes any turn until the waypoint is overflown and is followed by an intercept maneuver of the next flight segment.

FMA-

(See FINAL MONITOR AID.)

FMS-

(See FLIGHT MANAGEMENT SYSTEM.)

FMSP-

(See FLIGHT MANAGEMENT SYSTEM PROCEDURE.)

FORMATION FLIGHT- More than one aircraft which, by prior arrangement between the pilots, operate as a single aircraft with regard to navigation and position reporting. Separation between aircraft within the formation is the responsibility of the flight leader and the pilots of the other aircraft in the flight. This includes transition periods when aircraft within the formation are maneuvering to attain separation from each other to effect individual control and during join-up and breakaway.

a. A standard formation is one in which a proximity of no more than 1 mile laterally or longitudinally and within 100 feet vertically from the flight leader is maintained by each wingman.

b. Nonstandard formations are those operating under any of the following conditions:

operation; e.g., IFR takeoff or landing, alternate airport for IFR flight plans, VFR flight, etc.

(See IFR CONDITIONS.)

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See LANDING MINIMUMS.)

(See VFR CONDITIONS.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

MINIMUM VECTORING ALTITUDE (MVA)– The lowest MSL altitude at which an IFR aircraft will be vectored by a radar controller, except as otherwise authorized for radar approaches, departures, and missed approaches. The altitude meets IFR obstacle clearance criteria. It may be lower than the published MEA along an airway or J-route segment. It may be utilized for radar vectoring only upon the controller's determination that an adequate radar return is being received from the aircraft being controlled. Charts depicting minimum vectoring altitudes are normally available only to the controllers and not to pilots.

(Refer to AIM.)

MINUTES-IN-TRAIL– A specified interval between aircraft expressed in time. This method would more likely be utilized regardless of altitude.

MIS–

(See METEOROLOGICAL IMPACT STATEMENT.)

MISSED APPROACH–

a. A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. The route of flight and altitude are shown on instrument approach procedure charts. A pilot executing a missed approach prior to the Missed Approach Point (MAP) must continue along the final approach to the MAP.

b. A term used by the pilot to inform ATC that he/she is executing the missed approach.

c. At locations where ATC radar service is provided, the pilot should conform to radar vectors when provided by ATC in lieu of the published missed approach procedure.

(See MISSED APPROACH POINT.)

(Refer to AIM.)

MISSED APPROACH POINT– A point prescribed in each instrument approach procedure at which a missed approach procedure shall be executed if the required visual reference does not exist.

(See MISSED APPROACH.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

MISSED APPROACH PROCEDURE [ICAO]– The procedure to be followed if the approach cannot be continued.

MISSED APPROACH SEGMENT–

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

MLDI–

(See METER LIST DISPLAY INTERVAL.)

MLS–

(See MICROWAVE LANDING SYSTEM.)

MLS CATEGORIES–

a. MLS Category I. An MLS approach procedure which provides for an approach to a height above touchdown of not less than 200 feet and a runway visual range of not less than 1,800 feet.

b. MLS Category II. Undefined until data gathering/analysis completion.

c. MLS Category III. Undefined until data gathering/analysis completion.

MM–

(See MIDDLE MARKER.)

MNPS–

(See MINIMUM NAVIGATION PERFORMANCE SPECIFICATION.)

MNPSA–

(See MINIMUM NAVIGATION PERFORMANCE-SPECIFICATION AIRSPACE.)

MOA–

(See MILITARY OPERATIONS AREA.)

MOCA–

(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)

MODE– The letter or number assigned to a specific pulse spacing of radio signals transmitted or received by ground interrogator or airborne transponder components of the Air Traffic Control Radar Beacon

System (ATCRBS). Mode A (military Mode 3) and Mode C (altitude reporting) are used in air traffic control.

(See INTERROGATOR.)

(See RADAR.)

(See TRANSPONDER.)

(See ICAO term MODE.)

(Refer to AIM.)

MODE (SSR MODE) [ICAO]- The letter or number assigned to a specific pulse spacing of the interrogation signals transmitted by an interrogator. There are 4 modes, A, B, C and D specified in Annex 10, corresponding to four different interrogation pulse spacings.

MODE C INTRUDER ALERT- A function of certain air traffic control automated systems designed to alert radar controllers to existing or pending situations between a tracked target (known IFR or VFR aircraft) and an untracked target (unknown IFR or VFR aircraft) that requires immediate attention/action.

(See CONFLICT ALERT.)

MONITOR- (When used with communication transfer) listen on a specific frequency and stand by for instructions. Under normal circumstances do not establish communications.

MONITOR ALERT (MA)- A function of the TFMS that provides traffic management personnel with a tool for predicting potential capacity problems in individual operational sectors. The MA is an indication that traffic management personnel need to analyze a particular sector for actual activity and to determine the required action(s), if any, needed to control the demand.

MONITOR ALERT PARAMETER (MAP)- The number designated for use in monitor alert processing by the TFMS. The MAP is designated for each operational sector for increments of 15 minutes.

MOSAIC/MULTI-SENSOR MODE- Accepts positional data from multiple radar or ADS-B sites. Targets are displayed from a single source within a

radar sort box according to the hierarchy of the sources assigned.

MOVEMENT AREA- The runways, taxiways, and other areas of an airport/heliport which are utilized for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports/heliports with a tower, specific approval for entry onto the movement area must be obtained from ATC.

(See ICAO term MOVEMENT AREA.)

MOVEMENT AREA [ICAO]- That part of an aerodrome to be used for the takeoff, landing and taxiing of aircraft, consisting of the maneuvering area and the apron(s).

MOVING TARGET INDICATOR- An electronic device which will permit radar scope presentation only from targets which are in motion. A partial remedy for ground clutter.

MRA-

(See MINIMUM RECEPTION ALTITUDE.)

MSA-

(See MINIMUM SAFE ALTITUDE.)

MSAW-

(See MINIMUM SAFE ALTITUDE WARNING.)

MTI-

(See MOVING TARGET INDICATOR.)

MTR-

(See MILITARY TRAINING ROUTES.)

