

CHANGE

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

**JO 7110.65T
CHG 1**

Air Traffic Organization Policy

Effective Date:
August 26, 2010

SUBJ: Air Traffic Control

- 1. Purpose of This Change.** This change transmits revised pages to Federal Aviation Administration Order JO 7110.65T, Air Traffic Control, and the Briefing Guide.
- 2. Audience.** This change applies to all Air Traffic Organization (ATO) personnel and anyone using ATO directives.
- 3. Where Can I Find This Change?** This change is available on the FAA Web site at http://faa.gov/air_traffic/publications and https://employees.faa.gov/tools_resources/orders_notices/.
- 4. Explanation of Policy Change.** See the Explanation of Changes attachment which has editorial corrections and changes submitted through normal procedures. The Briefing Guide lists only new or modified material, along with background.
- 5. Distribution.** This change is distributed to selected offices in Washington headquarters, regional offices, service area offices, the William J. Hughes Technical Center, and the Mike Monroney Aeronautical Center. Also, copies are sent to all air traffic field facilities and international aviation field offices; and to interested aviation public.
- 6. Disposition of Transmittal.** Retain this transmittal until superseded by a new basic order.
- 7. Page Control Chart.** See the page control chart attachment.

Nancy Kert
FOR Nancy B. Kalinowski
Vice President, System Operations Services
Air Traffic Organization

Date: 6-15-10

Explanation of Changes

Change 1

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

a. 2-4-17. NUMBERS USAGE

Subparagraph is renumbered.

b. 2-4-20. AIRCRAFT IDENTIFICATION

Deletes the reference to NORAD interceptors using 2-letter call signs and the example.

c. 2-6-4. WEATHER AND CHAFF SERVICES

The word “precipitation” is deleted from the second sentence of phraseology.

**d. 3-1-8. LOW LEVEL WIND SHEAR/
MICROBURST ADVISORIES**

This change inserts a NOTE to address new capabilities found on certain aircraft. The use of predictive wind shear technology onboard aircraft may result in notification to controllers that aircraft operators are executing an aborted maneuver. These devices are used to assist pilots with operations within the departure and arrival stages of flight. This system is separate from existing low level wind shear equipment located in air traffic control towers.

e. 3-10-5. LANDING CLEARANCE

A review of FAAO JO 7110.65 indicates that current guidelines provided to controllers regarding communicating a runway change could be stated more clearly. This change cancels and incorporates N JO 7110.517, Landing Clearance, effective March 4, 2010.

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

Editorial change to ensure compliance with all legacy procedures, we are removing the acronym “FMSP” from bNOTE- 1 as well as removing, in its entirety, Note 2 from the subject paragraph.

g. 4-3-2. DEPARTURE CLEARANCES

Editorial change to textually described obstacle departure procedures (ODP).

h. 4-5-7. ALTITUDE INFORMATION

Editorial change corrects reference to Aeronautical Information Manual (AIM) content.

**i. 5-2-10. BEACON CODE FOR PRESSURE
SUIT FLIGHTS AND FLIGHTS ABOVE FL600**

This change amends the reserved discrete codes.

**j. 5-3-4. TERMINAL AUTOMATION SYSTEMS
IDENTIFICATION METHODS;**

**5-4-5. TRANSFERRING CONTROLLER
HANDOFF;**

**and 5-4-6. RECEIVING CONTROLLER
HANDOFF**

This change adds “TRK” to FAA Order JO 7110.65, providing procedural consistency with existing procedures that require verbal coordination by the receiving controller when conducting a handoff of an aircraft with “TRK” identified in the data block display. This change cancels and incorporates N JO 7110.515, “TRK” Changes, effective March 4, 2010.

k. 7-9-4. SEPARATION

This change adds a subparagraph identifying the Osprey as a fixed-wing aircraft weighing more than 19,000 pounds. This change cancels and incorporates N JO 7110.521, Separation, effective April 1, 2010.

l. 9-2-11. SECURITY NOTICE (SECNOT)

This change adds new requirements to search for aircraft that have violated national security measures. This change cancels and incorporates N JO 7110.514, Security Notice (SECNOT), effective February 8, 2010.

**m. Appendix A. Aircraft Information Fixed-Wing
Aircraft, AIRCRAFT WEIGHT CLASSES**

Revised is made to harmonize FAA weight category standards with those of the International Civil Aviation Organization (ICAO). All aircraft with a maximum certificated takeoff weight of more than 41,000 pounds but less than 300,000 pounds maximum certificated takeoff weight will now be classified as a “Large” aircraft according to FAA standards. Aircraft with a maximum certificated takeoff weight of 300,000 pounds or more will now be classified as a “Heavy” aircraft according to FAA and ICAO weight classification standards.

This change reclassifies all B757 aircraft as “Large” aircraft; however, controllers are required to apply the special wake turbulence separation criteria as specified in paragraph 5-5-4. This change cancels and incorporates N JO 7110.525, Appendix A, Aircraft Information Fixed-Wing Aircraft, effective April 8, 2010.

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

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Chapter 1. General

Section 1. Introduction

1-1-1. PURPOSE OF THIS ORDER

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

1-1-2. AUDIENCE

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

1-1-3. WHERE TO FIND THIS ORDER

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

1-1-4. WHAT THIS ORDER CANCELS

FAA Order JO 7110.65S, Air Traffic Control, dated February 14, 2008, and all changes to it are canceled.

