CHANGE

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

7110.65R CHG 3

SUBJ: AIR TRAFFIC CONTROL

1. PURPOSE. This change transmits revised pages to Order 7110.65R, 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. August 30, 2007.

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 Retain this transmittal until superseded by a new basic order.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.

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Date: June 11, 2007

Distribution: ZAT-710; ZAT-464

Initiated By: AJR-0
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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

Adds the following to table 1-2-1:

Abbreviation	Meaning
APREQ	Approval Request
ASF	Airport Stream Filters
DL	Departure List
IAFDOF	Inappropriate Altitude for Direction of Flight
SAA	Special Activity Airspace
SPA	Special Posting Area

b. 2-1-1. ATC SERVICE
2-1-2. DUTY PRIORITY

Increases emphasis on security requirements. These changes cancel and incorporate GENOT 6/45, N 7110.452, Change to FAAO 7110.65R, Para 2-1-1, ATC Service; Para 2-1-2, Duty Priority; and Para 9-2-10, Land-Based Air Defense Identification Zone (ADIZ) ATC Procedures, effective October 1, 2006.

c. 2-5-1. AIR TRAFFIC SERVICE (ATS) ROUTES

Provides air traffic control with the correct phraseology for "T" routes being flown today. It differentiates between the various RNAV routes and adds an example of the T Routes and Alaskan R routes.

d. 3-1-4. COORDINATION BETWEEN LOCAL AND GROUND CONTROLLERS
3-9-4. TAXI INTO POSITION AND HOLD (TIPH)

Adds mitigations identified by the SRM Panel to reduce identified hazards. These changes cancel and incorporate N JO 7110.456, Taxi Into Position and Hold (TIPH), effective February 5, 2007.

e. 3-7-6. PRECISION OBSTACLE FREE ZONE (POFZ)

Provides guidance to ATC personnel to issue traffic information when these protected surfaces are violated. This change cancels and incorporates N JO 7110.460, Precision Obstacle Free Zone (POFZ) and Final Obstacle Clearance Surfaces (OCS), effective January 22, 2007.

f. 3-9-8. INTERSECTING RUNWAY SEPARATION
3-10-4. INTERSECTING RUNWAY SEPARATION

Emphasizes the role of issuing traffic information to aircraft operating on intersecting runways. These changes cancel and incorporate N JO 7110.456, Taxi Into Position and Hold (TIPH), effective February 5, 2007.

g. 3-10-4. INTERSECTING RUNWAY SEPARATION

Highlights, during the use of tower applied visual separation, that appropriate control instructions are issued to ensure go-around or missed approaches are protected for intersecting runways.

h. 3-10-5. LANDING CLEARANCE

Emphasizes the responsibility of issuing a landing clearance and describes when "continued" phraseology is warranted. This change cancels and incorporates N JO 7110.456, Taxi Into Position and Hold (TIPH), effective February 5, 2007.

i. 3-10-6. ANTICIPATING SEPARATION

Adds a new subparagraph to ensure compliance with new TIPH procedures. This change cancels and incorporates N JO 7110.456, Taxi Into Position and Hold (TIPH), effective February 5, 2007.

j. 5-5-4. MINIMA

Clarifies the definition of "directly behind." This change incorporates and cancels N JO 7110.465, Definition of "Directly Behind," effective May 15, 2007.

k. 8-8-3. LONGITUDINAL SEPARATION

Adds the words "at or" to subparagraph b. This change cancels and incorporates N JO 7110.457, Longitudinal Separation, effective February 1, 2007.

l. 9-2-10. LAND-BASED AIR DEFENSE IDENTIFICATION ZONE (ADIZ) ATC PROCEDURES

Clarifies requirements and establishes specific procedures for noncompliance. Additionally, this allows more flexibility when incidents occur within the ADIZ to land rather than directly exit the ADIZ under certain circumstances. The inclusion is to increase emphasis on security requirements. This change cancels and incorporates GENOT 6/45, N7110.452, Change to FAAO 7110.65R, Para 2-1-1, ATC Service; Para 2-1-2, Duty Priority; and Para 9-2-10, Land-Based Air Defense Identification Zone (ADIZ) ATC Procedures, effective October 1, 2006.

m. 10-2-6. HIJACKED AIRCRAFT

Reduces and simplifies FAAO 7110.65 information on hijack handling and refers controllers to the more secure and more detailed hijack handling information in FAAO JO 7610.4, Special Operations. Also, eliminates inconsistent phraseology guidance and removes restrictions against ATC assigning a hijack beacon code. This change cancels and incorporates N JO 7110.461, Hijacked Aircraft and Communications Failure Procedures, effective January 18, 2007.

n. 10-2-11. AIRCRAFT BOMB THREATS

Removes notes that are incorrect/irrelevant to the section and incorporates references to appropriate guidance in FAAO JO 7610.4 regarding suspicious aircraft.

o. 10-4-4. COMMUNICATIONS FAILURE

Adds a reference to FAAO JO 7610.4 regarding suspicious activity. This change cancels and incorporates N JO 7110.461, Hijacked Aircraft and Communications Failure Procedures, effective January 18, 2007.

p. 13-1-1. DESCRIPTION

Changes the description of URET. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

q. 13-1-2. CONFLICT DETECTION AND RESOLUTION

Adds aircraft-to-aircraft and aircraft-to-airspace to alerts and requirements for the URET Stop Probe functionality. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

r. 13-1-5. THE AIRCRAFT LIST (ACL) AND FLIGHT DATA MANAGEMENT

Adds departure list to paragraph title. Adds requirements for managing URET flight data, posting strips, and URET Drop Track Delete. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

s. 13-1-6. MANUAL COORDINATION AND THE URET COORDINATION MENU

Adds a new paragraph adding requirements for manual coordination and the URET Coordination Menu. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

t. 13-1-6. RECORDING OF CONTROL DATA

Renumbers paragraph to 13-1-8 and adds requirements for handling pointouts and for using the free text area. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

u. 13-1-7. HOLDING

Adds a new paragraph adding a requirement for URET Hold Annotations. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

v. 13-1-7. ACKNOWLEDGEMENT OF AUTOMATED NOTIFICATION

Renumbers paragraph to 13-1-9 and adds requirements for acknowledging automated notifications. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

w. 13-1-8. CURRENCY OF TRAJECTORY INFORMATION

Renumbers paragraph to 13-1-10. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

x. 13-1-9. DELAY REPORTING

Renumbers paragraph to 13-1-11. Adds requirement for recording delay information. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

y. 13-1-10. OVERDUE AIRCRAFT

Renumbers paragraph to 13-1-12. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

z. 13-1-11. USE OF GRAPHICS PLAN DISPLAY (GPD)

Renumbers paragraph to 13-1-13. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

aa. 13-1-12. FORECAST WINDS

Renumbers paragraph to 13-1-14 and adds information about affecting trajectory data. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

ab. 13-1-13. INTERFACILITY CONNECTIVITY

Renumbers paragraph to 13-1-15. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

ac. 13-1-14. PRIMARY RDP/FDP OUTAGES

Renumbers paragraph to 13-1-16 and changes Radar Data Processing (RDP)/Flight Data Processing (FDP) to HOST. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

ad. 13-1-17. URET AIRSPACE CONFIGURATION ELEMENTS

Adds a new paragraph adding requirements for URET airspace configuration elements. This change cancels and incorporates N JO 7110.462, User Request Evaluation Tool (URET), effective April 30, 2007.

ae. APPENDIX A. AIRCRAFT INFORMATION

Provides performance information and LAHSO group for Diamond DA20 and DA42, Eclipse 500, and Learjet 40 and 45 aircraft. Obsolete aircraft type designators B72Q, B73Q, DC8Q, and DC9Q, that originally designated early Stage 3 noise compliance, are deleted since each model has an approved type designator and meets Stage 3 requirements if operated in the United States.

af. APPENDIX B. AIRCRAFT INFORMATION HELICOPTERS/ROTORCRAFTS

Corrects engine type information for the Bell/Boeing Osprey V22 aircraft.

ag. APPENDIX D. STANDARD OPERATING PRACTICE (SOP) FOR THE TRANSFER OF POSITION RESPONSIBILITY

Places the responsibility on the controller being relieved from position to perform all sign-on/sign-off functions for the relieved and relieving controller using the Cru-X/ART Programs.

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

PAGE CONTROL CHART

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August 30, 2007

REMOVE PAGES	DATED	INSERT PAGES	DATED
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Table of Contents ix	3/15/07	Table of Contents ix	3/15/07
Table of Contents x	3/15/07	Table of Contents x	8/30/07
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1-2-4	2/16/06	1-2-4	8/30/07
1-2-5 and 1-2-6	3/15/07	1-2-5 and 1-2-6	8/30/07
1-2-7	2/16/06	1-2-7	8/30/07
2-1-1 and 2-1-2	2/16/06	2-1-1 and 2-1-2	8/30/07
2-1-3 and 2-1-4	8/3/06	2-1-3 and 2-1-4	8/30/07
2-5-1	2/16/06	2-5-1	8/30/07
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3-10-6 and 3-10-7	3/15/07	3-10-6 and 3-10-7	8/30/07
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8-8-1	2/16/06	8-8-1	8/30/07
8-8-2	2/16/06	8-8-2	2/16/06
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9-2-5 through 9-2-10	2/16/06	9-2-5 through 9-2-10	8/30/07
10-2-1	2/16/06	10-2-1	2/16/06
10-2-2	3/15/07	10-2-2	8/30/07
10-2-3 through 10-2-5	2/16/06	10-2-3 through 10-2-5	8/30/07
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13-1-1 through 13-1-3	2/16/06	13-1-1 through 13-1-6	8/30/07

REMOVE PAGES	DATED	INSERT PAGES	DATED
A–1	2/16/06	A–1	8/30/07
A–2	2/16/06	A–2	2/16/06
A–7	2/16/06	A–7	8/30/07
A–8	2/16/06	A–8	2/16/06
A–13	8/3/06	A–13	8/30/07
A–14	3/15/07	A–14	8/30/07
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PCG–1	3/15/07	PCG–1	8/30/07
PCG A–7 through A–10	8/3/06	PCG A–7 through A–10	8/30/07
PCG A–13 and A–14	8/3/06	PCG A–13 and A–14	8/30/07
PCG C–3	3/15/07	PCG C–3	3/15/07
PCG C–4 through C–6	2/16/06	PCG C–4 through C–6	8/30/07
PCG C–7	8/3/06	PCG C–7	8/30/07
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PCG D–3 and D–4	2/16/06	PCG D–3 and D–4	8/30/07
PCG S–3	8/3/06	PCG S–3	8/30/07
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Section 10. Arrival Procedures and Separation

Section 11. Helicopter Operations

Section 12. Sea Lane Operations

Chapter 4. IFR

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Section 2. Beacon Systems

Section 3. Radar Identification

Section 4. Transfer of Radar Identification

Section 5. Radar Separation

Section 6. Vectoring

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Section 9. Pacific ICAO Region

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Chapter 9. Special Flights

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Section 7. Ground Missile Emergencies

Chapter 11. Traffic Management Procedures

Section 1. General

Chapter 12. Canadian Airspace Procedures

Section 1. General Control

Chapter 13. Decision Support Tools

Section 1. User Request Evaluation Tool (URET) − En Route

Section 2. Ocean21 – Oceanic

Appendices

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 7110.65, Military Procedures, Para 2–1–12.

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 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 ATTS 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
CNS	Continuous

Abbreviation	Meaning
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
ETMS	Enhanced Traffic Management System
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
FLY	Fly or flying

Abbreviation	Meaning
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
MARSA	Military authority assumes responsibility for separation of aircraft

Abbreviation	Meaning
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
NTZ	No transgression zone
NWS	National Weather Service

Abbreviation	Meaning
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
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
STMCIC	Supervisory Traffic Management Coordinator-in-charge
STOL	Short takeoff and landing
SURPIC	Surface Picture
SVFR	Special Visual Flight Rules
TAA	Terminal arrival area
TAS	Terminal Automation Systems
TACAN	TACAN UHF navigational aid (omnidirectional course and distance information)
TAWS	Terrain Awareness Warning System
TCAS	Traffic Alert and Collision Avoidance System
TCDD	Tower cab digital display
TDLS	Terminal Data Link System
TDW	Tower display workstation
TDWR	Terminal Doppler Weather Radar
TDZL	Touchdown Zone Light System
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
VFR	Visual flight rules
VHF	Very high frequency
VMC	Visual meteorological conditions
VNAV	Vertical Navigation

Abbreviation	Meaning
VOR	VHF navigational aid (omnidirectional course information)
VOR/DME . .	Collocated VOR and DME navigational aids (VHF course and UHF distance information)
VORTAC . . .	Collocated VOR and TACAN navigation aids (VHF and UHF course and UHF distance information)
VR	VFR military training route
VSCS	Voice Switching and Control System
WAAS	Wide Area Augmentation System
WARP	Weather and Radar Processing
WATRS	West Atlantic Route System
WSO	Weather Service Office
WSP	Weather System Processor
WST	Convective SIGMET

Chapter 2. General Control

Section 1. General

2–1–1. ATC SERVICE

The primary purpose of the ATC system is to prevent a collision between aircraft operating in the system and to organize and expedite the flow of traffic, and to provide support for National Security and Homeland Defense. In addition to its primary function, the ATC system has the capability to provide (with certain limitations) additional services. The ability to provide additional services is limited by many factors, such as the volume of traffic, frequency congestion, quality of radar, controller workload, higher priority duties, and the pure physical inability to scan and detect those situations that fall in this category. It is recognized that these services cannot be provided in cases in which the provision of services is precluded by the above factors. Consistent with the aforementioned conditions, controllers shall provide additional service procedures to the extent permitted by higher priority duties and other circumstances. The provision of additional services is not optional on the part of the controller, but rather is required when the work situation permits. Provide air traffic control service in accordance with the procedures and minima in this order except when:

a. A deviation is necessary to conform with ICAO Documents, National Rules of the Air, or special agreements where the U.S. provides air traffic control service in airspace outside the U.S. and its possessions or:

NOTE–
Pilots are required to abide by CFRs or other applicable regulations regardless of the application of any procedure or minima in this order.

b. Other procedures/minima are prescribed in a letter of agreement, FAA directive, or a military document, or:

NOTE–
These procedures may include altitude reservations, air refueling, fighter interceptor operations, law enforcement, etc.

REFERENCE–
FAAO 7110.65, Procedural Letters of Agreement, Para 1–1–9.

c. A deviation is necessary to assist an aircraft when an emergency has been declared.

REFERENCE–
FAAO 7110.65, Safety Alert, Para 2–1–6.
FAAO 7110.65, Emergencies, Chapter 10
FAAO 7110.65, Merging Target Procedures, Para 5–1–8.

2–1–2. DUTY PRIORITY

a. Give first priority to separating aircraft and issuing safety alerts as required in this order. Good judgment shall be used in prioritizing all other provisions of this order based on the requirements of the situation at hand.

REFERENCE–
FAAO 7110.65, Safety Alert, Para 2–1–6.

NOTE–
Because there are many variables involved, it is virtually impossible to develop a standard list of duty priorities that would apply uniformly to every conceivable situation. Each set of circumstances must be evaluated on its own merit, and when more than one action is required, controllers shall exercise their best judgment based on the facts and circumstances known to them. That action which is most critical from a safety standpoint is performed first.

b. Provide support to national security and homeland defense activities to include, but not be limited to, reporting of suspicious and/or unusual aircraft/pilot activities.

REFERENCE–
FAAO JO 7610.4, Special Operations.

c. Provide additional services to the extent possible, contingent only upon higher priority duties and other factors including limitations of radar, volume of traffic, frequency congestion, and workload.

2–1–3. PROCEDURAL PREFERENCE

a. Use automation procedures in preference to nonautomation procedures when workload, communications, and equipment capabilities permit.

b. Use radar separation in preference to nonradar separation when it will be to an operational advantage and workload, communications, and equipment permit.

c. Use nonradar separation in preference to radar separation when the situation dictates that an operational advantage will be gained.

NOTE–
One situation may be where vertical separation would preclude excessive vectoring.

2–1–4. OPERATIONAL PRIORITY

Provide air traffic control service to aircraft on a "first come, first served" basis as circumstances permit, except the following:

NOTE–
It is solely the pilot's prerogative to cancel an IFR flight plan. However, a pilot's retention of an IFR flight plan does not afford priority over VFR aircraft. For example, this does not preclude the requirement for the pilot of an arriving IFR aircraft to adjust his/her flight path, as necessary, to enter a traffic pattern in sequence with arriving VFR aircraft.

a. An aircraft in distress has the right of way over all other air traffic.

REFERENCE–
14 CFR Section 91.113(c).

b. Provide priority to civilian air ambulance flights "LIFEGUARD." Air carrier/taxi usage of the "LIFEGUARD" call sign, indicates that operational priority is requested. When verbally requested, provide priority to military air evacuation flights (AIR EVAC, MED EVAC) and scheduled air carrier/air taxi flights. Assist the pilots of air ambulance/evacuation aircraft to avoid areas of significant weather and turbulent conditions. When requested by a pilot, provide notifications to expedite ground handling of patients, vital organs, or urgently needed medical materials.

NOTE–
It is recognized that heavy traffic flow may affect the controller's ability to provide priority handling. However, without compromising safety, good judgment shall be used in each situation to facilitate the most expeditious movement of a lifeguard aircraft.

c. Provide maximum assistance to SAR aircraft performing a SAR mission.

REFERENCE–
FAAO 7110.65, Providing Assistance, Para 10–1–3.

d. Expedite the movement of presidential aircraft and entourage and any rescue support aircraft as well as related control messages when traffic conditions and communications facilities permit.

NOTE–
As used herein the terms presidential aircraft and entourage include aircraft and entourage of the President, Vice President, or other public figures when designated by the White House.

REFERENCE–
FAAO 7110.65, Aircraft Identification, Para 2–4–20.
FAAO 7110.65, Departure Clearances, Para 4–3–2.
FAAO 7210.3, Advance Coordination, Para 5–1–1.

e. Provide special handling, as required to expedite Flight Check aircraft.

NOTE–
It is recognized that unexpected wind conditions, weather, or heavy traffic flows may affect controller's ability to provide priority or special handling at the specific time requested.

REFERENCE–
FAAO 7110.65, Flight Check Aircraft, Para 9–1–3.

f. Expedite movement of NIGHT WATCH aircraft when NAOC (pronounced NA–YOCK) is indicated in the remarks section of the flight plan or in air/ground communications.

NOTE–
The term "NAOC" will not be a part of the call sign but may be used when the aircraft is airborne to indicate a request for special handling.

REFERENCE–
FAAO 7610.4, Applications, Para 12–1–1.

g. Provide expeditious handling for any civil or military aircraft using the code name "FLYNET."

REFERENCE–
FAAO 7110.65, FLYNET, Para 9–2–6.
FAAO 7610.4, "FLYNET" Flights, Nuclear Emergency Teams, Para 12–4–1.

h. Provide expeditious handling of aircraft using the code name "Garden Plot" only when CARF notifies you that such priority is authorized. Refer any questions regarding flight procedures to CARF for resolution.

NOTE–
Garden Plot flights require priority movement and are coordinated by the military with CARF. State authority will contact the Regional Administrator to arrange for priority of National Guard troop movements within a particular state.

i. Provide special handling for USAF aircraft engaged in aerial sampling missions using the code name "SAMP."

REFERENCE–
FAAO 7110.65, SAMP, Para 9–2–16.
FAAO 7210.3, Atmosphere Sampling For Nuclear Contamination, Para 5–3–4.
FAAO 7610.4, Atmospheric Sampling For Nuclear Contamination, Para 12–4–3.

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 7110.65, Law Enforcement Operations by Civil and Military Organizations, Para 9–2–11.
FAAO 7610.4, Applications, Para 12–7–1.

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 7110.65, Weather Reconnaissance Flights, Para 9–2–18.

m. IFR aircraft shall have priority over SVFR aircraft.

REFERENCE–
FAAO 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 7110.65 OPEN SKIES Treaty Aircraft, Para 9–2–21.
FAAO 7210.3, OPEN SKIES Treaty Aircraft, Para 5–3–7.
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 7110.65, En Route Data Entries, Para 2–3–2.
FAAO 7110.65, North American Route Program (NRP) Information, Para 2–2–15.
FAAO 7110.65, Route or Altitude Amendments, Para 4–2–5.
FAAO 7210.3, Chapter 17, Section 14, 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 7210.3, Diversion Recovery, Para 17–4–5.

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 7110.65, Conflict Alert (CA) and Mode C Intruder (MCI) Alert, Para 5-14-1.
FAAO 7110.65, En Route Minimum Safe Altitude Warning (E-MSAW), Para 5-14-2.
FAAO 7110.65, CA/MCI, Para 5-15-6.
FAAO 7110.65, Altitude Filters, Para 5-2-23.

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.

Section 5. Route and NAVAID Description

2–5–1. AIR TRAFFIC SERVICE (ATS) ROUTES

Describe ATS routes as follows:

a. VOR/VORTAC/TACAN airways or jet routes. State the word "Victor" or the letter "J" followed by the number of the airway or route in group form.

EXAMPLE–
"Victor Twelve."
"J Five Thirty–Three."

b. VOR/VORTAC/TACAN alternate airways. State the word "Victor" followed by the number of the airway in group form and the alternate direction.

EXAMPLE–
"Victor Twelve South."

c. Colored/L/MF airways. State the color of the airway followed by the number in group form.

EXAMPLE–
"Blue Eighty–One."

d. Named Routes. State the words "North American Route" or "Bahama Route" followed by the number of the route in group form.

EXAMPLE–
"North American Route Sixty–Seven Bravo."
"Bahama Route Fifty–Five Victor."

e. Air Traffic Service (ATS) routes. State the letter(s) of the route phonetically, followed by the number of the route in group form.

EXAMPLE–
"Romeo Twenty."
"Alfa Fifty."
"Golf Sixty–one."
"Alfa Seven Hundred."

f. Military Training Routes (MTRs). State the letters "I–R" or "V–R" followed by the number of the route in group form.

EXAMPLE–
"I–R Five Thirty–one."
"V–R Fifty–two."

g. Published RNAV routes.

1. High Altitude – State the letter "Q" followed by the route number in group form.

EXAMPLE–
"Q One Forty–five."

2. Low Altitude – State the letter of the route phonetically, followed by the number of the route in group form.

EXAMPLE–
"Tango Two Ten."

2–5–2. NAVAID TERMS

Describe radials, arcs, courses, bearings, and quadrants of NAVAIDs as follows:

a. VOR/VORTAC/TACAN/MLS/GPS Waypoint. State the name of the NAVAID or GPS Waypoint followed by the separate digits of the radial/azimuth/bearing (omitting the word "degrees") and the word "radial/azimuth/bearing."

EXAMPLE–
"Appleton Zero Five Zero Radial."
"Lindburg Runway Two Seven M–L–S, Two Six Zero Azimuth."

b. Arcs about VOR-DME/VORTAC/TACAN/MLS NAVAIDs. State the distance in miles from the NAVAID followed by the words "mile arc," the direction from the NAVAID in terms of the eight principal points of the compass, the word "of," and the name of the NAVAID.

EXAMPLE–
"Two Zero mile arc southwest of O'Hare Runway Two Seven Left M–L–S."

c. Quadrant within a radius of NAVAID. State direction from NAVAID in terms of the quadrant; e.g., NE, SE, SW, NW, followed by the distance in miles from the NAVAID.

EXAMPLE–
"Cleared to fly northeast quadrant of Phillipsburg VORTAC within Four Zero mile radius."

REFERENCE–
FAAO 7110.65, Route Use, Para 4–4–1.
P/CG Term– Quadrant.

d. Nondirectional beacons. State the course to or the bearing from the radio beacon, omitting the word "degree," followed by the words "course to" or "bearing from," the name of the radio beacon, and the words "radio beacon."

EXAMPLE–
"Three Four Zero bearing from Randolph Radio Beacon."

e. MLS. State the azimuth to or azimuth from the MLS, omitting the word "degree" followed by the words "azimuth to" or "azimuth from," the name of the MLS, and the term MLS.

EXAMPLE–
"Two Six Zero azimuth to Linburgh Runway Two Seven MLS."

f. Navigation Reference System (NRS) Waypoint. State the single letter corresponding to the ICAO Flight Information Region (FIR) identifier, followed by the letter corresponding to the FIR subset (ARTCC area for the conterminous U.S.), the latitude increment in single digit or group form, and the longitude increment.

EXAMPLE–
"Kilo Delta Three Four Uniform."
"Kilo Delta Thirty Four Uniform."

2–5–3. NAVAID FIXES

Describe fixes determined by reference to a radial/localizer/azimuth and distance from a VOR-DME/VORTAC/TACAN/ILS-DME or MLS as follows:

a. When a fix is not named, state the name of the NAVAID followed by a specified radial/localizer/azimuth, and state the distance in miles followed by the phrase "mile fix."

EXAMPLE–
"Appleton Zero Five Zero radial Three Seven mile fix."
"Reno localizer back course Four mile fix."
"Hobby Runway One Two M–L–S Zero Niner Zero azimuth One Two mile fix."

b. When a fix is charted on a SID, STAR, en route chart, or approach plate, state the name of the fix.

c. Use specific terms to describe a fix. Do not use expressions such as "passing Victor Twelve" or "passing J Eleven."

Chapter 3. Airport Traffic Control– Terminal

Section 1. General

3–1–1. PROVIDE SERVICE

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

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

3–1–2. PREVENTIVE CONTROL

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

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

3–1–3. USE OF ACTIVE RUNWAYS

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

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

REFERENCE–
FAAO 7110.65, Constraints Governing Supplements and Procedural Deviations, Para 1–1–10.
FAAO 7210.3, Use of Active Runways, Para 10–1–7.

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

PHRASEOLOGY–
CROSS (runway) AT (point/intersection).

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

PHRASEOLOGY–
CROSS (runway) AT (point/intersection).

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

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

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

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

REFERENCE–
FAAO 7110.65, Coordination Between Local and Ground Controllers, Para 3–1–4.

3–1–4. COORDINATION BETWEEN LOCAL AND GROUND CONTROLLERS

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

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

REFERENCE–
FAAO 7110.65, Use of Active Runways, Para 3–1–3.
FAAO 7210.3, Selecting Active Runways, Para 10–1–6.

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

REFERENCE–
FAAO 7110.65, Wake Turbulence Separation for Intersection Departures, Para 3–9–7.

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

3–1–5. VEHICLES/EQUIPMENT/PERSONNEL ON RUNWAYS

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

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

PHRASEOLOGY–
PROCEED AS REQUESTED; AND IF NECESSARY, (additional instructions or information).

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

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

3–1–6. TRAFFIC INFORMATION

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

EXAMPLE–
"Mower left of runway two seven."
"Trucks crossing approach end of runway two five."
"Workman on taxiway Bravo."
"Aircraft left of runway one eight."

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

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

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

REFERENCE–
FAAO 7110.65, Altitude Restricted Low Approach, Para 3–10–10.

3–1–7. POSITION DETERMINATION

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

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

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

a. Ensure the POFZ is clear of traffic (aircraft or vehicles) when an aircraft on a vertically–guided final approach is within 2 miles of the runway threshold and the reported ceiling is below 300 feet or visibility is less than 3/4 SM to protect aircraft executing a missed approach.

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

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

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

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

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

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

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

TAXIING AIRCRAFT/VEHICLE LEFT/RIGHT OF RUNWAY.

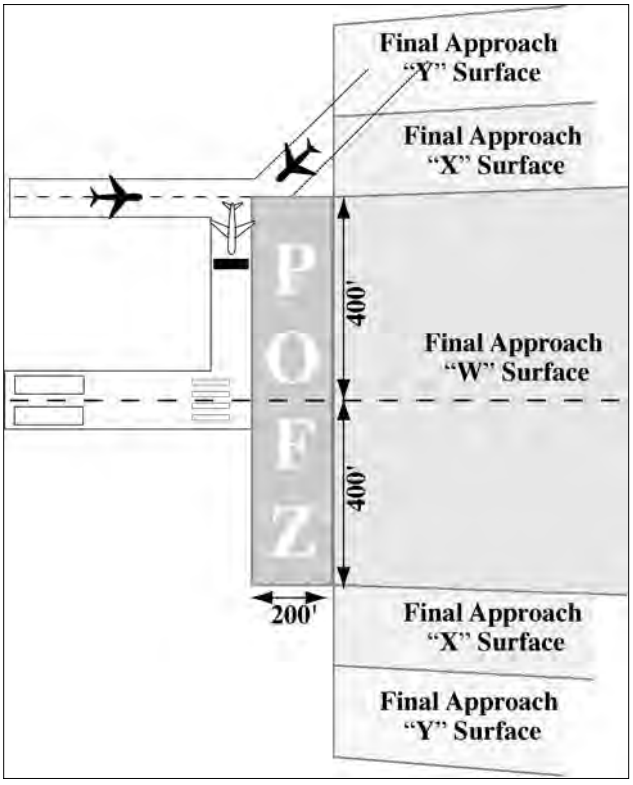
EXAMPLE–
"United 623, in the event of missed approach, taxiing aircraft right of runway."

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

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

FIG 3-7-1

Precision Obstacle Free Zone (POFZ)



Section 9. Departure Procedures and Separation

3–9–1. DEPARTURE INFORMATION

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

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

b. Issue departure information by including the following:

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

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

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

REFERENCE–
FAAO 7110.65, Current Settings, Para 2–7–1.

c. Time, when requested.

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

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

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

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

e. Taxi information, as necessary. You need not issue taxi route information unless the pilot specifically requests it.

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

REFERENCE–
FAAO 7210.3, Broadcast Density Altitude Advisory, Para 2–10–6.

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

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

3–9–2. DEPARTURE DELAY INFORMATION

USA/USAF/USN NOT APPLICABLE

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

REFERENCE–
FAAO 7210.3, Gate Hold Procedures, Para 10–4–3.

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

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

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

PHRASEOLOGY–
START ENGINES, ADVISE WHEN READY TO TAXI,

or

ADVISE WHEN READY TO TAXI.

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

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

PHRASEOLOGY–
GATE HOLD PROCEDURES NO LONGER IN EFFECT.

3–9–3. DEPARTURE CONTROL INSTRUCTIONS

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

a. Before takeoff.

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

PHRASEOLOGY–
DEPARTURE FREQUENCY (frequency), SQUAWK (code).

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

PHRASEOLOGY–
CHANGE TO DEPARTURE.

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

b. After takeoff.

1. When the aircraft is about $^1/_2$ mile beyond the runway end, instruct civil aircraft, and military transport, and cargo types to contact departure control, provided further communication with you is not required.

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

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

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

a. The intent of TIPH is to position aircraft for an imminent departure. Authorize an aircraft to taxi into position and hold, except as restricted in subpara g, when takeoff clearance cannot be issued because of traffic. Issue traffic information to any aircraft so authorized. Traffic information may be omitted when the traffic is another aircraft which has landed on or is taking off the same runway and is clearly visible to the holding aircraft. Do not use conditional phrases such as "behind landing traffic" or "after the departing aircraft."

b. *USN NOT APPLICABLE.* First state the runway number followed by the taxi into position clearance when more than one runway is active.

PHRASEOLOGY–
RUNWAY (number), POSITION AND HOLD.

Or, when only one runway is active:

POSITION AND HOLD.

c. Do not issue a clearance to an aircraft requesting a full–stop, touch–and–go, stop–and–go, option, or unrestricted low approach on the same runway with an aircraft that is holding in position, taxiing into position or has been cleared to taxi into position and hold until the aircraft in position starts takeoff roll. Do not clear an aircraft to TIPH if an aircraft has been cleared to land, touch–and–go, stop–and–go, option or unrestricted low approach on the same runway.

PHRASEOLOGY–
RUNWAY (number), CONTINUE, TRAFFIC HOLDING IN POSITION,

or

(when only one runway is active): CONTINUE, TRAFFIC HOLDING IN POSITION.

EXAMPLE–
"American 528, runway two three, continue, traffic holding in position."

or

(when only one runway is active): "American 528, continue, traffic holding in position."

1. Landing clearance need not be withheld if the safety logic system is operating in full core alert runway configuration.

2. Facilities without the safety logic system and facilities with the safety logic system in limited configuration must withhold landing clearance until the aircraft in position starts takeoff roll.