MULTICOM- A mobile service not open to public correspondence used to provide communications essential to conduct the activities being performed by or directed from private aircraft.

MULTIPLE RUNWAYS- The utilization of a dedicated arrival runway(s) for departures and a dedicated departure runway(s) for arrivals when feasible to reduce delays and enhance capacity.

MVA-

(See MINIMUM VECTORING ALTITUDE.)

N

NAS-

(See NATIONAL AIRSPACE SYSTEM.)

NATIONAL AIRSPACE SYSTEM- The common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, and manpower and material. Included are system components shared jointly with the military.

NATIONAL BEACON CODE ALLOCATION PLAN AIRSPACE- Airspace over United States territory located within the North American continent between Canada and Mexico, including adjacent territorial waters outward to about boundaries of oceanic control areas (CTA)/Flight Information Regions (FIR).

(See FLIGHT INFORMATION REGION.)

NATIONAL FLIGHT DATA CENTER- A facility in Washington D.C., established by FAA to operate a central aeronautical information service for the collection, validation, and dissemination of aeronautical data in support of the activities of government, industry, and the aviation community. The information is published in the National Flight Data Digest.

(See NATIONAL FLIGHT DATA DIGEST.)

NATIONAL FLIGHT DATA DIGEST- A daily (except weekends and Federal holidays) publication of flight information appropriate to aeronautical charts, aeronautical publications, Notices to Airmen, or other media serving the purpose of providing operational flight data essential to safe and efficient aircraft operations.

NATIONAL SEARCH AND RESCUE PLAN- An interagency agreement which provides for the effective utilization of all available facilities in all types of search and rescue missions.

NAVAID-

(See NAVIGATIONAL AID.)

NAVAID CLASSES- VOR, VORTAC, and TACAN aids are classed according to their operational use. The three classes of NAVAIDs are:

- a. T- Terminal.
- b. L- Low altitude.

c. H- High altitude.

Note: The normal service range for T, L, and H class aids is found in the AIM. Certain operational requirements make it necessary to use some of these aids at greater service ranges than specified. Extended range is made possible through flight inspection determinations. Some aids also have lesser service range due to location, terrain, frequency protection, etc. Restrictions to service range are listed in Airport/Facility Directory.

NAVIGABLE AIRSPACE- Airspace at and above the minimum flight altitudes prescribed in the CFRs including airspace needed for safe takeoff and landing.

(Refer to 14 CFR Part 91.)

NAVIGATION REFERENCE SYSTEM (NRS)- The NRS is a system of waypoints developed for use within the United States for flight planning and navigation without reference to ground based navigational aids. The NRS waypoints are located in a grid pattern along defined latitude and longitude lines. The initial use of the NRS will be in the high altitude environment in conjunction with the High Altitude Redesign initiative. The NRS waypoints are intended for use by aircraft capable of point-to-point navigation.

NAVIGATION SPECIFICATION [ICAO]- A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

a. RNP specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP; e.g., RNP 4, RNP APCH.

b. RNAV specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV; e.g., RNAV 5, RNAV 1.

Note: The Performance-based Navigation Manual (Doc 9613), Volume II contains detailed guidance on navigation specifications.

NAVIGATIONAL AID- Any visual or electronic device airborne or on the surface which provides point-to-point guidance information or position data to aircraft in flight.

(See AIR NAVIGATION FACILITY.)

NBCAP AIRSPACE-

(See NATIONAL BEACON CODE ALLOCATION PLAN AIRSPACE.)

NDB-

(See NONDIRECTIONAL BEACON.)

NEGATIVE- “No,” or “permission not granted,” or “that is not correct.”

NEGATIVE CONTACT- Used by pilots to inform ATC that:

a. Previously issued traffic is not in sight. It may be followed by the pilot’s request for the controller to provide assistance in avoiding the traffic.

b. They were unable to contact ATC on a particular frequency.

NFDC-

(See NATIONAL FLIGHT DATA CENTER.)

NFDD-

(See NATIONAL FLIGHT DATA DIGEST.)

NIGHT- The time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time.

(See ICAO term NIGHT.)

NIGHT [ICAO]- The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise as may be specified by the appropriate authority.

Note: Civil twilight ends in the evening when the center of the sun’s disk is 6 degrees below the horizon and begins in the morning when the center of the sun’s disk is 6 degrees below the horizon.

NO GYRO APPROACH- A radar approach/vector provided in case of a malfunctioning gyro-compass or directional gyro. Instead of providing the pilot with headings to be flown, the controller observes the radar track and issues control instructions “turn right/left” or “stop turn” as appropriate.

(Refer to AIM.)

NO GYRO VECTOR-

(See NO GYRO APPROACH.)

NO TRANSGRESSION ZONE (NTZ)- The NTZ is a 2,000 foot wide zone, located equidistant between parallel runway final approach courses in which flight is not allowed.

NONAPPROACH CONTROL TOWER- Authorizes aircraft to land or takeoff at the airport controlled by the tower or to transit the Class D airspace. The primary function of a nonapproach control tower is the sequencing of aircraft in the traffic pattern and on the landing area. Nonapproach control towers also separate aircraft operating under instrument flight rules clearances from approach controls and centers. They provide ground control services to aircraft, vehicles, personnel, and equipment on the airport movement area.

NONCOMMON ROUTE/PORTION- That segment of a North American Route between the inland navigation facility and a designated North American terminal.

NONCOMPOSITE SEPARATION- Separation in accordance with minima other than the composite separation minimum specified for the area concerned.

NONDIRECTIONAL BEACON- An L/MF or UHF radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his/her bearing to or from the radio beacon and “home” on or track to or from the station. When the radio beacon is installed in conjunction with the Instrument Landing System marker, it is normally called a Compass Locator.

(See AUTOMATIC DIRECTION FINDER.)

(See COMPASS LOCATOR.)

NONMOVEMENT AREAS- Taxiways and apron (ramp) areas not under the control of air traffic.

NONPRECISION APPROACH-

(See NONPRECISION APPROACH PROCEDURE.)