1-1-5. EXPLANATION OF CHANGES

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

1-1-6. SUBMISSION CUTOFF AND EFFECTIVE DATES

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

TBL 1-1-1
Publication Schedule

Basic or Change	Cutoff Date for Submission	Effective Date of Publication
JO 7110.65T	8/27/09	2/11/10
Change 1	2/11/10	8/26/10
Change 2	7/29/10	3/10/11
Change 3	3/10/11	8/25/11
JO 7110.65U	8/25/11	2/9/12

1-1-7. DELIVERY DATES

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

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

TBL 1-1-2
Military Distribution Contacts

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

1-1-8. RECOMMENDATIONS FOR PROCEDURAL CHANGES

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

b. Recommendations from other sources should be submitted through appropriate FAA, military, or

industry/user channels to Headquarters, FAA, Vice President, System Operations Services, attention: System Operations Airspace and AIM.

1-1-9. PROCEDURAL LETTERS OF AGREEMENT

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

REFERENCE-
FAAO JO 7110.65, Para 2-1-1, ATC Service.
FAAO JO 7210.3, Para 4-3-1, Letters of Agreement.

1-1-10. CONSTRAINTS GOVERNING SUPPLEMENTS AND PROCEDURAL DEVIATIONS

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

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

TBL 1-1-3
Military Operations Interface Offices

Branch	Address
U.S. Navy	Department of the Navy Chief of Naval Operations N-885F 2000 Navy Pentagon Washington, D.C. 20350-2000
U.S. Air Force	HQ AFFSA/A3A 7919 Mid-America Blvd Suite 300 Oklahoma City, OK 73135
U.S. Army	Director USAASA (MOAS-AS) 9325 Gunston Road, Suite N319 Ft. Belvoir, VA 22060-5582

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

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

1-1-11. SAFETY MANAGEMENT SYSTEM (SMS)

Every employee is responsible to ensure the safety of equipment and procedures used in the provision of services within the National Airspace System (NAS). Risk assessment techniques and mitigations, as appropriate, are intended for implementation of any planned safety significant changes within the NAS, as directed by FAA Order 1100.161, Air Traffic Safety Oversight. Direction regarding the SMS and its application can be found in the FAA Safety Management System Manual and FAA Order 1100.161. The SMS will be implemented through a period of transitional activities. (Additional information pertaining to these requirements and processes can be obtained by contacting the service area offices.)

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

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

1-1-13. DISTRIBUTION

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

2-4-16. ICAO PHONETICS

Use the ICAO pronunciation of numbers and individual letters. (See the ICAO radiotelephony alphabet and pronunciation in TBL 2-4-1.)

TBL 2-4-1
ICAO Phonetics

Character	Word	Pronunciation
0	Zero	ZE-RO
1	One	WUN
2	Two	TOO
3	Three	TREE
4	Four	FOW-ER
5	Five	FIFE
6	Six	SIX
7	Seven	SEV-EN
8	Eight	AIT
9	Nine	NIN-ER
A	Alfa	ALFAH
B	Bravo	BRAHVOH
C	Charlie	CHARLEE
D	Delta	DELLTAH
E	Echo	ECKOH
F	Foxtrot	FOKSTROT
G	Golf	GOLF
H	Hotel	HOHTELL
I	India	INDEE AH
J	Juliett	JEWLEE ETT
K	Kilo	KEYLOH
L	Lima	LEEMAH
M	Mike	MIKE
N	November	NOVEMBER
O	Oscar	OSSCAH
P	Papa	PAHPAH
Q	Quebec	KEHBECK
R	Romeo	ROWME OH
S	Sierra	SEEAIRAH
T	Tango	TANGGO
U	Uniform	YOUNEE FORM
V	Victor	VIKTAH
W	Whiskey	WISSKEY
X	X-ray	ECKSRAY
Y	Yankee	YANGKEY
Z	Zulu	ZOOLoo

NOTE-

Syllables to be emphasized in pronunciation are in bold face.

2-4-17. NUMBERS USAGE

State numbers as follows:

- a. Serial numbers. The separate digits.

EXAMPLE-

Number	Statement
11,495	“One one four niner five.”
20,069	“Two zero zero six niner.”

- b. Altitudes or flight levels:

1. Altitudes. Pronounce each digit in the number of hundreds or thousands followed by the word “hundred” or “thousand” as appropriate.

EXAMPLE-

Number	Statement
10,000	“One zero thousand.”
11,000	“One one thousand.”
17,900	“One seven thousand niner hundred.”

NOTE-

Altitudes may be restated in group form for added clarity if the controller chooses.

EXAMPLE-

Number	Statement
10,000	“Ten thousand.”
11,000	“Eleven thousand.”
17,900	“Seventeen thousand niner hundred.”

2. Flight levels. The words “flight level” followed by the separate digits of the flight level.

EXAMPLE-

Flight Level	Statement
180	“Flight level one eight zero.”
275	“Flight level two seven five.”

3. MDA/DH Altitudes. The separate digits of the MDA/DH altitude.

EXAMPLE-

MDA/DH Altitude	Statement
1,320	“Minimum descent altitude, one three two zero.”
486	“Decision height, four eight six.”

c. Time:

1. General time information. The four separate digits of the hour and minute/s in terms of UTC.

EXAMPLE-

UTC	Time (12 hour)	Statement
0715	1:15 a.m. CST	“Zero seven one five.”
1915	1:15 p.m. CST	“One niner one five.”