REFERENCE–
FAAO 7110.65, Landing Clearance, Para 3–10–5.

d. When an aircraft is authorized to taxi into position and hold, inform it of the closest traffic requesting a full–stop, touch–and–go, stop–and–go, option or unrestricted low approach to the same runway.

EXAMPLE-
"United Five, runway one eight, position and hold. Traffic a Boeing Seven Thirty Seven, six mile final."

Or, when only one runway is active:

"United Five, position and hold. Traffic a Boeing Seven Thirty Seven, six mile final."

e. *USAF.* When an aircraft is authorized to taxi into takeoff position to hold, inform it of the closest traffic within 6 miles on final approach to the same runway. If the approaching aircraft is on a different frequency, inform it of the aircraft taxiing into position.

f. Do not authorize an aircraft to taxi into position and hold when the departure point is not visible from the tower, unless the aircraft's position can be verified by ASDE or the runway is used for departures only.

g. An aircraft may be authorized to taxi into position and hold at an intersection between sunset and sunrise. The procedure must be approved by the appropriate Director, Terminal Operations (service area office) and by the Director, Terminal Safety and Operations Support, and must be contained in a facility directive. The following conditions must apply:

1. The runway must be used as a departure-only runway.

2. Only one aircraft at a time is permitted to taxi into position and hold on the same runway.

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

h. Do not authorize an aircraft to taxi into position and hold at anytime when the intersection is not visible from the tower.

i. Do not authorize aircraft to simultaneously taxi into position and hold on the same runway, between sunrise and sunset, unless the local assist/local monitor position is staffed.

j. *USN.* Do not authorize aircraft to taxi into takeoff position to hold simultaneously on intersecting runways.

PHRASEOLOGY-
CONTINUE HOLDING,

or

TAXI OFF THE RUNWAY.

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

k. When aircraft are authorized to taxi into position and hold on runways that intersect, traffic must be exchanged between that aircraft and the aircraft that is authorized to position and hold, depart, or arrive to the intersecting runway(s).

EXAMPLE-
"United Five, runway four, position and hold, traffic holding runway three-one."
"Delta One, runway three-one, position and hold, traffic holding runway four."

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

"Delta One, runway four, position and hold, traffic landing runway three-one."
"United Five, runway three-one, cleared to land. Traffic holding in position runway four."

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

"Delta One, runway three-one, position and hold, traffic departing runway four."
"United Five, runway four, cleared for takeoff, traffic holding runway three-one."

REFERENCE-
FAAO 7110.65, Intersecting Runway Separation, Para 3-9-8.
FAAO 7110.65, Intersecting Runway Separation, Para 3-10-4.

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

1. HOLD SHORT OF RUNWAY, *or*

2. HOLD IN POSITION.

m. *USAF/USN.* When issuing additional instructions or information to an aircraft holding in takeoff position, include instructions to continue holding or taxi off the runway, unless it is cleared for takeoff.

PHRASEOLOGY–
CONTINUE HOLDING,

or

TAXI OFF THE RUNWAY.

REFERENCE–
FAAO 7110.65, Altitude Restricted Low Approach, Para 3–10–10.

3–9–5. ANTICIPATING SEPARATION

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

REFERENCE–
P/CG Term– Clear of the Runway.

3–9–6. SAME RUNWAY SEPARATION

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

a. The other aircraft has departed and crossed the runway end or turned to avert any conflict. (See FIG 3–9–1.) If you can determine distances by reference to suitable landmarks, the other aircraft needs only be airborne if the following minimum distance exists between aircraft: (See FIG 3–9–2.)

1. When only Category I aircraft are involved– *3,000 feet.*

2. When a Category I aircraft is preceded by a Category II aircraft– *3,000 feet.*

3. When either the succeeding or both are Category II aircraft– *4,500 feet.*

4. When either is a Category III aircraft– *6,000 feet.*

5. When the succeeding aircraft is a helicopter, visual separation may be applied in lieu of using distance minima.

FIG 3–9–1
Same Runway Separation
[View 1]

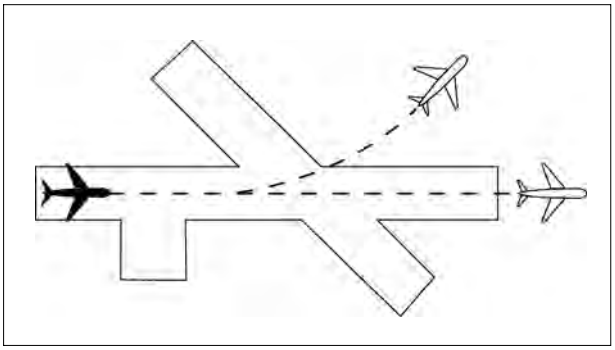
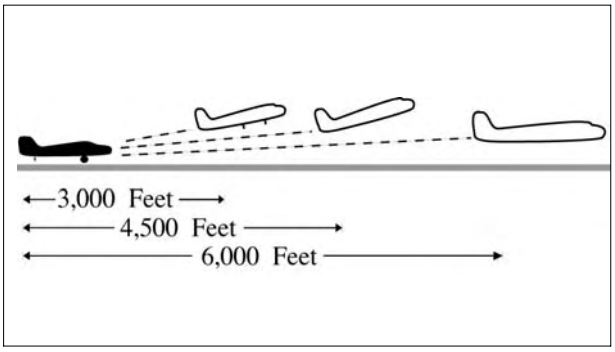


FIG 3–9–2
Same Runway Separation
[View 2]



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

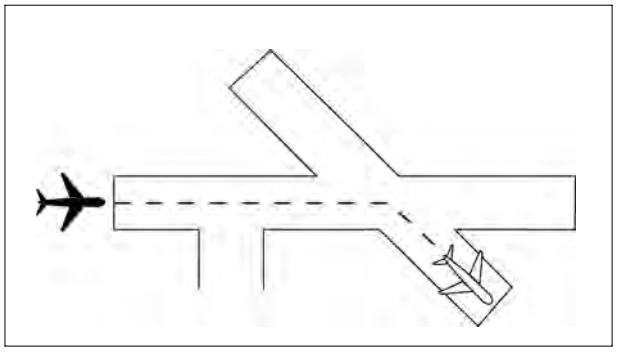
CATEGORY I– small aircraft weighing 12,500 lbs. or less, with a single propeller driven engine, and all helicopters.

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

CATEGORY III– all other aircraft.

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

FIG 3–9–3
Preceding Landing Aircraft Clear of Runway



REFERENCE–
P/CG Term– Clear of the Runway.

WAKE TURBULENCE APPLICATION

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

d. Do not issue clearances to a small aircraft to taxi into position and hold on the same runway behind a departing heavy jet aircraft to apply the necessary intervals.

REFERENCE–
AC 90–23, Aircraft Wake Turbulence.

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

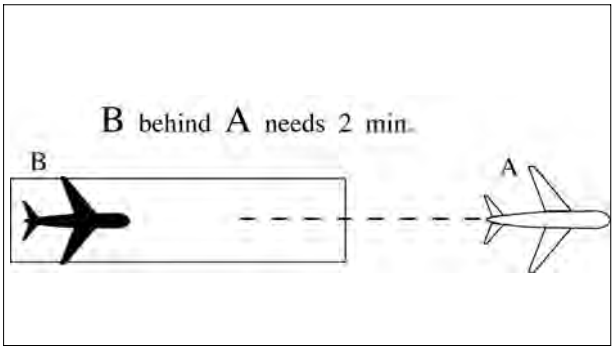
NOTE–
The pilot may request additional separation; i.e., 2 minutes vs. 4 miles, but should make this request before taxiing on the runway.

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

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

1. The same runway. (See FIG 3–9–4.)

FIG 3–9–4
2 Minute Separation



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

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

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

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

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

i. Separate a small aircraft behind a large aircraft taking off or making a low/missed approach when utilizing opposite direction takeoffs on the same runway by *3 minutes* unless a pilot has initiated a request to deviate from the 3–minute interval. In the latter case, issue a wake turbulence advisory before clearing the aircraft for takeoff.

NOTE–
1. *A request for takeoff does not initiate a waiver request.*
2. *To initiate a waiver of the 3 minute rule, the request for takeoff must be accompanied by a request to deviate from the 3–minute rule.*

REFERENCE–
FAAO 7110.65, Aircraft Information: Appendix A, Appendix B, and Appendix C.

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

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

PHRASEOLOGY–
HOLD FOR WAKE TURBULENCE.

REFERENCE–
FAAO 7110.65, Wake Turbulence Separation for Intersection Departures, Para 3–9–7.

3–9–7. WAKE TURBULENCE SEPARATION FOR INTERSECTION DEPARTURES

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

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

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

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

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

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

PHRASEOLOGY–
HOLD FOR WAKE TURBULENCE.

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

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

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

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

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

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

3. Successive touch–and–go and stop–and–go operations are conducted with a small aircraft following another small aircraft weighing more than 12,500 lbs. or a large aircraft in the pattern, or a small aircraft weighing more than 12,500 lbs. or a large aircraft departing the same runway, provided the pilot of the small aircraft is maintaining visual separation/spacing behind the preceding large aircraft. Issue a wake turbulence cautionary advisory and the position of the large aircraft.

EXAMPLE–
"Caution wake turbulence, DC–9 on base leg."

4. Successive touch-and-go and stop-and-go operations are conducted with any aircraft following a heavy aircraft/B757 in the pattern, or heavy aircraft/B757 departing the same runway, provided the pilot of the aircraft is maintaining visual separation/spacing behind the preceding heavy aircraft/B757. Issue a wake turbulence cautionary advisory and the position of the heavy aircraft/B757.

EXAMPLE–
"Caution wake turbulence, heavy Lockheed C5A departing runway two three."

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

c. When applying the provision of subpara b:

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

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

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

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

REFERENCE–
FAAO 7110.65, Same Runway Separation, Para 3–9–6.

3–9–8. INTERSECTING RUNWAY SEPARATION

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

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

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

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

FIG 3–9–5
Intersecting Runway Separation

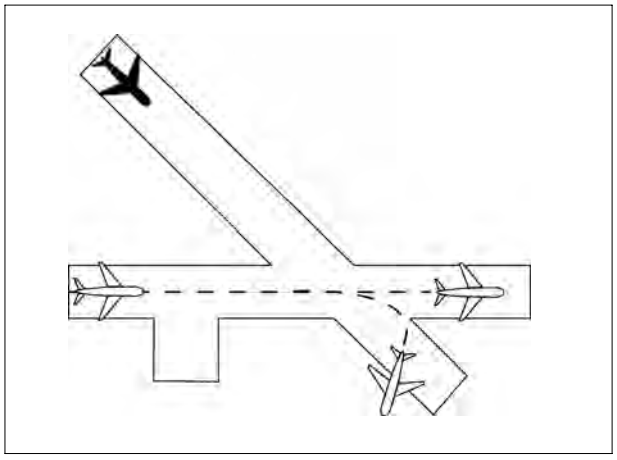
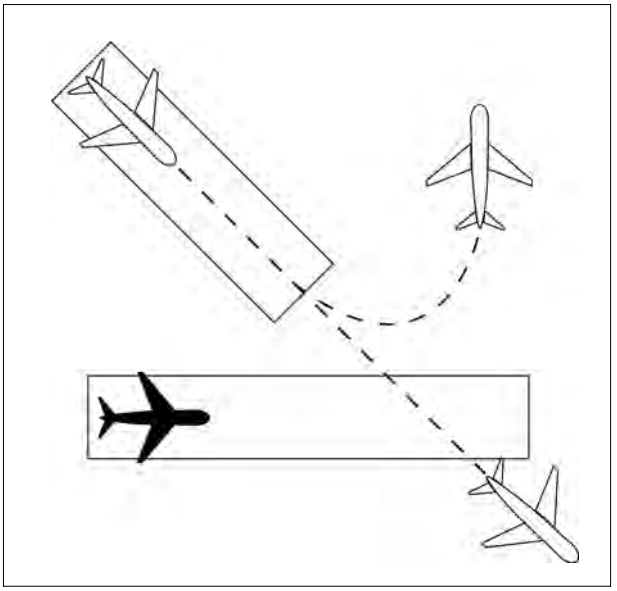


FIG 3–9–6
Intersecting Runway Separation



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

REFERENCE–
P/CG Term– Clear of the Runway.

FIG 3–9–7
Intersecting Runway Separation

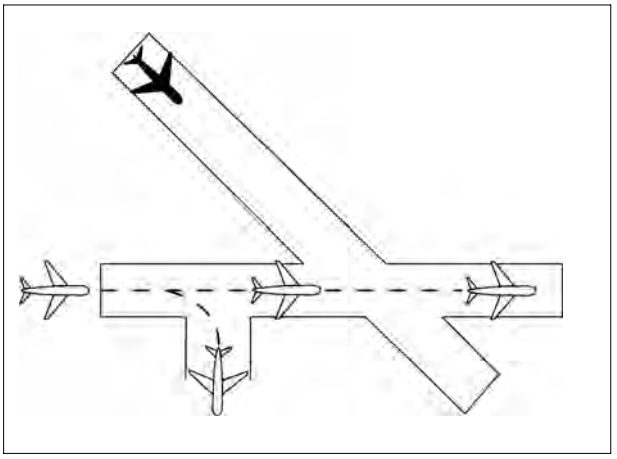
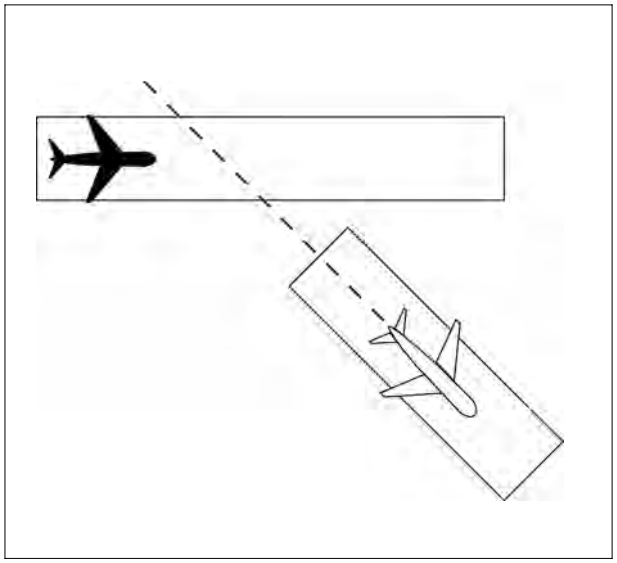


FIG 3-9-8

Intersecting Runway Separation



WAKE TURBULENCE APPLICATION

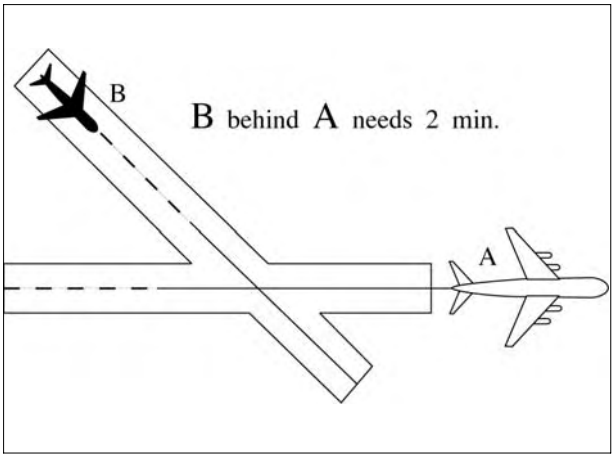
3. Separate IFR/VFR aircraft taking off behind a heavy jet/B757 departure by *2 minutes* when departing:

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

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

FIG 3-9-9

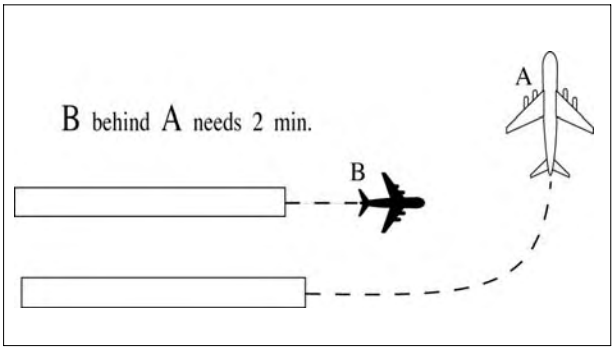
Crossing Runways



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

FIG 3-9-10

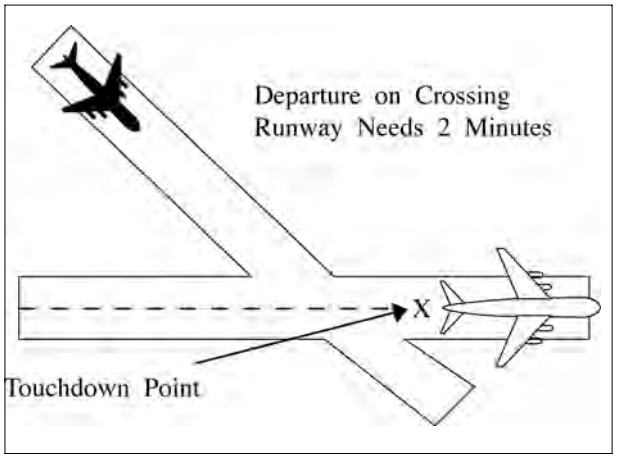
Parallel Runway



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

FIG 3-9-11

Departure on Crossing Runway



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

REFERENCE–
FAAO 7110.65, Successive or Simultaneous Departures, Para 5–8–3.
FAAO 7110.65, Departures and Arrivals on Parallel or Nonintersecting Diverging Runways, Para 5–8–5.

3–9–9. TAKEOFF CLEARANCE

a. When only one runway is active, issue takeoff clearance.

PHRASEOLOGY–
CLEARED FOR TAKEOFF.

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

REFERENCE–
FAAO 7110.65, Departure Terminology, Para 4–3–1.

b. When more than one runway is active, first state the runway number followed by the takeoff clearance.

PHRASEOLOGY–
RUNWAY (number), CLEARED FOR TAKEOFF.

EXAMPLE–
"RUNWAY TWO SEVEN, CLEARED FOR TAKEOFF."

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

PHRASEOLOGY–
WIND (surface wind in direction and velocity).
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.

3–9–10. CANCELLATION OF TAKEOFF CLEARANCE

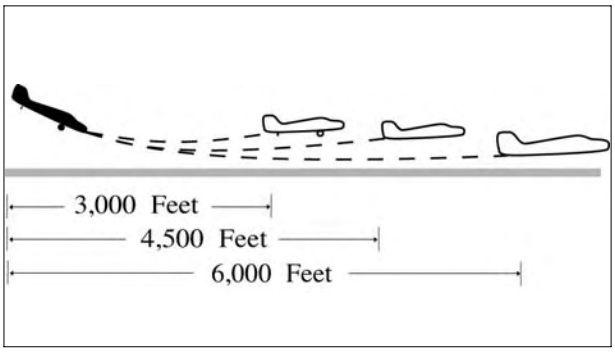
Cancel a previously issued clearance for takeoff and inform the pilot of the reason if circumstances require. Once an aircraft has started takeoff roll, cancel the takeoff clearance only for the purpose of safety.

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).

FIG 3-10-5

Same Runway Separation



3. When the succeeding aircraft is a helicopter, visual separation may be applied in lieu of using distance minima.

WAKE TURBULENCE APPLICATION

b. Issue wake turbulence advisories, and the position, altitude if known, and the direction of flight of:

1. The heavy jet/B757 to aircraft landing behind a departing/arriving heavy jet/B757 on the same or parallel runways separated by less than 2,500 feet.

2. The large aircraft to a small aircraft landing behind a departing/arriving large aircraft on the same or parallel runways separated by less than 2,500 feet.

REFERENCE-
AC 90-23, Aircraft Wake Turbulence, Pilot Responsibility, Para 12.
FAAO 7110.65, Altitude Restricted Low Approach, Para 3-10-10.

EXAMPLE-
1. *"Runway two seven left cleared to land, caution wake turbulence, heavy Boeing 747 departing runway two seven right."*

2. *"Number two follow Boeing 757 on two-mile final. Caution wake turbulence."*

3-10-4. INTERSECTING RUNWAY SEPARATION

Issue traffic information to each aircraft operating on intersecting runways.

a. Separate an arriving aircraft using one runway from another aircraft using an intersecting runway or a nonintersecting runway when the flight paths intersect by ensuring that the arriving aircraft does not cross the landing threshold or flight path of the other aircraft until one of the following conditions exists:

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

1. The preceding aircraft has departed and passed the intersection/flight path or is airborne and turning to avert any conflict.
(See FIG 3-10-6 and FIG 3-10-7.)

FIG 3-10-6

Intersecting Runway Separation

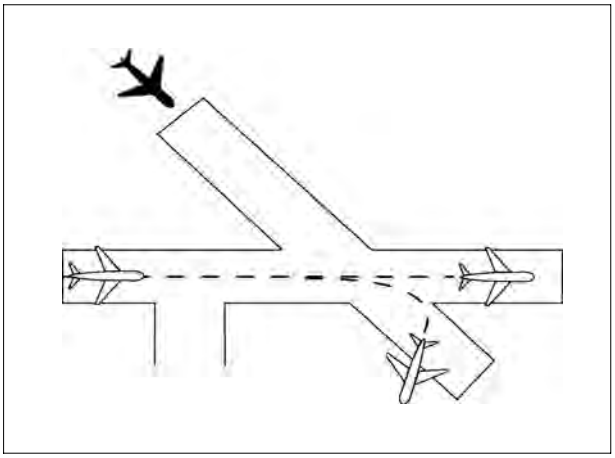
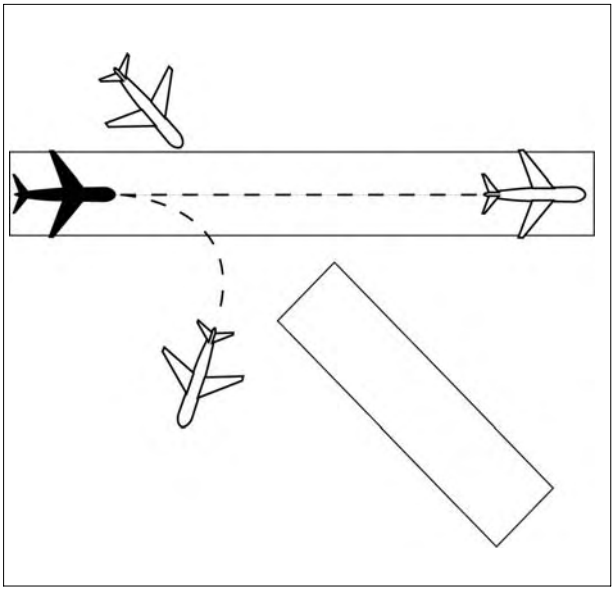


FIG 3-10-7

Intersecting Runway Separation



2. A preceding arriving aircraft is clear of the landing runway, completed landing roll and will hold short of the intersection/flight path, or has passed the intersection/flight path.
(See FIG 3–10–8 and FIG 3–10–9.)

FIG 3–10–8
Intersection Runway Separation

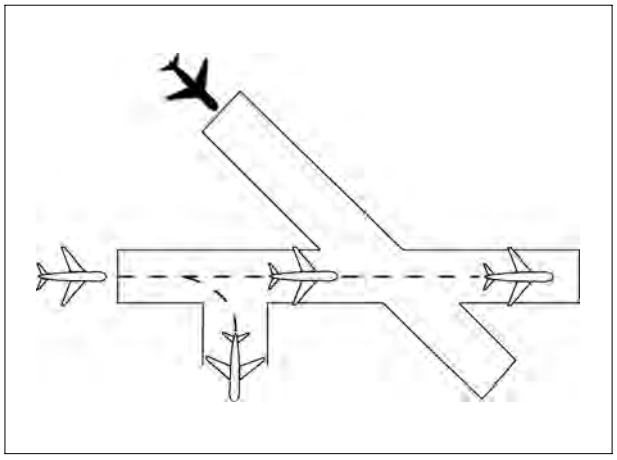
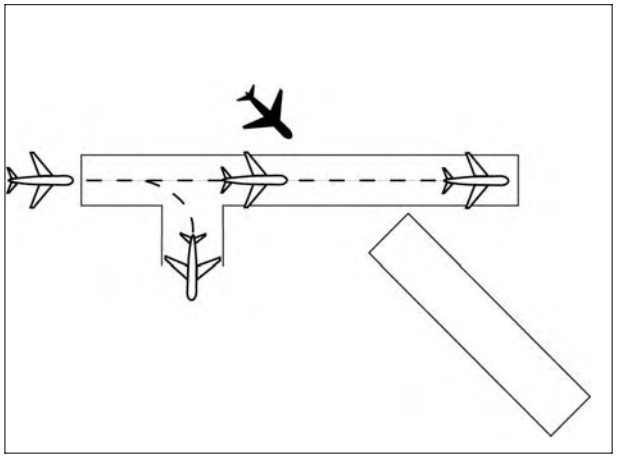


FIG 3–10–9
Intersection Runway Separation



NOTE–
When visual separation is being applied by the tower, appropriate control instructions and traffic advisories must be issued to ensure go around or missed approaches avert any conflict with the flight path of traffic on the other runway.

REFERENCE–
FAAO 7110.65, Visual Separation, Para 7–2–1a2.

b. "USA/USAF/USN NOT APPLICABLE." An aircraft may be authorized to takeoff from one runway while another aircraft lands simultaneously on an intersecting runway or an aircraft lands on one runway while another aircraft lands simultaneously on an intersecting runway, or an aircraft lands to hold short of an intersecting taxiway or some other predetermined point such as an approach/departure flight path using procedures specified in the current LAHSO directive. The procedure shall be approved by the air traffic manager and be in accordance with a facility directive. The following conditions apply:

NOTE–
Application of these procedures does not relieve controllers from the responsibility of providing other appropriate separation contained in this order.

REFERENCE–
FAAO 7210.3, Land and Hold Short Operations (LAHSO), Para 10–3–7.

1. A simultaneous takeoff and landing operation shall only be conducted in VFR conditions.

2. Instruct the landing aircraft to hold short of the intersecting runway being used by the aircraft taking off. In the case of simultaneous landings and no operational benefit is lost, restrict the aircraft of the lesser weight category (if known). LAHSO clearances shall only be issued to aircraft that are listed in the current LAHSO directive, whose Available Landing Distance (ALD) does not exceed the landing distance requirement for the runway condition.

PHRASEOLOGY–
HOLD SHORT OF RUNWAY (runway number), (traffic, type aircraft or other information).

NOTE–
Pilots who prefer to use the full length of the runway or a runway different from that specified are expected to advise ATC prior to landing.

3. Issue traffic information to both aircraft involved and obtain an acknowledgment from each. Request a read back of hold short instructions when they are not received from the pilot of the restricted aircraft.

EXAMPLE–
1. *"Runway one eight cleared to land, hold short of runway one four left, traffic, (type aircraft) landing runway one four left."*

(When pilot of restricted aircraft responds with only acknowledgment):

"Runway one four left cleared to land, traffic, (type aircraft) landing runway one eight will hold short of the intersection."

"Read back hold short instructions."

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

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

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

EXAMPLE–
"Five thousand fifty feet available."

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

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

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

REFERENCE–
FAAO 7110.65, Calm Wind Conditions, Para 2–6–5.

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

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

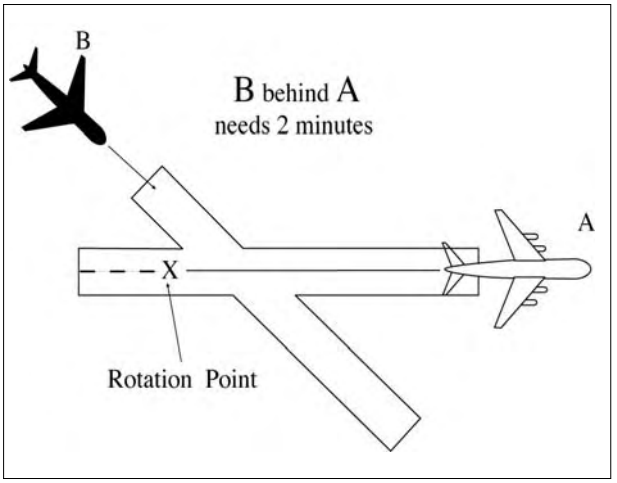
WAKE TURBULENCE APPLICATION

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

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

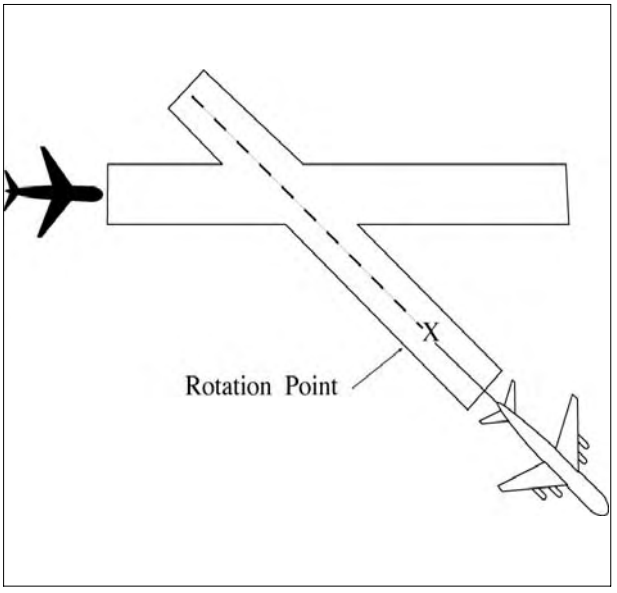
REFERENCE–
AC 90–23, Aircraft Wake Turbulence, Pilot Responsibility, Para 12.

FIG 3–10–10
Intersecting Runway Separation



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

FIG 3–10–11
Intersecting Runway Separation

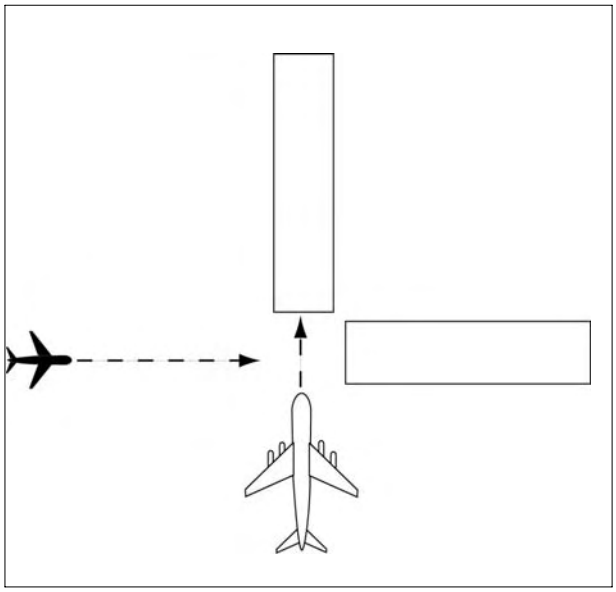


EXAMPLE–
"Runway niner cleared to land. Caution wake turbulence, heavy C–One Forty One departing runway one five."

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

FIG 3–10–12

Intersecting Runway Separation



EXAMPLE–
"Runway niner cleared to land. Caution wake turbulence, Boeing Seven Fifty Seven landing runway three six."

REFERENCE–
FAAO 7110.65, Approaches to Multiple Runways, Para 7–4–4.

3–10–5. LANDING CLEARANCE

a. Issue landing clearance. Restate the landing runway whenever more than one runway is active, or an instrument approach is being conducted to a closed runway.

PHRASEOLOGY–
CLEARED TO LAND,

or

RUNWAY (designator) CLEARED TO LAND.

b. Do not clear an aircraft for a full–stop, touch–and–go, stop–and–go, option, or unrestricted low approach when a departing aircraft has been instructed to taxi into position and hold, is taxiing into position, or is holding in position on the same runway. The landing clearance may be issued once the aircraft in position has started takeoff roll.

c. "USN NOT APPLICABLE." Inform the closest aircraft that is requesting a full–stop, touch–and–go, stop–and–go, option, or unrestricted low approaches when there is traffic authorized to taxi into position and hold on the same runway.

EXAMPLE–
"Delta One, continue, traffic holding in position."

or

"Delta One, runway one eight, continue, traffic holding in position."

d. During same runway operations, while TIPH is being applied, landing clearance need not be withheld if the safety logic system to that runway is in full core alert runway configuration.