NONPRECISION APPROACH PROCEDURE- A standard instrument approach procedure in which no electronic glideslope is provided; e.g., VOR, TACAN, NDB, LOC, ASR, LDA, or SDF approaches.

NONRADAR- Precedes other terms and generally means without the use of radar, such as:

a. Nonradar Approach. Used to describe instrument approaches for which course guidance on final

approach is not provided by ground-based precision or surveillance radar. Radar vectors to the final approach course may or may not be provided by ATC. Examples of nonradar approaches are VOR, NDB, TACAN, 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-

(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. NOTAM(L)- A NOTAM given local dissemination by voice and other means, such as telautograph and telephone, to satisfy local user requirements.

c. FDC NOTAM- A NOTAM regulatory in nature, transmitted by USNOF and given system wide dissemination.

(See ICAO term NOTAM.)

NOTICES TO AIRMEN PUBLICATION- A publication issued every 28 days, designed primarily for the pilot, which contains current NOTAM information considered essential to the safety of flight as well as supplemental data to other aeronautical publications. The contraction NTAP is used in NOTAM text.

(See NOTICE TO AIRMEN.)

NRR-

(See NON-RESTRICTIVE ROUTING.)

NRS-

(See NAVIGATION REFERENCE SYSTEM.)

NTAP-

(See NOTICES TO AIRMEN PUBLICATION.)

NUMEROUS TARGETS VICINITY (LOCATION)- A traffic advisory issued by ATC to advise pilots that targets on the radar scope are too numerous to issue individually.

(See TRAFFIC ADVISORIES.)

O

OBSTACLE- An existing object, object of natural growth, or terrain at a fixed geographical location or which may be expected at a fixed location within a prescribed area with reference to which vertical clearance is or must be provided during flight operation.

OBSTACLE DEPARTURE PROCEDURE (ODP)- A preplanned instrument flight rule (IFR) departure procedure printed for pilot use in textual or graphic form to provide obstruction clearance via the least onerous route from the terminal area to the appropriate en route structure. ODPs are recommended for obstruction clearance and may be flown without ATC clearance unless an alternate departure procedure (SID or radar vector) has been specifically assigned by ATC.

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See STANDARD INSTRUMENT DEPARTURES.)

(Refer to AIM.)

OBSTACLE FREE ZONE- The OFZ is a three dimensional volume of airspace which protects for the transition of aircraft to and from the runway. The OFZ clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible NAVAID locations that are fixed by function. Additionally, vehicles, equipment, and personnel may be authorized by air traffic control to enter the area using the provisions of FAAO JO 7110.65, Para 3-1-5, VEHICLES/EQUIPMENT/PERSONNEL ON RUNWAYS. The runway OFZ and when applicable, the inner-approach OFZ, and the inner-transitional OFZ, comprise the OFZ.

a. Runway OFZ. The runway OFZ is a defined volume of airspace centered above the runway. The runway OFZ is the airspace above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline. The runway OFZ extends 200 feet beyond each end of the runway. The width is as follows:

1. For runways serving large airplanes, the greater of:

(a) 400 feet, or

(b) 180 feet, plus the wingspan of the most demanding airplane, plus 20 feet per 1,000 feet of airport elevation.

2. For runways serving only small airplanes:

(a) 300 feet for precision instrument runways.

(b) 250 feet for other runways serving small airplanes with approach speeds of 50 knots, or more.

(c) 120 feet for other runways serving small airplanes with approach speeds of less than 50 knots.

b. Inner-approach OFZ. The inner-approach OFZ is a defined volume of airspace centered on the approach area. The inner-approach OFZ applies only to runways with an approach lighting system. The inner-approach OFZ begins 200 feet from the runway threshold at the same elevation as the runway threshold and extends 200 feet beyond the last light unit in the approach lighting system. The width of the inner-approach OFZ is the same as the runway OFZ and rises at a slope of 50 (horizontal) to 1 (vertical) from the beginning.

c. Inner-transitional OFZ. The inner transitional surface OFZ is a defined volume of airspace along the sides of the runway and inner-approach OFZ and applies only to precision instrument runways. The inner-transitional surface OFZ slopes 3 (horizontal) to 1 (vertical) out from the edges of the runway OFZ and inner-approach OFZ to a height of 150 feet above the established airport elevation.

(Refer to AC 150/5300-13, Chapter 3.)

(Refer to FAAO JO 7110.65, Para 3-1-5, VEHICLES/EQUIPMENT/PERSONNEL ON RUNWAYS.)

OBSTRUCTION- Any object/obstacle exceeding the obstruction standards specified by 14 CFR Part 77, Subpart C.

OBSTRUCTION LIGHT- A light or one of a group of lights, usually red or white, frequently mounted on a surface structure or natural terrain to warn pilots of the presence of an obstruction.

OCEANIC AIRSPACE- Airspace over the oceans of the world, considered international airspace, where oceanic separation and procedures per the International Civil Aviation Organization are applied. Responsibility for the provisions of air traffic control

service in this airspace is delegated to various countries, based generally upon geographic proximity and the availability of the required resources.

OCEANIC DISPLAY AND PLANNING SYSTEM- An automated digital display system which provides flight data processing, conflict probe, and situation display for oceanic air traffic control.

OCEANIC NAVIGATIONAL ERROR REPORT- A report filed when an aircraft exiting oceanic airspace has been observed by radar to be off course. ONER reporting parameters and procedures are contained in FAAO 7110.82, Monitoring of Navigational Performance In Oceanic Areas.

OCEANIC PUBLISHED ROUTE- A route established in international airspace and charted or described in flight information publications, such as Route Charts, DOD Enroute Charts, Chart Supplements, NOTAMs, and Track Messages.

OCEANIC TRANSITION ROUTE- An ATS route established for the purpose of transitioning aircraft to/from an organized track system.

ODAPS-
(See OCEANIC DISPLAY AND PLANNING SYSTEM.)

ODP-
(See OBSTACLE DEPARTURE PROCEDURE.)