2. Upon request. The four separate digits of the hours and minute/s in terms of UTC followed by the local standard time equivalent; or the local time equivalent only. Local time may be based on the 24-hour clock system, and the word “local” or the time zone equivalent shall be stated when other than UTC is referenced. The term “ZULU” may be used to denote UTC.

EXAMPLE-

UTC	Time (24 hour)	Time (12 hour)	Statement
2230	1430 PST	2:30 p.m.	“Two two three zero, one four three zero Pacific or Local.” or “Two-thirty P-M.”

3. Time check. The word “time” followed by the four separate digits of the hour and minutes, and nearest quarter minute. Fractions of a quarter minute less than eight seconds are stated as the preceding quarter minute; fractions of a quarter minute of eight seconds or more are stated as succeeding quarter minute.

EXAMPLE-

Time	Statement
1415:06	“Time, one four one five.”
1415:10	“Time, one four one five and one-quarter.”

4. Abbreviated time. The separate digits of the minutes only.

EXAMPLE-

Time	Statement
1415	“One five.”
1420	“Two zero.”

d. Field elevation. The words “field elevation” followed by the separate digits of the elevation.

EXAMPLE-

Elevation	Statement
17 feet	“Field elevation, one seven.”
817 feet	“Field elevation, eight one seven.”
2,817 feet	“Field elevation, two eight one seven.”

e. The number “0” as “zero” except where it is used in approved “group form” for authorized aircraft call signs, and in stating altitudes.

EXAMPLE-

As Zero	As Group
“Field elevation one six zero.”	“Western five thirty.”
“Heading three zero zero.”	“EMAIR One Ten.”
“One zero thousand five hundred.”	“Ten thousand five hundred.”

f. Altimeter setting. The word “altimeter” followed by the separate digits of the altimeter setting.

EXAMPLE-

Setting	Statement
30.01	“Altimeter, three zero zero one.”

g. Surface wind. The word “wind” followed by the separate digits of the indicated wind direction to the nearest 10-degree multiple, the word “at” and the separate digits of the indicated velocity in knots.

EXAMPLE-

“Wind zero three zero at two five.”
 “Wind two seven zero at one five gusts three five.”

h. Heading. The word “heading” followed by the three separate digits of the number of degrees, omitting the word “degrees.” Use heading 360 degrees to indicate a north heading.

EXAMPLE-

Heading	Statement
5 degrees	“Heading zero zero five.”
30 degrees	“Heading zero three zero.”
360 degrees	“Heading three six zero.”

i. Radar beacon codes. The separate digits of the 4-digit code.

EXAMPLE-

Code	Statement
1000	“One zero zero zero.”
2100	“Two one zero zero.”

j. Runways. The word “runway,” followed by the separate digits of the runway designation. For a parallel runway, state the word “left,” “right,” or “center” if the letter “L,” “R,” or “C” is included in the designation.

EXAMPLE-

Designation	Statement
3	“Runway Three.”
8L	“Runway Eight Left.”
27R	“Runway Two Seven Right.”

k. Frequencies.

1. The separate digits of the frequency, inserting the word “point” where the decimal point occurs.

(a) Omit digits after the second digit to the right of the decimal point.

(b) When the frequency is in the L/MF band, include the word “kiloHertz.”

EXAMPLE-

Frequency	Statement
126.55 MHz	“One two six point five five.”
369.0 MHz	“Three six niner point zero.”
121.5 MHz	“One two one point five.”
135.275 MHz	“One three five point two seven.”
302 kHz	“Three zero two kiloHertz.”

2. USAF/USN. Local channelization numbers may be used in lieu of frequencies for locally based aircraft when local procedures are established to ensure that local aircraft and ATC facilities use the same channelization.

EXAMPLE-

Frequency	Statement
275.8 MHz	“Local channel one six.”

3. Issue MLS/TACAN frequencies by stating the assigned two- or three-digit channel number.

EXAMPLE-

“M-L-S channel Five Three Zero.”
 “TACAN channel Niner Seven.”

l. Speeds.

1. The separate digits of the speed followed by “knots” except as required by para 5-7-2, Methods.

EXAMPLE-

Speed	Statement
250	“Two five zero knots.”
190	“One niner zero knots.”

2. The separate digits of the Mach number preceded by “Mach.”

EXAMPLE-

Mach Number	Statement
1.5	“Mach one point five.”
0.64	“Mach point six four.”
0.7	“Mach point seven.”

m. Miles. The separate digits of the mileage followed by the word “mile.”

EXAMPLE-

“Three zero mile arc east of Nottingham.”
 “Traffic, one o’clock, two five miles, northbound, D-C Eight, flight level two seven zero.”

2-4-18. NUMBER CLARIFICATION

a. If deemed necessary for clarity, and after stating numbers as specified in para 2-4-17, Numbers Usage, controllers may restate numbers using either group or single-digit form.

EXAMPLE-

“One Seven Thousand, Seventeen Thousand.”
 “Altimeter Two Niner Niner Two, Twenty Nine Ninety Two.”
 “One Two Six Point Five Five, One Twenty Six Point Fifty Five.”

2-4-19. FACILITY IDENTIFICATION

Identify facilities as follows:

a. Airport traffic control towers. State the name of the facility followed by the word “tower.” Where military and civil airports are located in the same general area and have similar names, state the name of the military service followed by the name of the military facility and the word “tower.”

EXAMPLE-

“Columbus Tower.”

“Barksdale Tower.”