EXAMPLE–
If the safety logic system is operating in full core alert runway configuration:

"Delta One, cleared to land. Traffic holding in position."

or

"Delta One, runway one eight, cleared to land. Traffic holding in position."

e. *USA/USN.* Issue surface wind when clearing an aircraft to land, touch-and-go, stop-and-go, low approach, or the option. Restate the landing runway whenever there is a possibility of a conflict with another aircraft which is using or is planning to use another runway.

PHRASEOLOGY–
WIND (surface wind direction and velocity), CLEARED TO LAND,

or

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

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

3–10–6. ANTICIPATING SEPARATION

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

EXAMPLE–
"American Two Forty-Five cleared to land, number two following United Boeing Seven-Thirty-Seven two mile final, traffic will depart prior to your arrival."

"American Two Forty-Five cleared to land, number two following United Boeing Seven-Thirty-Seven two mile final, traffic will be an MD 88 holding in position."

"American Two Forty-Five cleared to land, following United Boeing Seven-Thirty-Seven two mile final, traffic will depart prior to your arrival."

NOTE–
Landing sequence number is optional at tower facilities where arrivals are sequenced by the approach control.

b. Anticipating separation must not be applied when conducting TIPH operations, except as restricted in para 3–10–5d.

REFERENCE–
FAAO 7110.65, Closed/Unsafe Runway Information, Para 3-3-2.
FAAO 7110.65, Landing Clearance, Para 3-10-5c, not required if utilizing the provisions of Para 3-10-6.
P/CG Term- Clear of the Runway.

3–10–7. LANDING CLEARANCE WITHOUT VISUAL OBSERVATION

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

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

NOTE–
Aircraft observance on the CTRD satisfies the visually observed requirement.

3–10–8. WITHHOLDING LANDING CLEARANCE

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

3–10–9. RUNWAY EXITING

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

PHRASEOLOGY–
TURN LEFT/RIGHT (taxiway/runway),

or

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

and if required

HOLD SHORT OF (runway).

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

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

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

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

EXAMPLE–
"U.S. Air Ten Forty Two, turn right next taxiway, cross runway two one, contact ground point seven."

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

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

cross a subsequent taxiway or ramp after clearing the landing runway.

REFERENCE–
P/CG Term– Clear of the Runway.

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

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

REFERENCE–
FAAO 7210.3, Use of Active Runways, Para 10–1–7.

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

EXAMPLE–
"American Four Ninety–two, turn left at Taxiway Charlie, hold short of Runway 27 Right."

or

"American Four Ninety–two, turn left at Charlie, hold short of Runway 27 Right."

"American Four Ninety Two, Roger."

"American Four Ninety–two, read back hold instructions."

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

3–10–10. ALTITUDE RESTRICTED LOW APPROACH

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

NOTE–
1. *The 500 feet restriction is a minimum. Higher altitudes should be used when warranted. For example, 1,000 feet is more appropriate for heavy aircraft operating over unprotected personnel or small aircraft on or near the runway.*
2. *This authorization includes altitude restricted low approaches over preceding landing or taxiing aircraft. Restricted low approaches are not authorized over aircraft in takeoff position or departing aircraft.*

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

REFERENCE–
FAAO 7110.65, Vehicles/Equipment/Personnel on Runways, Para 3–1–5.
FAAO 7110.65, Traffic Information, Para 3–1–6.
FAAO 7110.65, Light Signals, Para 3–2–1.
FAAO 7110.65, Timely Information, Para 3–3–3.
FAAO 7110.65, Taxi into Position and Hold (TIPH), Para 3–9–4.
FAAO 7110.65, Same Runway Separation, Para 3–10–3.

3–10–11. CLOSED TRAFFIC

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

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

or

UNABLE CLOSED TRAFFIC, (additional information as required).

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

REFERENCE–
FAAO 7110.65, Runway Proximity, Para 3–7–4.
FAAO 7110.65, Taxi into Position and Hold (TIPH), Para 3–9–4.
FAAO 7110.65, Same Runway Separation, Para 3–10–3.

3–10–12. OVERHEAD MANEUVER

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

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

PHRASEOLOGY–
PATTERN ALTITUDE (altitude). RIGHT TURNS.

b. Request for report on initial approach.

PHRASEOLOGY–
REPORT INITIAL.

c. "Break" information and request for pilot report. Specify the point of "break" only if nonstandard. Request the pilot to report "break" if required for traffic or other reasons.

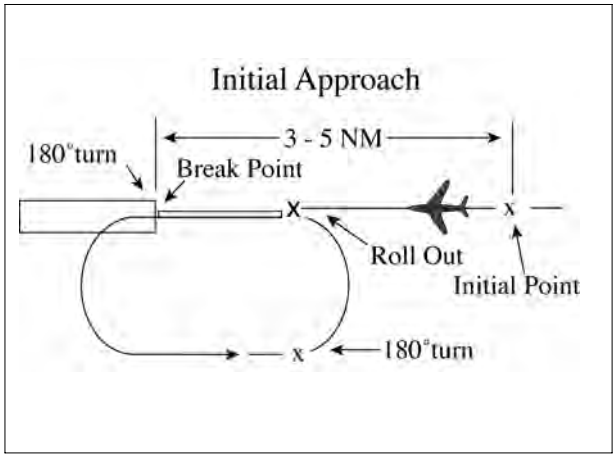
PHRASEOLOGY–
BREAK AT (specified point).

REPORT BREAK.

d. Overhead maneuver patterns are developed at airports where aircraft have an operational need to conduct the maneuver. An aircraft conducting an overhead maneuver is on VFR and the IFR flight plan is cancelled when the aircraft reaches the "initial point" on the initial approach portion of the maneuver. The existence of a standard overhead maneuver pattern does not eliminate the possible requirement for an aircraft to conform to conventional rectangular patterns if an overhead maneuver cannot be approved.

NOTE–
Aircraft operating to an airport without a functioning control tower must initiate cancellation of the IFR flight plan prior to executing the overhead maneuver or after landing.

FIG 3-10-13
Overhead Maneuver



EXAMPLE–
"Air Force Three Six Eight, Runway Six, wind zero seven zero at eight, pattern altitude six thousand, report initial."

"Air Force Three Six Eight, break at midfield, report break."

"Air Force Three Six Eight, cleared to land."

"Alfa Kilo Two Two, Runway Three One, wind three three zero at one four, right turns, report initial."

"Alfa Kilo Two Two, report break."

"Alfa Kilo Two Two, cleared to land."

e. Timely and positive controller action is required to prevent a conflict when an overhead pattern could extend into the path of a departing or a missed approach aircraft. Local procedures and/or coordination requirements should be set forth in an appropriate letter of agreement, facility directive, base flying manual etc., when the frequency of occurrence warrants.

3–10–13. SIMULATED FLAMEOUT (SFO) APPROACHES/EMERGENCY LANDING PATTERN (ELP) OPERATIONS/PRACTICE PRECAUTIONARY APPROACHES

a. Authorize military aircraft to make SFO/ELP/practice precautionary approaches if the following conditions are met:

1. A letter of agreement or local operating procedure is in effect between the military flying organization and affected ATC facility.

(a) Include specific coordination, execution, and approval procedures for the operation.

(b) The exchange or issuance of traffic information as agreed to in any interfacility letter of agreement is accomplished.

(c) Include a statement in the procedure that clarifies at which points SFOs/ELPs may/may not be terminated. (See FIG 3–10–14 and FIG 3–10–16.)

2. Traffic information regarding aircraft in radio communication with or visible to tower controllers which are operating within or adjacent to the flameout maneuvering area is provided to the SFO/ELP aircraft and other concerned aircraft.

3. The high-key altitude or practice precautionary approach maneuvering altitudes of the aircraft concerned are obtained prior to approving the approach. (See FIG 3–10–14 and FIG 3–10–16.)

NOTE–
1. *Practice precautionary/SFO/ELP approaches are authorized only for specific aircraft. Any aircraft, however, might make precautionary approaches, when engine failure is considered possible. The practice precautionary approach maneuvering area/altitudes may not conform to the standard SFO/ELP maneuvering area/altitudes.*

2. *SFO/ELP approaches generally require high descent rates. Visibility ahead and beneath the aircraft is greatly restricted.*

3. *Pattern adjustments for aircraft conducting SFOs and ELPs may impact the effectiveness of SFO and ELP training.*

REFERENCE–
FAAO 7110.65, Low Approach and Touch-and-Go, Para 4–8–12.
FAAO 7610.4, Simulated Flameout (SFO)/Emergency Landing Pattern (ELP) Operations, Para 9–3–7.

b. For overhead SFO/ELP approaches:

1. Request a report at the entry point.

PHRASEOLOGY–
REPORT (high or low) KEY (as appropriate).

2. Request a report at low key.

PHRASEOLOGY–
REPORT LOW KEY.

3. At low key, issue low approach clearance or alternate instructions.

REFERENCE–
FAAO 7110.65, Sequence/Spacing Application, Para 3–8–1.
FAAO 7110.65, Inflight Emergencies Involving Military Fighter-type Aircraft, Para 10–1–7.
FAAO 7610.4, Simulated Flameout (SFO)/Emergency Landing Pattern (ELP) Operations, Para 9–3–7.

c. For straight–in simulation flameout approaches:

1. Request a position report from aircraft conducting straight–in SFO approaches.

PHRASEOLOGY–
REPORT (distance) MILE SIMULATED FLAMEOUT FINAL.

2. At the appropriate position on final (normally no closer than 3 miles), issue low approach clearance or alternate instruction. (See FIG 3–10–15.)

FIG 3-10-14

Simulated Flameout [1]

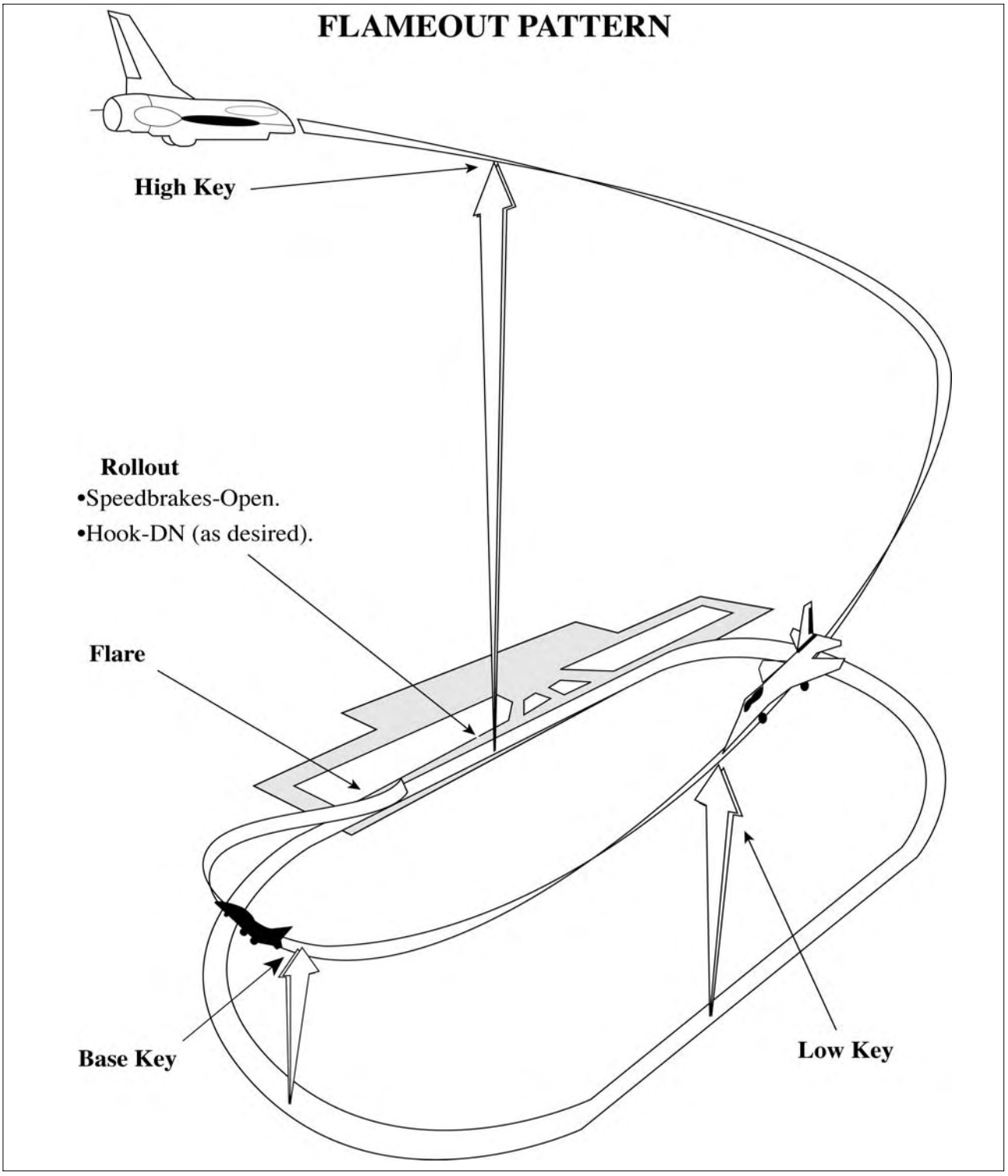


FIG 3-10-15

Simulated Flameout [2]

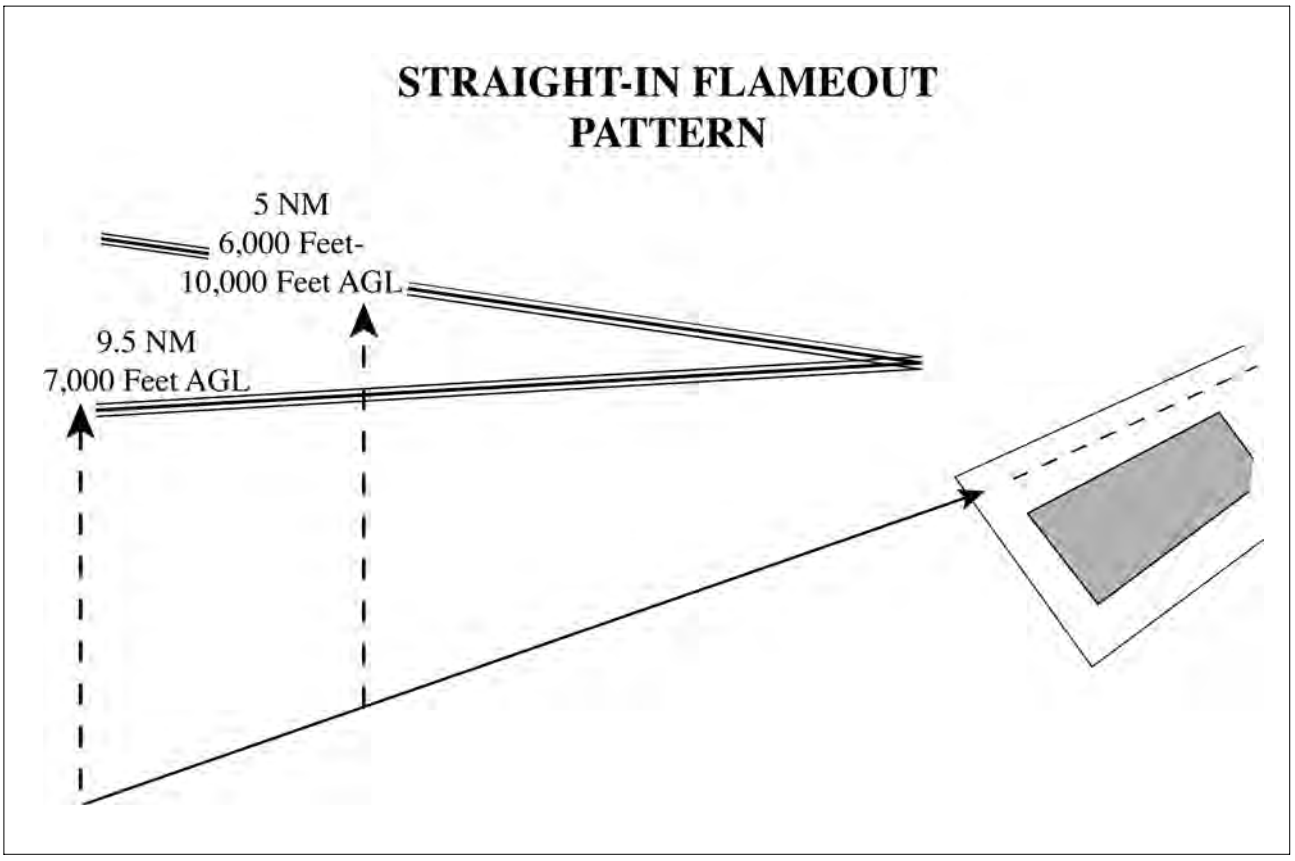
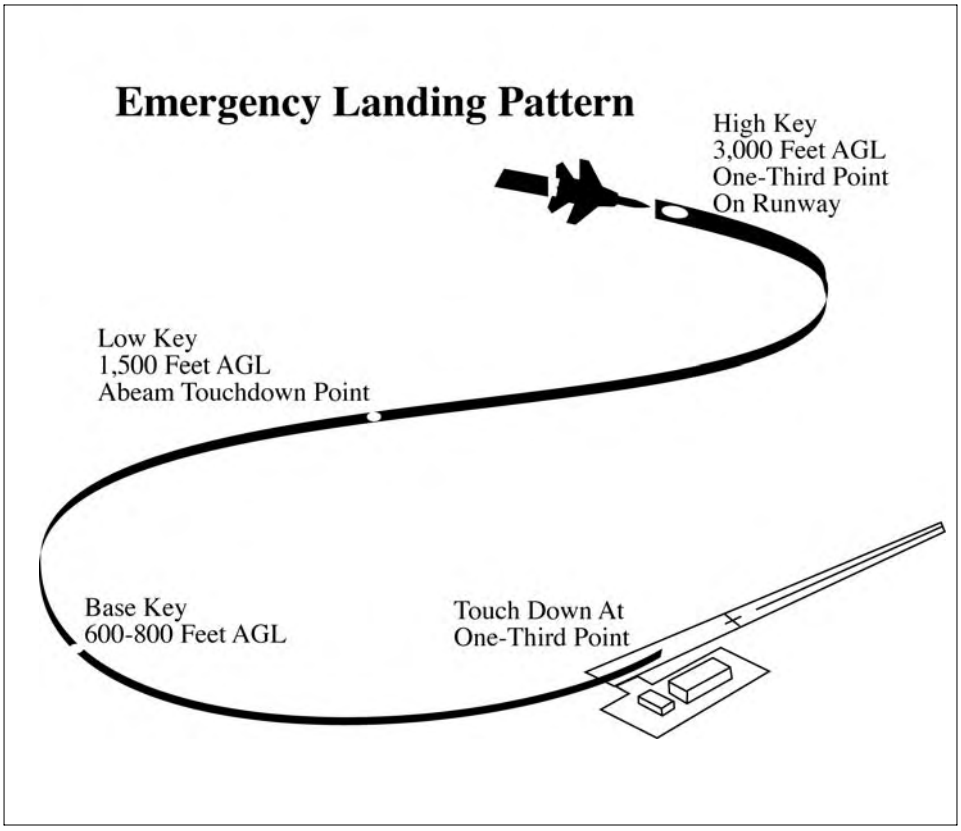


FIG 3-10-16

Emergency Landing Pattern



NOTE–

1. *When applying wake turbulence separation criteria, directly behind means an aircraft is operating within 2500 feet of the flight path of the leading aircraft over the surface of the earth.*

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

1. Heavy behind heavy– *4 miles.*

2. Large/heavy behind B757– *4 miles*.

3. Small behind B757– *5 miles.*

4. Small/large behind heavy – *5 miles.*

WAKE TURBULENCE APPLICATION

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

NOTE–

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

1. Small behind large– *4 miles*.

2. Small behind B757– *5 miles.*

3. Small behind heavy– *6 miles.*

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

1. The leading aircraft's weight class is the same or less than the trailing aircraft;

2. Heavy aircraft and the Boeing 757 are permitted to participate in the separation reduction as the trailing aircraft only;

3. An average runway occupancy time of 50 seconds or less is documented;

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

REFERENCE–

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

5. Turnoff points are visible from the control tower.

REFERENCE–

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

5–5–5. VERTICAL APPLICATION

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

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

REFERENCE–

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

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

NOTE–

1. *Consider known aircraft performance characteristics, pilot furnished and/or Mode C detected information which indicate that climb/descent will not be consistent with the rates recommended in the AIM.*

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

REFERENCE–

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

5–5–6. EXCEPTIONS

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

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

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

1. Severe turbulence is reported.

2. Aircraft are conducting military aerial refueling.

REFERENCE–
FAAO 7110.65, Military Aerial Refueling, Para 9–2–12.

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

5–5–7. PASSING OR DIVERGING

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

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

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

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

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

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

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

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

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

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

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

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

EXAMPLE–
"Traffic, twelve o'clock, Boeing Seven Twenty Seven, opposite direction. Do you have it in sight?"

(If the answer is in the affirmative):

"Report passing the traffic."

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

5–5–8. ADDITIONAL SEPARATION FOR FORMATION FLIGHTS

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

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

REFERENCE–
FAAO 7110.65, Formation Flights, Para 2–1–13.
FAAO 7110.65, Application, Para 5–5–1.
FAAO 7110.65, Separation, Para 7–7–3.
P/CG Term– Formation Flight.

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

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

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

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

REFERENCE-
FAAO 7110.65, Military Aerial Refueling, Para 9-2-12.

5-5-9. SEPARATION FROM OBSTRUCTIONS

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

1. When less than 40 miles from the antenna- *3 miles.*

2. When 40 miles or more from the antenna- *5 miles.*

b. Except in En Route Stage A/DARC or Stage A/EDARC, vertical separation of aircraft above an obstruction depicted on the radar display may be discontinued after the aircraft has passed it.

c. En Route Stage A/DARC or Stage A/EDARC, apply the radar separation minima specified in para 5-5-4, Minima, subpara b1.

5-5-10. ADJACENT AIRSPACE

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

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

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

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

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

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

(b) Flight Level 600 and above- *5 miles.*

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

1. When less than 40 miles from the antenna- *3 miles.*

2. When 40 miles or more from the antenna- *5 miles.*

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

(a) Below Flight Level 600- *5 miles.*

(b) Flight Level 600 and above- *10 miles.*

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

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

5-5-11. EDGE OF SCOPE

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

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

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

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

1. Below Flight Level 600– *5 miles*.

2. Flight Level 600 and above– *10 miles*.

5–5–12. BEACON TARGET DISPLACEMENT

When using a radar target display with a previously specified beacon target displacement to separate a beacon target from a primary target, adjacent airspace, obstructions, or terrain, add a 1 mile correction factor to the applicable minima. The maximum allowable beacon target displacement which may be specified by the facility air traffic manager is $^1/_2$ mile.

REFERENCE–
FAAO 7210.3, Monitoring of Mode 3/A Radar Beacon Codes, Para 3–7–4.

5–5–13. GPA 102/103 CORRECTION FACTOR

When using a radar display whose primary radar video is processed by the GPA 102/103 modification to a joint-use radar system, apply the following correction factors to the applicable minima:

a. If less than 40 miles from the antenna– add *1 mile.*

b. If 40 miles or more but not over 200 miles from the antenna– add *3 miles.*

Section 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

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

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.

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 a or b above.

d. *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.

Chapter 9. Special Flights

Section 1. General

9–1–1. GENERAL

Provide aircraft engaged in the flight inspection of NAVAIDs with maximum assistance. Unless otherwise agreed to, maintain direct contact with the pilot and exchange information regarding known traffic in the area and his/her intentions.

NOTE–
1. *Many flight inspections are accomplished using automatic recording equipment, and an uninterrupted flight is necessary for successful completion of the mission. The workload for the limited number of aircraft engaged in these activities requires strict adherence to a schedule.*

2. *Flight inspection operations which require special participation of ground personnel, specific communications, or radar operation capabilities are considered to require special handling. These flights are coordinated with appropriate facilities before departure.*

REFERENCE–
FAAO 8200.1, United States Standard Flight Inspection Manual.
FAAO 8240.41, Flight Inspection/Air Traffic On–Site Coordination Requirements.

9–1–2. SPECIAL HANDLING

a. Clear the aircraft according to pilot request as soon as practicable. Do not ask the pilot to deviate from his/her planned action except to preclude an emergency situation.

REFERENCE–
FAAO 8240.41, Flight Inspection/Air Traffic On–Site Coordination Requirements, Appendix 1, describes certain flight inspection maneuvers in detail.

b. Issue radar advisories to the flight inspection aircraft where adequate coverage exists and to the extent permitted by workload.

c. Suggest flight path adjustments, as required, for any aircraft which will enter or penetrate an area in which a flight inspection function is being performed.

d. Provide special handling, as required, to FAA aircraft conducting flight inspections using the call sign “Flight Check.” The call sign “Flight Check (Nr) recorded” indicates automated flight inspections are in progress in terminal areas.

NOTE–
FAA flight inspection aircraft will file flight plans using the call sign “FLIGHT CHECK” during flight inspections or when inbound to conduct flight inspections. Flight plan remarks may indicate type NAVAID inspection to be accomplished; e.g. “FC OKC P.”

9–1–3. FLIGHT CHECK AIRCRAFT

a. Provide special handling, as required, to expedite flight inspection of NAVAIDs, direction finding (DF) equipment, and RADAR by flight check aircraft.

NOTE–
Certain flight inspection maneuvers require operations in close proximity to the surface. These maneuvers can only be performed during daylight visual meteorological conditions. Preplanned automatic flight places the following limitations on the capability of the pilot to adhere to normal ATC clearances:

a. *Route of flight – orbital from 6 nautical miles to a maximum of 40 nautical miles from the facility depending on the type of inspection. During commissioning flight checks all SIDs, STARs, airways, DME fixes, and approaches must be flown.*

b. *Altitude assignment – from 1,000 feet above the antenna site up to the minimum en route altitude (MEA).*

REFERENCE–
FAAO 7110.65, Operational Priority, Para 2–1–4.
FAAO 8240.41, Flight Inspection/Air Traffic On–Site Coordination Requirements, Appendix 1, describes certain flight inspection maneuvers in detail.

b. Avoid changes in the route or altitude from that filed by the pilot in the initial flight plan.

c. Do not impose air traffic control delays in the flight except to preclude emergency situations.

d. Do not change the previously assigned discrete beacon code of special radar accuracy flight check aircraft.

REFERENCE–
FAAO 7210.3, Special Radar Accuracy Checks, Para 7–1–2.
FAAO 7210.3, ASR Performance Checks, Para 10–5–4.

c. If the provisions of subpara a above cannot be accomplished, MTRs may be designated for MARSA operations. To preclude an inadvertent compromise of MARSA standards by ATC, appropriate MARSA application for such routes shall be covered in a letter of agreement with the military scheduling activity. Establish separation between aircraft as soon as practicable after operation on the designated MARSA route is ended.

NOTE–
For designated MARSA routes, the military assumes responsibility for separation for MTR aircraft that have passed the primary/alternate entry fix until separation is established by ATC after operations on the MARSA route are completed.

d. The lateral airspace to be protected along an MTR is the designated width of the route.

e. Prior to an aircraft entering an MTR, request the pilot's estimate for the route's exit/alternate exit fix, the pilot's requested altitude after exiting and, if applicable, the number of reentries on a Strategic Training Range (STR).

PHRASEOLOGY–
(Call sign) CONFIRM YOUR EXIT FIX ESTIMATE AND REQUESTED ALTITUDE AFTER EXIT,

and if applicable,

THE NUMBER OF REENTRIES.

f. Forward estimates for exit/alternate exit fixes, requested altitude after exit, and, if applicable, the number of reentries on the STR.

g. Apply the procedures of para 6–1–2, Nonreceipt of Position Report, based upon the pilot's estimate for the route exit fix.

h. Clearance may be issued to amend or restrict operations on a route for ATC considerations. Where a route has been designated MARSA in accordance with subpara c, ATC shall not amend or restrict operations in such a manner as to compromise MARSA provisions.

NOTE–
When MARSA is provided through route scheduling and circumstances prevent the pilot from entering the route within established time limits, it shall be the responsibility of the pilot to inform the ATC facility and advise his/her intentions.

i. If an aircraft on an IR experiences a two-way radio communications failure and you are unable to determine if the aircraft is proceeding VFR in accordance with 14 CFR Section 91.185(b) or the aircraft has not been positively radar identified:

1. Provide separation to the destination airport based on the aircraft complying with the following:

(a) Maintain to the exit/alternate exit fix the higher of the following altitudes:

(1) The minimum IFR altitude for each of the remaining route segment(s) remaining on the route.

(2) The highest altitude assigned in the last ATC clearance.

(b) Depart the exit/alternate exit fix at the appropriate altitude specified in subpara (a) above, then climb/descend to the altitude filed in the flight plan for the remainder of the flight, or

NOTE–
In the event of a two-way communications failure, ATC will be based on the following anticipated pilot action at the exit fix. Unless otherwise covered in a letter of agreement, and if the pilot is unable to comply with the VFR provisions of 14 CFR Section 91.185/FLIP IFR Supplement, the pilot will exercise his/her emergency authority, squawk transponder ***Code 7700****, depart the exit/alternate exit fix and climb/descend (continuing to squawk 7700) to the altitude filed in the flight plan. Subsequent transponder operations will be in accordance with para 10–4–4, Communications Failure. Air traffic controller action from the exit fix is as prescribed in para 10–1–1, Emergency Determinations.*

(c) Proceed in accordance with the lost communication procedure contained in letters of agreement.

2. Continue to monitor the last ATC assigned discrete code.

NOTE–
Pilots who experience a two-way radio failure will adjust their transponder to ***Code 7700*** *during climb/descent to altitude filed for the next leg of the flight plan; then change to* ***Code 7600*** *for a period of 15 minutes. At the end of each 15–minute period, he/she will squawk 7700 for a period of 1 minute; all other times he/she will squawk 7600.*

j. Impose delays, if needed, to eliminate conflict with nonparticipating IFR aircraft when necessary to preclude denial of IR usage. Advise the pilot of the expected length and reason for delay.

9–2–8. INTERCEPTOR OPERATIONS

Provide maximum assistance to expedite the movement of interceptor aircraft on active air defense (scrambles) missions until the unknown aircraft is identified in accordance with the policies and procedures published in FAAO 7610.4, Special Operations.

NOTE–
The FAA and the military have mutually agreed to the implementation of policies and procedures for control of air defense interceptor operations. Effective coordination and cooperation between FAA and the military at all levels are essential if policy objectives are to be met.

a. The ADCF initiating the SCRAMBLE shall identify the mission as an active air defense mission.

b. ATC services shall be used for active air defense missions insofar as the circumstances and situation permits.

c. Upon request, the ATC facility shall expedite transfer of the control jurisdiction of the interceptors to the requesting ADCF.

9–2–9. SPECIAL INTEREST SITES

a. Relay immediately to supervisory/CIC personnel any reports or information regarding unusual aircraft activities in the vicinity of special interest sites such as nuclear power plants, power plants, dams, refineries, etc. Supervisory/CIC personnel may also receive reports/information from the Nuclear Regulatory Commission or other sources.

b. Supervisory/CIC personnel shall immediately notify local law enforcement authorities of these reports/information as well as notifying the overlying air traffic facility of any of these reports and the action taken.

c. ARTCCs shall promptly advise the ATCSCC of any actions taken in accordance with this paragraph.

9–2–10. LAND–BASED AIR DEFENSE IDENTIFICATION ZONE (ADIZ) ATC PROCEDURES

TERMINAL

a. Verify, by direct observation or pilot confirmation, IFR and VFR flight operations entering, exiting, or transitioning the ADIZ meet all of the following minimum conditions:

1. Two–way radio communications are maintained at all times prior to entering and throughout transition of the ADIZ. Aircraft operating in an airport traffic pattern or landing at nontowered airports are exempt from the ATC communication requirement, provided they monitor the airport common traffic advisory frequency.

2. Aircraft is equipped with an operating transponder with automatic altitude reporting capability. Aircraft is squawking an ATC assigned discrete beacon code, with altitude, at all times. Do not allow an aircraft to cancel its flight plan and/or squawk VFR while in the ADIZ.

3. Aircraft with operating transponders, but without operating Mode C (altitude) require specific authorization from ATC in order to operate within the ADIZ. ATC must coordinate with the Domestic Events Network (DEN) prior to approval.