OFF COURSE- A term used to describe a situation where an aircraft has reported a position fix or is observed on radar at a point not on the ATC-approved route of flight.

OFF-ROUTE VECTOR- A vector by ATC which takes an aircraft off a previously assigned route. Altitudes assigned by ATC during such vectors provide required obstacle clearance.

OFFSET PARALLEL RUNWAYS- Staggered runways having centerlines which are parallel.

OFFSHORE/CONTROL AIRSPACE AREA- That portion of airspace between the U.S. 12 NM limit and the oceanic CTA/FIR boundary within which air traffic control is exercised. These areas are established to provide air traffic control services. Offshore/Control Airspace Areas may be classified as either Class A airspace or Class E airspace.

OFT-
(See OUTER FIX TIME.)

OM-
(See OUTER MARKER.)

OMEGA- An RNAV system designed for long-range navigation based upon ground-based electronic navigational aid signals.

ON COURSE-
a. Used to indicate that an aircraft is established on the route centerline.

b. Used by ATC to advise a pilot making a radar approach that his/her aircraft is lined up on the final approach course.

(See ON-COURSE INDICATION.)

ON-COURSE INDICATION- An indication on an instrument, which provides the pilot a visual means of determining that the aircraft is located on the centerline of a given navigational track, or an indication on a radar scope that an aircraft is on a given track.

ONE-MINUTE WEATHER- The most recent one minute updated weather broadcast received by a pilot from an uncontrolled airport ASOS/AWOS.

ONER-
(See OCEANIC NAVIGATIONAL ERROR REPORT.)

OPERATIONAL-
(See DUE REGARD.)

OPERATIONS SPECIFICATIONS [ICAO]- The authorizations, conditions and limitations associated with the air operator certificate and subject to the conditions in the operations manual.

OPPOSITE DIRECTION AIRCRAFT- Aircraft are operating in opposite directions when:

a. They are following the same track in reciprocal directions; or

b. Their tracks are parallel and the aircraft are flying in reciprocal directions; or

c. Their tracks intersect at an angle of more than 135°.

OPTION APPROACH- An approach requested and conducted by a pilot which will result in either a touch-and-go, missed approach, low approach, stop-and-go, or full stop landing.

(See CLEARED FOR THE OPTION.)

(Refer to AIM.)

ORGANIZED TRACK SYSTEM- A series of ATS routes which are fixed and charted; i.e., CEP,

NOPAC, or flexible and described by NOTAM; i.e., NAT TRACK MESSAGE.

OROCA- An off-route altitude which provides obstruction clearance with a 1,000 foot buffer in nonmountainous terrain areas and a 2,000 foot buffer in designated mountainous areas within the United States. This altitude may not provide signal coverage from ground-based navigational aids, air traffic control radar, or communications coverage.

OTR-

(See OCEANIC TRANSITION ROUTE.)

OTS-

(See ORGANIZED TRACK SYSTEM.)

OUT- The conversation is ended and no response is expected.

OUTER AREA (associated with Class C airspace)- Nonregulatory airspace surrounding designated Class C airspace airports wherein ATC provides radar vectoring and sequencing on a full-time basis for all IFR and participating VFR aircraft. The service provided in the outer area is called Class C service which includes: IFR/IFR-standard IFR separation; IFR/VFR-traffic advisories and conflict resolution; and VFR/VFR-traffic advisories and, as appropriate, safety alerts. The normal radius will be 20 nautical miles with some variations based on site-specific requirements. The outer area extends outward from the primary Class C airspace airport and extends from the lower limits of radar/radio coverage up to the ceiling of the approach control's delegated airspace excluding the Class C charted area and other airspace as appropriate.

(See CONFLICT RESOLUTION.)

(See CONTROLLED AIRSPACE.)

OUTER COMPASS LOCATOR-

(See COMPASS LOCATOR.)

OUTER FIX- A general term used within ATC to describe fixes in the terminal area, other than the final approach fix. Aircraft are normally cleared to these fixes by an Air Route Traffic Control Center or an Approach Control Facility. Aircraft are normally cleared from these fixes to the final approach fix or final approach course.

OR

OUTER FIX- An adapted fix along the converted route of flight, prior to the meter fix, for which crossing times are calculated and displayed in the metering position list.

OUTER FIX ARC- A semicircle, usually about a 50-70 mile radius from a meter fix, usually in high altitude, which is used by CTAS/HOST to calculate outer fix times and determine appropriate sector meter list assignments for aircraft on an established arrival route that will traverse the arc.

OUTER FIX TIME- A calculated time to depart the outer fix in order to cross the vertex at the ACLT. The time reflects descent speed adjustments and any applicable delay time that must be absorbed prior to crossing the meter fix.

OUTER MARKER- A marker beacon at or near the glideslope intercept altitude of an ILS approach. It is keyed to transmit two dashes per second on a 400 Hz tone, which is received aurally and visually by compatible airborne equipment. The OM is normally located four to seven miles from the runway threshold on the extended centerline of the runway.

(See INSTRUMENT LANDING SYSTEM.)

(See MARKER BEACON.)

(Refer to AIM.)

OVER- My transmission is ended; I expect a response.

OVERHEAD MANEUVER- A series of predetermined maneuvers prescribed for aircraft (often in formation) for entry into the visual flight rules (VFR) traffic pattern and to proceed to a landing. An overhead maneuver is not an instrument flight rules (IFR) approach procedure. An aircraft executing an overhead maneuver is considered VFR and the IFR flight plan is cancelled when the aircraft reaches the "initial point" on the initial approach portion of the maneuver. The pattern usually specifies the following:

- a. The radio contact required of the pilot.
- b. The speed to be maintained.
- c. An initial approach 3 to 5 miles in length.
- d. An elliptical pattern consisting of two 180 degree turns.
- e. A break point at which the first 180 degree turn is started.
- f. The direction of turns.
- g. Altitude (at least 500 feet above the conventional pattern).

h. A “Roll-out” on final approach not less than 1/4 mile from the landing threshold and not less than 300 feet above the ground.

OVERLYING CENTER- The ARTCC facility that is responsible for arrival/departure operations at a specific terminal.