“Navy Jacksonville Tower.”

b. Air route traffic control centers. State the name of the facility followed by the word “center.”

c. Approach control facilities, including RAPCONs, RATCFs, and ARACs. State the name of the facility followed by the word “approach.” Where military and civil facilities are located in the same general area and have similar names, state the name of the military service followed by the name of the military facility and the word “approach.”

EXAMPLE-

“Denver Approach.”

“Griffiss Approach.”

“Navy Jacksonville Approach.”

d. Functions within a terminal facility. State the name of the facility followed by the name of the function.

EXAMPLE-

“Boston Departure.”

“LaGuardia Clearance Delivery.”

“O’Hare Ground.”

e. When calling or replying on an interphone line which connects only two non-VSCS equipped facilities, you may omit the facility name.

EXAMPLE-

“Bradford High, Handoff.”

f. FAA flight service stations. State the name of the station followed by the word “radio.”

EXAMPLE-

“Altoona Radio.”

g. Radar facilities having ASR or PAR but not providing approach control service. State the name of the facility, followed by the letters “G-C-A.”

EXAMPLE-

“Corpus Christi G-C-A.”

“Davison G-C-A.”

2-4-20. AIRCRAFT IDENTIFICATION

Use the full identification in reply to aircraft with similar sounding identifications. For other aircraft, the same identification may be used in reply that the pilot used in his/her initial callup except use the correct identification after communications have been established. Identify aircraft as follows:

a. U.S. registry aircraft. State one of the following:

REFERENCE-

FAAO JO 7110.65, Para 2-4-8, Radio Message Format.

FAAO JO 7110.65, Para 2-4-9, Abbreviated Transmissions.

FAAO JO 7110.65, Para 2-4-15, Emphasis for Clarity.

FAAO JO 7110.65, Para 2-4-17, Numbers Usage.

1. Civil. State the prefix “November” when establishing initial communications with U.S. registered aircraft followed by the ICAO phonetic pronunciation of the numbers/letters of the aircraft registration. The controller may state the aircraft type, the model, the manufacturer’s name, followed by the ICAO phonetic pronunciation of the numbers/letters of the aircraft registration if used by the pilot on the initial or subsequent call.

EXAMPLE-

Air traffic controller’s initiated call:

“November One Two Three Four Golf.”

“November One Two Three Four.”

Responding to pilot’s initial or subsequent call:

“Jet Commander One Two Three Four Papa.”

“Bonanza One Two Three Four Tango.”

“Sikorsky Six Three Eight Mike Foxtrot.”

NOTE-

If aircraft identification becomes a problem when the procedures specified above are used, the call sign shall be restated after the flight number of the aircraft involved.

EXAMPLE-

“American Five Twenty-One American.”

“Commuter Six Eleven Commuter.”

“General Motors Thirty-Seven General Motors.”

REFERENCE-

FAAO JO 7210.3, Para 2-1-13, Aircraft Identification Problems.

2. Air carrier and other civil aircraft having FAA authorized call signs. State the call sign followed by the flight number in group form.

NOTE-

“Group form” is the pronunciation of a series of numbers as the whole number, or pairs of numbers they represent rather than pronouncing each separate digit. The use of group form may, however, be negated by four-digit identifiers or the placement of zeros in the identifier.

EXAMPLE-

“American Fifty-Two.”
 “Delta One Hundred.”
 “Eastern Metro One Ten.”
 “General Motors Thirty Fifteen.”
 “United One Zero One.”
 “Delta Zero One Zero.”
 “TWA Ten Zero Four.”

NOTE-

Air carrier and other civil aircraft having FAA authorized call signs may be pronounced using single digits if necessary for clarity.

EXAMPLE-

“United Five One Seven.”
 “United Five Seven Zero.”

3. Air taxi and commercial operators not having FAA authorized call signs. State the prefix “TANGO” on initial contact, if used by the pilot, followed by the registration number. The prefix may be dropped in subsequent communications.

EXAMPLE-

“Tango Mooney Five Five Five Two Quebec.”
 “Tango November One Two Three Four.”

4. Air carrier/taxi ambulance. State the prefix, “Lifeguard,” if used by the pilot, followed by the call sign and flight number in group form.

EXAMPLE-

“Lifeguard Delta Fifty-One.”

5. Civilian air ambulance. State the word “LIFEGUARD” followed by the numbers/letters of the registration number.

EXAMPLE-

“Lifeguard Two Six Four Six.”

6. U.S. military. State one of the following:

(a) The service name, followed by the word “copter,” when appropriate, and the last 5 digits of the serial number.

EXAMPLE-

“Navy Five Six Seven One Three.”
 “Coast Guard Six One Three Two Seven.”
 “Air Guard One Three Five Eight Six.”
 “Army Copter Three Two One Seven Six.”

NOTE-

If aircraft identification becomes a problem, the procedures reflected in FAAO JO 7210.3, Facility Operation and Administration, para 2-1-13, Aircraft Identification Problems, will apply.

(b) Special military operations. State one of the following followed by the last 5 digits of the serial number:

(c) Air evacuation flights. “AIR EVAC,” “MARINE AIR EVAC,” or “NAVY AIR EVAC.”

EXAMPLE-

“Air Evac One Seven Six Five Two.”

(d) Rescue flights. (Service name) “RESCUE.”

EXAMPLE-

“Air Force Rescue Six One Five Seven Niner.”

(e) Air Mobility Command. “REACH.”

EXAMPLE-

“Reach Seven Eight Five Six Two.”

(f) Special Air Mission. “SAM.”

EXAMPLE-

“Sam Niner One Five Six Two.”