4. Aircraft flying too low for radar coverage shall be instructed to report landing or exiting the ADIZ. Maintain flight progress strips on such aircraft until pilot reports landing or exiting the ADIZ. If a flight progress strip does not exist for the aircraft, record the call sign, transponder code, entry point (e.g., north, northeast, east), and time of entry into the ADIZ.

PHRASEOLOGY–
(Call sign), REPORT LANDING OR LEAVING THE ADIZ.

5. United States Military, law enforcement, and aeromedical flights are exempt from filing flight plans.

b. Pilots unable to comply with the requirements of subpara a, above, shall be instructed to remain clear of or exit the ADIZ as appropriate. When equipment failure involving transponder or Mode C is experienced, and the aircraft is operating within the ADIZ, the pilot may be permitted to land. An operation such as this may be permissible when it is more expedient than exiting the ADIZ and no additional security risk is evident.

NOTE–
Specific operations may be exempted, waivered, or verbally granted by the appropriate authority establishing the ADIZ.

9–2–11. LAW ENFORCEMENT OPERATIONS BY CIVIL AND MILITARY ORGANIZATIONS

a. Law enforcement alerts.

1. Aircraft lookouts shall not be distributed outside the FAA.

REFERENCE–
FAAO 1600.29, Law Enforcement Alert Message System.
FAAO 7210.3, Cooperation With Law Enforcement Agencies, Para 2–7–7.

2. Stolen aircraft alerts, including stolen aircraft summaries, may be distributed outside the FAA to: airport offices, air carriers, fixed base operators, and law enforcement agencies.

3. Upon receipt of knowledge concerning an aircraft for which a current law enforcement alert message is held, do the following:

(a) Forward any information on the aircraft to El Paso Intelligence Center (EPIC) and the requester when specified in the message.

(b) Immediately notify the cognizant Transportation Security Administration office by the most rapid means.

(c) DO NOT TAKE ANY OTHER ACTION AFFECTING THE AIRCRAFT, CARGO, CREW, OR PASSENGERS NOT NORMALLY RELATED TO JOB RESPONSIBILITIES.

b. Special law enforcement operations.

1. Special law enforcement operations include inflight identification, surveillance, interdiction and pursuit activities performed in accordance with official civil and/or military mission responsibilities.

2. To facilitate accomplishment of these special missions, exemptions from specified parts of Title 14 of the Code of Federal Regulations have been granted to designated departments and agencies. However, it is each organization's responsibility to apprise ATC of their intent to operate under an authorized exemption before initiating actual operations.

REFERENCE–
FAAO 7210.3, Authorizations and Exemptions from Title 14, Code of Federal Regulations (14 CFR), Para 18–3–1.

3. Additionally, some departments and agencies that perform special missions have been assigned coded identifiers to permit them to apprise ATC of ongoing mission activities and solicit special air traffic assistance.

REFERENCE–
FAAO 7110.67, Special Aircraft Operations by Law Enforcement/Military Organizations.

NOTE–
As specified in para 2–1–4, Operational Priority, priority of handling for aircraft operating with coded identifiers will be the same as that afforded to SAR aircraft performing a SAR mission.

c. Assistance to law enforcement aircraft operations.

1. Provide the maximum assistance possible to law enforcement aircraft, when requested, in helping them locate suspect aircraft.

2. Communicate with law enforcement aircraft, when possible and if requested, on a frequency not paired with your normal communications frequencies.

3. Do not allow assistance to law enforcement aircraft to violate any required separation minima.

4. Do not assist VFR law enforcement aircraft in any way that will create a situation which, in your judgment, places the aircraft in unsafe proximity to terrain or other aircraft.

9–2–12. MILITARY AERIAL REFUELING

Authorize aircraft to conduct aerial refueling along published or special tracks at their flight plan altitude, unless otherwise requested.

PHRASEOLOGY–
CLEARED TO CONDUCT REFUELING ALONG (number) TRACK,

or

FROM (fix) TO (fix),

and

MAINTAIN REFUELING LEVEL (altitude),

or

MAINTAIN (altitude),

or

COMMENCING AT (altitude), DESCENDING TO (altitude).

NOTE–
1. *During aerial refueling, tanker aircraft are responsible for receiver aircraft communication with ATC and for their navigation along the track.*

2. *Aerial refueling airspace is not sterilized airspace and other aircraft may transit this airspace provided vertical or lateral separation is provided from refueling aircraft.*

3. *MARSA begins between the tanker and receiver when the tanker and receiver(s) have entered the air refueling airspace and the tanker advises ATC that he/she is accepting MARSA.*

4. *MARSA ends between the tanker and receiver when the tanker advises ATC that the tanker and receiver aircraft are vertically positioned within the air refueling airspace and ATC advises MARSA is terminated.*

REFERENCE–
FAAO 7110.65, Use of MARSA, Para 2–1–11.
FAAO 7110.65, Additional Separation for Formation Flights, Para 5–5–8.
FAAO 7610.4, Chapter 10, Aerial Refueling.

a. Provide radar assistance to the rendezvous for participating aircraft:

1. When requested, and

2. By providing vertical separation prior to MARSA declaration.

b. Do not request receiver aircraft that have been cleared to conduct air refueling and have departed the ARIP to:

1. Make code changes when less than 5 miles from the tanker.

2. Squawk standby when less than 1 mile or more than 3 miles from the tanker.

NOTE–
Requests for receiver aircraft to make code changes during air refueling diverts the receiver pilot's attention during a critical phase of flight.

c. When issuing an initial air refueling clearance, you may request a receiver to squawk standby when the receiver reaches a point 3 miles from the tanker.

NOTE–
1. *Receiver aircraft will squawk normal when separation from the tanker is greater than 3 miles.*

2. *Once rendezvous is completed, heading and altitude assignments may be made with the tanker concurrence with MARSA remaining in effect.*

3. *Upon rendezvous completion, the tanker shall keep receiver aircraft within 3 miles of the tanker until MARSA is terminated.*

d. After MARSA has been declared, you should avoid issuing course or altitude changes prior to rendezvous.

NOTE–
Altitude or course changes issued will automatically void MARSA.

e. Do not use the altitude vacated during the refueling operation until the refueling aircraft has reported reaching the next IFR altitude.

REFERENCE–
FAAO 7110.65, Exceptions, Para 6–6–2.

f. Approve requests by the tanker pilot for vectors or alternative routes or altitudes as follows:

1. Furnish vectors or alternative altitudes at any time.

2. Furnish nonradar routes only after the refueling aircraft have passed the ARCP.

NOTE–
1. *To meet a training requirement that aerial refueling be accomplished in a nonradar environment, the military has requested that vectors be furnished only upon request.*

2. *The tanker commander is responsible for coordinating all inflight requests with other aircraft in the refueling mission before submission of such requests to the center.*

3. *Normally, aircraft conducting aerial refueling operations will utilize at least three consecutive altitudes.*

g. Unless a vector or alternative route has been furnished, clear the aircraft to depart the refueling track at a navigational reference point or egress fix.

h. Request an aircraft to report the ARIP, ARCP, or egress fix as necessary.

PHRASEOLOGY–
REPORT:

A–R–I–P,

or

A–R–C–P,

or

EGRESS FIX.

i. Expect the following procedures in addition to those required by the appropriate parts of Title 14 of the Code of Federal Regulations in the event of two-way communications failure:

1. The tanker will depart the track from the highest altitude in the block.

2. The receiver will depart the track from the lowest altitude in the block.

3. Aircraft will squawk 7600 for at least 2 minutes prior to departing the track.

REFERENCE–
FAAO 7110.65, Military Operations Above FL 600, Para 9–2–13.

9–2–13. MILITARY OPERATIONS ABOVE FL 600

Control aircraft operating above FL 600 using the following procedures:

a. Flight plans involving supersonic flight are required 16 hours in advance of proposed departure times for processing and approval by the ARTCCs concerned. The originating ARTCC, where the flight plan is first filed, may waive the 16–hour advance filing requirement.

b. The route of flight shall be defined by at least one high altitude fix within each ARTCC area without regard to the distance between fixes. Additionally, the entry and exit points of turns of 90 degrees or more will be designated.

c. Elapsed times from takeoff to the first fix in each ARTCC area shall be included in the route of flight.

d. The ARTCC which originates the flight plan shall forward departure times to all ARTCCs responsible for processing the flight plan.

e. Approval of the flight plan indicates approval of both route and flight levels (if stated) including operations below FL 600 (aerial refueling).

PHRASEOLOGY–
CLEARED AS FILED VIA ROUTE AND FLIGHT LEVELS.

REFERENCE–
FAAO 7110.65, Military Aerial Refueling, Para 9–2–12.

f. Separation. Use the following as minima in lieu of the corresponding type of separation prescribed in:

NOTE–
The primary method described to provide separation between two supersonic aircraft is to descend the aircraft at the lower FL and provide vertical separation since the aircraft at the higher FL may not be able to climb rapidly enough to establish the required separation. Another aspect which should be considered is that supersonic aircraft during turns, either programmed or as the result of vectors, will lose a few thousand feet. Vectoring supersonic aircraft seriously affects the range and mission objectives. Radar separation is the preferred method of separating a subsonic aircraft both from another subsonic aircraft or from a supersonic aircraft.

1. Para 4–5–1, Vertical Separation Minima: *5,000 feet.*

NOTE–
1. *The security requirements of the military services preclude the transmission of actual altitude information on the air/ground or landline circuits. A classified document detailing the plan for ascertaining altitude codes for the day should be readily available to the controllers at their positions of operation.*

2. *Pilots will report their altitude, using the coded plan, and intended flight profile on initial contact with each ARTCC.*

2. Para 6–5–4, Minima Along Other Than Established Airways or Routes: Protect the airspace 25 miles either side of the route centerline. For turns by supersonic aircraft, protect the airspace 75 miles on the overflown side and 25 miles on the other side. For turns by subsonic aircraft, protect the airspace 34 miles on the overflown side and 25 miles on the other side.

REFERENCE–
FAAO 7110.65, Abbreviated Departure Clearance, Para 4–3–3.

9–2–14. MILITARY SPECIAL USE FREQUENCIES

a. Assign special use frequency to:

NOTE–
Special use frequencies are assigned to ARTCCs in such a manner that adjacent ARTCCs will not have the same frequency. They are to be used within the ARTCC area jurisdiction from the established FL base of the high altitude sectors and above. Each high altitude sector should have the capability to use the special use frequency on a shared basis.

1. USAF, U.S. Navy, and Air National Guard (ANG) single-pilot jet aircraft formations operating at night or in instrument weather conditions. Formations of five or more USAF aircraft deploying either to a continental U.S. staging base or nonstop to an overseas location are authorized to use special use frequencies at any time. Normally these deployments will be conducted within an altitude reservation.

2. U–2 and B–57 (pressure suit flights) aircraft at all altitudes/FLs except where terminal operations require the assignment of other frequencies.

NOTE–
Aerial refueling operations may require that aircraft leave the special use frequency for communications with the tanker. This will occur when the receiver is approximately 200 miles from the ARCP. The tanker aircraft will remain on the ARTCC assigned frequency and will relay clearances to the receiver as required. An alternate means of communications between the tanker and receiver is HF radio.

3. All aircraft during supersonic flight.

NOTE–
Pilots are expected to request assignment of the special use frequency in the remarks section of the flight plan or before entering supersonic flight. B–57 aircraft engaged in pressure suit operations will use the static call sign KITE and flights will normally be conducted from Dover, Eielson, Ellington, Hickman, Howard, Kirtland, and McClellan Air Force Bases.

4. E–3A AWACS mission crews when operations are being conducted as an MRU in accordance with appropriate letters of agreement.

b. The special use frequency may be assigned as "backup" for the high-altitude sector when direct communications are essential because of a potential emergency control situation.

c. Do not assign the special use frequency to the aircraft in subpara a1 above, when they will operate in airspace assigned for special military operations.

9–2–15. AVOIDANCE OF AREAS OF NUCLEAR RADIATION

a. Advise pilots whenever their proposed flight path will traverse a reported or forecasted area of hazardous radiation and reroute the aircraft when requested by the pilot.

REFERENCE–
FAAO 7610.4, Avoidance of Hazardous Radiation Areas, Para 4–4–4.

b. Inform pilots when an airfield of intended landing lies within a reported or forecasted area of hazardous radiation and request the pilot to advise his/her intentions.

9–2–16. SAMP

Provide special handling to U.S. Government and military aircraft engaged in aerial sampling missions (atmosphere sampling for nuclear, chemical, or hazardous material contamination). Honor inflight clearance requests for altitude and route changes to the maximum extent possible. Other IFR aircraft may be recleared so that requests by SAMPLER aircraft are honored. Separation standards as outlined in this order shall be applied in all cases.

REFERENCE–
FAAO 7110.65, Operational Priority, Para 2–1–4.
FAAO 7110.65, Aircraft Identification, Para 2–4–20.
FAAO 7610.4, Avoidance of Hazardous Radiation Areas, Para 4–4–4.

9–2–17. AWACS/NORAD SPECIAL FLIGHTS

Do not delay E–3 AWACS aircraft identified as "AWACS/NORAD Special" flights. The following control actions are acceptable while expediting these aircraft to the destination orbit.

a. En route altitude changes +/– 2,000 feet from the requested flight level.

b. Radar vectors or minor route changes that do not impede progress towards the destination orbit.

NOTE–
NORAD has a requirement to position E–3 AWACS aircraft at selected locations on a time-critical basis. To the extent possible these flights will utilize routes to the destination orbit that have been precoordinated with the impacted ATC facilities. To identify these flights, the words "AWACS/NORAD SPECIAL" will be included as the first item in the remarks section of the flight plan.

9–2–18. WEATHER RECONNAISSANCE FLIGHTS

TEAL and NOAA mission aircraft fly reconnaissance flights to gather meteorological data on winter storms, (NWSOP missions), hurricanes and tropical cyclones (NHOP missions). The routes and timing of these flights are determined by movement of the storm areas and not by traffic flows.

a. When a dropsonde release time is received from a TEAL or NOAA mission aircraft, workload and priorities permitting, controllers shall advise the

mission aircraft of any traffic estimated to pass through the area of the drop at altitudes below that of the mission aircraft. This traffic advisory shall include:

1. Altitude.

2. Direction of flight.

3. ETA at the point closest to drop area (or at the fix/intersection where drop will occur).

NOTE–
A dropsonde is a 14–inch long cardboard cylinder about 2.75 inches in diameter, that weighs approximately 14 ounces (400 grams), and has a parachute attached. When released from the aircraft it will fall at a rate of approximately 2,500 feet per minute. Controllers should recognize that a dropsonde released at FL 310 will be a factor for traffic at FL 210 four minutes later. It is the aircraft commanders responsibility to delay release of dropsondes if traffic is a factor. Aircraft commanders will delay release of dropsondes based solely upon traffic as issued by ATC.

b. When advised that an airborne TEAL or NOAA aircraft is requesting a clearance via CARCAH, issue the clearance in accordance with Chapter 4, IFR, Section 2, Clearances.

REFERENCE–
FAAO 7110.65, Clearance Items, Para 4–2–1.
FAAO 7110.65, Clearance Prefix, Para 4–2–2.
FAAO 7110.65, Delivery Instructions, Para 4–2–3.

c. If a TEAL or NOAA mission aircraft must be contacted but is out of VHF, UHF, and HF radio range, advise the supervisory traffic management coordinator–in–charge.

REFERENCE–
FAAO 7210.3, Weather Reconnaissance Flights, Para 5–3–6.
FAAO 7110.65, Operational Priority, Para 2–1–4.

9–2–19. EVASIVE ACTION MANEUVER

Approve a pilot request to conduct an evasive action maneuver only on the basis of a permissible traffic situation. Specify the following items, as necessary, when issuing approval:

NOTE–
The "evasive action" maneuver is performed by a bomber/fighter bomber aircraft at or above FL 250 along a 60 NM long segment of the flight plan route overlying a RBS or other site and includes:

1. *Flying a zigzag pattern on both the left and right side of the flight plan route centerline. Altitude deviations are made in conjunction with the lateral maneuvering.*

2. *Lateral deviations from the route centerline will not normally exceed 12 miles. Altitude variations shall not exceed plus or minus 1,000 feet of the assigned flight level; i.e., confined within a 2,000 foot block.*

a. Specific route segment on which the maneuver will take place.

b. Distance of maximum route deviation from the centerline in miles.

c. Altitude.

PHRASEOLOGY–
CLEARED TO CONDUCT EVASIVE ACTION MANEUVER FROM (fix) TO (fix),

and

(number of miles) EITHER SIDE OF CENTERLINE,

and

MAINTAIN (altitude) THROUGH (altitude),

and

COMPLETE MANEUVER AT (fix) AT (altitude).

9–2–20. NONSTANDARD FORMATION/CELL OPERATIONS

Occasionally the military is required to operate in a nonstandard cell formation and controllers should be knowledgeable of the various tactics employed and the procedures used.

REFERENCE–
FAAO 7610.4, Chapter 12, Section 12, Formation Flight.

a. Formation leaders are responsible for obtaining ATC approval to conduct nonstandard formation/cell operations.

b. When nonstandard formation/cell operations have been approved, controllers shall assign sufficient altitudes to allow intra-cell vertical spacing of 500 feet between each aircraft in the formation.

c. Control nonstandard formation/cell operations on the basis that MARSA is applicable between the participating aircraft until they establish approved separation which is acknowledged by ATC.

d. Apply standard separation criteria between the approved nonstandard formation/cell envelope and nonparticipating aircraft.

e. Clear aircraft operating in a nonstandard formation/cell to the breakup fix as the clearance limit. Forward data pertaining to route or altitude beyond the breakup point to the center concerned as a part of the routine flight plan information.

f. *EN ROUTE.* If the breakup occurs in your area, issue appropriate clearances to authorize transition from formation to individual routes or altitudes. If a breakup cannot be approved, issue an appropriate clearance for the flight to continue as a formation.

9–2–21. OPEN SKIES TREATY AIRCRAFT

a. OPEN SKIES aircraft will be identified by the call sign "OSY" (OPEN SKIES) followed by two digits and a one–letter mission suffix.

EXAMPLE–
OSY12D
Mission suffixes:
**F = Observation Flights (Priority).*
**D = Demonstration Flights (Priority).*
**T = Transit Flights (Nonpriority).*

NOTE–
1. *Observation/Demonstration flights are conducted under rigid guidelines outlined in the Treaty of OPEN SKIES that govern sensor usage, maximum flight distances, altitudes and priorities.*
2. *Transit flights are for the sole purpose of moving an OPEN SKIES aircraft from airport to airport in preparation for an actual OPEN SKIES "F" or "D" mission.*

b. Provide priority and special handling to expedite the movement of an OPEN SKIES observation or demonstration flight.

REFERENCE–
FAAO 7110.65, Operational Priority, Para 2–1–4n.
FAAO 7210.3, OPEN SKIES Treaty Aircraft, Para 5–3–7.
Treaty on OPEN SKIES, Treaty Document, 102–37.

c. OPEN SKIES aircraft, while maintaining compliance with ATC procedures, shall have priority over activities in Special Use Airspace (SUA) and shall be allowed to transit such airspace as filed after appropriate and timely coordination has been accomplished between the using agency and controlling agency.

1. OPEN SKIES Treaty flights transiting SUA will be handled in the following manner:

(a) The ATC facility controlling the OPEN SKIES flight shall advise the using/scheduling agency or appropriate ATC facility when the OPEN SKIES aircraft is fifteen (15) minutes from the SUA boundary; and

(1) For SUA that has an ATC facility providing services to the area, provide standard separation. If the ATC facility is unable to provide standard separation from the activities in the SUA, the using agency must confirm that all operations in the SUA have ceased.

(2) For SUA not associated with an ATC facility, the using/scheduling agency must return the SUA to the controlling agency and confirm that all operations in the SUA have ceased.

(b) If the controlling facility/using agency is unable to confirm that all conflicting activities in the SUA have ceased, the OPEN SKIES aircraft shall not be permitted access to the SUA.

2. Return SUA to the using agency, if appropriate, within fifteen (15) minutes after the OPEN SKIES aircraft clears the SUA.

d. Clear the aircraft according to the filed flight plan.

1. Do not ask the pilot to deviate from the planned action or route of flight except to preclude an emergency situation or other higher priority aircraft.

2. Do not impose air traffic control delays except to preclude emergency situations or other higher priority aircraft.

NOTE–
If for reasons of flight safety the route or altitude must be changed, return the aircraft to the filed flight plan route as soon as practical.

Section 2. Emergency Assistance

10–2–1. INFORMATION REQUIREMENTS

a. Start assistance as soon as enough information has been obtained upon which to act. Information requirements will vary, depending on the existing situation. Minimum required information for inflight emergencies is:

NOTE–
In the event of an ELT signal see para 10–2–10, Emergency Locator Transmitter (ELT) Signals.

1. Aircraft identification and type.

2. Nature of the emergency.

3. Pilot's desires.

b. After initiating action, obtain the following items or any other pertinent information from the pilot or aircraft operator, as necessary:

NOTE–
Normally, do not request this information from military fighter-type aircraft that are at low altitudes (i.e. on approach, immediately after departure, on a low level route, etc.). However, request the position of an aircraft that is not visually sighted or displayed on radar if the location is not given by the pilot.

1. Aircraft altitude.

2. Fuel remaining in time.

3. Pilot reported weather.

4. Pilot capability for IFR flight.

5. Time and place of last known position.

6. Heading since last known position.

7. Airspeed.

8. Navigation equipment capability.

9. NAVAID signals received.

10. Visible landmarks.

11. Aircraft color.

12. Number of people on board.

13. Point of departure and destination.

14. Emergency equipment on board.

10–2–2. FREQUENCY CHANGES

Although 121.5 MHz and 243.0 MHz are emergency frequencies, it might be best to keep the aircraft on the initial contact frequency. Change frequencies only when there is a valid reason.

10–2–3. AIRCRAFT ORIENTATION

Orientate an aircraft by the means most appropriate to the circumstances. Recognized methods include:

a. Radar.

b. DF.

c. NAVAIDs.

d. Pilotage.

e. Sighting by other aircraft.

10–2–4. ALTITUDE CHANGE FOR IMPROVED RECEPTION

When you consider it necessary and if weather and circumstances permit, recommend that the aircraft maintain or increase altitude to improve communications, radar, or DF reception.

NOTE–
Aircraft with high-bypass turbofan engines (such as B747) encountering volcanic ash clouds have experienced total loss of power to all engines. Damage to engines due to volcanic ash ingestion increases as engine power is increased, therefore, climb while in the ash cloud is to be avoided where terrain permits.

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

10–2–5. EMERGENCY SITUATIONS

Consider that an aircraft emergency exists and inform the RCC or ARTCC and alert the appropriate DF facility when:

NOTE–
1. *USAF facilities are only required to notify the ARTCC.*

2. *The requirement to alert DF facilities may be deleted if radar contact will be maintained throughout the duration of the emergency.*

a. An emergency is declared by either:

1. The pilot.

2. Facility personnel.

3. Officials responsible for the operation of the aircraft.

b. There is unexpected loss of radar contact and radio communications with any IFR or VFR aircraft.

c. Reports indicate it has made a forced landing, is about to do so, or its operating efficiency is so impaired that a forced landing will be necessary.

d. Reports indicate the crew has abandoned the aircraft or is about to do so.

e. An emergency radar beacon response is received.

NOTE-
EN ROUTE. During Stage A operation, ***Code 7700*** *causes EMRG to blink in field E of the data block.*

f. Intercept or escort aircraft services are required.

g. The need for ground rescue appears likely.

h. An Emergency Locator Transmitter (ELT) signal is heard or reported.

REFERENCE-
FAAO 7110.65, Providing Assistance, Para 10-1-3.
FAAO 7110.65, Emergency Locator Transmitter (ELT) Signals, Para 10-2-10.

10-2-6. HIJACKED AIRCRAFT

Hijack attempts or actual events are a matter of national security and require special handling. Policy and procedures for hijack situations are detailed in FAAO JO 7610.4, Special Operations. FAAO JO 7610.4 describes reporting requirements, air crew procedures, air traffic procedures and escort or interceptor procedures for hijack situations.

REFERENCE-
FAAO JO 7610.4, Hijacked/Suspicious Aircraft Reporting and Procedures, Chapter 7.
FAAO 7110.65, Code Monitor, Para 5-2-13.

10-2-7. VFR AIRCRAFT IN WEATHER DIFFICULTY

a. If VFR aircraft requests assistance when it encounters or is about to encounter IFR weather conditions, determine the facility best able to provide service. If a frequency change is necessary, advise the pilot of the reason for the change, and request the aircraft contact the appropriate control facility. Inform that facility of the situation. If the aircraft is unable to communicate with the control facility, relay information and clearances.

b. The following shall be accomplished on a Mode C equipped VFR aircraft which is in emergency but no longer requires the assignment of **Code 7700**:

1. *TERMINAL.* Assign a beacon code that will permit terminal minimum safe altitude warning (MSAW) alarm processing.

2. *EN ROUTE.* An appropriate keyboard entry shall be made to ensure en route MSAW (EMSAW) alarm processing.

10-2-8. RADAR ASSISTANCE TO VFR AIRCRAFT IN WEATHER DIFFICULTY

a. If a VFR aircraft requests radar assistance when it encounters or is about to encounter IFR weather conditions, ask the pilot if he/she is qualified for and capable of conducting IFR flight.

b. If the pilot states he/she is qualified for and capable of IFR flight, request him/her to file an IFR flight plan and then issue clearance to destination airport, as appropriate.

c. If the pilot states he/she is not qualified for or not capable of conducting IFR flight, or if he/she refuses to file an IFR flight plan, take whichever of the following actions is appropriate:

1. Inform the pilot of airports where VFR conditions are reported, provide other available pertinent weather information, and ask if he/she will elect to conduct VFR flight to such an airport.

2. If the action in subpara 1 above is not feasible or the pilot declines to conduct VFR flight to another airport, provide radar assistance if the pilot:

(a) Declares an emergency.

(b) Refuses to declare an emergency and you have determined the exact nature of the radar services the pilot desires.

3. If the aircraft has already encountered IFR conditions, inform the pilot of the appropriate terrain/obstacle clearance minimum altitude. If the aircraft is below appropriate terrain/obstacle clearance minimum altitude and sufficiently accurate position information has been received or radar identification is established, furnish a heading or radial on which to climb to reach appropriate terrain/obstacle clearance minimum altitude.

d. The following shall be accomplished on a Mode C equipped VFR aircraft which is in emergency but no longer requires the assignment of **Code 7700**:

1. *TERMINAL.* Assign a beacon code that will permit terminal minimum safe altitude warning (MSAW) alarm processing.

2. *EN ROUTE.* An appropriate keyboard entry shall be made to ensure en route MSAW (EMSAW) alarm processing.

10–2–9. RADAR ASSISTANCE TECHNIQUES

Use the following techniques to the extent possible when you provide radar assistance to a pilot not qualified to operate in IFR conditions:

a. Avoid radio frequency changes except when necessary to provide a clear communications channel.

b. Make turns while the aircraft is in VFR conditions so it will be in a position to fly a straight course while in IFR conditions.

c. Have pilot lower gear and slow aircraft to approach speed while in VFR conditions.

d. Avoid requiring a climb or descent while in a turn if in IFR conditions.

e. Avoid abrupt maneuvers.

f. Vector aircraft to VFR conditions.

g. The following shall be accomplished on a Mode C equipped VFR aircraft which is in emergency but no longer requires the assignment of **Code 7700**:

1. *TERMINAL.* Assign a beacon code that will permit terminal minimum safe altitude warning (MSAW) alarm processing.

2. *EN ROUTE.* An appropriate keyboard entry shall be made to ensure en route MSAW (EMSAW) alarm processing.

10–2–10. EMERGENCY LOCATOR TRANSMITTER (ELT) SIGNALS

When an ELT signal is heard or reported:

a. *EN ROUTE.* Notify the Rescue Coordination Center (RCC).

NOTE–
FAA Form 7210–8, ELT INCIDENT, contains standardized format for coordination with the RCC.

REFERENCE–
FAAO 7210.3, FAA Form 7210–8, ELT Incident, Para 9–3–1.

b. *TERMINAL.* Notify the ARTCC which will coordinate with the RCC.

NOTE–
1. *Operational ground testing of emergency locator transmitters (ELTs) has been authorized during the first 5 minutes of each hour. To avoid confusing the tests with an actual alarm, the testing is restricted to no more than three audio sweeps.*

2. *Controllers can expect pilots to report aircraft position and time the signal was first heard, aircraft position and time the signal was last heard, aircraft position at maximum signal strength, flight altitude, and frequency of the emergency signal (121.5/243.0). (See AIM, Emergency Locator Transmitter (ELT), Para 6–2–5.)*

c. *EN ROUTE.* Request DF facilities obtain fixes or bearings on signal. Forward bearings or fixes obtained plus any other pertinent information to the RCC.

d. *TERMINAL.* Attempt to obtain fixes or bearings on the signal.

e. Solicit the assistance of other aircraft known to be operating in the signal area.

f. *TERMINAL.* Forward fixes or bearings and any other pertinent information to the ARTCC.

NOTE–
Fix information in relation to a VOR or VORTAC (radial-distance) facilitates accurate ELT plotting by RCC and should be provided when possible.

g. *EN ROUTE.* When the ELT signal strength indicates the signal may be emanating from somewhere on an airport or vicinity thereof, notify the on-site technical operations personnel and the Regional Operations Center (ROC) for their actions. This action is in addition to the above.

h. *TERMINAL.* When the ELT signal strength indicates the signal may be emanating from somewhere on the airport or vicinity thereof, notify the on-site technical operations personnel and the ARTCC for their action. This action is in addition to the above.

i. Air traffic personnel shall not leave their required duty stations to locate an ELT signal source.

NOTE–
Portable handcarried receivers assigned to air traffic facilities (where no technical operations personnel are available) may be loaned to responsible airport personnel or local authorities to assist in locating the ELT signal source.

j. *EN ROUTE.* Notify the RCC, the ROC, and alerted DF facilities if signal source is located/terminated.

k. *TERMINAL.* Notify the ARTCC if signal source is located/terminated.

REFERENCE–
FAAO 7110.65, Responsibility, Para 10–1–4.
FAAO 7110.65, Information Requirements, Para 10–2–1.

10–2–11. AIRCRAFT BOMB THREATS

a. When information is received from any source that a bomb has been placed on, in, or near an aircraft for the purpose of damaging or destroying such aircraft, notify your supervisor or the facility air traffic manager. If the threat is general in nature, handle it as a "Suspicious Activity." When the threat is targeted against a specific aircraft and you are in contact with the suspect aircraft, take the following actions as appropriate:

REFERENCE–
FAAO JO 7610.4, Hijacked/Suspicious Aircraft Reporting and Procedures, Chapter 7.

1. Advise the pilot of the threat.

2. Inform the pilot that technical assistance can be obtained from an FAA aviation explosives expert.

NOTE–
An FAA aviation explosive expert is on call at all times and may be contacted by calling the FAA Operations Center, Washington, DC, Area Code 202–267–3333, ETN 521–0111, or DSN 851–3750. Technical advice can be relayed to assist civil or military air crews in their search for a bomb and in determining what precautionary action to take if one is found.

3. Ask the pilot if he/she desires to climb or descend to an altitude that would equalize or reduce the outside air pressure/existing cabin air pressure differential. Issue or relay an appropriate clearance considering MEA, MOCA, MRA, and weather.

NOTE–
Equalizing existing cabin air pressure with outside air pressure is a key step which the pilot may wish to take to minimize the damage potential of a bomb.

4. Handle the aircraft as an emergency and/or provide the most expeditious handling possible with respect to the safety of other aircraft, ground facilities, and personnel.

NOTE–
Emergency handling is discretionary and should be based on the situation. With certain types of threats, plans may call for a low-key action or response.

5. Issue or relay clearances to a new destination if requested.

6. When a pilot requests technical assistance or if it is apparent that a pilot may need such assistance, do NOT suggest what actions the pilot should take concerning a bomb, but obtain the following information and notify your supervisor who will contact the FAA aviation explosives expert:

NOTE–
This information is needed by the FAA aviation explosives expert so that he/she can assess the situation and make immediate recommendations to the pilot. The aviation explosives expert may not be familiar with all military aircraft configurations but he/she can offer technical assistance which would be beneficial to the pilot.