P

P TIME-

(See PROPOSED DEPARTURE TIME.)

P-ACP-

(See PREARRANGED COORDINATION PROCEDURES.)

PAN-PAN- The international radio-telephony urgency signal. When repeated three times, indicates uncertainty or alert followed by the nature of the urgency.

(See MAYDAY.)

(Refer to AIM.)

PAR-

(See PRECISION APPROACH RADAR.)

PAR [ICAO]-

(See ICAO Term PRECISION APPROACH RADAR.)

PARALLEL ILS APPROACHES- Approaches to parallel runways by IFR aircraft which, when established inbound toward the airport on the adjacent final approach courses, are radar-separated by at least 2 miles.

(See FINAL APPROACH COURSE.)

(See SIMULTANEOUS ILS APPROACHES.)

PARALLEL 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 equipment.

POLAR TRACK STRUCTURE- A system of organized routes between Iceland and Alaska which overlie Canadian MNPS Airspace.

POSITION AND HOLD- Used by ATC to inform a pilot to taxi onto the departure runway in takeoff position and hold. 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.)

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.

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.

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 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.

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).)

(See ICAO Term 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

S

SAA-

(See SPECIAL ACTIVITY AIRSPACE.)

SAFETY ALERT- A safety alert issued by ATC to aircraft under their control if ATC is aware the aircraft is at an altitude which, in the controller's judgment, places the aircraft in unsafe proximity to terrain, obstructions, or other aircraft. The controller may discontinue the issuance of further alerts if the pilot advises he/she is taking action to correct the situation or has the other aircraft in sight.

a. Terrain/Obstruction Alert- A safety alert issued by ATC to aircraft under their control if ATC is aware the aircraft is at an altitude which, in the controller's judgment, places the aircraft in unsafe proximity to terrain/obstructions; e.g., "Low Altitude Alert, check your altitude immediately."

b. Aircraft Conflict Alert- A safety alert issued by ATC to aircraft under their control if ATC is aware of an aircraft that is not under their control at an altitude which, in the controller's judgment, places both aircraft in unsafe proximity to each other. With the alert, ATC will offer the pilot an alternate course of action when feasible; e.g., "Traffic Alert, advise you turn right heading zero niner zero or climb to eight thousand immediately."

Note: The issuance of a safety alert is contingent upon the capability of the controller to have an awareness of an unsafe condition. The course of action provided will be predicated on other traffic under ATC control. Once the alert is issued, it is solely the pilot's prerogative to determine what course of action, if any, he/she will take.

SAFETY LOGIC SYSTEM- A software enhancement to ASDE-3, ASDE-X, and ASDE-3X, that predicts the path of aircraft landing and/or departing, and/or vehicular movements on runways. Visual and aural alarms are activated when the safety logic projects a potential collision. The Airport Movement Area Safety System (AMASS) is a safety logic system enhancement to the ASDE-3. The Safety Logic System for ASDE-X and ASDE-3X is an integral part of the software program.

SAFETY LOGIC SYSTEM ALERTS-

a. ALERT- An actual situation involving two real safety logic tracks (aircraft/aircraft, aircraft/vehicle,

or aircraft/other tangible object) that safety logic has predicted will result in an imminent collision, based upon the current set of Safety Logic parameters.

b. FALSE ALERT-

1. Alerts generated by one or more false surface-radar targets that the system has interpreted as real tracks and placed into safety logic.

2. Alerts in which the safety logic software did not perform correctly, based upon the design specifications and the current set of Safety Logic parameters.

c. NUISANCE ALERT- An alert in which one or more of the following is true:

1. The alert is generated by a known situation that is not considered an unsafe operation, such as LAHSO or other approved operations.

2. The alert is generated by inaccurate secondary radar data received by the Safety Logic System.

3. The alert is generated by surface radar targets caused by moderate or greater precipitation.

4. One or more of the aircraft involved in the alert is not intending to use a runway (i.e., helicopter, pipeline patrol, non-Mode C overflight, etc.).

d. VALID NON-ALERT- A situation in which the safety logic software correctly determines that an alert is not required, based upon the design specifications and the current set of Safety Logic parameters.

e. INVALID NON-ALERT- A situation in which the safety logic software did not issue an alert when an alert was required, based upon the design specifications.

SAIL BACK- A maneuver during high wind conditions (usually with power off) where float plane movement is controlled by water rudders/opening and closing cabin doors.

SAME DIRECTION AIRCRAFT- Aircraft are operating in the same direction when:

a. They are following the same track in the same direction; or

b. Their tracks are parallel and the aircraft are flying in the same direction; or

c. Their tracks intersect at an angle of less than 45 degrees.

SAR-

(See SEARCH AND RESCUE.)

SAY AGAIN- Used to request a repeat of the last transmission. Usually specifies transmission or portion thereof not understood or received; e.g., "Say again all after ABRAM VOR."

SAY ALTITUDE- Used by ATC to ascertain an aircraft's specific altitude/flight level. When the aircraft is climbing or descending, the pilot should state the indicated altitude rounded to the nearest 100 feet.

SAY HEADING- Used by ATC to request an aircraft heading. The pilot should state the actual heading of the aircraft.

SCHEDULED TIME OF ARRIVAL (STA)- A STA is the desired time that an aircraft should cross a certain point (landing or metering fix). It takes other traffic and airspace configuration into account. A STA time shows the results of the TMA scheduler that has calculated an arrival time according to parameters such as optimized spacing, aircraft performance, and weather.

SDF-

(See SIMPLIFIED DIRECTIONAL FACILITY.)

SEA LANE- A designated portion of water outlined by visual surface markers for and intended to be used by aircraft designed to operate on water.

SEARCH AND RESCUE- A service which seeks missing aircraft and assists those found to be in need of assistance. It is a cooperative effort using the facilities and services of available Federal, state and local agencies. The U.S. Coast Guard is responsible for coordination of search and rescue for the Maritime Region, and the U.S. Air Force is responsible for search and rescue for the Inland Region. Information pertinent to search and rescue should be passed through any air traffic facility or be transmitted directly to the Rescue Coordination Center by telephone.