(g) USAF Contract Aircraft “LOGAIR.”

EXAMPLE-

“Logair Seven Five Eight Two Six.”

(h) Military tactical and training:

(1) U.S. Air Force, Air National Guard, Military District of Washington priority aircraft, and USAF civil disturbance aircraft. Pronounceable words of 3 to 6 letters followed by a 1 to 5 digit number.

EXAMPLE-

“Paul Two Zero.”
 “Pat One Five Seven.”
 “Gaydog Four.”

NOTE-

When the “Z” suffix described in para 2-3-7, USAF/USN Undergraduate Pilots, is added to identify aircraft piloted by USAF undergraduate pilots, the call sign will be limited to a combination of six characters.

(2) Navy or Marine fleet and training command aircraft. The service name and 2 letters, or a digit and a letter (use letter phonetic equivalents), followed by 2 or 3 digits.

EXAMPLE-

“Navy Golf Alfa Two One.”
 “Marine Four Charlie Two Three Six.”

7. Presidential aircraft and Presidential family aircraft:

(a) When the President is aboard a military aircraft, state the name of the military service, followed by the word “One.”

EXAMPLE-
 “Air Force One.”
 “Army One.”
 “Marine One.”

(b) When the President is aboard a civil aircraft, state the words “Executive One.”

(c) When a member of the President’s family is aboard any aircraft, if the U.S. Secret Service or the White House Staff determines it is necessary, state the words “Executive One Foxtrot.”

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

8. Vice Presidential aircraft:

(a) When the Vice President is aboard a military aircraft, state the name of the military service, followed by the word “Two.”

EXAMPLE-
 “Air Force Two.”
 “Army Two.”
 “Marine Two.”

(b) When the Vice President is aboard a civil aircraft, state the words “Executive Two.”

(c) When a member of the Vice President’s family is aboard any aircraft, if the U.S. Secret Service or the White House Staff determines it is necessary, state the words “Executive Two Foxtrot.”

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

9. DOT and FAA flights. The following alphanumeric identifiers and radio/interphone call signs are established for use in air/ground communications when the Secretary of Transportation, Deputy Secretary of Transportation, FAA Administrator or FAA Deputy Administrator have a requirement to identify themselves. (See TBL 2-4-2.)

TBL 2-4-2
DOT and FAA Alphanumeric Identifiers and Call Signs

Official	Identifier	Call Sign
Secretary of Transportation	DOT-1	Transport-1
Deputy Secretary of Transportation	DOT-2	Transport-2
Administrator, Federal Aviation Administration	FAA-1	Safeair-1
Deputy Administrator, Federal Aviation Administration	FAA-2	Safeair-2

10. Other Special Flights.

(a) Department of Energy flights. State the letters “R-A-C” (use phonetic alphabet equivalents) followed by the last 4 separate digits of the aircraft registration number.

EXAMPLE-
 “Romeo Alfa Charlie One Six Five Three.”

(b) Flight Inspection of navigational aids. State the call sign “FLIGHT CHECK” followed by the digits of the registration number.

EXAMPLE-
 “Flight Check Three Niner Six Five Four.”

(c) USAF aircraft engaged in aerial sampling missions. State the call sign “SAMP” followed by the last three digits of the serial number.

EXAMPLE-
 “SAMP Three One Six.”

REFERENCE-
 FAAO JO 7110.65, Para 9-2-17, SAMP.

11. Use a pilot’s name in identification of an aircraft only in special or emergency situations.

b. Foreign registry. State one of the following:

1. Civil. State the aircraft type or the manufacturer’s name followed by the letters/numbers of the aircraft registration, or state the letters or digits of the aircraft registration or call sign.

EXAMPLE-
 “Stationair F-L-R-B.”
 “C-F-L-R-B.”

NOTE-
 Letters may be spoken individually or phonetically.

2. Air carrier. The abbreviated name of the operating company followed by the letters or digits of the registration or call sign.

EXAMPLE-
 “Air France F-L-R-L-G.”

3. The flight number in group form, or you may use separate digits if that is the format used by the pilot.

EXAMPLE-
 “Scandinavian Sixty-eight.”
 “Scandinavian Six Eight.”

4. Foreign Military. Except Canada, the name of the country and the military service followed by the separate digits or letters of the registration or call sign. Canadian Forces aircraft shall be identified by the word “CANFORCE” followed by the separate digits of the serial number. The Canadian Coast

Guard shall be identified as “Canadian Coast Guard” followed by the separate digits of the serial number.

EXAMPLE-

“Canforce Five Six Two Seven.”

“Brazilian Air Force Five Three Two Seven Six.”

2-4-21. DESCRIPTION OF AIRCRAFT TYPES

Except for heavy aircraft, describe aircraft as follows when issuing traffic information.

a. Military:

1. Military designator, with numbers spoken in group form, or

2. Service and type, or

3. Type only if no confusion or misidentification is likely.

b. Air Carrier:

1. Manufacturer’s model or designator.

2. Add the manufacturer’s name, company name or other identifying features when confusion or misidentification is likely.

EXAMPLE-

“L-Ten-Eleven.”

“American MD-Eighty. Seven Thirty-Seven.”

“Boeing Seven Fifty-Seven.”

NOTE-

Pilots of “interchange” aircraft are expected to inform the tower on the first radio contact the name of the operating company and trip number followed by the company name, as displayed on the aircraft, and the aircraft type.

c. General Aviation and Air Taxi:

1. Manufacturer’s model, or designator.

2. Manufacturer’s name, or add color when considered advantageous.

EXAMPLE-

“Tri-Pacer.”