(a) Type, series, and model of the aircraft.

(b) Precise location/description of the bomb device if known.

(c) Other details which may be pertinent.

NOTE–
The following details may be of significance if known, but it is not intended that the pilot should disturb a suspected bomb/bomb container to ascertain the information: The altitude or time set for the bomb to explode, type of detonating action (barometric, time, anti-handling, remote radio transmitter), power source (battery, electrical, mechanical), type of initiator (blasting cap, flash bulb, chemical), and the type of explosive/incendiary charge (dynamite, black powder, chemical).

b. When a bomb threat involves an aircraft on the ground and you are in contact with the suspect aircraft, take the following actions in addition to those discussed in the preceding paragraphs which may be appropriate:

1. If the aircraft is at an airport where tower control or FSS advisory service is not available, or if the pilot ignores the threat at any airport, recommend that takeoff be delayed until the pilot or aircraft operator establishes that a bomb is not aboard in accordance with 14 CFR Part 121. If the pilot insists on taking off and in your opinion the operation will

not adversely affect other traffic, issue or relay an ATC clearance.

REFERENCE–
14 CFR Section 121.538, Airplane Security.

2. Advise the aircraft to remain as far away from other aircraft and facilities as possible, to clear the runway, if appropriate, and to taxi to an isolated or designated search area. When it is impractical or if the pilot takes an alternative action; e.g., parking and off-loading immediately, advise other aircraft to remain clear of the suspect aircraft by at least 100 yards if able.

NOTE–
Passenger deplaning may be of paramount importance and must be considered before the aircraft is parked or moved away from service areas. The decision to use ramp facilities rests with the pilot, aircraft operator/airport manager.

c. If you are unable to inform the suspect aircraft of a bomb threat or if you lose contact with the aircraft, advise your supervisor and relay pertinent details to other sectors or facilities as deemed necessary.

d. When a pilot reports the discovery of a bomb or suspected bomb on an aircraft which is airborne or on the ground, determine the pilot's intentions and comply with his/her requests in so far as possible. Take all of the actions discussed in the preceding paragraphs which may be appropriate under the existing circumstances.

e. The handling of aircraft when a hijacker has or is suspected of having a bomb requires special considerations. Be responsive to the pilot's requests and notify supervisory personnel. Apply hijacking procedures and offer assistance to the pilot according to the preceding paragraphs, if needed.

10–2–12. EXPLOSIVE DETECTION K–9 TEAMS

Take the following actions should you receive an aircraft request for the location of the nearest explosive detection K–9 team.

REFERENCE–
FAAO 7210.3, Explosives Detection K–9 Teams, Para 2–1–11.

a. Obtain the aircraft identification and position and advise your supervisor of the pilot request.

b. When you receive the nearest location of the explosive detection K–9 team, relay the information to the pilot.

c. If the aircraft wishes to divert to the airport location provided, obtain an estimated arrival time from the pilot and advise your supervisor.

10–2–13. MANPADS ALERT

When a threat or attack from Man–Portable Air Defense Systems (MANPADS) is determined to be real, notify and advise aircraft as follows:

a. Do not withhold landing clearance. To the extent possible, issue information on MANPADS threats, confirmed attacks, or post–event activities in time for it to be useful to the pilot. The pilot or parent company will determine the pilot's actions.

b. MANPADS information will be disseminated via the ATIS and/or controller–to–pilot transmissions.

c. Disseminate via controller–to–pilot transmission until the appropriate MANPADS information is broadcast via the ATIS and pilots indicate they have received the appropriate ATIS code. MANPADS information will include nature and location of threat or incident, whether reported or observed and by whom, time (if known), and when transmitting to an individual aircraft, a request for pilot's intentions.

PHRASEOLOGY–
ATTENTION (aircraft identification), MANPADS ALERT. EXERCISE EXTREME CAUTION. MANPADS THREAT/ATTACK/POST–EVENT ACTIVITY OBSERVED/REPORTED BY (reporting agency) (location) AT (time, if known). (When transmitting to an individual aircraft) SAY INTENTIONS.

EXAMPLE–
"Attention Eastern Four Seventeen, MANPADS alert. Exercise extreme caution. MANPADS threat reported by TSA, LaGuardia vicinity. Say intentions."

"Attention all aircraft, MANPADS alert. Exercise extreme caution. MANPADS post–event activity observed by tower south of airport at two–one–zero–zero Zulu."

d. Report MANPADS threat/attack/post–event activity until notified otherwise by FAA national headquarters.

REFERENCE–
FAAO 7110.65, Content, Para 2–9–3.
FAAO 7210.3, Handling MANPADS Incidents, Para 2–1–9.

10–2–14. UNAUTHORIZED LASER ILLUMINATION OF AIRCRAFT

a. When a laser event is reported to an air traffic facility, broadcast on all appropriate frequencies a general caution warning every five minutes for 20 minutes following the last report.

PHRASEOLOGY–
UNAUTHORIZED LASER ILLUMINATION EVENT, (location), (altitude).

b. Terminal facilities shall include reported unauthorized laser illumination events on the ATIS broadcast for one hour following the last report. Include the time, location, altitude, color, and direction of the laser as reported by the pilot.

NOTE–
All personnel can expect aircrews to regard lasers as an inflight emergency and may take evasive action to avoid laser illumination. Additionally, other aircraft may request clearance to avoid the area.

REFERENCE–
FAAO 7110.65, Content, Para 2–9–3.
FAAO 7210.3, Reporting Unauthorized Laser Illumination of Aircraft, Para 2–1–27.

10–2–15. EMERGENCY AIRPORT RECOMMENDATION

a. Consider the following factors when recommending an emergency airport:

1. Remaining fuel in relation to airport distances.

2. Weather conditions.

NOTE–
Depending on the nature of the emergency, certain weather phenomena may deserve weighted consideration when recommending an airport; e.g., a pilot may elect to fly farther to land at an airport with VFR instead of IFR conditions.

3. Airport conditions.

4. NAVAID status.

5. Aircraft type.

6. Pilot's qualifications.

7. Vectoring or homing capability to the emergency airport.

b. Consideration to the provisions of subpara a and para 10–2–16, Guidance to Emergency Airport, shall be used in conjunction with the information derived from any automated emergency airport information source.

10–2–16. GUIDANCE TO EMERGENCY AIRPORT

a. When necessary, use any of the following for guidance to the airport:

1. Radar.

2. DF.

3. Following another aircraft.

4. NAVAIDs.

5. Pilotage by landmarks.

6. Compass headings.

b. Consideration to the provisions of para 10–2–15, Emergency Airport Recommendation, shall be used in conjunction with the information derived from any automated emergency airport information source.

10–2–17. EMERGENCY OBSTRUCTION VIDEO MAP (EOVM)

a. The EOVM is intended to facilitate advisory service to an aircraft in an emergency situation wherein an appropriate terrain/obstacle clearance minimum altitude cannot be maintained. It shall only be used and the service provided under the following conditions:

1. The pilot has declared an emergency, or

2. The controller has determined that an emergency condition exists or is imminent because of the pilot's inability to maintain an appropriate terrain/obstacle clearance minimum altitude.

NOTE–
Appropriate terrain/obstacle clearance minimum altitudes may be defined as Minimum IFR Altitude (MIA), Minimum En Route Altitude (MEA), Minimum Obstruction Clearance Altitude (MOCA), or Minimum Vectoring Altitude (MVA).

b. When providing emergency vectoring service, the controller shall advise the pilot that any headings issued are emergency advisories intended only to direct the aircraft toward and over an area of lower terrain/obstacle elevation.

NOTE–
Altitudes and obstructions depicted on the EOVM are the actual altitudes and locations of the obstacle/terrain and contain no lateral or vertical buffers for obstruction clearance.

REFERENCE–
FAAO 7210.3, Emergency Obstruction Video Map (EOVM), Para 3–9–4.

10–2–18. VOLCANIC ASH

a. If a volcanic ash cloud is known or forecast to be present:

1. Relay all information available to pilots to ensure that they are aware of the ash cloud's position and altitude(s).

2. Suggest appropriate reroutes to avoid the area of known or forecast ash clouds.

NOTE–
Volcanic ash clouds are not normally detected by airborne or air traffic radar systems.

b. If advised by an aircraft that it has entered a volcanic ash cloud and indicates that a distress situation exists:

1. Consider the aircraft to be in an emergency situation.

2. Do not initiate any climb clearances to turbine–powered aircraft until the aircraft has exited the ash cloud.

3. Do not attempt to provide escape vectors without pilot concurrence.

NOTE–
1. *The recommended escape maneuver is to reverse course and begin a descent (if terrain permits). However, it is the pilot's responsibility to determine the safest escape route from the ash cloud.*

2. *Controllers should be aware of the possibility of complete loss of power to any turbine–powered aircraft that encounters an ash cloud.*

REFERENCE–
FAAO 7110.65, Altitude Change for Improved Reception, Para 10–2–4.
AIM, Flight Operations in Volcanic Ash, Para 7–5–9.

Section 4. Control Actions

10–4–1. TRAFFIC RESTRICTIONS

IFR traffic which could be affected by an overdue or unreported aircraft shall be restricted or suspended unless radar separation is used. The facility responsible shall restrict or suspend IFR traffic for a period of 30 minutes following the applicable time listed in subparas a thru e:

a. The time at which approach clearance was delivered to the pilot.

b. The EFC time delivered to the pilot.

c. The arrival time over the NAVAID serving the destination airport.

d. The current estimate, either the control facility's or the pilot's, whichever is later, at:

1. The appropriate en route NAVAID or fix, and

2. The NAVAID serving the destination airport.

e. The release time and, if issued, the clearance void time.

REFERENCE–
FAAO 7110.65, Departure Restrictions, Clearance Void Times, Hold for Release, and Release Times, Para 4–3–4.

10–4–2. LIGHTING REQUIREMENTS

a. *EN ROUTE.* At nontower or non–FSS locations, request the airport management to light all runway lights, approach lights, and all other required airport lighting systems for at least 30 minutes before the ETA of the unreported aircraft until the aircraft has been located or for 30 minutes after its fuel supply is estimated to be exhausted.

b. *TERMINAL.* Operate runway lights, approach lights, and all other required airport lighting systems for at least 30 minutes before the ETA of the unreported aircraft until the aircraft has been located or for 30 minutes after its fuel supply is estimated to be exhausted.

REFERENCE–
FAAO 7110.65, Emergency Lighting, Para 3–4–1.

10–4–3. TRAFFIC RESUMPTION

After the 30–minute traffic suspension period has expired, resume normal air traffic control if the operators or pilots of other aircraft concur. This concurrence must be maintained for a period of 30 minutes after the suspension period has expired.

REFERENCE–
FAAO 7110.65 Departure Restrictions, Clearance Void Times, Hold for Release, and Release Times, Para 4–3–4.

10–4–4. COMMUNICATIONS FAILURE

Take the following actions, as appropriate, if two-way radio communications are lost with an aircraft:

NOTE–
1. *When an IFR aircraft experiences two-way radio communications failure, air traffic control is based on anticipated pilot actions. Pilot procedures and recommended practices are set forth in the AIM, CFRs, and pertinent military regulations.*

2. *Should the pilot of an aircraft equipped with a coded radar beacon transponder experience a loss of two-way radio capability, the pilot can be expected to adjust the transponder to reply on Mode 3/A* ***Code 7600****.*

a. In the event of lost communications with an aircraft under your control jurisdiction use all appropriate means available to reestablish communications with the aircraft. These may include, but not be limited to, emergency frequencies, NAVAIDs that are equipped with voice capability, FSS, Aeronautical Radio Incorporated (ARINC), etc.

NOTE–
1. *ARINC is a commercial communications corporation which designs, constructs, operates, leases or otherwise engages in radio activities serving the aviation community. ARINC has the capability of relaying information to/from subscribing aircraft throughout the country.*

2. *Aircraft communications addressing and reporting system (ACARS) or selective calling (SELCAL) may be utilized to reestablish radio communications with suitably equipped aircraft. ACARS can be accessed by contacting the San Francisco ARINC communications center, watch supervisor, at 925–294–8297 and 800–621–0140. Provide ARINC the aircraft call sign, approximate location, and contact instructions. In order to utilize the SELCAL system, the SELCAL code for the subject aircraft must be known. If the SELCAL code is not contained in the remarks section*

of the flight plan, contact the pertinent air carrier dispatch office to determine the code. Then contact the San Francisco ARINC communications center, watch supervisor, at 925-294-8297 and 800-621-0140. Provide ARINC the aircraft call sign, SELCAL code, approximate location, and contact instructions.

b. Broadcast clearances through any available means of communications including the voice feature of NAVAIDs.

NOTE-
1. *Some UHF equipped aircraft have VHF navigation equipment and can receive 121.5 MHz.*

2. *"Any available means" includes the use of FSS and ARINC.*

REFERENCE-
FAAO 7110.65, Clearance Prefix, Para 4-2-2.

c. Attempt to re-establish communication by having the aircraft use its transponder or make turns to acknowledge clearances and answer questions. Request any of the following in using the transponder:

1. Request the aircraft to reply Mode 3/A "IDENT."

2. Request the aircraft to reply on **Code 7600** or if already on **Code 7600**, the appropriate stratum code.

3. Request the aircraft to change to "stand-by" for sufficient time for you to be sure that the lack of a target is the result of the requested action.

PHRASEOLOGY-
REPLY NOT RECEIVED, (appropriate instructions).

(Action) OBSERVED, (additional instructions/information if necessary).

d. Broadcast a clearance for the aircraft to proceed to its filed alternate airport at the MEA if the aircraft operator concurs.

REFERENCE-
FAAO 7110.65, Radio Failure, Para 5-2-8.
FAAO 7110.65, IFR Military Training Routes, Para 9-2-7.

e. If radio communications have not been (re)established with the aircraft after five minutes, consider the aircraft's activity to be possibly suspicious and handle the flight per FAAO JO 7610.4, Chapter 7, Hijacked/Suspicious Aircraft Reporting and Procedures.

Chapter 13. Decision Support Tools

Section 1. User Request Evaluation Tool (URET) – En Route

13–1–1. DESCRIPTION

URET is an en route decision support tool that is used by the sector team in performing its strategic planning responsibilities. URET uses flight plan data, forecast winds, aircraft performance characteristics, and track data to derive expected aircraft trajectories, and to predict conflicts between aircraft and between aircraft and special use or designated airspace. It also provides trial planning and enhanced flight data management capabilities.

13–1–2. CONFLICT DETECTION AND RESOLUTION

a. Actively scan URET information for predicted aircraft–to–aircraft and aircraft–to–airspace alerts.

b. When a URET alert is displayed, evaluate the alert and take appropriate action as early as practical, in accordance with duty priorities.

c. Prioritize the evaluation and resolution of URET alerts to ensure the safe, expeditious, and efficient flow of air traffic.

NOTE–
URET alerts are based on radar separation standards. Caution should be used when situations include nonstandard formations.

d. When a URET alert is displayed and when sector priorities permit, give consideration to the following in determining a solution:

1. Solutions that involve direct routing, altitude changes, removal of a flight direction constraint (i.e., inappropriate altitude for direction of flight), and/or removal of a static restriction for one or more pertinent aircraft.

2. Impact on surrounding sector traffic and complexity levels, flight efficiencies, and user preferences.

e. When the URET Stop Probe feature is activated for an aircraft, Conflict Probe for that aircraft shall be restarted before transfer of control, unless otherwise coordinated.

NOTE–
The requirement in subpara 13–1–2e does not apply to aircraft entering airspace of a non–URET facility.

13–1–3. TRIAL PLANNING

a. When URET is operational at the sector and when sector priorities permit, use the trial plan capability to evaluate:

1. Solutions to predicted conflicts.

2. The feasibility of granting user requests.

3. The feasibility of removing a flight direction constraint (i.e., inappropriate altitude for direction of flight) for an aircraft.

4. The feasibility of removing a static restriction for an aircraft.

13–1–4. URET–BASED CLEARANCES

When the results of a trial plan based upon a user request indicate the absence of alerts, every effort should be made to grant the user request, unless the change is likely to adversely affect operations at another sector.

13–1–5. THE AIRCRAFT LIST (ACL), DEPARTURE LIST (DL) AND FLIGHT DATA MANAGEMENT

a. The ACL shall be used as the sector team's primary source of flight data.

b. Actively scan URET to identify automated notifications that require sector team action.

c. When an ACL or DL entry has a Remarks indication, the Remarks field of the flight plan shall be reviewed. Changes to the Remarks field shall also be reviewed.

d. Highlighting an entry on the ACL or DL shall be used to indicate the flight requires an action or special attention.

e. The Special Posting Area (SPA) should be used to group aircraft that have special significance (e.g., aircraft to be sequenced, air refueling missions, formations).

f. When URET is operational, sector teams shall post flight progress strips for any nonradar flights.

g. When URET is operational, a flight progress strip shall be posted for any flight plan not contained in the Host Computer System.

h. When URET is operational, sector teams shall post any flight progress strip(s) that are deemed necessary for safe or efficient operations. The sector team shall comply with all applicable facility directives to maintain posted flight progress strips.

i. The URET Drop Track Delete option shall be used in accordance with facility directives.

13–1–6. MANUAL COORDINATION AND THE URET COORDINATION MENU

a. Where automated coordination with a facility is not available (e.g., an international facility, a VFR tower), use the URET Coordination Menu or a flight progress strip to annotate manual coordination status, in accordance with facility directives.

b. When the URET Coordination Menu is used and the flight plan is subsequently changed, remove the yellow coding from the Coordination Indicator after any appropriate action has been taken.

13–1–7. HOLDING

For flights in hold, use URET Hold Annotations, a flight progress strip, or a facility–approved worksheet to annotate holding instructions, in accordance with facility directives.

13–1–8. RECORDING OF CONTROL DATA

a. All control information not otherwise recorded via automation recordings or voice recordings shall be manually recorded using approved methods.

b. When a point out has been approved, remove the yellow color coding on the ACL.

c. When the URET Free Text Area is used to enter control information, authorized abbreviations shall be used. You may use:

1. The clearance abbreviations authorized in TBL 13–1–1.

TBL 13–1–1

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
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

2. The miscellaneous abbreviations authorized in TBL 13–1–2.

3. The URET equivalents for control information symbols authorized in TBL 13–1–3.

4. Plain language markings when it will aid in understanding information.

5. Locally approved abbreviations.

d. When the URET Free Text Area is used to enter control information, the Free Text Area shall remain open and visible. When no longer relevant, the information entered into the Free Text Area shall be updated or deleted.

e. Control information entered in the Free Text Area shall be used for reference purposes only.

NOTE–
Information entered into the Free Text Area does not pass on handoff and, if necessary, must be coordinated.

TBL 13–1–2

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

TBL 13-1-3

URET Equivalents for Control Information Symbols

Abbreviation	Meaning
T *dir*	Depart (direction if specified)
↑	Climb and maintain
↓	Descend and maintain
CR	Cruise
AT	At
X	Cross
M	Maintain
/*airway*	Join or intercept (airway, jet route, track, or course)
=	While in controlled airspace
WICA	While in control area
dir ECA	Enter control area
dir OOCA	Out of control area
dir ESA	Cleared to enter surface area. Indicated direction of flight by appropriate compass letter(s)
TSA *alt*	Through surface area and altitude indicated direction of flight by appropriate compass letter(s). Maintain special VFR conditions (altitude if appropriate) while in surface area
250 K	Aircraft requested to adjust speed to 250 knots
-20 K	Aircraft requested to reduce speed 20 knots
+30 K	Aircraft requested to increase speed 30 knots
SVFR	Local Special VFR operations in the vicinity of (name) airport are authorized until (time). Maintain special VFR conditions (altitude if appropriate)
B4	Before
AF	After or Past
/	Until
instructions	Alternate instructions
REST	Restriction
AOB	At or Below
AOA	At or Above

Abbreviation	Meaning
-	From-to (route, time, etc.)
(Alt)B(Alt)	Indicates a block altitude assignment. Altitudes are inclusive, and the first altitude shall be lower than the second (Example 310B370)
V *time*	Clearance void if aircraft not off ground by *time*
CL	Pilot canceled flight plan
+*info*+	Information or revised information forwarded
alt	Other than assigned altitude reported Example: **50**
ARC *mi. dir.*	DME arc of VORTAC, TACAN, or MLS
C *freq.*	Contact (facility) or (freq.), (time, fix, or altitude if appropriate). Insert frequency only when it is other than standard
R	Radar contact
R *alt*	Requested altitude
R/	Radar service terminated
RX	Radar Contact Lost
RV	Radar vector
RVX	Pilot resumed own navigation
HO	Handoff completed
E	Emergency
W	Warning
P	Point out initiated. Indicate the appropriate facility, sector, or position.
FUEL	Minimum fuel
EFC *time*	Expect further clearance at (time)
- *fix*	Direct to fix
FRC	Full route clearance
IAF	Initial approach fix
NORDO	No Radio
PT	Procedure turn
RLS	Release
REQ	Request
SI	Straight in

13–1–9. ACKNOWLEDGEMENT OF AUTOMATED NOTIFICATION

a. The URET Inappropriate Altitude for Direction of Flight (IAFDOF) feature shall be used in the automatic mode (i.e., IAFDOF Manual shall remain deselected) unless otherwise authorized in a facility directive.

b. Completion of any required coordination for IAFDOF shall be acknowledged on the ACL by removing the IAFDOF coding.

c. Completion of appropriate coordination for an Unsuccessful Transmission Message (UTM) shall be acknowledged on the ACL by removing the UTM coding.

d. Issuance of the Expect Departure Clearance Time (EDCT) to the pilot or other control facility shall be acknowledged on the DL by removing the EDCT coding.

e. IAFDOF, UTM, or EDCT coding shall be acknowledged only after the appropriate action has been completed.

f. Send/acknowledge Host Embedded Route Text (HERT) coding only after the appropriate clearance has been issued to the pilot or otherwise coordinated. Do not send/acknowledge HERT unless the sector has track control for the flight or it has been otherwise coordinated.

g. Remove ATC Preferred Route (APR) coding only after the route has been checked and any required action has been completed. Do not remove APR coding unless the sector has track control or it has been otherwise coordinated.

NOTE–
If coding is prematurely removed and the control of the aircraft is transferred before completing the appropriate action, the next sector may not receive the necessary APR notification.

13–1–10. CURRENCY OF TRAJECTORY INFORMATION

a. The sector team shall perform automation entries in a timely manner.

NOTE–
1. *Conflict probe accuracy requires timely updates of data used to model each flight's trajectory. If this data is not current, the aircraft entries and notification of probe results for surrounding sectors and facilities, as well as the subject sector, may be misleading.*

2. *Data used to model an individual aircraft's trajectory includes route of flight, assigned and interim altitudes, application/removal of an adapted restriction for that flight, and aircraft type.*

b. An exception to the requirement to enter or update interim altitudes may be authorized for certain ARTCC sectors if explicitly defined in an appropriate facility directive.

NOTE–
URET accuracy in assigning alert notification is dependent upon entry/update of a flight's interim altitude.

13–1–11. DELAY REPORTING

a. Adhere to all applicable delay reporting directives while URET is operational.

b. Delay information shall be recorded. Delay information may be automatically recorded via use of the URET Hold Annotations Menu or manually on flight progress strips or facility–approved worksheets, in accordance with the facility–defined standard.

c. When using URET to automatically record delay information, the URET hold annotations shall be deleted when the aircraft is cleared from holding.

NOTE–
Delay information cannot be accurately recorded unless URET hold annotations are deleted when the aircraft is cleared from holding.

13–1–12. OVERDUE AIRCRAFT

Upon receipt of the URET overdue aircraft notification, take appropriate actions set forth in Chapter 10, Section 3, Overdue Aircraft.

NOTE–
URET overdue aircraft notification is based on radar track data. Updating an aircraft's route of fight will remove the overdue aircraft notification.

13–1–13. USE OF GRAPHICS PLAN DISPLAY (GPD)

a. Graphic depictions of flight trajectories may be used only to aid in situational awareness and strategic planning.

b. Do not use trajectory–based positions as a substitute for radar track position.

c. Do not use trajectory–based altitude in lieu of Mode C for altitude confirmation.

d. Do not use the GPD for radar identification, position information, transfer of radar identification, radar separation, correlation, or pointouts.

13–1–14. FORECAST WINDS

In the event that current forecast wind data are not available, continue use of URET with appropriate recognition that alert and trajectory data may be affected.

13–1–15. INTERFACILITY CONNECTIVITY

In the event of a loss of connectivity to a neighboring URET system, continue use of URET with appropriate recognition that alert data may be affected.

13–1–16. PRIMARY HOST OUTAGES

In the event of a primary HOST outage, URET data may be used to support situational awareness while the facility transitions to the backup RDP or nonradar procedures.

NOTE–
Without primary system input, URET data cannot be updated and becomes stale.

13–1–17. URET AIRSPACE CONFIGURATION ELEMENTS

a. URET Airspace Configuration Elements are:

1. Special Activity Airspace (SAA).

2. Airport Stream Filters (ASF).

3. URET adapted restrictions.

b. Where assigned as a sector responsibility by facility directive, the sector team shall update URET Airspace Configuration Elements to reflect current status.

c. For Airspace Configuration Elements designated as a sector responsibility, notify the operational supervisor when the status of an Airspace Configuration Element has been modified in URET.

Appendix A.

Aircraft Information

Fixed-Wing Aircraft

TYPE ENGINE ABBREVIATIONS

P	piston
T	turboprop
J	jet

CLIMB AND DESCENT RATES

Climb and descent rates based on average en route climb/descent profiles at median weight between maximum gross takeoff and landing weights.

SRS

SRS means "same runway separation;" categorization criteria is specified in para 3–9–6, Same Runway Separation.

MANUFACTURERS

Listed under the primary manufacturer are other aircraft manufacturers who make versions of some of the aircraft in that group.

AIRCRAFT WEIGHT CLASSES

a. Heavy. Aircraft capable of takeoff weights of more than 255,000 pounds whether or not they are operating at this weight during a particular phase of flight.

b. Large. Aircraft of more than 41,000 pounds, maximum certificated takeoff weight, up to 255,000 pounds.

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

LAND AND HOLD SHORT OPERATIONS (LAHSO) AIRCRAFT GROUP AND DISTANCE MINIMA

FAA Order 7110.118, Land and Hold Short Operations, includes procedures and conditions for conducting land and hold short operations at designated airports. Appendix 1 to Order 7110.118 groups certain aircraft according to available landing distance for LAHSO operations. Aircraft group information for the purposes of Order 7110.118 is incorporated in this Appendix under Performance Information. ■

NOTE–
** Denotes single-piloted military turbojet aircraft or aircraft to receive the same procedural handling as a single-piloted military turbojet aircraft.*

**** Denotes amphibian aircraft.*

+ Denotes aircraft weighing between 12,500 lbs. and 41,000 lbs. For Class B Airspace rules, these aircraft are "large, turbine–engine powered aircraft."

TBL A-1

Land and Hold Short Operations (LAHSO)
Aircraft Group/Distance Minima

	Sea Level -999	1,000- 1,999	2000- 2,999	3000- 3,999	4000- 4,999	5000- 5,999	6000- 6,999	7000- 7,000
Group 1	2500	2550	2600	2650	2700	2750	2800	2850
Group 2 & Below	3000	3050	3100	3150	3200	3250	3300	3500
Group 3 & Below	3500	3550	3600	3650	3700	3750	3800	3850
Group 4 & Below	4000	4050	4100	4150	4200	4250	4300	4350
Group 5 & Below	4500	4550	4600	4650	4700	4750	4800	4850
Group 6 & Below	5000	5100	5200	5300	5400	5500	5600	5700
Group 7 & Below	6000	6100	6200	6300	6400	6500	6600	6700
Group 8 & Below	7000	7100	7200	7300	7400	7500	7600	7700
Group 9 & Below	8000	8100	8200	8300	8400	8500	8600	8700
Group 10	Greater than 8000 feet							

TBL A-1 is an air traffic control tool for identifying aircraft, by groups, that are able to land and hold short based on the available landing distance. Air traffic managers shall utilize TBL A-1 for identifying aircraft by groups that are able to land and hold short at their facility in accordance with FAA Order 7110.118, Land and Hold Short Operations.

At locations requesting to utilize LAHSO with aircraft requiring greater than 8,000 feet of available landing distance, air traffic managers shall coordinate with the appropriate Flight Standards' office and Air Traffic Operations, Terminal Safety and Operations Support to obtain a letter of authorization approving LAHSO.

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.	LAHSO Group
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.	LAHSO Group
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.	LAHSO Group
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	B772	2J/H	2,500	2,500	III	9
777-300	B773	2J/H	2,500	2,500	III	9
747SCA Shuttle Carrier	BSCA	4J/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.	LAHSO Group
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.	LAHSO Group
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

DASSAULT–BREGUET (France)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
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.	LAHSO Group
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	
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.	LAHSO Group
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.	LAHSO Group
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.	LAHSO Group
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.	LAHSO Group
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.	LAHSO Group
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	

MAULE AIRCRAFT CORP. (USA)

(Also SAASA)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
M-4 Bee Dee, Jetasen, Rocket, Astro Rocket, Strata Rocket	M4	1P/S	1,000	1,000	I	1
M-5, Strata Rocket, Lunar Rocket, Patroller	M5	1P/S	1,000	1,000	I	1
M-6 Super-Rocket	M6	1P/S	1,500	1,000	I	1
M-7-235/260, MT-7-235/260, MX-7-160/180/235, MXT-7-160/180 Super Rocket, Star Rocket, Comet, Star Craft, Orion, Sportplane	M7	1P/S	825		I	1
M-7-420, MT-7-240, MX-7-420, MXT-7-420 Star Craft	M7T	1T/S	4,500		I	1
M-8	M8	1P/S			I	

MCDONNELL-DOUGLAS CORP. (USA)

(Also ASTA, BOEING, DOUGLAS, GAF, LISUNOV, MITSUBISHI, ON MARK, SHANGHAI, VALMET)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
Skywarrior	A3*	2J/L	5,000	6,000	III	
A-4, OA-4, TA-4 Skyhawk	A4*	1J/S+	5,000	5,000	III	
Invader	B26	2P/L	1,000	1,000	III	
YC-15	C15	4J/L			III	
C-17 Globemaster 3	C17	4J/H			III	
DC-10 (KC-10 Extender, KDC-10, MD-10)	DC10	3J/H	2,400	2,000	III	9
Skytrain (C-47, C-53, C-117 A/B/C, R4D 1 to 7)	DC3	2P/S+	1,200	1,200	III	
Super DC-3 (C-117D, R4D 8)	DC3S	2P/S+	1,330	1,330	III	8
Skymaster	DC4	4P/L	2,300	2,300	III	7
DC-6/B Liftmaster	DC6	4P/L	1,000	1,000	III	7
DC-7/B/C Seven Seas	DC7	4P/L	1,250	1,250	III	8
DC-8-50, Jet Trader	DC85	4J/H	4,000	4,000	III	9
DC-8-60	DC86	4J/H	4,000	4,000	III	
DC-8-70	DC87	4J/H	5,000	4,000	III	9
DC-9-10	DC91	2J/L	3,000	3,000	III	8
DC-9-20	DC92	2J/L	3,000	3,000	III	8
DC-9-30 (C-9, VC-9, Nightingale, Skytrain 2)	DC93	2J/L	3,000	3,000	III	8
DC-9-40	DC94	2J/L	3,000	3,000	III	8
DC-9-50	DC95	2J/L	3,000	3,000	III	8
F-15 Eagle, Baz, Akef, Ra'am	F15*	2J/L	8,000	5,000	III	
FA-18, CF-18, CF-188, EF-18, C-15, CE-15, AF-18, ATF-18 Hornet, Super Hornet	F18*	2J/L	8,000	6,000	III	
F-4, RF-4, QF-4 Phantom 2/2000, Kurnass	F4*	2J/L	8,000	6,000	III	

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
MD-11	MD11	3J/H			III	9
MD-81	MD81	2J/L	3,500	3,000	III	7
MD-82	MD82	2J/L	3,500	3,000	III	7
MD-83	MD83	2J/L	3,500	3,000	III	8
MD-87	MD87	2J/L	3,500	3,000	III	7
MD-88	MD88	2J/L	3,500	3,000	III	8
MD-90	MD90	2J/L			III	8

MESSERSCHMITT (FRG)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
Bf-108 Taifun	ME08	1P/S	400	500	I	1
Bf-109	ME09	1P/S			I	
Me-262, Replica	ME62	2J/S+			III	

MESSERSCHMITT-BOLKOW (FRG)

(Also BOLKOW, HFB, NORD, SIAT)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
223 Flamingo	S223	1P/S			I	
BO-209 Monsun	B209	1P/S	1,100	1,100	I	4

MITSUBISHI AIRCRAFT INTERNATIONAL INC. (USA/Japan)

(Also BEECH, RAYTHEON)

Model	Type Designator	Description	Performance Information			
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.	LAHSO Group
A6M Zero	ZERO	1P/S			I	
F-1	F1	2J/S+			III	
F-2	F2	1J/L	8,000	5,000	III	
F-86 Sabre	F86	IJ/L	4,000	4,000	III	
MU-2, Marquise, Solitaire (LR-1)	MU2	2T/S	3,500	3,000	II	6
MU-300 Diamond	MU30	2J/S+	3,500	4,000	III	7
T-2	MT2	2J/S+			III	

Appendix B.