(See FLIGHT SERVICE STATION.)

(See RESCUE COORDINATION CENTER.)

(Refer to AIM.)

SEARCH AND RESCUE FACILITY- A facility responsible for maintaining and operating a search and rescue (SAR) service to render aid to persons and property in distress. It is any SAR unit, station, NET, or other operational activity which can be usefully

employed during an SAR Mission; e.g., a Civil Air Patrol Wing, or a Coast Guard Station.

(See SEARCH AND RESCUE.)

SECONDARY RADAR TARGET- A target derived from a transponder return presented on a radar display.

SECTIONAL AERONAUTICAL CHARTS-

(See AERONAUTICAL CHART.)

SECTOR LIST DROP INTERVAL- A parameter number of minutes after the meter fix time when arrival aircraft will be deleted from the arrival sector list.

SECURITY SERVICES AIRSPACE - Areas established through the regulatory process or by NOTAM, issued by the Administrator under title 14, CFR, sections 99.7, 91.141, and 91.139, which specify that ATC security services are required; i.e., ADIZ or temporary flight rules areas.

SEE AND AVOID- When weather conditions permit, pilots operating IFR or VFR are required to observe and maneuver to avoid other aircraft. Right-of-way rules are contained in 14 CFR Part 91.

SEGMENTED CIRCLE- A system of visual indicators designed to provide traffic pattern information at airports without operating control towers.

(Refer to AIM.)

SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE- An instrument approach procedure may have as many as four separate segments depending on how the approach procedure is structured.

a. Initial Approach- The segment between the initial approach fix and the intermediate fix or the point where the aircraft is established on the intermediate course or final approach course.

(See ICAO term INITIAL APPROACH SEGMENT.)

b. Intermediate Approach- The segment between the intermediate fix or point and the final approach fix.

(See ICAO term INTERMEDIATE APPROACH SEGMENT.)

c. Final Approach- The segment between the final approach fix or point and the runway, airport, or missed approach point.

(See ICAO term FINAL APPROACH SEGMENT.)

d. Missed Approach- The segment between the missed approach point or the point of arrival at

TRANSPONDER OBSERVED - Phraseology used to inform a VFR pilot the aircraft's assigned beacon code and position have been observed. Specifically, this term conveys to a VFR pilot the transponder reply has been observed and its position correlated for transit through the designated area.

TRIAL PLAN- A proposed amendment which utilizes automation to analyze and display potential conflicts along the predicted trajectory of the selected aircraft.

TRSA-
(See **TERMINAL RADAR SERVICE AREA**.)

TSD-
(See **TRAFFIC SITUATION DISPLAY**.)

TURBOJET AIRCRAFT- An aircraft having a jet engine in which the energy of the jet operates a turbine which in turn operates the air compressor.

TURBOPROP AIRCRAFT- An aircraft having a jet engine in which the energy of the jet operates a turbine which drives the propeller.

TURN ANTICIPATION- (maneuver anticipation).

TVOR-
(See **TERMINAL-VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION**.)

TWEB-
(See **TRANSCRIBED WEATHER BROADCAST**.)

TWO-WAY RADIO COMMUNICATIONS FAILURE-
(See **LOST COMMUNICATIONS**.)

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U.S. Department
of Transportation
**Federal Aviation
Administration**

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BRIEFING GUIDE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Initiated By: AJR-0
Vice President, System Operations Services

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1. PARAGRAPH NUMBER AND TITLE: 2-1-28. RVSM OPERATIONS

2. BACKGROUND: Information from FAA facility and the Department of Defense contacts indicate that STORM flight status coordination procedures are no longer being utilized. Accordingly, the requirements related to STORM flight status and DOD Priority Mission website are deleted.

3. CHANGE:

<u>OLD</u>	<u>NEW</u>
2-1-28. RVSM OPERATIONS	2-1-28. RVSM OPERATIONS
Title through a1NOTE	No Change
2. A non-RVSM exception designated by the DOD for special consideration via the DOD Priority Mission website shall be referred to as a STORM flight.	Delete
3 and 4	Renumber 2 and 3

1. PARAGRAPH NUMBER AND TITLE: 2-3-5. AIRCRAFT IDENTITY

2. BACKGROUND: VC-25 flight management system upgrades and subsequent implementation of future air navigation procedures (FANS) have driven the need to reevaluate the Air Force One, Air Force Two, Army One, and Army Two call signs. Within FANS, the VC-25 now has the capability (operationally approved and certified) to obtain digital oceanic clearances and to utilize ATS datalink services to include automatic dependent surveillance waypoint position reporting and controller pilot datalink communications. To utilize these services, the aircraft must register and file a call sign with at least three characters.

3. CHANGE:

<u>OLD</u>	<u>NEW</u>
2-3-5. AIRCRAFT IDENTITY	2-3-5. AIRCRAFT IDENTITY
Title through b4(b)	No Change
Add	<u>5. Aircraft carrying the President, Vice President, and/or their family members will use the identifiers in the following tables. See TBL 2-3-8 and TBL 2-3-9.</u>

Add

TBL 2-3-8
President and Family

<u>Service</u>	<u>President</u>	<u>Family</u>
<u>Air Force</u>	<u>AF1</u>	<u>AF1F</u>
<u>Marine</u>	<u>VM1</u>	<u>VM1F</u>
<u>Navy</u>	<u>VV1</u>	<u>VV1F</u>
<u>Army</u>	<u>RR1</u>	<u>R1F</u>
<u>Coast Guard</u>	<u>C1</u>	<u>C1F</u>
<u>Guard</u>	<u>G1</u>	<u>G1F</u>
<u>Commercial</u>	<u>EXEC1</u>	<u>EXEC1F</u>

Add

TBL 2-3-9
Vice President and Family

<u>Service</u>	<u>Vice President</u>	<u>Family</u>
<u>Air Force</u>	<u>AF2</u>	<u>AF2F</u>
<u>Marine</u>	<u>VM2</u>	<u>VM2F</u>
<u>Navy</u>	<u>VV2</u>	<u>VV2F</u>
<u>Army</u>	<u>RR2</u>	<u>R2F</u>
<u>Coast Guard</u>	<u>C2</u>	<u>C2F</u>
<u>Guard</u>	<u>G2</u>	<u>G2F</u>
<u>Commercial</u>	<u>EXEC2</u>	<u>EXEC2F</u>

c. Special-use. Approved special-use identifiers.