“P A Twenty-Two.”

“Cessna Four-Oh-One.”

“Blue and white King Air.”

“Airliner.”

“Sikorsky S-Seventy-Six.”

d. When issuing traffic information to aircraft following a heavy jet, specify the word “heavy” before the manufacturer’s name and model.

EXAMPLE-

“Heavy L-Ten-Eleven.”

“Heavy C-Five.”

“Heavy Boeing Seven Forty-Seven.”

REFERENCE-

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

2-4-22. AIRSPACE CLASSES

A, B, C, D, E, and G airspace are pronounced in the ICAO phonetics for clarification. The term “Class” may be dropped when referring to airspace in pilot/controller communications.

EXAMPLE-

“Cessna 123 Mike Romeo cleared to enter Bravo airspace.”

“Sikorsky 123 Tango Sierra cleared to enter New York Bravo airspace.”

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

PHRASEOLOGY-

UNABLE DEVIATION (state possible alternate course of action).

FLY HEADING (heading),

or

PROCEED DIRECT (name of NAVAID).

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

PHRASEOLOGY-

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

RETURN TO COURSE,

or

RESUME OWN NAVIGATION,

or

FLY HEADING (heading),

or

PROCEED DIRECT (name of NAVAID).

NOTE-

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

REFERENCE-

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

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

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

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

NOTE-

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

PHRASEOLOGY-

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

EXAMPLE-

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

REFERENCE-

P/CG Term- Precipitation Radar Weather Descriptions.

e. When precipitation intensity information is not available.

PHRASEOLOGY-

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

EXAMPLE-

“Precipitation area between one o’clock and three o’clock three five miles. Precipitation area is three zero miles in diameter, intensity unknown.”

NOTE-

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

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

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

PHRASEOLOGY-

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

EXAMPLE-

“Moderate precipitation between ten o’clock and one o’clock, three zero miles. Precipitation area is five zero miles in diameter.”

“Moderate to extreme precipitation twelve o’clock and three o’clock, seven zero miles. Precipitation area is one zero zero miles in diameter.”

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

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

NOTE-

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

2-6-5. CALM WIND CONDITIONS

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

REFERENCE-

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

2-6-6. REPORTING WEATHER CONDITIONS

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

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

2. Forward tower visibility observations to the weather observer.

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

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

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

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

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

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

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

REFERENCE-

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

2-6-7. DISSEMINATING WEATHER INFORMATION

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

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

3-1-8. LOW LEVEL WIND SHEAR/ MICROBURST ADVISORIES

a. When low level wind shear/microburst is reported by pilots, Integrated Terminal Weather System (ITWS), or detected on wind shear detection systems such as LLWAS NE++, LLWAS-RS, WSP, or TDWR, controllers must issue the alert to all arriving and departing aircraft. Continue the alert to aircraft until it is broadcast on the ATIS and pilots indicate they have received the appropriate ATIS code. A statement must be included on the ATIS for 20 minutes following the last report or indication of the wind shear/microburst.

PHRASEOLOGY-

LOW LEVEL WIND SHEAR (or MICROBURST, as appropriate) ADVISORIES IN EFFECT.

NOTE-

Some aircraft are equipped with Predictive Wind Shear (PWS) alert systems that warn the flight crew of a potential wind shear up to 3 miles ahead and 25 degrees either side of the aircraft heading at or below 1200' AGL. Pilot reports may include warnings received from PWS systems.

REFERENCE-

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

FAAO JO 7110.65, Para 2-9-3, Content.

FAAO JO 7110.65, Para 3-10-1, Landing Information.

b. At facilities without ATIS, ensure that wind shear/microburst information is broadcast to all arriving and departing aircraft for 20 minutes following the last report or indication of wind shear/microburst.

1. At locations equipped with LLWAS, the local controller shall provide wind information as follows:

NOTE-

The LLWAS is designed to detect low level wind shear conditions around the periphery of an airport. It does not detect wind shear beyond that limitation.

REFERENCE-

FAAO JO 7210.3, Para 10-3-3, Low Level Wind Shear/Microburst Detection Systems.

(a) If an alert is received, issue the airport wind and the displayed field boundary wind.

PHRASEOLOGY-

WIND SHEAR ALERT. AIRPORT WIND (direction) AT (velocity). (Location of sensor) BOUNDARY WIND (direction) AT (velocity).

(b) If multiple alerts are received, issue an advisory that there are wind shear alerts in two/several/all quadrants. After issuing the advisory, issue the airport wind in accordance with para 3-9-1,

Departure Information, followed by the field boundary wind most appropriate to the aircraft operation.

PHRASEOLOGY-

WIND SHEAR ALERTS TWO/SEVERAL/ALL QUADRANTS. AIRPORT WIND (direction) AT (velocity). (Location of sensor) BOUNDARY WIND (direction) AT (velocity).

(c) If requested by the pilot, issue specific field boundary wind information even though the LLWAS may not be in alert status.

NOTE-

The requirements for issuance of wind information remain valid as appropriate under this paragraph, para 3-9-1, Departure Information and para 3-10-1, Landing Information.

2. Wind shear detection systems, including TDWR, WSP, LLWAS NE++ and LLWAS-RS provide the capability of displaying microburst alerts, wind shear alerts, and wind information oriented to the threshold or departure end of a runway. When detected, the associated ribbon display allows the controller to read the displayed alert without any need for interpretation.