Aircraft Information

Helicopters/Rotorcrafts

TYPE ENGINE ABBREVIATIONS

P	piston
T	jet/turboprop
J	jet

CLIMB AND DESCENT RATES

Climb and descent rates based on average en route climb/descent profiles at median weight between maximum gross takeoff and landing weights.

SRS

SRS means "same runway separation;" categorization criteria is specified in para 3–9–6, Same Runway Separation.

MANUFACTURERS

Listed under the primary manufacturer are other aircraft manufacturers who also make versions of some of the aircraft in that group.

AEROSPATIALE (France)

(Also ATLAS, CASA, CHANGHE, EUROCOPTER, HELIBRAS, HINDUSTAN, IAR, ICA, NURTANIO, NUSANTARA, REPUBLIC, SINGAPORE, SUD, WESTLAND)

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Lama SA–315	LAMA	1T/S	1,000	1,000	I
Alouette 2	ALO2	1T/S	1,280	1,280	I
Alouette 3	ALO3	1T/S	1,500	1,500	I
Dauphine SA–360/361	S360	1T/S	1,400	1,500	I
Dauphine 2 SA–365C	S65C	2T/S	1,800	1,000	I
Ecurevil/AStar AS–350/550	AS50	1T/S	1,000	1,000	I
Gazelle SA–341/342	GAZL	1T/S	1,620	1,620	I
Puma SA–330 (CH–33, HT–19)	PUMA	2T/L	1,250	1,500	I
Super Puma AS 332/532, SA–330)	AS32	2T/L	1,250	1,500	I
Super Frelon SA–321/Z–8	FREL	3T/L	1,200	1,500	I
Twin Star AS–355/555	AS55	2T/S	1,350	1,300	I

AUGUSTA (Constuzioni Aeronautiche Giovanni Agusta SpA) (Italy)

(Also BELL, NUSANTARA, SABCA)

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Model 147J–3B–1, Ranger	B47J	1P/S	500	500	I
Model A 109/A/A–II	A109	2T/S	1,620	1,500	I
Model 212 ASW, Griffon	B12	2T/S	1,420	1,420	I

BELL/BOEING

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Osprey	V22	2T/L	–	–	II

BELL HELICOPTER TEXTRON (USA)

(Also AGUSTA, AIDC, COMMONWEALTH, DORNIER, FUJI, GLOBAL, KAWASAKI, NUSANTARA, TROOPER, UNC, WESTLAND)

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Biglifter, Bell 204 ,205, 214A/B, AB-204	UH1	1T/S	1,500	1,500	I
Cobra	HUCO	1T/S	1,375	1,375	I
Jet Ranger/Long Ranger/ Sea Ranger/Kiowa/Model 206, Combat Scout	B06	1T/S	1,200	1,000	I
Huey/Iroquois/Model 205 A-1	UH1	1T/S	1,500	1,500	I
Ranger Model 47J	B47J	1P/S	1,000	1,000	I
Sioux/Model 47G, OH-13	B47G	1P/S	1,000	1,000	I
Twin Huey, Model 212, Model 214B/B-1, Model 412, Griffon	B12	2T/S	1,420	1,420	I
Model 214ST, Super Transport	BSTP	2T/S	1,420	1,420	I
Model 222, 230, 430	B222	2T/S	1,500	1,000	I

BOEING VERTOL COMPANY (USA)

(Also BOEING HELICOPTERS, KAWASAKI, MERIDIONALI, VERTOL)

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Chinook, Model 234	H47	2T/L	1,500	1,500	I
Sea Knight 107, CH-113, Labrador	H46	2T/S+	2,130	2,130	I

BOLKOW (Germany)

(Also CASA, EUROCOPTER, MBB, MESSERSCHMITT-BOLKOW, NURTANIO, NUSANTARA, PADC)

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Model 105, BO-105	B105	2T/S	1,500	1,500	I

BRANTLEY-HYNES HELICOPTER, INC. (USA)

(Also BRANTLEY, HYNES)

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Model B-2/A/B, H-2	BRB2	1P/S	1,400	1,400	I
Model 305	B305	1P/S	1,300	1,300	I

ENSTROM CORP. (USA)

(Also WUHAN)

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/ Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Falcon/Model F-28/A/C/F, Sentinel/ Model F-28-FP, Model 280, Shark	EN28	1P/S	800	800	I
Shark/Model 280FX, 28, Falcon, Sentinel	EN28	1P/S	1,200	1,200	I
Turbo Shark 480, TH-28	EN48	1P/S	1,500	1,500	I

b. VERBAL BRIEFING

Relieving Specialist	Specialist Being Relieved
	1. Brief the relieving specialist on the abnormal status of items not listed on the Status Information Area(s) as well as on any items of special interest calling for verbal explanation or additional discussion. **2.** Brief on traffic if applicable.
3. Ask questions necessary to ensure a complete understanding of the operational situation.	
	4. Completely answer any questions asked.

c. ASSUMPTION OF POSITION RESPONSIBILITY

Relieving Specialist	Specialist Being Relieved
1. Make a statement or otherwise indicate to the specialist being relieved that position responsibility has been assumed.	
	2. Release the position to the relieving specialist and mentally note the time.

d. REVIEW THE POSITION

Relieving Specialist	Specialist Being Relieved
1. Check, verify, and update the information obtained in steps 6a and b. **2.** Check position equipment in accordance with existing directives.	
	3. Review checklist, Status Information Area/s, written notes, and other prescribed sources of information and advise the relieving specialist of known omissions, updates, or inaccuracies. **4.** Observe overall position operation to determine if assistance is needed. **5.** If assistance is needed, provide or summon it as appropriate. **6.** Advise the appropriate position regarding known Status Information Area(s) omissions, updates, or inaccuracies. **7.** Sign-on the relieving specialist with the time as noted in step 6c2. **8.** Sign off the position in accordance with existing directives or otherwise indicate that the relief process is complete.

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:
AIRPORT STREAM FILTER (ASF)
COMPLY WITH RESTRICTIONS
DIRECTLY BEHIND

b. Terms Modified:
SEVERE WEATHER FORECAST ALERTS

c. Terms Deleted:
ARRIVAL STREAM FILTERS (ASF)

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

AIRMEN'S METEOROLOGICAL INFORMATION-

(See AIRMET.)

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

(See AWW.)
(See CONVECTIVE SIGMET.)
(See CWA.)
(See SIGMET.)
(Refer to AIM.)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

from the runway edge, or 75 feet from the runway edge when installed on a runway equipped with a VASI.

(Refer to FAAO 6850.2, VISUAL GUIDANCE LIGHTING SYSTEMS.)

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

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

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

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

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

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

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

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

(Refer to AIM.)

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

a. Visual.

b. Nonprecision instrument.

c. Precision instrument.

(Refer to AIM.)

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

AIRPORT RESERVATION OFFICE- Office responsible for monitoring the operation of the high density rule. Receives and processes requests for IFR -operations at high density traffic airports.

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

(See INSTRUMENT FLIGHT RULES.)
(See SPECIAL VFR OPERATIONS.)
(See ICAO term AERODROME BEACON.)
(Refer to AIM.)

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

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

a. ASDE-3- a Surface Movement Radar.

b. ASDE-X- a system that uses a X-band Surface Movement Radar and multilateration. Data from

these two sources are fused and presented on a digital display.

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

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

AIRPORT TAXI CHARTS-
(See AERONAUTICAL CHART.)

AIRPORT TRAFFIC CONTROL SERVICE- A service provided by a control tower for aircraft operating on the movement area and in the vicinity of an airport.
(See MOVEMENT AREA.)
(See TOWER.)
(See ICAO term AERODROME CONTROL SERVICE.)

AIRPORT TRAFFIC CONTROL TOWER-
(See TOWER.)

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

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

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

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

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

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

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

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

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

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

AIT-
(See AUTOMATED INFORMATION TRANSFER.)

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

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

ALERT AREA-
(See SPECIAL USE AIRSPACE.)

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

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

ALNOT-
(See ALERT NOTICE.)

ALONG-TRACK DISTANCE (ATD)- The distance measured from a point-in-space by systems using

area navigation reference capabilities that are not subject to slant range errors.

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

(See AUTOMATED RADAR TERMINAL SYSTEMS.)

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

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

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

(See ICAO term ALTERNATE AERODROME.)

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

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

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

(See FLIGHT LEVEL.)

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

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

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

(See ICAO term ALTITUDE.)

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

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

(See ALPHANUMERIC DISPLAY.)

(See AUTOMATED RADAR TERMINAL SYSTEMS.)

(Refer to AIM.)

ALTITUDE RESERVATION- Airspace utilization under prescribed conditions normally employed for the mass movement of aircraft or other special user requirements which cannot otherwise be accomplished. ALTRVs are approved by the appropriate FAA facility.

(See AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER.)

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

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

ALTRV-

(See ALTITUDE RESERVATION.)

AMVER-

(See AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM.)

APB-

(See AUTOMATED PROBLEM DETECTION BOUNDARY.)

APD-

(See AUTOMATED PROBLEM DETECTION.)

APDIA-

(See AUTOMATED PROBLEM DETECTION INHIBITED AREA.)

APPROACH CLEARANCE- Authorization by ATC for a pilot to conduct an instrument approach. The type of instrument approach for which a clearance and other pertinent information is provided in the approach clearance when required.

(See CLEARED APPROACH.)

(See INSTRUMENT APPROACH PROCEDURE.)

(Refer to AIM.)

(Refer to 14 CFR Part 91.)

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.

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 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).

aircraft are held short of the applicable runway holding position marking.

b. A pilot or controller may consider an aircraft, which is exiting or crossing a runway, to be clear of the runway when all parts of the aircraft are beyond the runway edge and there are no restrictions to its continued movement beyond the applicable runway holding position marking.

c. Pilots and controllers shall exercise good judgement to ensure that adequate separation exists between all aircraft on runways and taxiways at airports with inadequate runway edge lines or holding position markings.

CLEARANCE-

(See AIR TRAFFIC CLEARANCE.)

CLEARANCE LIMIT- The fix, point, or location to which an aircraft is cleared when issued an air traffic clearance.

(See ICAO term CLEARANCE LIMIT.)

CLEARANCE LIMIT [ICAO]- The point of which an aircraft is granted an air traffic control clearance.

CLEARANCE VOID IF NOT OFF BY (TIME)- Used by ATC to advise an aircraft that the departure clearance is automatically canceled if takeoff is not made prior to a specified time. The pilot must obtain a new clearance or cancel his/her IFR flight plan if not off by the specified time.

(See ICAO term CLEARANCE VOID TIME.)

CLEARANCE VOID TIME [ICAO]- A time specified by an air traffic control unit at which a clearance ceases to be valid unless the aircraft concerned has already taken action to comply therewith.

CLEARED APPROACH- ATC authorization for an aircraft to execute any standard or special instrument approach procedure for that airport. Normally, an aircraft will be cleared for a specific instrument approach procedure.

(See CLEARED (Type of) APPROACH.)
(See INSTRUMENT APPROACH PROCEDURE.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

CLEARED (Type of) APPROACH- ATC authorization for an aircraft to execute a specific instrument approach procedure to an airport; e.g., "Cleared ILS Runway Three Six Approach."

(See APPROACH CLEARANCE.)
(See INSTRUMENT APPROACH PROCEDURE.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

CLEARED AS FILED- Means the aircraft is cleared to proceed in accordance with the route of flight filed in the flight plan. This clearance does not include the altitude, DP, or DP Transition.

(See REQUEST FULL ROUTE CLEARANCE.)
(Refer to AIM.)

CLEARED FOR TAKEOFF- ATC authorization for an aircraft to depart. It is predicated on known traffic and known physical airport conditions.

CLEARED FOR THE OPTION- ATC authorization for an aircraft to make a touch-and-go, low approach, missed approach, stop and go, or full stop landing at the discretion of the pilot. It is normally used in training so that an instructor can evaluate a student's performance under changing situations.

(See OPTION APPROACH.)
(Refer to AIM.)

CLEARED THROUGH- ATC authorization for an aircraft to make intermediate stops at specified airports without refiling a flight plan while en route to the clearance limit.

CLEARED TO LAND- ATC authorization for an aircraft to land. It is predicated on known traffic and known physical airport conditions.

CLEARWAY- An area beyond the takeoff runway under the control of airport authorities within which terrain or fixed obstacles may not extend above specified limits. These areas may be required for certain turbine-powered operations and the size and upward slope of the clearway will differ depending on when the aircraft was certificated.

(Refer to 14 CFR Part 1.)

CLIMB TO VFR- ATC authorization for an aircraft to climb to VFR conditions within Class B, C, D, and E surface areas when the only weather limitation is restricted visibility. The aircraft must remain clear of clouds while climbing to VFR.

(See SPECIAL VFR CONDITIONS.)
(Refer to AIM.)

CLIMBOUT- That portion of flight operation between takeoff and the initial cruising altitude.

CLOSE PARALLEL RUNWAYS- Two parallel runways whose extended centerlines are separated by less than 4,300 feet, having a Precision Runway Monitoring (PRM) system that permits simultaneous independent ILS approaches.

CLOSED RUNWAY- A runway that is unusable for aircraft operations. Only the airport management/ military operations office can close a runway.

CLOSED TRAFFIC- Successive operations involving takeoffs and landings or low approaches where the aircraft does not exit the traffic pattern.

CLOUD- A cloud is a visible accumulation of minute water droplets and/or ice particles in the atmosphere above the Earth's surface. Cloud differs from ground fog, fog, or ice fog only in that the latter are, by definition, in contact with the Earth's surface.

CLT-
(See CALCULATED LANDING TIME.)

CLUTTER- In radar operations, clutter refers to the reception and visual display of radar returns caused by precipitation, chaff, terrain, numerous aircraft targets, or other phenomena. Such returns may limit or preclude ATC from providing services based on radar.
(See CHAFF.)
(See GROUND CLUTTER.)
(See PRECIPITATION.)
(See TARGET.)
(See ICAO term RADAR CLUTTER.)

CMNPS-
(See CANADIAN MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE.)

COASTAL FIX- A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

CODES- The number assigned to a particular multiple pulse reply signal transmitted by a transponder.
(See DISCRETE CODE.)

COMBINED CENTER-RAPCON- An air traffic facility which combines the functions of an ARTCC and a radar approach control facility.
(See AIR ROUTE TRAFFIC CONTROL CENTER.)
(See RADAR APPROACH CONTROL FACILITY.)

COMMON POINT- A significant point over which two or more aircraft will report passing or have reported passing before proceeding on the same or diverging tracks. To establish/maintain longitudinal separation, a controller may determine a common point not originally in the aircraft's flight plan and then clear the aircraft to fly over the point.
(See SIGNIFICANT POINT.)

COMMON PORTION-
(See COMMON ROUTE.)

COMMON ROUTE- That segment of a North American Route between the inland navigation facility and the coastal fix.

OR

COMMON ROUTE- Typically the portion of a RNAV STAR between the en route transition end point and the runway transition start point; however, the common route may only consist of a single point that joins the en route and runway transitions.

COMMON TRAFFIC ADVISORY FREQUENCY (CTAF)- A frequency designed for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a UNICOM, Multicom, FSS, or tower frequency and is identified in appropriate aeronautical publications.
(Refer to AC 90-42, Traffic Advisory Practices at Airports Without Operating Control Towers.)

COMPASS LOCATOR- A low power, low or medium frequency (L/MF) radio beacon installed at the site of the outer or middle marker of an instrument landing system (ILS). It can be used for navigation at distances of approximately 15 miles or as authorized in the approach procedure.

a. Outer Compass Locator (LOM)- A compass locator installed at the site of the outer marker of an instrument landing system.
(See OUTER MARKER.)

b. Middle Compass Locator (LMM)- A compass locator installed at the site of the middle marker of an instrument landing system.
(See MIDDLE MARKER.)
(See ICAO term LOCATOR.)

COMPASS ROSE- A circle, graduated in degrees, printed on some charts or marked on the ground at an airport. It is used as a reference to either true or magnetic direction.

COMPLY WITH RESTRICTIONS- An ATC instruction that requires an aircraft being vectored

back onto an arrival or departure procedure to comply with all altitude and/or speed restrictions depicted on the procedure. This term may be used in lieu of repeating each remaining restriction that appears on the procedure.

COMPOSITE FLIGHT PLAN- A flight plan which specifies VFR operation for one portion of flight and IFR for another portion. It is used primarily in military operations.

(Refer to AIM.)

COMPOSITE ROUTE SYSTEM- An organized oceanic route structure, incorporating reduced lateral spacing between routes, in which composite separation is authorized.

COMPOSITE SEPARATION- A method of separating aircraft in a composite route system where, by management of route and altitude assignments, a combination of half the lateral minimum specified for the area concerned and half the vertical minimum is applied.

COMPULSORY REPORTING POINTS- Reporting points which must be reported to ATC. They are designated on aeronautical charts by solid triangles or filed in a flight plan as fixes selected to define direct routes. These points are geographical locations which are defined by navigation aids/fixes. Pilots should discontinue position reporting over compulsory reporting points when informed by ATC that their aircraft is in "radar contact."

CONFLICT ALERT- A function of certain air traffic control automated systems designed to alert radar controllers to existing or pending situations between tracked targets (known IFR or VFR aircraft) that require his/her immediate attention/action.

(See MODE C INTRUDER ALERT.)

CONFLICT RESOLUTION- The resolution of potential conflictions between aircraft that are radar identified and in communication with ATC by ensuring that radar targets do not touch. Pertinent traffic advisories shall be issued when this procedure is applied.

Note: This procedure shall not be provided utilizing mosaic radar systems.

CONFORMANCE- The condition established when an aircraft's actual position is within the conformance region constructed around that aircraft at its position, according to the trajectory associated with the aircraft's Current Plan.

CONFORMANCE REGION- A volume, bounded laterally, vertically, and longitudinally, within which an aircraft must be at a given time in order to be in conformance with the Current Plan Trajectory for that aircraft. At a given time, the conformance region is determined by the simultaneous application of the lateral, vertical, and longitudinal conformance bounds for the aircraft at the position defined by time and aircraft's trajectory.

CONSOLAN- A low frequency, long-distance NAVAID used principally for transoceanic navigations.

CONTACT-

a. Establish communication with (followed by the name of the facility and, if appropriate, the frequency to be used).

b. A flight condition wherein the pilot ascertains the attitude of his/her aircraft and navigates by visual reference to the surface.

(See CONTACT APPROACH.)
(See RADAR CONTACT.)

CONTACT APPROACH- An approach wherein an aircraft on an IFR flight plan, having an air traffic control authorization, operating clear of clouds with at least 1 mile flight visibility and a reasonable expectation of continuing to the destination airport in those conditions, may deviate from the instrument approach procedure and proceed to the destination airport by visual reference to the surface. This approach will only be authorized when requested by the pilot and the reported ground visibility at the destination airport is at least 1 statute mile.

(Refer to AIM.)

CONTAMINATED RUNWAY- A runway is considered contaminated whenever standing water, ice, snow, slush, frost in any form, heavy rubber, or other substances are present. A runway is contaminated with respect to rubber deposits or other friction-degrading substances when the average friction value for any 500-foot segment of the runway within the ALD fails below the recommended minimum friction level and the average friction value in the adjacent 500-foot segments falls below the maintenance planning friction level.

CONTERMINOUS U.S.- The 48 adjoining States and the District of Columbia.

CONTINENTAL UNITED STATES- The 49 States located on the continent of North America and the District of Columbia.

CONTINUE- When used as a control instruction should be followed by another word or words clarifying what is expected of the pilot. Example: “continue taxi”, “continue descent”, “continue inbound” etc.

CONTROL AREA [ICAO]- A controlled airspace extending upwards from a specified limit above the earth.

CONTROL SECTOR- An airspace area of defined horizontal and vertical dimensions for which a controller or group of controllers has air traffic control responsibility, normally within an air route traffic control center or an approach control facility. Sectors are established based on predominant traffic flows, altitude strata, and controller workload. Pilot-communications during operations within a sector are normally maintained on discrete frequencies assigned to the sector.

(See DISCRETE FREQUENCY.)

CONTROL SLASH- A radar beacon slash representing the actual position of the associated aircraft. Normally, the control slash is the one closest to the interrogating radar beacon site. When ARTCC radar is operating in narrowband (digitized) mode, the control slash is converted to a target symbol.

CONTROLLED AIRSPACE- An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

a. Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace.

b. Controlled airspace is also that airspace within which all aircraft operators are subject to certain pilot qualifications, operating rules, and equipment requirements in 14 CFR Part 91 (for specific operating requirements, please refer to 14 CFR Part 91). For IFR operations in any class of controlled airspace, a pilot must file an IFR flight plan and receive an appropriate ATC clearance. Each Class B, Class C, and Class D airspace area designated for an airport contains at least one primary airport around which the airspace is designated (for specific designations and descriptions of the airspace classes, please refer to 14 CFR Part 71).

c. Controlled airspace in the United States is designated as follows:

1. CLASS A- Generally, that airspace from 18,000 feet MSL up to and including FL 600, including the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Unless otherwise authorized, all persons must operate their aircraft under IFR.

2. CLASS B- Generally, that airspace from the surface to 10,000 feet MSL surrounding the nation’s busiest airports in terms of airport operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspaces areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is “clear of clouds.”

3. CLASS C- Generally, that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C area is individually tailored, the airspace usually consists of a surface area with a 5 nautical mile (NM) radius, a circle with a 10NM radius that extends no lower than 1,200 feet up to 4,000 feet above the airport elevation and an outer area that is not charted. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace. VFR aircraft are only separated from IFR aircraft within the airspace.

(See OUTER AREA.)

4. CLASS D- Generally, that airspace from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be Class D or Class E

airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace. No separation services are provided to VFR aircraft.

5. CLASS E- Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Also in this class are Federal airways, airspace beginning at either 700 or 1,200 feet AGL used to transition to/from the terminal or en route environment, en route domestic, and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska, up to, but not including 18,000 feet MSL, and the airspace above FL 600.

CONTROLLED AIRSPACE [ICAO]- An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

Note: Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D, and E.

CONTROLLED TIME OF ARRIVAL- Arrival time assigned during a Traffic Management Program. This time may be modified due to adjustments or user options.

CONTROLLER-

(See AIR TRAFFIC CONTROL SPECIALIST.)

CONTROLLER [ICAO]- A person authorized to provide air traffic control services.

CONTROLLER PILOT DATA LINK COMMUNICATIONS (CPDLC)- A two-way digital very high frequency (VHF) air/ground communications system that conveys textual air traffic control messages between controllers and pilots.

CONVECTIVE SIGMET- A weather advisory concerning convective weather significant to the safety of all aircraft. Convective SIGMETs are issued for tornadoes, lines of thunderstorms, embedded thunderstorms of any intensity level, areas of thunderstorms greater than or equal to VIP level 4 with an area coverage of $^{4}/_{10}$ (40%) or more, and hail $^{3}/_{4}$ inch or greater.

(See AIRMET.)

(See AWW.)

(See CWA.)

(See SIGMET.)

(Refer to AIM.)

CONVECTIVE SIGNIFICANT METEOROLOGICAL INFORMATION-

(See CONVECTIVE SIGMET.)

COORDINATES- The intersection of lines of reference, usually expressed in degrees/minutes/seconds of latitude and longitude, used to determine position or location.

COORDINATION FIX- The fix in relation to which facilities will handoff, transfer control of an aircraft, or coordinate flight progress data. For terminal facilities, it may also serve as a clearance for arriving aircraft.

COPTER-

(See HELICOPTER.)

CORRECTION- An error has been made in the transmission and the correct version follows.

COUPLED APPROACH- A coupled approach is an instrument approach performed by the aircraft autopilot which is receiving position information and/or steering commands from onboard navigation equipment. In general, coupled nonprecision approaches must be discontinued and flown manually at altitudes lower than 50 feet below the minimum descent altitude, and coupled precision approaches must be flown manually below 50 feet AGL.

Note: Coupled and autoland approaches are flown in VFR and IFR. It is common for carriers to require their crews to fly coupled approaches and autoland approaches (if certified) when the weather conditions are less than approximately 4,000 RVR.

(See AUTOLAND APPROACH.)

COURSE-

a. The intended direction of flight in the horizontal plane measured in degrees from north.

b. The ILS localizer signal pattern usually specified as the front course or the back course.

c. The intended track along a straight, curved, or segmented MLS path.

(See BEARING.)
(See INSTRUMENT LANDING SYSTEM.)
(See MICROWAVE LANDING SYSTEM.)
(See RADIAL.)

CPDLC-
(See CONTROLLER PILOT DATA LINK COMMUNICATIONS.)

CPL [ICAO]-
(See ICAO term CURRENT FLIGHT PLAN.)

CRITICAL ENGINE- The engine which, upon failure, would most adversely affect the performance or handling qualities of an aircraft.

CROSS (FIX) AT (ALTITUDE)- Used by ATC when a specific altitude restriction at a specified fix is required.

CROSS (FIX) AT OR ABOVE (ALTITUDE)- Used by ATC when an altitude restriction at a specified fix is required. It does not prohibit the aircraft from crossing the fix at a higher altitude than specified; however, the higher altitude may not be one that will violate a succeeding altitude restriction or altitude assignment.

(See ALTITUDE RESTRICTION.)
(Refer to AIM.)

CROSS (FIX) AT OR BELOW (ALTITUDE)- Used by ATC when a maximum crossing altitude at a specific fix is required. It does not prohibit the aircraft from crossing the fix at a lower altitude; however, it must be at or above the minimum IFR altitude.

(See ALTITUDE RESTRICTION.)
(See MINIMUM IFR ALTITUDES.)
(Refer to 14 CFR Part 91.)

CROSSWIND-

a. When used concerning the traffic pattern, the word means "crosswind leg."

(See TRAFFIC PATTERN.)

b. When used concerning wind conditions, the word means a wind not parallel to the runway or the path of an aircraft.

(See CROSSWIND COMPONENT.)

CROSSWIND COMPONENT- The wind component measured in knots at 90 degrees to the longitudinal axis of the runway.

CRUISE- Used in an ATC clearance to authorize a pilot to conduct flight at any altitude from the minimum IFR altitude up to and including the altitude specified in the clearance. The pilot may level off at any intermediate altitude within this block of airspace. Climb/descent within the block is to be made at the discretion of the pilot. However, once the pilot starts descent and verbally reports leaving an altitude in the block, he/she may not return to that altitude without additional ATC clearance. Further, it is approval for the pilot to proceed to and make an approach at destination airport and can be used in conjunction with:

a. An airport clearance limit at locations with a standard/special instrument approach procedure. The CFRs require that if an instrument letdown to an airport is necessary, the pilot shall make the letdown in accordance with a standard/special instrument approach procedure for that airport, or

b. An airport clearance limit at locations that are within/below/outside controlled airspace and without a standard/special instrument approach procedure. Such a clearance is NOT AUTHORIZATION for the pilot to descend under IFR conditions below the applicable minimum IFR altitude nor does it imply that ATC is exercising control over aircraft in Class G airspace; however, it provides a means for the aircraft to proceed to destination airport, descend, and land in accordance with applicable CFRs governing VFR flight operations. Also, this provides search and rescue protection until such time as the IFR flight plan is closed.

(See INSTRUMENT APPROACH PROCEDURE.)

CRUISE CLIMB- A climb technique employed by aircraft, usually at a constant power setting, resulting in an increase of altitude as the aircraft weight decreases.

CRUISING ALTITUDE- An altitude or flight level maintained during en route level flight. This is a constant altitude and should not be confused with a cruise clearance.

(See ALTITUDE.)
(See ICAO term CRUISING LEVEL.)

CRUISING LEVEL-
(See CRUISING ALTITUDE.)

CRUISING LEVEL [ICAO]- A level maintained during a significant portion of a flight.

AN/TPX-42 Interrogator System. The Navy has two adaptations of the DAIR System-Carrier Air Traffic Control Direct Altitude and Identification Readout System for Aircraft Carriers and Radar Air Traffic Control Facility Direct Altitude and Identity Readout System for land-based terminal operations. The DAIR detects, tracks, and predicts secondary radar aircraft targets. Targets are displayed by means of computer-generated symbols and alphanumeric characters depicting flight identification, altitude, ground speed, and flight plan data. The DAIR System is capable of interfacing with ARTCCs.

DIRECTION FINDER- A radio receiver equipped with a directional sensing antenna used to take bearings on a radio transmitter. Specialized radio direction finders are used in aircraft as air navigation aids. Others are ground-based, primarily to obtain a "fix" on a pilot requesting orientation assistance or to locate downed aircraft. A location "fix" is established by the intersection of two or more bearing lines plotted on a navigational chart using either two separately located Direction Finders to obtain a fix on an aircraft or by a pilot plotting the bearing indications of his/her DF on two separately located ground-based transmitters, both of which can be identified on his/her chart. UDFs receive signals in the ultra high frequency radio broadcast band; VDFs in the very high frequency band; and UVDFs in both bands. ATC provides DF service at those air traffic control towers and flight service stations listed in the Airport/Facility Directory and the DOD FLIP IFR En Route Supplement.

(See DF FIX.)

(See DF GUIDANCE.)

DIRECTLY BEHIND- An aircraft is considered to be operating directly behind when it is following the actual flight path of the lead aircraft over the surface of the earth except when applying wake turbulence separation criteria.

DISCRETE BEACON CODE-

(See DISCRETE CODE.)

DISCRETE CODE- As used in the Air Traffic Control Radar Beacon System (ATCRBS), any one of the 4096 selectable Mode 3/A aircraft transponder codes except those ending in zero zero; e.g., discrete codes: 0010, 1201, 2317, 7777; nondiscrete codes: 0100, 1200, 7700. Nondiscrete codes are normally reserved for radar facilities that are not equipped with discrete decoding capability and for other purposes such as emergencies (7700), VFR aircraft (1200), etc.

(See RADAR.)

(Refer to AIM.)

DISCRETE FREQUENCY- A separate radio frequency for use in direct pilot-controller communications in air traffic control which reduces frequency congestion by controlling the number of aircraft operating on a particular frequency at one time. Discrete frequencies are normally designated for each control sector in en route/terminal ATC facilities. Discrete frequencies are listed in the Airport/Facility Directory and the DOD FLIP IFR En Route Supplement.

(See CONTROL SECTOR.)

DISPLACED THRESHOLD- A threshold that is located at a point on the runway other than the designated beginning of the runway.

(See THRESHOLD.)

(Refer to AIM.)

DISTANCE MEASURING EQUIPMENT- Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

(See MICROWAVE LANDING SYSTEM.)

(See TACAN.)

(See VORTAC.)

DISTRESS- A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.

DIVE BRAKES-

(See SPEED BRAKES.)

DIVERSE VECTOR AREA- In a radar environment, that area in which a prescribed departure route is not required as the only suitable route to avoid obstacles. The area in which random radar vectors below the MVA/MIA, established in accordance with the TERPS criteria for diverse departures, obstacles and terrain avoidance, may be issued to departing aircraft.

DIVERSION (DVRSN)- Flights that are required to land at other than their original destination for reasons beyond the control of the pilot/company, e.g. periods of significant weather.

DME-

(See DISTANCE MEASURING EQUIPMENT.)

DME FIX- A geographical position determined by reference to a navigational aid which provides distance and azimuth information. It is defined by a specific distance in nautical miles and a radial, azimuth, or course (i.e., localizer) in degrees magnetic from that aid.