No Change

1. PARAGRAPH NUMBER AND TITLE: 3-7-2. TAXI AND GROUND MOVEMENT OPERATIONS

2. BACKGROUND: The FAA Administrator has made numerous recommendations to enhance runway safety. ATO-T Safety and Operations Support assembled a Safety Risk Management (SRM) Panel to address some of the proposals from this workgroup. The panel did a safety assessment on taxi procedures at our Tower Controlled Airports and concurred with a recommendation to require detailed routings be issued to all aircraft and vehicles on the movement area. The panel determined this would enhance runway safety.

3. CHANGE:

OLD

3-7-2. TAXI AND GROUND MOVEMENT OPERATIONS

Issue, as required or requested, the route for the aircraft/vehicle to follow on the movement area in concise and easy to understand terms. 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 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, if necessary, then state the holding instructions.

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.

No Change

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 nonmovement areas is the responsibility of the pilot, the aircraft operator, or the airport management.

No Change

PHRASEOLOGY and EXAMPLE

No Change

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 if necessary. 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.

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

PHRASEOLOGY-

TAXI TO RUNWAY (number) VIA (route).

EXAMPLE-

“Taxi to Runway One Two.”

“Taxi to Runway Three Six via Taxiway Echo.”

or

“Taxi to Runway Three Six via Echo.”

EXAMPLE-

Delete

“Taxi to Runway Three Six via Taxiway Echo.”

or

“Taxi to Runway Three Six via Echo.”

c. Specify the runway for departure, any necessary 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.

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.

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.”

No Change

PHRASEOLOGY-

RUNWAY (number),

TAXI/PROCEED VIA (route if necessary).

PHRASEOLOGY-

RUNWAY (number),

TAXI/PROCEED VIA (route).

HOLD SHORT OF (runway number)

HOLD SHORT OF (runway number)

or

or

HOLD SHORT OF (location)

HOLD SHORT OF (location)

or

or

ON (taxi strip, runup, pad, etc.),

ON (taxi strip, runup, pad, etc.),

and if necessary,

and if necessary,

TRAFFIC (traffic information),

TRAFFIC (traffic information),

or

or

FOR (reason).

FOR (reason).

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.”

“Runway Three Six Left, hold short of Runway Two Seven Right.”

d through **NOTE**

e. Issue progressive taxi/ground movement instructions when:

- 1. Pilot/operator requests.
- 2. The specialist deems it necessary due to traffic or field conditions, e.g., construction or closed taxiways.
- 3. As necessary during reduced visibility, especially when the taxi route is not visible from the tower.

f. Progressive ground movement instructions include step-by-step routing directions.

Add

REFERENCE-

FAAO JO 7110.65, Para 3-7-4, Runway Proximity.
FAAO JO 7110.65, Para 3-11-1, Taxi and Ground Movement Operation.

g. Instructions to expedite a taxiing aircraft or a moving vehicle.

PHRASEOLOGY-

TAXI WITHOUT DELAY (traffic if necessary).

EXIT/PROCEED/CROSS

(runway/taxiway) **WITHOUT DELAY.**

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.”

Delete

No Change

No Change

1. **A** pilot/operator requests.

No Change

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

Delete

NOTE-

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

No Change

f. **Issue** instructions to expedite a taxiing aircraft or a moving vehicle.

No Change

1. PARAGRAPH NUMBER AND TITLE: 3-9-9. TAKEOFF CLEARANCE

2. BACKGROUND: The Federal Aviation Administrator’s Call to Action Workgroup made numerous recommendations to enhance runway safety. ATO-T Safety and Operations Support assembled a Safety Risk Management (SRM) Panel to address some of the proposals from this workgroup. This change provides a requirement for controllers when a takeoff clearance can be issued. The panel did a safety assessment on takeoff procedures at tower controlled airports and found no high risks associated with this change.

3. CHANGE:

OLD

3-9-9. TAKEOFF CLEARANCE

Title through **a**REFERENCE

b. If the takeoff clearance is issued before the aircraft has crossed all intersecting runways, restate the runway to be crossed with the takeoff clearance.

NEW

3-9-9. TAKEOFF CLEARANCE

No Change

b. The controller shall ensure that all runways along the taxi route that lead to the departure runway are crossed before the takeoff clearance is issued, except in subpara c.

PHRASEOLOGY-

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

No Change

EXAMPLE-

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

No Change

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

c. 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.