(a) If a wind shear or microburst alert is received for the runway in use, issue the alert information for that runway to arriving and departing aircraft as it is displayed on the ribbon display.

PHRASEOLOGY-

(Runway) (arrival/departure) WIND SHEAR/MICROBURST ALERT, (windspeed) KNOT GAIN/LOSS, (location).

EXAMPLE-

17A MBA 40K - 3MF

PHRASEOLOGY-

RUNWAY 17 ARRIVAL MICROBURST ALERT 40 KNOT LOSS 3 MILE FINAL.

EXAMPLE-

17D WSA 25K+ 2MD

PHRASEOLOGY-

RUNWAY 17 DEPARTURE WIND SHEAR ALERT 25 KNOT GAIN 2 MILE DEPARTURE.

(b) If requested by the pilot or deemed appropriate by the controller, issue the displayed wind information oriented to the threshold or departure end of the runway.

PHRASEOLOGY-

(Runway) DEPARTURE/THRESHOLD WIND (direction) AT (velocity).

(c) LLWAS NE++ or LLWAS-RS may detect a possible wind shear/microburst at the edge of the system but may be unable to distinguish between a wind shear and a microburst. A wind shear alert message will be displayed, followed by an asterisk, advising of a possible wind shear outside of the system network.

NOTE-

LLWAS NE++ when associated with TDWR can detect wind shear/microbursts outside the network if the TDWR fails.

PHRASEOLOGY-

(Appropriate wind or alert information) POSSIBLE WIND SHEAR OUTSIDE THE NETWORK.

(d) If unstable conditions produce multiple alerts, issue an advisory of multiple wind shear/microburst alerts followed by specific alert or wind information most appropriate to the aircraft operation.

PHRASEOLOGY-

MULTIPLE WIND SHEAR/MICROBURST ALERTS (specific alert or wind information).

(e) The LLWAS NE++ and LLWAS-RS are designed to operate with as many as 50 percent of the total sensors inoperative. When all three remote sensors designated for a specific runway arrival or departure wind display line are inoperative then the LLWAS NE++ and LLWAS-RS for that runway arrival/departure shall be considered out of service. When a specific runway arrival or departure wind display line is inoperative and wind shear/microburst activity is likely; (e.g.; frontal activity, convective storms, PIREPs), a statement shall be included on the ATIS, “WIND SHEAR AND MICROBURST INFORMATION FOR RUNWAY (runway number) ARRIVAL/DEPARTURE NOT AVAILABLE.”

NOTE-

The geographic situation display (GSD) is a supervisory planning tool and is not intended to be a primary tool for microburst or wind shear.

3-1-9. USE OF TOWER RADAR DISPLAYS

a. Uncertified tower display workstations shall be used only as an aid to assist controllers in visually locating aircraft or in determining their spatial relationship to known geographical points. Radar services and traffic advisories are not to be provided using uncertified tower display workstations.

General information may be given in an easy to understand manner, such as “to your right” or “ahead of you.”

EXAMPLE-

“Follow the aircraft ahead of you passing the river at the stacks.” “King Air passing left to right.”

REFERENCE-

FAAO JO 7210.3, Para 10-5-3, Functional Use of Certified Tower Radar Displays.

b. Local controllers may use certified tower radar displays for the following purposes:

1. To determine an aircraft’s identification, exact location, or spatial relationship to other aircraft.

NOTE-

This authorization does not alter visual separation procedures. When employing visual separation, the provisions of para 7-2-1, Visual Separation, apply unless otherwise authorized by the Vice President of Terminal Service.

REFERENCE-

FAAO JO 7110.65, Para 5-3-2, Primary Radar Identification Methods.

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

FAAO JO 7110.65, Para 5-3-4, Terminal Automation Systems Identification Methods.

2. To provide aircraft with radar traffic advisories.

3. To provide a direction or suggested headings to VFR aircraft as a method for radar identification or as an advisory aid to navigation.

PHRASEOLOGY-

(Identification), PROCEED (direction)-BOUND, (other instructions or information as necessary),

or

(identification), SUGGESTED HEADING (degrees), (other instructions as necessary).

NOTE-

It is important that the pilot be aware of the fact that the directions or headings being provided are suggestions or are advisory in nature. This is to keep the pilot from being inadvertently misled into assuming that radar vectors (and other associated radar services) are being provided when, in fact, they are not.

4. To provide information and instructions to aircraft operating within the surface area for which the tower has responsibility.

EXAMPLE-

“TURN BASE LEG NOW.”

“Read back hold short instructions.”

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

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

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

EXAMPLE-

“Five thousand fifty feet available.”

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

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

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

REFERENCE-

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

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

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

WAKE TURBULENCE APPLICATION

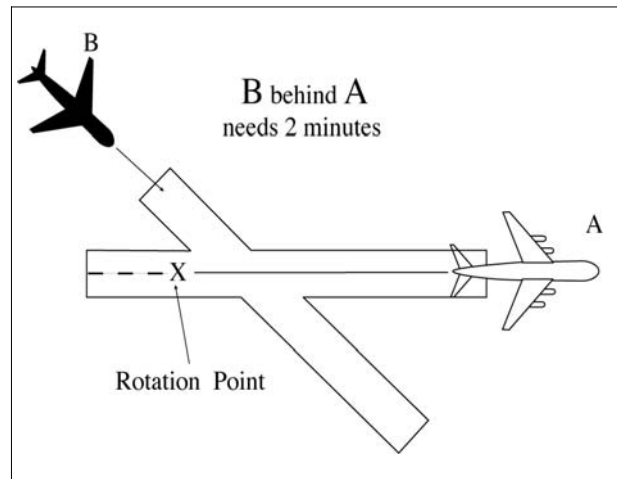
c. Separate IFR/VFR aircraft landing behind a departing heavy jet/B757 on a crossing runway if the arrival will fly through the airborne path of the departure- 2 minutes or the appropriate radar separation minima. (See FIG 3-10-10.)