(See DISTANCE MEASURING EQUIPMENT.)
(See FIX.)
(See MICROWAVE LANDING SYSTEM.)

DME SEPARATION- Spacing of aircraft in terms of distances (nautical miles) determined by reference to distance measuring equipment (DME).

(See DISTANCE MEASURING EQUIPMENT.)

DOD FLIP- Department of Defense Flight Information Publications used for flight planning, en route, and terminal operations. FLIP is produced by the National Imagery and Mapping Agency (NIMA) for world-wide use. United States Government Flight Information Publications (en route charts and instrument approach procedure charts) are incorporated in DOD FLIP for use in the National Airspace System (NAS).

DOMESTIC AIRSPACE- Airspace which overlies the continental land mass of the United States plus Hawaii and U.S. possessions. Domestic airspace extends to 12 miles offshore.

DOWNBURST- A strong downdraft which induces an outburst of damaging winds on or near the ground. Damaging winds, either straight or curved, are highly divergent. The sizes of downbursts vary from 1/2 mile or less to more than 10 miles. An intense downburst often causes widespread damage. Damaging winds, lasting 5 to 30 minutes, could reach speeds as high as 120 knots.

DOWNWIND LEG-

(See TRAFFIC PATTERN.)

DP-

(See INSTRUMENT DEPARTURE PROCEDURE.)

DRAG CHUTE- A parachute device installed on certain aircraft which is deployed on landing roll to assist in deceleration of the aircraft.

DSP-

(See DEPARTURE SEQUENCING PROGRAM.)

DT-

(See DELAY TIME.)

DTAS-

(See DIGITAL TERMINAL AUTOMATION SYSTEM.)

DUE REGARD- A phase of flight wherein an aircraft commander of a State-operated aircraft assumes responsibility to separate his/her aircraft from all other aircraft.

(See also FAAO 7110.65, Para 1-2-1, WORD MEANINGS.)

DUTY RUNWAY-

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

DVA-

(See DIVERSE VECTOR AREA.)

DVFR-

(See DEFENSE VISUAL FLIGHT RULES.)

DVFR FLIGHT PLAN- A flight plan filed for a VFR aircraft which intends to operate in airspace within which the ready identification, location, and control of aircraft are required in the interest of national security.

DVRSN-

(See DIVERSION.)

DYNAMIC- Continuous review, evaluation, and change to meet demands.

DYNAMIC RESTRICTIONS- Those restrictions imposed by the local facility on an “as needed” basis to manage unpredictable fluctuations in traffic demands.

SEPARATION- In air traffic control, the spacing of aircraft to achieve their safe and orderly movement in flight and while landing and taking off.

(See SEPARATION MINIMA.)

(See ICAO term SEPARATION.)

SEPARATION [ICAO]- Spacing between aircraft, levels or tracks.

SEPARATION MINIMA- The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

(See SEPARATION.)

SERVICE- A generic term that designates functions or assistance available from or rendered by air traffic control. For example, Class C service would denote the ATC services provided within a Class C airspace area.

SEVERE WEATHER AVOIDANCE PLAN- An approved plan to minimize the affect of severe weather on traffic flows in impacted terminal and/or ARTCC areas. SWAP is normally implemented to provide the least disruption to the ATC system when flight through portions of airspace is difficult or impossible due to severe weather.

SEVERE WEATHER FORECAST ALERTS- Preliminary messages issued in order to alert users that a Severe Weather Watch Bulletin (WW) is being issued. These messages define areas of possible severe thunderstorms or tornado activity. The messages are unscheduled and issued as required by the Storm Prediction Center (SPC) at Norman, Oklahoma.

(See AIRMET.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(See SIGMET.)

SFA-

(See SINGLE FREQUENCY APPROACH.)

SFO-

(See SIMULATED FLAMEOUT.)

SHF-

(See SUPER HIGH FREQUENCY.)

SHORT RANGE CLEARANCE- A clearance issued to a departing IFR flight which authorizes IFR flight to a specific fix short of the destination while air traffic control facilities are coordinating and obtaining the complete clearance.

SHORT TAKEOFF AND LANDING AIRCRAFT- An aircraft which, at some weight within its approved operating weight, is capable of operating from a STOL runway in compliance with the applicable STOL characteristics, airworthiness, operations, noise, and pollution standards.

(See VERTICAL TAKEOFF AND LANDING AIRCRAFT.)

SIAP-

(See STANDARD INSTRUMENT APPROACH PROCEDURE.)

SID-

(See STANDARD INSTRUMENT DEPARTURE.)

SIDESTEP MANEUVER- A visual maneuver accomplished by a pilot at the completion of an instrument approach to permit a straight-in landing on a parallel runway not more than 1,200 feet to either side of the runway to which the instrument approach was conducted.

(Refer to AIM.)

SIGMET- A weather advisory issued concerning weather significant to the safety of all aircraft. SIGMET advisories cover severe and extreme turbulence, severe icing, and widespread dust or sandstorms that reduce visibility to less than 3 miles.

(See AIRMET.)

(See AWW.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(See ICAO term SIGMET INFORMATION.)

(Refer to AIM.)

SIGMET INFORMATION [ICAO]- Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

SIGNIFICANT METEOROLOGICAL INFORMATION-

(See SIGMET.)

SIGNIFICANT POINT- A point, whether a named intersection, a NAVAID, a fix derived from a NAVAID(s), or geographical coordinate expressed in degrees of latitude and longitude, which is established for the purpose of providing separation, as a reporting point, or to delineate a route of flight.

SIMPLIFIED DIRECTIONAL FACILITY- A NAVAID used for nonprecision instrument approaches. The final approach course is similar to that of an ILS localizer except that the SDF course may be offset from the runway, generally not more than 3 degrees, and the course may be wider than the localizer, resulting in a lower degree of accuracy.
(Refer to AIM.)

SIMULATED FLAMEOUT- A practice approach by a jet aircraft (normally military) at idle thrust to a runway. The approach may start at a runway (high key) and may continue on a relatively high and wide downwind leg with a continuous turn to final. It terminates in landing or low approach. The purpose of this approach is to simulate a flameout.
(See FLAMEOUT.)

SIMULTANEOUS ILS APPROACHES- An approach system permitting simultaneous ILS/MLS approaches to airports having parallel runways separated by at least 4,300 feet between centerlines. Integral parts of a total system are ILS/MLS, radar, communications, ATC procedures, and appropriate airborne equipment.
(See PARALLEL RUNWAYS.)
(Refer to AIM.)

SIMULTANEOUS MLS APPROACHES-
(See SIMULTANEOUS ILS APPROACHES.)

SINGLE DIRECTION ROUTES- Preferred IFR Routes which are sometimes depicted on high altitude en route charts and which are normally flown in one direction only.
(See PREFERRED IFR ROUTES.)
(Refer to AIRPORT/FACILITY DIRECTORY.)

SINGLE FREQUENCY APPROACH- A service provided under a letter of agreement to military single-piloted turbojet aircraft which permits use of a single UHF frequency during approach for landing. Pilots will not normally be required to change frequency from the beginning of the approach to touchdown except that pilots conducting an en route descent are required to change frequency when control is transferred from the air route traffic control center to the terminal facility. The abbreviation "SFA" in the DOD FLIP IFR Supplement under "Communications" indicates this service is available at an aerodrome.

SINGLE-PILOTED AIRCRAFT- A military turbojet aircraft possessing one set of flight controls, tandem cockpits, or two sets of flight controls but operated by one pilot is considered single-piloted by ATC when determining the appropriate air traffic service to be applied.
(See SINGLE FREQUENCY APPROACH.)

SKYSPOTTER- A pilot who has received specialized training in observing and reporting inflight weather phenomena.

SLASH- A radar beacon reply displayed as an elongated target.

SLDI-
(See SECTOR LIST DROP INTERVAL.)

SLOT TIME-
(See METER FIX TIME/SLOT TIME.)

SLOW TAXI- To taxi a float plane at low power or low RPM.

SN-
(See SYSTEM STRATEGIC NAVIGATION.)

SPEAK SLOWER- Used in verbal communications as a request to reduce speech rate.

SPECIAL ACTIVITY AIRSPACE (SAA)- Any airspace with defined dimensions within the National Airspace System wherein limitations may be imposed upon aircraft operations. This airspace may be restricted areas, prohibited areas, military operations areas, air ATC assigned airspace, and any other designated airspace areas. The dimensions of this airspace are programmed into URET and can be designated as either active or inactive by screen entry. Aircraft trajectories are constantly tested against the dimensions of active areas and alerts issued to the applicable sectors when violations are predicted.
(See USER REQUEST EVALUATION TOOL.)

SPECIAL EMERGENCY- A condition of air piracy or other hostile act by a person(s) aboard an aircraft which threatens the safety of the aircraft or its passengers.

SPECIAL INSTRUMENT APPROACH PROCEDURE-
(See INSTRUMENT APPROACH PROCEDURE.)

SPECIAL USE AIRSPACE- Airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. Types of special use airspace are:

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

7110.65R CHG 3
8/30/07

BRIEFING GUIDE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

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

Table of Contents

1. PARAGRAPH NUMBER AND TITLE:
2–1–1. ATC SERVICE;
2–1–2. DUTY PRIORITY, and
9–2–10. LAND–BASED AIR DEFENSE IDENTIFICATION ZONE (ADIZ) ATC PROCEDURES

2. BACKGROUND: Due to the tragic events of September 11, 2001, the FAA mission has forever changed. Additionally in support of Presidential Directives, commitments from the Administrator, the Secretary of Transportation, the Secretary of Homeland Security to the American people, it is incumbent upon us all to ensure Air Traffic Control evolves to meet the new demands placed upon us. Therefore, one may assume that the FAA mission of providing separation of aircraft is second to preserving and protecting national and public safety.

3. CHANGE:

OLD

2–1–1. ATC SERVICE

The primary purpose of the ATC system is to prevent a collision between aircraft operating in the system and to organize and expedite the flow of traffic. In addition to its primary function, the ATC system has the capability to provide (with certain limitations) additional services. The ability to provide additional services is limited by many factors, such as the volume of traffic, frequency congestion, quality of radar, controller workload, higher priority duties, and the pure physical inability to scan and detect those situations that fall in this category. It is recognized that these services cannot be provided in cases in which the provision of services is precluded by the above factors. Consistent with the aforementioned conditions, controllers shall provide additional service procedures to the extent permitted by higher priority duties and other circumstances. The provision of additional services is not optional on the part of the controller, but rather is required when the work situation permits. Provide air traffic control service in accordance with the procedures and minima in this order except when:

NEW

2–1–1. ATC SERVICE

The primary purpose of the ATC system is to prevent a collision between aircraft operating in the system and to organize and expedite the flow of traffic**, and to provide support for National Security and Homeland Defense**. In addition to its primary function, the ATC system has the capability to provide (with certain limitations) additional services. The ability to provide additional services is limited by many factors, such as the volume of traffic, frequency congestion, quality of radar, controller workload, higher priority duties, and the pure physical inability to scan and detect those situations that fall in this category. It is recognized that these services cannot be provided in cases in which the provision of services is precluded by the above factors. Consistent with the aforementioned conditions, controllers shall provide additional service procedures to the extent permitted by higher priority duties and other circumstances. The provision of additional services is not optional on the part of the controller, but rather is required when the work situation permits. Provide air traffic control service in accordance with the procedures and minima in this order except when:

OLD

2–1–2. DUTY PRIORITY

Title through **a*NOTE–***

b. Provide additional services to the extent possible, contingent only upon higher priority duties and other factors including limitations of radar, volume of traffic, frequency congestion, and workload.

Add

Add

NEW

2–1–2. DUTY PRIORITY

No Change

b. Provide **support to national security and homeland defense activities to include, but not be limited to, reporting of suspicious and/or unusual aircraft/pilot activities.**

REFERENCE–
FAAO JO 7610.4, Special Operations.

c. Provide additional services to the extent possible, contingent only upon higher priority duties and other factors including limitations of radar, volume of traffic, frequency congestion, and workload.

OLD	NEW
9-2-10. LAND-BASED AIR DEFENSE IDENTIFICATION ZONE (ADIZ) ATC PROCEDURES	**9-2-10. LAND-BASED AIR DEFENSE IDENTIFICATION ZONE (ADIZ) ATC PROCEDURES**
TERMINAL	*TERMINAL*
a. Verify IFR and VFR flight operations entering, exiting, or transitioning the ADIZ meet all of the following minimum conditions:	**a.** Verify**, by direct observation or pilot confirmation,** IFR and VFR flight operations entering, exiting, or transitioning the ADIZ meet all of the following minimum conditions:
1. Two-way radio communications are maintained at all times prior to entering and throughout transition of the ADIZ. Aircraft operating in an airport traffic pattern or landing at nontowered airports are exempt from the ATC communication requirement, provided they monitor the airport common traffic advisory frequency.	No Change
2. Aircraft is equipped with an operating transponder with automatic altitude reporting capability. Aircraft is squawking an ATC assigned discrete beacon code at all times. Do not allow an aircraft to squawk VFR while in the ADIZ.	**2.** Aircraft is equipped with an operating transponder with automatic altitude reporting capability. Aircraft is squawking an ATC assigned discrete beacon code**, with altitude,** at all times. Do not allow an aircraft to **cancel its flight plan and/or** squawk VFR while in the ADIZ.
3 through **5**	No Change
b. Pilots unable to comply with the requirements of subpara a, above, shall be advised to remain clear of the ADIZ.	**b.** Pilots unable to comply with the requirements of subpara a, above, shall be **instructed** to remain clear of **or exit** the ADIZ **as appropriate. When equipment failure involving transponder or Mode C is experienced, and the aircraft is operating within the ADIZ, the pilot may be permitted to land. An operation such as this may be permissible when it is more expedient than exiting the ADIZ and no additional security risk is evident**.
Add	***NOTE-*** ***Specific operations may be exempted, waivered, or verbally granted by the appropriate authority establishing the ADIZ.***

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1. PARAGRAPH NUMBER AND TITLE: 2-5-1. AIR TRAFFIC SERVICE (ATS) ROUTES

2. BACKGROUND: In 2005, the Area Navigation/Required Navigation Performance (RNAV/RNP) Group developed and published low altitude RNAV routes around the Charlotte, Cincinnati, and Jacksonville Terminal Areas. ICAO approved the use of the letter T to designate these RNAV routes. The routes are flown by Global Navigation Satellite System (GNSS) equipped aircraft and the RNAV/RNP Group is working with other terminal areas to publish future "T" routes.

3. CHANGE:

OLD	NEW
2-5-1. AIR TRAFFIC SERVICE (ATS) ROUTES	**2-5-1. AIR TRAFFIC SERVICE (ATS) ROUTES**
Title through **f**	No Change
g. Published RNAV routes. State the letter "Q" followed by the route number in group form except in Alaska where RNAV routes are followed with the letter "R."	**g.** Published RNAV routes.

Add	**1. High Altitude - State the letter "Q" followed by the route number in group form.**
EXAMPLE- *"Q One Forty-five."*	No Change
Add	**2. Low Altitude - State the letter of the route phonetically, followed by the number of the route in group form.**
Add	***EXAMPLE-*** ***"Tango Two Ten."***

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1. PARAGRAPH NUMBER AND TITLE:
3-1-4. COORDINATION BETWEEN LOCAL AND GROUND CONTROLLERS;
3-9-4. TAXI INTO POSITION AND HOLD;
3-9-8. INTERSECTING RUNWAY SEPARATION;
3-10-4. INTERSECTING RUNWAY SEPARATION;
3-10-5. LANDING CLEARANCE, and
3-10-6. ANTICIPATING SEPARATION

2. BACKGROUND: Due to the rise in operational errors and pilot deviations involving TIPH, the FAA recognized the need to re-evaluate and improve the application of TIPH operations in the National Airspace System (NAS). On March 21, 2006, ATO Terminal Services Unit began the process of conducting a Safety Risk Management (SRM) study on the TIPH procedure used by air traffic controllers at airports throughout the NAS. The group members, referred to as the SRM Panel, consisted of representatives from Terminal Services Unit (Airspace and Procedures, Human Factors, Safety Management), Flight Standards, Safety Services Unit, and an air traffic control field representative. The SRM Panel members analyzed TIPH procedures for risk and developed strategies to mitigate the risks identified. They conducted a study of TIPH as described in the FAAO 7110.65, Air Traffic Control, and FAAO 7210.3, Facility Operation and Administration, prior to the issuance of FAAN 7110.439 (GENOT 6/13) and FAAN 7210.622 (GENOT 6/15). The purpose of analysis, from a safety perspective prior to the issuance of the GENOTs, was to determine the TIPH safety baseline. The SRM Panel then identified the associated hazards and mitigations to those hazards, including those mitigations contained in the GENOTs to determine their effectiveness. The results of the Safety Risk Management Document (SRMD) were used to develop a new national standard for the use of TIPH. More detailed information can be found in the SRMD dated May 30, 2006.

3. CHANGE:

OLD	**NEW**
3-1-4. COORDINATION BETWEEN LOCAL AND GROUND CONTROLLERS	**3-1-4. COORDINATION BETWEEN LOCAL AND GROUND CONTROLLERS**
Title through **a**	No Change
b. Ground control shall notify local control of any aircraft taxied to an intersection for takeoff, unless departure from that intersection is specifically designated via prior coordination or facility directive as the standard operating procedure for the runway to be used. When standard procedures require departures to use a specific intersection, ground control shall notify local control when aircraft are taxied to other portions of the runway for departure.	**b.** Ground control **must** notify local control of any aircraft taxied to an intersection for takeoff**. This notification may be accomplished by verbal means or by flight progress strips**.

OLD	NEW
3-9-4. TAXI INTO POSITION AND HOLD (TIPH)	**3-9-4. TAXI INTO POSITION AND HOLD (TIPH)**
a. The intent of TIPH is to position aircraft for an imminent departure. Authorize an aircraft to taxi into position and hold, except as restricted in subpara g, when takeoff clearance cannot be issued because of traffic. Issue traffic information to any aircraft so authorized. Traffic information may be omitted when the traffic is another aircraft which has landed on or is taking off the same runway and is clearly visible to the holding aircraft. Do not use conditional phrases such as "behind landing traffic" or "after the departing aircraft."	**a.** The intent of TIPH is to position aircraft for an imminent departure. Authorize an aircraft to taxi into position and hold, except as restricted in subpara **g**, when takeoff clearance cannot be issued because of traffic. Issue traffic information to any aircraft so authorized. Traffic information may be omitted when traffic is another aircraft which has landed on or is taking off the same runway and is clearly visible to the holding aircraft. Do not use conditional phrases such as "behind landing traffic" or "after the departing aircraft."
b. *USN NOT APPLICABLE.* First state the runway number followed by the taxi into position clearance when more than one runway is active.	No Change
PHRASEOLOGY- *RUNWAY (number), POSITION AND HOLD.* *Or, when only one runway is active:* *POSITION AND HOLD.*	No Change
Add	**c. Do not issue a clearance to an aircraft requesting a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach on the same runway with an aircraft that is holding in position, taxiing into position or has been cleared to taxi into position and hold until the aircraft in position starts takeoff roll. Do not clear an aircraft to TIPH if an aircraft has been cleared to land, touch-and-go, stop-and-go, option or unrestricted low approach on the same runway.**
Add	***PHRASEOLOGY-*** ***RUNWAY (number), CONTINUE, TRAFFIC HOLDING IN POSITION,*** ***or*** ***(when only one runway is active): CONTINUE, TRAFFIC HOLDING IN POSITION.***
Add	***EXAMPLE-*** ***"American 528, runway two three, continue, traffic holding in position."*** ***or*** ***(when only one runway is active): "American 528, continue, traffic holding in position."***

Add	**1. Landing clearance need not be withheld if the safety logic system is operating in full core alert runway configuration.**
Add	**2. Facilities without the safety logic system and facilities with the safety logic system in limited configuration must withhold landing clearance until the aircraft in position starts takeoff roll.**
Add	***REFERENCE-*** ***FAAO 7110.65, Landing Clearance, Para 3-10-5.***
c. When an aircraft is authorized to taxi into takeoff position to hold, inform it of the closest traffic that is cleared to land, touch-and-go, stop-and-go, or unrestricted low approach on the same runway.	**d.** When an aircraft is authorized to taxi into **position and** hold, inform it of the closest traffic **requesting a full-stop,** touch-and-go, stop-and-go, **option** or unrestricted low approach to the same runway.
EXAMPLE- *"United Five, runway one eight, position and hold. Traffic a Boeing Seven Thirty Seven, six mile final."* *Or, when only one runway is active:* *"United Five, position and hold. Traffic a Boeing Seven Thirty Seven, six mile final."*	No Change
d. *USAF.* When an aircraft is authorized to taxi into takeoff position to hold, inform it of the closest traffic within 6 miles on final approach to the same runway. If the approaching aircraft is on a different frequency, inform it of the aircraft taxiing into position.	**e.** *USAF.* When an aircraft is authorized to taxi into takeoff position to hold, inform it of the closest traffic within 6 miles on final approach to the same runway. If the approaching aircraft is on a different frequency, inform it of the aircraft taxiing into position.
e. Do not authorize an aircraft to taxi into position and hold when the departure point is not visible from the tower, unless the aircraft's position can be verified by ASDE or the runway is used for departures only.	**f.** Do not authorize an aircraft to taxi into position and hold when the departure point is not visible from the tower, unless the aircraft's position can be verified by ASDE or the runway is used for departures only.
f. Do not authorize an aircraft to taxi into position and hold at an intersection between sunset and sunrise or at anytime when the intersection is not visible from the tower.	**g. An aircraft may be authorized** to taxi into position and hold at an intersection between sunset and sunrise**. The procedure must be approved by the appropriate Director, Terminal Operations (service area office) and by the Director, Terminal Safety and Operations Support, and must be contained in a facility directive. The following conditions must apply:**
Add	**1. The runway must be used as a departure-only runway.**
Add	**2. Only one aircraft at a time is permitted to taxi into position and hold on the same runway.**
Add	**3. Document on FAA Form 7230-4, Daily Record of Facility Operation, the following: "TIPH at INT of RWY (number) and TWY (name) IN EFFECT" when using runway as a departure-only runway. "TIPH at INT of RWY (number) and TWY (name) SUSPENDED" when runway is not used as a departure-only runway.**

Add	**h. Do not authorize an aircraft to taxi into position and hold at anytime when the intersection is not visible from the tower.**
Add	**i. Do not authorize aircraft to simultaneously taxi into position and hold on the same runway, between sunrise and sunset, unless the local assist/local monitor position is staffed.**
g. *USN.* Do not authorize aircraft to taxi into takeoff position to hold simultaneously on intersecting runways.	**j.** *USN.* Do not authorize aircraft to taxi into takeoff position to hold simultaneously on intersecting runways.
PHRASEOLOGY– *CONTINUE HOLDING,* *or* *TAXI OFF THE RUNWAY.*	No Change
REFERENCE– *FAAO 7110.65, Altitude Restricted Low Approach, Para 3–10–10.*	No Change
Add	**k. When aircraft are authorized to taxi into position and hold on runways that intersect, traffic must be exchanged between that aircraft and the aircraft that is authorized to position and hold, depart, or arrive to the intersecting runway(s).**
Add	***EXAMPLE–*** ***"United Five, runway four, position and hold, traffic holding runway three–one."*** ***"Delta One, runway three–one, position and hold, traffic holding runway four."***
Add	***Or, when issuing traffic information to an arrival aircraft and an aircraft that is holding on runway(s) that intersect(s):***
Add	***"Delta One, runway four, position and hold, traffic landing runway three–one."*** ***"United Five, runway three–one, cleared to land. Traffic holding in position runway four."***
Add	***Or, when issuing traffic information to a departing aircraft and an aircraft that is holding on runway(s) that intersect(s):***
Add	***"Delta One, runway three–one, position and hold, traffic departing runway four."*** ***"United Five, runway four, cleared for takeoff, traffic holding runway three–one."***
Add	***REFERENCE–*** ***FAAO 7110.65, Intersecting Runway Separation, Para 3–9–8.*** ***FAAO 7110.65, Intersecting Runway Separation, Para 3–10–4.***

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

1. HOLD SHORT OF RUNWAY, *or*

2. HOLD IN POSITION.

i. *USAF/USN.* When issuing additional instructions or information to an aircraft holding in takeoff position, include instructions to continue holding or taxi off the runway, unless it is cleared for takeoff.

PHRASEOLOGY–
CONTINUE HOLDING,

or

TAXI OFF THE RUNWAY.

REFERENCE–
FAAO 7110.65, Altitude Restricted Low Approach, Para 3–10–10.

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

No Change

No Change

m. *USAF/USN.* When issuing additional instructions or information to an aircraft holding in takeoff position, include instructions to continue holding or taxi off the runway, unless it is cleared for takeoff.

No Change

No Change

OLD

3–9–8. INTERSECTING RUNWAY SEPARATION

Add

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

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

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

NEW

3–9–8. INTERSECTING RUNWAY SEPARATION

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

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

No Change

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

OLD

3–10–4. INTERSECTING RUNWAY SEPARATION

Add

NEW

3–10–4. INTERSECTING RUNWAY SEPARATION

Issue traffic information to each aircraft operating on intersecting runways.

OLD	NEW
3-10-5. LANDING CLEARANCE	**3-10-5. LANDING CLEARANCE**
a. Issue landing clearance. Restate the landing runway whenever more than one runway is active, or an instrument approach is being conducted to a closed runway.	No Change
PHRASEOLOGY- *CLEARED TO LAND,* *or* *RUNWAY (designator) CLEARED TO LAND.*	No Change
Add	**b. Do not clear an aircraft for a full-stop, touch-and-go, stop-and-go, option, or unrestricted low approach when a departing aircraft has been instructed to taxi into position and hold, is taxiing into position, or is holding in position on the same runway. The landing clearance may be issued once the aircraft in position has started takeoff roll.**
b. "USN NOT APPLICABLE." Inform the closest aircraft that is cleared to land, touch-and-go, stop-and-go, or unrestricted low approaches when there is traffic holding on the same runway.	**c.** "USN NOT APPLICABLE." Inform the closest aircraft that is **requesting a full-stop**, touch-and-go, stop-and-go, **option,** or unrestricted low approaches when there is traffic **authorized to taxi into position and hold** on the same runway.
EXAMPLE- *"Delta One, cleared to land. Traffic holding in position."* *or* *"Delta One, runway one eight, cleared to land. Traffic holding in position."*	***EXAMPLE-*** *"Delta One, **continue, t**raffic holding in position."* *or* *"Delta One, runway one eight, **continue, t**raffic holding in position."*
Add	**d. During same runway operations, while TIPH is being applied, landing clearance need not be withheld if the safety logic system to that runway is in full core alert runway configuration.**
Add	***EXAMPLE-*** ***If the safety logic system is operating in full core alert runway configuration:*** ***"Delta One, cleared to land. Traffic holding in position."*** ***or*** ***"Delta One, runway one eight, cleared to land. Traffic holding in position."***
c. *USA/USN.* Issue surface wind when clearing an aircraft to land, touch-and-go, stop-and-go, low approach, or the option. Restate the landing runway whenever there is a possibility of a conflict with another aircraft which is using or is planning to use another runway.	**e.** *USA/USN.* Issue surface wind when clearing an aircraft to land, touch-and-go, stop-and-go, low approach, or the option. Restate the landing runway whenever there is a possibility of a conflict with another aircraft which is using or is planning to use another runway.

OLD	NEW
3-10-6. ANTICIPATING SEPARATION	**3-10-6. ANTICIPATING SEPARATION**
Landing clearance to succeeding aircraft in a landing sequence need not be withheld if you observe the positions of the aircraft and determine that prescribed runway separation will exist when the aircraft cross the landing threshold. Issue traffic information to the succeeding aircraft if not previously reported and appropriate traffic holding in position or departing prior to their arrival.	**a.** Landing clearance to succeeding aircraft in a landing sequence need not be withheld if you observe the positions of the aircraft and determine that prescribed runway separation will exist when the aircraft cross the landing threshold. Issue traffic information to the succeeding aircraft if not previously reported and appropriate traffic holding in position or departing prior to their arrival.
EXAMPLE- *"American Two Forty-Five cleared to land, number two following United Boeing Seven-Thirty-Seven two mile final, traffic will depart prior to your arrival."* *"American Two Forty-Five cleared to land, number two following United Boeing Seven-Thirty-Seven two mile final, traffic will be an MD 88 holding in position."* *"American Two Forty-Five cleared to land, following United Boeing Seven-Thirty-Seven two mile final, traffic will depart prior to your arrival."*	No Change
NOTE- *Landing sequence number is optional at tower facilities where arrivals are sequenced by the approach control.*	No Change
Add	**b. Anticipating separation must not be applied when conducting TIPH operations, except as restricted in para 3-10-5d.**
REFERENCE- *FAAO 7110.65, Closed/Unsafe Runway Information, Para 3-3-2.* *FAAO 7110.65, Landing Clearance, Para 3-10-5c, not required if utilizing the provisions of Para 3-10-6.* *P/CG Term- Clear of the Runway.*	No Change

1. PARAGRAPH NUMBER AND TITLE: 3-7-6. PRECISION OBSTACLE FREE ZONE (POFZ)

2. BACKGROUND: The Precision Obstacle Free Zone (POFZ) is an FAA Airport Obstructions Standards Committee (AOSC) initiative (Decision Document #01b, 18 Dec 2003) to protect the area of short final during very low ceilings (<250 feet) or visibilities (<3/4 statute mile or <4000 feet RVR). This change provides guidance to the controller on when the POFZ needs to remain clear of aircraft and vehicles. There are currently four types of hold lines; those that protect runways/taxiways, and those that protect the ILS critical area. This does not change. What does potentially change is the location of the ILS critical area hold lines (and appropriate signage). The POFZ may require the airport to position these lines so that when the low ceiling and/or visibility occur, aircraft and vehicles will be held outside the POFZ. If an aircraft or vehicle violates the POFZ during low visibility or ceilings, then the controller must advise any aircraft within 2 miles of the runway threshold. The majority of effort in this initiative falls on the Airports Division (AAS), Flight Standards (AFS) and the local airport management AAS has published three documents that address POFZ; AC 150/5300-13, Change 8, Airport Design; AC 150/5340-1H, Standards for Airport Markings, Change 2, and AC 150/5340-18D, Standards for Airport Sign Systems.

Along with the POFZ there is another surface area that must be protected. This area is called the Obstacle Clearance Surface (OCS) and is composed of the "W" ,"X" and "Y" surfaces. (The description for these surface areas can be found in FAAO 8260.3b, Volume III, Chapter 3, paragraph 3.4.). The "W", "X" and "Y" surfaces are designed to protect both sides of the final approach course when the reported weather is 800' or less and the visibility is 2 SM or less and the aircraft is on final within 2 NM of the runway threshold. These protected surfaces exist in the case that an aircraft executes a missed approach, it's momentum may carry it below the decision altitude (DA) before the pitch, flaps and engine power can begin a climb. This loss in altitude is such that tail heights of taxiing aircraft and those holding for departure could be a factor. This initiative went into effect on January 1, 2007.