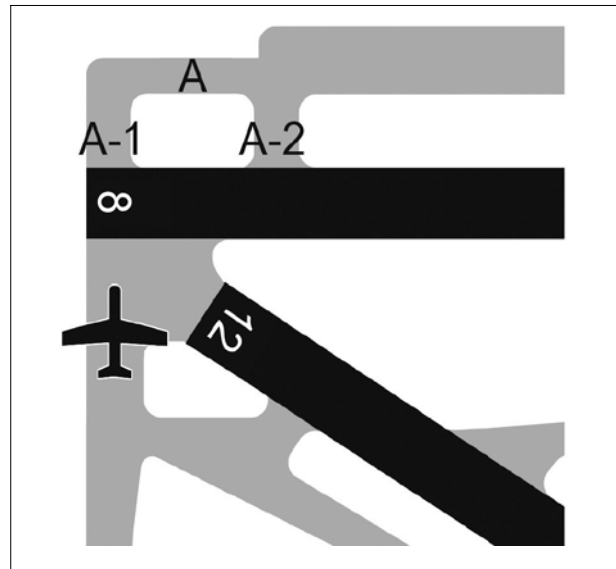
Delete

PHRASEOLOGY-

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

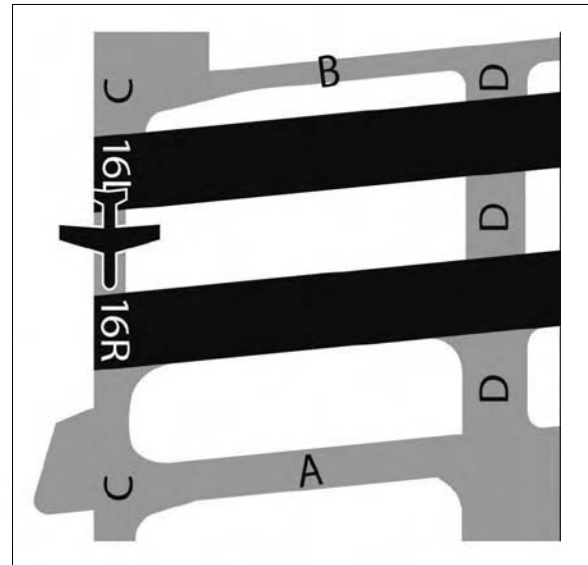
Add

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



Add

FIG 3-9-13
Runway/Taxiway Proximity



Add

REFERENCE-
FAAO JO 7210.3, Para 10-3-9, Takeoff Clearance.
P/CG Term- Clear of the Runway.

Add

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

Add

EXAMPLE-
“CROSS RUNWAY ONE SIX LEFT, RUNWAY ONE
SIX RIGHT, CLEARED FOR TAKEOFF.”

No Change

d. 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.

Add

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

Add

PHRASEOLOGY-
WIND (surface wind in direction and velocity).
CLEARED FOR TAKEOFF.

1. PARAGRAPH NUMBER AND TITLE: 8-7-4. LATERAL SEPARATION, 8-8-4. LATERAL SEPARATION

2. BACKGROUND: In 1998, lateral separation was reduced to 50 nautical miles (NM) in conjunction with the introduction of Required Navigation Performance 10 (RNP 10) for aircraft operating in the North Pacific Route System. Since that time, application of 50 NM lateral separation and RNP 10 has been expanded throughout the Pacific Flight Information Regions (FIR). Effective June 5, 2008, this reduced lateral separation minimum was authorized for qualified aircraft operating on specified oceanic routes or areas in the New York Oceanic Control Area (CTA), the San Juan CTA/FIR, and the Atlantic portion of the Miami Oceanic CTA/FIR.

3. CHANGE:

OLD

8-7-4. LATERAL SEPARATION

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

Add

Add

Add

Add

- a. 60 NM or 1 degree latitude between:
 1. Supersonic aircraft operating above FL 275.
 2. Aircraft which meet the MNPS and which:

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

- (a) Operate within MNPS airspace; or
- (b) Are in transit to or from MNPS airspace; or
- (c) Operate for part of their flight within, above, or below MNPS airspace.

Add

- b. 90 NM or 1 and 1/2 degrees latitude between aircraft operating:

1. Within WATRS;
2. Between the U.S., Canada, and Bermuda;
3. West of 55° West between the U.S., Canada, or Bermuda and points in the Caribbean ICAO Region.

- c. 120 NM or 2 degrees latitude between aircraft not covered by subparas a or b above.

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

NEW

8-7-4. LATERAL SEPARATION

No Change

a. 50 NM between Required Navigation Performance (RNP 4 or RNP 10) approved aircraft which:

- 1. Operate on routes or in areas within WATRS, the San Juan CTA/FIR or the Atlantic portion of the Miami Oceanic CTA/FIR; or**
- 2. Operate in the New York Oceanic CTA/FIR outside of WATRS.**

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

- b. 60 NM or 1 degree latitude between:

No Change
 No Change
 Delete

No Change
 No Change
 No Change

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

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

- 1. Operate on routes or in areas within WATRS, the San Juan CTA/FIR or the Atlantic portion of the Miami CTA/FIR;**
- 2. Operate between points in the U.S. or Canada, and Bermuda;**
- 3. Operate west of 55° West** between the U.S., Canada, or Bermuda and points in the Caribbean ICAO Region.

- d. 120 NM or 2 degrees latitude between aircraft not covered by subparas a, b or c above.

No Change

OLD

8-8-4. LATERAL SEPARATION

Provide lateral separation by assigning different flight paths whose widths or protected airspace do not overlap. Apply the following:

Add

Add

Add

Add

a. 60 NM:

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

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

NOTE-

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

3. Aircraft which meet the MNPS and while operating in the New York oceanic CTA/FIR which are in transit to or from NAT MNPS airspace.

Add

Add

Add

Add

b. 90 NM between aircraft operating:

1. Within WATRS;

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

c. 100 NM between aircraft operating west of 55° West not covered by subparas b or c above.

d. 120 NM between aircraft operating east of 55° West.

NEW

8-8-4. LATERAL SEPARATION

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

a. 50 NM between Required Navigation Performance (RNP 4 or RNP 10) approved aircraft which:

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

2. Operate in the New York Oceanic CTA/FIR outside of WATRS.

NOTE-

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

b. 60 NM between:

No Change

No Change

Delete

3. Aircraft which meet the MNPS and **which:**

(a) Operate within MNPS airspace; or

(b) Are in transit to or from MNPS airspace; or

(c) Operate for part of their flight within, above, or below MNPS airspace.

NOTE-

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

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

1. Operate within WATRS; or

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

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

e. 120 NM between aircraft operating east of 55° West.

1. PARAGRAPH NUMBER AND TITLE:

APPENDIX A. AIRCRAFT INFORMATION FIXED-WING AIRCRAFT

2. BACKGROUND: This change adds new model descriptions and new aircraft type designators as approved by the International Civil Aviation Organization (ICAO). A LAHSO Group for DeHavilland DH8D is also added.

3. CHANGE:

OLD

**APPENDIX A. AIRCRAFT INFORMATION
FIXED-WING AIRCRAFT**

NEW

**APPENDIX A. AIRCRAFT INFORMATION
FIXED-WING AIRCRAFT**

See Appendix A for specific changes.