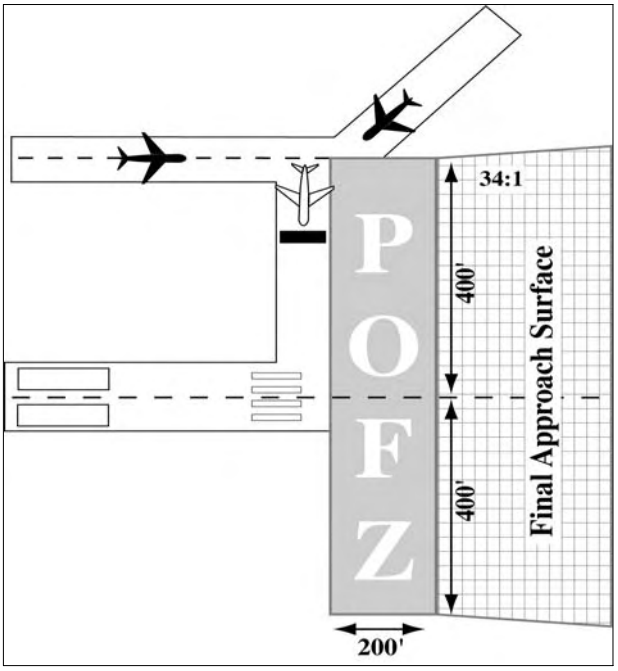
3. CHANGE:

OLD	NEW
3-7-6. PRECISION OBSTACLE FREE ZONE (POFZ)	**3-7-6. PRECISION OBSTACLE FREE ZONE (POFZ) AND FINAL APPROACH OBSTACLE CLEARANCE SURFACES (OCS)**
a. Ensure the POFZ is clear when an aircraft on a vertically guided final approach is within 2 NM of the runway threshold and the reported ceiling is below 250 feet or visibility is less than 3/4 SM (or runway visual range below 4,000 feet).	**a.** Ensure the POFZ is clear **of traffic (aircraft or vehicles)** when an aircraft on a vertically-guided final approach is within 2 **miles** of the runway threshold and the reported ceiling is below **300** feet or visibility is less than 3/4 SM **to protect aircraft executing a missed approach.**
NOTE- *Only horizontal surfaces (e.g., the wings) can penetrate POFZ; but not the vertical surfaces (e.g., fuselage or tail).*	***NOTE-*** *Only horizontal surfaces (e.g., the wings) can penetrate **the** POFZ, but not the vertical surfaces (e.g., fuselage or tail). **Three hundred feet (300) is used because ATC does not measure ceilings in fifty (50) foot increments.***
b. If the POFZ is not clear, then the minimum Height Above Touchdown (HAT) and visibility is 250 feet and 3/4 SM.	**b. Ensure the final approach OCS (e.g., ILS /LPV W, X, and Y surfaces) are clear of aircraft/vehicles when an aircraft on the vertically-guided approach is within 2 miles of the runway threshold and the reported ceiling is below 800 feet or visibility is less than 2 SM to protect aircraft executing a missed approach.**
PHRASEOLOGY- *(ACID) AIRCRAFT(VEHICLE) IN THE PRECISION OBSTRUCTION FREE ZONE. DECISION ALTITUDE IS (insert your airfield altitude + 250').*	Delete

OLD

FIG 3-7-1

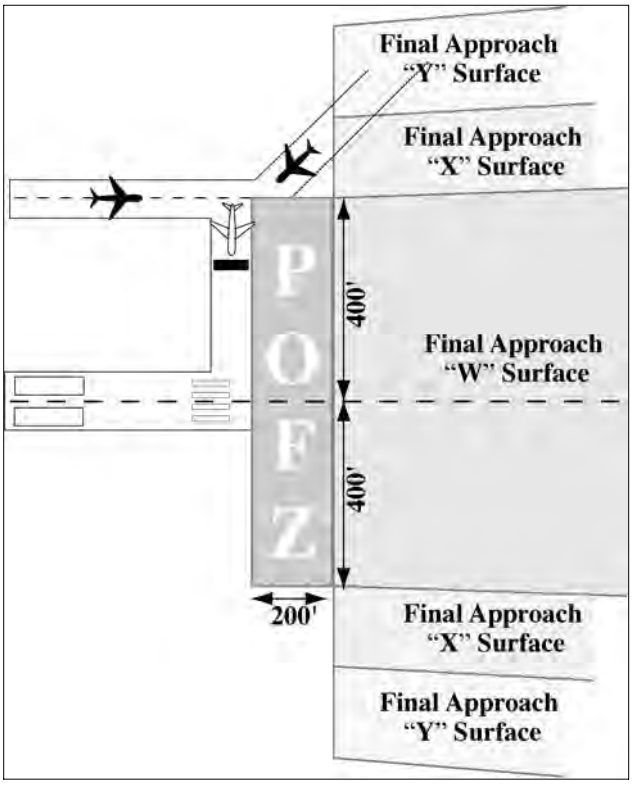
Precision Obstacle Free Zone (POFZ)



NEW

FIG 3-7-1

Precision Obstacle Free Zone (POFZ)



Add	***NOTE-*** **1. *The POFZ and the close-in portion of the final approach obstacle clearance surfaces protect aircraft executing a missed approach. Their dimensions are described in FAAO 8260.3b, Volume III, Chapter 3, paragraph 3.4, United States Standards for Terminal Instrument Procedures.*** **2. *Vehicles that are less than 10 feet in height, necessary for the maintenance of the airport and/or navigation facilities operating outside the movement area, are exempt.***
Add	**c. If it is not possible to clear the POFZ or OCS prior to an aircraft reaching a point 2 miles from the runway threshold and the weather is less than described in subparas a or b above, issue traffic to the landing aircraft.**
Add	***NOTE-*** ***The POFZ and/or OCS must be cleared as soon as practical.***
Add	***PHRASEOLOGY-*** ***(ACID), IN THE EVENT OF MISSED APPROACH (issue traffic).*** ***TAXIING AIRCRAFT/VEHICLE LEFT/RIGHT OF RUNWAY.***
Add	***EXAMPLE-*** ***"United 623, in the event of missed approach, taxiing aircraft right of runway."*** ***"Delta 1058, in the event of missed approach, vehicle left of runway."***
Add	***REFERENCE-*** ***FAAO 7110.65, Traffic Information, Para 3-1-6.***

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1. PARAGRAPH NUMBER AND TITLE: 3-10-4. INTERSECTING RUNWAY SEPARATION

2. BACKGROUND: A note is needed to emphasize the application of existing visual separation procedures when this is being provided by the tower. This change is being added to visual separation, procedures clearly for those aircraft when visual separation is in use.

3. CHANGE:

OLD	NEW
3-10-4. INTERSECTING RUNWAY SEPARATION	**3-10-4. INTERSECTING RUNWAY SEPARATION** **See page 9 of this Briefing Guide for additional text being added.**
a through **a2**	No Change

Add	***NOTE-*** ***When visual separation is being applied by the tower, appropriate control instructions and traffic advisories must be issued to ensure go around or missed approaches avert any conflict with the flight path of traffic on the other runway.***
Add	***REFERENCE-*** ***FAAO 7110.65, Visual Separation, Para 7-2-1a2.***

---

1. PARAGRAPH NUMBER AND TITLE: 5-5-4. MINIMA

2. BACKGROUND: Recently, questions have been raised from field facilities to clarify what "directly behind" means in regard to wake turbulence separation criteria found in this paragraph. Therefore, a "note" has been added to provide such.

3. CHANGE:

OLD	NEW
5-5-4. MINIMA	**5-5-4. MINIMA**
Title through **d**	No Change
e. Separate aircraft operating directly behind, or directly behind and less than 1,000 feet below, or following an aircraft conducting an instrument approach by:	No Change
NOTE-	***NOTE-***
Add	**1.** ***When applying wake turbulence separation criteria, directly behind means an aircraft is operating within 2500 feet of the flight path of the leading aircraft over the surface of the earth.***
Consider parallel runways less than 2,500 feet apart as a single runway because of the possible effects of wake turbulence.	**2.** *Consider parallel runways less than 2,500 feet apart as a single runway because of the possible effects of wake turbulence.*
1. Heavy behind heavy- *4 miles.*	No Change
2. Large/heavy behind B757- *4 miles*.	No Change
3. Small behind B757- *5 miles.*	No Change
4. Small/large behind heavy - *5 miles.*	No Change

---

1. PARAGRAPH NUMBER AND TITLE: 8-8-3. LONGITUDINAL SEPARATION

2. BACKGROUND: FAAO 7110.65P, as originally published, included procedures for providing longitudinal separation at all altitudes in the ICAO Caribbean region. Due to an editorial oversight, Change 1 omitted procedures to apply longitudinal separation for aircraft at FL 200 by specifying procedures "above FL 200" and "below FL 200", but not "at or above FL 200" or "at or below FL 200". This change to FAAO 7110.65R remedies that oversight. Ocean21 is already configured to apply the same longitudinal separation standards for aircraft at FL 200 as those above FL 200.

3. CHANGE:

OLD	NEW
8-8-3. LONGITUDINAL SEPARATION	**8-8-3. LONGITUDINAL SEPARATION**
Title through **a2**	No Change
b. Turbojet operations 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)*:	**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)*:

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1. PARAGRAPH NUMBER AND TITLE: 10-2-6. HIJACKED AIRCRAFT

2. BACKGROUND: The new "M" version of FAAO JO 7610.4, Special Operations, contains detailed procedures for handling hijack and suspicious aircraft activities. A simplification change is warranted in FAAO 7110.65 to reduce information redundancy, ensure consistency, and promote system security.

3. CHANGE:

OLD	NEW
10-2-6. HIJACKED AIRCRAFT	**10-2-6. HIJACKED AIRCRAFT**
When you observe a Mode 3/A Code 7500, an unexplained loss of beacon code, change in direction of flight or altitude, and/or a loss of communications, notify supervisory personnel immediately. As it relates to observing a Code 7500, do the following:	**Hijack attempts or actual events are a matter of national security and require special handling. Policy and procedures for hijack situations are detailed in FAAO JO 7610.4, Special Operations. FAAO JO 7610.4 describes reporting requirements, air crew procedures, air traffic procedures and escort or interceptor procedures for hijack situations.**
NOTE- *Military facilities will notify the appropriate FAA ARTCC, or the host nation agency responsible for en route control, of any indication that an aircraft is being hijacked. They will also provide full cooperation with the civil agencies in the control of such aircraft.*	Delete
EN ROUTE. During narrowband radar operations, ***Code 7500*** *causes HIJK to blink in the data block.*	Delete
NOTE- *Only nondiscrete* ***Code 7500*** *will be decoded as the hijack code.*	Delete

a. Acknowledge and confirm receipt of **Code 7500** by asking the pilot to verify it. If the aircraft is not being subjected to unlawful interference, the pilot should respond to the query by broadcasting in the clear that he/she is not being subjected to unlawful interference. If the reply is in the affirmative or if no reply is received, do not question the pilot further but be responsive to the aircraft requests.	Delete
PHRASEOLOGY- *(Identification) (name of facility) VERIFY SQUAWKING 7500.*	Delete
NOTE- ***Code 7500*** *is only assigned upon notification from the pilot that his/her aircraft is being subjected to unlawful interference. Therefore, pilots have been requested to refuse the assignment of* ***Code 7500*** *in any other situation and to inform the controller accordingly.*	Delete
b. Notify supervisory personnel of the situation.	Delete
c. Flight follow aircraft and use normal handoff procedures without requiring transmissions or responses by aircraft unless communications have been established by the aircraft.	Delete
d. If aircraft are dispatched to escort the hijacked aircraft, provide all possible assistance to the escort aircraft to aid in placing them in a position behind the hijacked aircraft.	Delete
NOTE- *Escort procedures are contained in FAAO 7610.4, Special Operations, Chapter 7, Hijacked/Suspicious Aircraft Reporting and Procedures.*	Delete
e. To the extent possible, afford the same control service to the aircraft operating VFR observed on the hijack code.	Delete
REFERENCE- Add	***REFERENCE-*** ***FAAO JO 7610.4, Hijacked/Suspicious Aircraft Reporting and Procedures, Chapter 7.***
FAAO 7110.65, Code Monitor, Para 5-2-13.	No Change

1. PARAGRAPH NUMBER AND TITLE: 10–2–11. AIRCRAFT BOMB THREATS

2. BACKGROUND: This change aligns aircraft bomb threat procedures with existing guidance contained in FAAO JO 7610.4, Special Operations.

3. CHANGE:

OLD	NEW
10–2–11. AIRCRAFT BOMB THREATS	**10–2–11. AIRCRAFT BOMB THREATS**
a. When information is received from any source that a bomb has been placed on, in, or near an aircraft for the purpose of damaging or destroying such aircraft, notify your supervisor or the facility air traffic manager. If the threat is general in nature, handle it as a "Suspicious Activity." When the threat is targeted against a specific aircraft and you are in contact with the suspect aircraft, take the following actions as appropriate:	No Change
NOTE– **1.** *Facility supervisors are expected to notify the appropriate offices, agencies, operators/air carriers according to applicable plans, directives, and FAAO 7210.3, Facility Operation and Administration, Handling Bomb Threat Incidents, Para 2–1–8, or applicable military directives.*	Delete
2. *"Suspicious activity" is covered in FAAO 7210.3, Facility Operation and Administration, Suspicious Activities, Para 2–7–6. Military facilities would report a "general" threat through the chain of command or according to service directives.*	Delete
Add	***REFERENCE–*** ***FAAO JO 7610.4, Hijacked/Suspicious Aircraft Reporting and Procedures, Chapter 7.***

---

1. PARAGRAPH NUMBER AND TITLE: 10–4–4. COMMUNICATIONS FAILURE

2. BACKGROUND: The new "M" version of FAAO JO 7610.4 contains information advising controllers to consider aircraft as "suspicious activity" (Chapter 7) when radio communications are lost or not established. The FAAO 7110.65 section on Communications Failure does not address this possibility. The two documents must be synchronized to avoid confusion or conflict.

3. CHANGE:

OLD	NEW
10–4–4. COMMUNICATIONS FAILURE	**10–4–4. COMMUNICATIONS FAILURE**
Title through **d*REFERENCE–***	No Change
Add	**e. If radio communications have not been (re)established with the aircraft after five minutes, consider the aircraft's activity to be possibly suspicious and handle the flight per FAAO JO 7610.4, Chapter 7, Hijacked/Suspicious Aircraft Reporting and Procedures.**

---

1. PARAGRAPH NUMBER AND TITLE:
13–1–1. DESCRIPTION;
13–1–2. CONFLICT DETECTION AND RESOLUTION;
13–1–5. THE AIRCRAFT LIST (ACL) AND FLIGHT DATA MANAGEMENT;
13–1–6. MANUAL COORDINATION AND THE URET COORDINATION MENU;
13–1–6. RECORDING OF CONTROL DATA;
13–1–7. HOLDING;
13–1–7. ACKNOWLEDGEMENT OF AUTOMATED NOTIFICATION;
13–1–8. CURRENCY OF TRAJECTORY INFORMATION;
13–1–9. DELAY REPORTING;
13–1–10. OVERDUE AIRCRAFT;
13–1–11. USE OF GRAPHICS PLAN DISPLAY (GPD);
13–1–12. FORECAST WINDS;
13–1–13. INTERFACILITY CONNECTIVITY;
13–1–14. PRIMARY RDP/FDP OUTAGES, and
13–1–17. URET AIRSPACE CONFIGURATION ELEMENTS

2. BACKGROUND: URET has been in use at certain facilities for several years. In order to ensure that URET procedures remain viable and up–to–date a review of all current procedures and practices was conducted. This included review of current national and local procedures, human factors, training and safety. As a result several recommendations for improvement were made. These recommendations have been incorporated into URET procedures.

3. CHANGE:

OLD	NEW
13–1–1. DESCRIPTION	**13–1–1. DESCRIPTION**
a. URET, a decision support technology and component of the Free Flight Program, is utilized in the en route environment and is located at the Radar Associate (RA) position at an operational sector. The purpose of the tool is the prediction of conflicts between aircraft and between aircraft and special use or designated airspace, and it also provides trial planning and enhanced flight data management capabilities.	**URET is an en route decision support tool that is used by the sector team in performing its strategic planning responsibilities. URET uses flight plan data, forecast winds, aircraft performance characteristics, and track data to derive expected aircraft trajectories, and to predict conflicts between aircraft and between aircraft and special use or designated airspace. It also provides trial planning and enhanced flight data management capabilities.**
b. URET is designed to enhance the efficiency of the Sector Team by providing decision support in the prediction and resolution of potential conflicts, and, as a result, allowing controllers more latitude in other tasks, such as responding to user requests. Further, the use of the tool could provide increased system safety, decreased system delays, and increased system flexibility, predictability, productivity, and user access.	Delete
c. URET predicts conflicts up to 20 minutes in advance using flight plan, forecast winds, aircraft performance characteristics, and track data to derive expected aircraft trajectories. URET supports early identification and resolution of predicted conflicts and the evaluation of user requests, and it is to be used by the sector team in performing their strategic planning responsibilities.	Delete

OLD	NEW
13-1-2. CONFLICT DETECTION AND RESOLUTION	**13-1-2. CONFLICT DETECTION AND RESOLUTION**
a. Actively scan URET information for predicted alerts.	**a.** Actively scan URET information for predicted **aircraft-to-aircraft and aircraft-to-airspace** alerts.
b through **d**	No Change
Add	**e. When the URET Stop Probe feature is activated for an aircraft, Conflict Probe for that aircraft shall be restarted before transfer of control, unless otherwise coordinated.**
Add	***NOTE-*** ***The requirement in subpara 13-1-2e does not apply to aircraft entering airspace of a non-URET facility.***

OLD	NEW
13-1-5. THE AIRCRAFT LIST (ACL) AND FLIGHT DATA MANAGEMENT	**13-1-5. THE AIRCRAFT LIST (ACL), DEPARTURE LIST (DL) AND FLIGHT DATA MANAGEMENT**
a. The ACL shall be used as the sector team's primary source of flight data.	No Change
b. When URET is operational, sector teams shall post flight progress strips for any nonradar flights.	**b. Actively scan URET to identify automated notifications that require sector team action.**
c. When URET is operational, sector teams shall post any flight progress strip(s) that are deemed necessary for safe or efficient operations. The sector team shall comply with all applicable facility directives to maintain posted flight progress strips.	**c. When an ACL or DL entry has a Remarks indication, the Remarks field of the flight plan shall be reviewed. Changes to the Remarks field shall also be reviewed.**
NOTE- *Cases in which an operational advantage may be realized include, but are not limited to aircraft that cannot be expected to remain in radar contact, aircraft in hold, and emergencies.*	Delete
Add	**d. Highlighting an entry on the ACL or DL shall be used to indicate the flight requires an action or special attention.**
Add	**e. The Special Posting Area (SPA) should be used to group aircraft that have special significance (e.g., aircraft to be sequenced, air refueling missions, formations).**
Add	**f. When URET is operational, sector teams shall post flight progress strips for any nonradar flights.**
Add	**g. When URET is operational, a flight progress strip shall be posted for any flight plan not contained in the Host Computer System.**

Add	**h. When URET is operational, sector teams shall post any flight progress strip(s) that are deemed necessary for safe or efficient operations. The sector team shall comply with all applicable facility directives to maintain posted flight progress strips.**
Add	**i. The URET Drop Track Delete option shall be used in accordance with facility directives.**

OLD	NEW
Add	**13-1-6. MANUAL COORDINATION AND THE URET COORDINATION MENU**
Add	**a. Where automated coordination with a facility is not available (e.g., an international facility, a VFR tower), use the URET Coordination Menu or a flight progress strip to annotate manual coordination status, in accordance with facility directives.**
Add	**b. When the URET Coordination Menu is used and the flight plan is subsequently changed, remove the yellow coding from the Coordination Indicator after any appropriate action has been taken.**

OLD	NEW
13-1-6. RECORDING OF CONTROL DATA	**13-1-8. RECORDING OF CONTROL DATA**
a. All control information not otherwise recorded via automation recordings or voice recordings shall be manually recorded using approved methods.	No Change
b. Control information may be entered in the free text area and shall be used for reference purposes only.	**b. When a point out has been approved, remove the yellow color coding on the ACL.**
c. Data required to be entered into the free text area shall be designated in a facility directive.	**c. When the URET Free Text Area is used to enter control information, authorized abbreviations shall be used. You may use:**
Add	**1. The clearance abbreviations authorized in TBL 13-1-1.**
Add	**2. The miscellaneous abbreviations authorized in TBL 13-1-2.**
Add	**3. The URET equivalents for control information symbols authorized in TBL 13-1-3.**
Add	**4. Plain language markings when it will aid in understanding information.**
Add	**5. Locally approved abbreviations.**

Add **d. When the URET Free Text Area is used to enter control information, the Free Text Area shall remain open and visible. When no longer relevant, the information entered into the Free Text Area shall be updated or deleted.**

Add **e. Control information entered in the Free Text Area shall be used for reference purposes only.**

Add ***NOTE–***
Information entered into the Free Text Area does not pass on handoff and, if necessary, must be coordinated.

Add

TBL 13–1–1
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**
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**

Add

TBL 13-1-2
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**

Add

TBL 13-1-3
URET Equivalents for Control Information Symbols

Abbreviation	Meaning
T *dir*	Depart (direction if specified)
↑	Climb and maintain
↓	Descend and maintain
CR	Cruise
AT	At
X	Cross
M	Maintain
/*airway*	Join or intercept (airway, jet route, track, or course)
=	While in controlled airspace
WICA	While in control area
dir ECA	Enter control area
dir OOCA	Out of control area
dir ESA	Cleared to enter surface area. Indicated direction of flight by appropriate compass letter(s)
TSA *alt*	Through surface area and altitude indicated direction of flight by appropriate compass letter(s). Maintain special VFR conditions (altitude if appropriate) while in surface area
250 K	Aircraft requested to adjust speed to 250 knots
-20 K	Aircraft requested to reduce speed 20 knots
+30 K	Aircraft requested to increase speed 30 knots
SVFR	Local Special VFR operations in the vicinity of (name) airport are authorized until (time). Maintain special VFR conditions (altitude if appropriate)
B4	Before
AF	After or Past
/	Until
instructions	Alternate instructions
REST	Restriction
AOB	At or Below
AOA	At or Above
-	From-to (route, time, etc.)
(Alt)B(Alt)	Indicates a block altitude assignment. Altitudes are inclusive, and the first altitude shall be lower than the second (Example 310B370)
V *time*	Clearance void if aircraft not off ground by *time*
CL	Pilot canceled flight plan
+*info*+	Information or revised information forwarded
alt	Other than assigned altitude reported Example: **50**
ARC *mi. dir.*	DME arc of VORTAC, TACAN, or MLS
C *freq.*	Contact (facility) or (freq.), (time, fix, or altitude if appropriate). Insert frequency only when it is other than standard
R	Radar contact
R *alt*	Requested altitude
R/	Radar service terminated
RX	Radar Contact Lost

Abbreviation	Meaning
RV	**Radar vector**
RVX	**Pilot resumed own navigation**
HO	**Handoff completed**
E	**Emergency**
W	**Warning**
P	**Point out initiated. Indicate the appropriate facility, sector, or position.**
FUEL	**Minimum fuel**
EFC *time*	**Expect further clearance at (time)**
- *fix*	**Direct to fix**
FRC	**Full route clearance**
IAF	**Initial approach fix**
NORDO	**No Radio**
PT	**Procedure turn**
RLS	**Release**
REQ	**Request**
SI	**Straight in**

OLD	NEW
Add	**13-1-7. HOLDING**
Add	**For flights in hold, use URET Hold Annotations, a flight progress strip, or a facility-approved worksheet to annotate holding instructions, in accordance with facility directives.**

OLD	NEW
13-1-7. ACKNOWLEDGEMENT OF AUTOMATED NOTIFICATION	**13-1-9. ACKNOWLEDGEMENT OF AUTOMATED NOTIFICATION**
a. Remove Inappropriate Altitude for Direction of Flight coding only after any required coordination has been completed.	**a. The URET Inappropriate Altitude for Direction of Flight (IAFDOF) feature shall be used in the automatic mode (i.e., IAFDOF Manual shall remain deselected) unless otherwise authorized in a facility directive.**
b. Remove Unsuccessful Transmission Message (UTM) coding only after appropriate coordination has been completed.	**b. Completion of any required coordination for IAFDOF shall be acknowledged on the ACL by removing the IAFDOF coding.**
c. Send/acknowledge Host Embedded Route Text (HERT) coding only after the appropriate clearance has been issued to the pilot or otherwise coordinated.	**c. Completion of appropriate coordination for an Unsuccessful Transmission Message (UTM) shall be acknowledged on the ACL by removing the UTM coding.**
d. Remove Expect Departure Clearance Time (EDCT) coding only after the EDCT has been issued to the pilot.	**d. Issuance of the Expect Departure Clearance Time (EDCT) to the pilot or other control facility shall be acknowledged on the DL by removing the EDCT coding.**

e. Remove ATC Preferred Route (APR) coding only after the route has been checked and any required action has been completed.	**e. IAFDOF, UTM, or EDCT coding shall be acknowledged only after the appropriate action has been completed.**
Add	**f. Send/acknowledge Host Embedded Route Text (HERT) coding only after the appropriate clearance has been issued to the pilot or otherwise coordinated. Do not send/acknowledge HERT unless the sector has track control for the flight or it has been otherwise coordinated.**
Add	**g. Remove ATC Preferred Route (APR) coding only after the route has been checked and any required action has been completed. Do not remove APR coding unless the sector has track control or it has been otherwise coordinated.**
NOTE– *If coding is prematurely removed and the control of the aircraft is transferred prior to completing the appropriate action, the next sector will not receive the necessary APR notification.*	***NOTE–*** *If coding is prematurely removed and the control of the aircraft is transferred **before** completing the appropriate action, the next sector **may** not receive the necessary APR notification.*

OLD	**NEW**
13–1–8. CURRENCY OF TRAJECTORY INFORMATION	**13–1–10. CURRENCY OF TRAJECTORY INFORMATION**

OLD	**NEW**
13–1–9. DELAY REPORTING	**13–1–11. DELAY REPORTING**
a. Adhere to all applicable delay reporting directives while URET is operational.	No Change
b. Delay information shall be recorded either on available flight progress strips or on facility approved forms.	**b.** Delay information shall be recorded**. Delay information may be automatically recorded via use of the URET Hold Annotations Menu or manually on** flight progress strips or facility**–**approved **worksheets, in accordance with the facility–defined standard**.
Add	**c. When using URET to automatically record delay information, the URET hold annotations shall be deleted when the aircraft is cleared from holding.**
Add	***NOTE–*** ***Delay information cannot be accurately recorded unless URET hold annotations are deleted when the aircraft is cleared from holding.***

OLD

13-1-10. OVERDUE AIRCRAFT

Upon receipt of the URET overdue aircraft notification take appropriate actions set forth in Chapter 10, Section 3, Overdue Aircraft.

NOTE-
URET overdue aircraft notification is based on radar track data. Updating an aircraft's route of fight will remove the overdue aircraft notification.

NEW

13-1-12. OVERDUE AIRCRAFT

Upon receipt of the URET overdue aircraft notification**,** take appropriate actions set forth in Chapter 10, Section 3, Overdue Aircraft.

No Change

OLD

13-1-11. USE OF GRAPHICS PLAN DISPLAY (GPD)

NEW

13-1-13. USE OF GRAPHICS PLAN DISPLAY (GPD)

OLD

13-1-12. FORECAST WINDS

In the event that current forecast wind data is not available, continue use of URET with appropriate recognition that alert data may be affected.

NEW

13-1-14. FORECAST WINDS

In the event that current forecast wind data **are** not available, continue use of URET with appropriate recognition that alert **and trajectory** data may be affected.

OLD

13-1-13. INTERFACILITY CONNECTIVITY

NEW

13-1-15. INTERFACILITY CONNECTIVITY

OLD

13-1-14. PRIMARY RDP/FDP OUTAGES

In the event of a primary RDP/FDP outage, URET data may be used to support situational awareness while the facility transitions to the backup RDP or nonradar procedures.

NOTE-
Without primary system input, URET data cannot be updated and becomes stale.

NEW

13-1-16. PRIMARY HOST OUTAGES

In the event of a primary **HOST** outage, URET data may be used to support situational awareness while the facility transitions to the backup RDP or nonradar procedures.

No Change

OLD	NEW
Add	**13-1-17. URET AIRSPACE CONFIGURATION ELEMENTS**
Add	**a. URET Airspace Configuration Elements are:**
Add	**1. Special Activity Airspace (SAA).**
Add	**2. Airport Stream Filters (ASF).**
Add	**3. URET adapted restrictions.**
Add	**b. Where assigned as a sector responsibility by facility directive, the sector team shall update URET Airspace Configuration Elements to reflect current status.**
Add	**c. For Airspace Configuration Elements designated as a sector responsibility, notify the operational supervisor when the status of an Airspace Configuration Element has been modified in URET.**

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1. PARAGRAPH NUMBER AND TITLE:
APPENDIX A. AIRCRAFT INFORMATION FIXED-WING AIRCRAFT

2. BACKGROUND: Appendix A includes information on fixed-wing aircraft including aircraft type designators, manufacturers, description of number and type of engines, aircraft weight classes, climb and descent rates, and same runway separation. FAAO 7110.118, Land and Hold Short Operations (LAHSO), Appendix 1, LAHSO Aircraft Landing Distance group information is incorporated.

3. CHANGE:

OLD	NEW
APPENDIX A. AIRCRAFT INFORMATION FIXED-WING AIRCRAFT	**APPENDIX A. AIRCRAFT INFORMATION FIXED-WING AIRCRAFT**
	See Appendix A for specific changes.

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1. PARAGRAPH NUMBER AND TITLE:
APPENDIX B. AIRCRAFT INFORMATION HELICOPTERS/ROTORCRAFTS

2. BACKGROUND: Appendix B includes information on helicopters and rotorcraft aircraft including aircraft type designators, manufacturers, description of number and type of engines, aircraft weight classes, climb and descent rates, and same runway separation.

3. CHANGE:

OLD	NEW
APPENDIX B. AIRCRAFT INFORMATION HELICOPTERS/ROTORCRAFTS	**APPENDIX B. AIRCRAFT INFORMATION HELICOPTERS/ROTORCRAFTS**
	See Appendix B for specific changes.

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1. PARAGRAPH NUMBER AND TITLE: APPENDIX D. STANDARD OPERATING PRACTICE (SOP) FOR THE TRANSFER OF POSITION RESPONSIBILITY

2. BACKGROUND: Cru-X/ART has been deployed by the ATO for the collection of Labor Distribution Reporting (LDR) data in the operating quarters of en route/oceanic, terminal, and flight service facilities. Cru-X/ART replaces the facility's FAA Form 7230-10, Position Log, or electronic version previously utilized by the facility (including Host, ARTS, and STARS).

It is imperative that the transfer of position time be accurately noted and entered into the Cru-X/ART position logs, as it was prior to Cru-X/ART. The actual time of position transfer occurs when a position is opened or when the relieving controller states, "they have the position."

When opening an operational position, the person opening the position is responsible for notifying the Supervisor/CIC of the transfer of position time, so the Supervisor/CIC can enter that time in Cru-X/ART. When there is a relieved controller, that individual is responsible to note the correct transfer of position time and enter it into ART.

3. CHANGE:

OLD

APPENDIX D. STANDARD OPERATING PRACTICE (SOP) FOR THE TRANSFER OF POSITION RESPONSIBILITY

1 through **6b**

c. ASSUMPTION OF POSITION RESPONSIBILITY

Relieving Specialist	Specialist Being Relieved
1. Make a statement or otherwise indicate to the specialist being relieved that position responsibility has been assumed.	**2.** Release the position to the relieving specialist.

NEW

APPENDIX D. STANDARD OPERATING PRACTICE (SOP) FOR THE TRANSFER OF POSITION RESPONSIBILITY

No Change

No Change

Relieving Specialist	Specialist Being Relieved
No Change	**2.** Release the position to the relieving specialist **and mentally note the time**.

OLD

d. REVIEW THE POSITION

Relieving Specialist	Specialist Being Relieved
1. Sign-on the position unless a facility directive authorizes substep 6d8.	
2. Check, verify, and update the information obtained in steps 6a and b.	
3. Check position equipment in accordance with existing directives.	
	4. Review checklist, Status Information Area/s, written notes, and other prescribed sources of information and advise the relieving specialist of known omissions, updates, or inaccuracies.
	5. Observe overall position operation to determine if assistance is needed.
	6. If assistance is needed, provide or summon it as appropriate.
	7. Advise the appropriate position regarding known Status Information Area(s) omissions, updates, or inaccuracies.
	8. Sign-on the relieving specialist if appropriate.
	9. Sign off the position in accordance with existing directives or otherwise indicate that the relief process is complete.

NEW

No Change

Relieving Specialist	Specialist Being Relieved
Delete	
1. Check, verify, and update the information obtained in steps 6a and b.	
2. Check position equipment in accordance with existing directives.	
	3. Review checklist, Status Information Area/s, written notes, and other prescribed sources of information and advise the relieving specialist of known omissions, updates, or inaccuracies.
	4. Observe overall position operation to determine if assistance is needed.
	5. If assistance is needed, provide or summon it as appropriate.
	6. Advise the appropriate position regarding known Status Information Area(s) omissions, updates, or inaccuracies.
	7. Sign-on the relieving specialist **with the time as noted in step 6c2**.
	8. Sign off the position in accordance with existing directives or otherwise indicate that the relief process is complete.