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

REFERENCE-

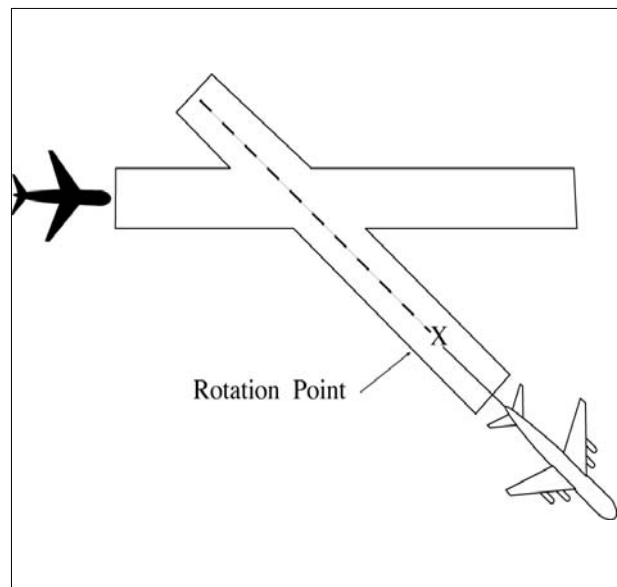
AC 90-23, Aircraft Wake Turbulence, Para 12, Pilot Responsibility.

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



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

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

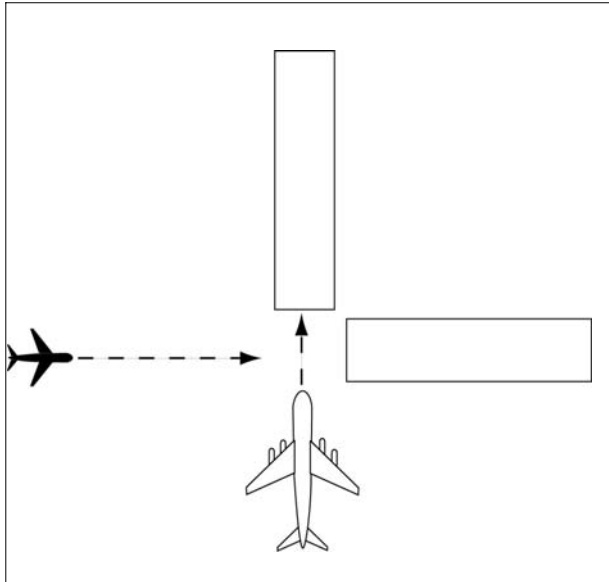


EXAMPLE-

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

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

FIG 3-10-12
Intersecting Runway Separation



EXAMPLE-

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

REFERENCE-

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

3-10-5. LANDING CLEARANCE

a. Issue landing clearance. Restate the landing runway whenever more than one runway is active or an instrument approach is being conducted to a closed runway. If the landing runway is changed, controllers must preface the landing clearance with “Change to runway.”

PHRASEOLOGY-
CLEARED TO LAND,

or

RUNWAY (designator) CLEARED TO LAND,

or

CHANGE TO RUNWAY (designator) CLEARED TO LAND.

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 must be withheld if the safety logic system to that runway is inoperative or in limited configuration or conditions are less than reported ceiling 800 feet or visibility less than 2 miles.

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

PHRASEOLOGY-

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

NOTE-

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

Section 2. Clearances

4-2-1. CLEARANCE ITEMS

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

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

h. Holding instructions.

i. Any special information.

j. Frequency and beacon code information.

REFERENCE-

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

4-2-2. CLEARANCE PREFIX

a. Prefix a clearance, information, or a request for information which will be relayed to an aircraft through a non-ATC facility by stating "A-T-C clears," "A-T-C advises," or "A-T-C requests."

b. Flight service stations shall prefix a clearance with the appropriate phrase: "ATC clears," "ATC advises," etc.

4-2-3. DELIVERY INSTRUCTIONS

Issue specific clearance delivery instructions, if appropriate.

4-2-4. CLEARANCE RELAY

Relay clearances verbatim.

REFERENCE-

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

4-2-5. ROUTE OR ALTITUDE AMENDMENTS

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

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

PHRASEOLOGY-

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

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

PHRASEOLOGY-

(Amendment to route), REST OF ROUTE UNCHANGED.

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

PHRASEOLOGY-

CLEARED DIRECT (fix).

NOTE-

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

4. Issue the entire route by stating the amendment.

EXAMPLE-

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

1. *"Cessna Two One Alfa change Victor Forty-One Delta to read Victor Forty-One Frank, Victor Seventy-One Delta."*

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

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

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

EXAMPLE-

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

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

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

“Climb and maintain Flight Level Two Four Zero.”

NOTE-

Restating previously issued altitude to “maintain” is an amended clearance. If altitude to “maintain” is changed or restated, whether prior to departure or while airborne, and previously issued altitude restrictions are omitted, altitude restrictions are canceled, including SID/STAR/(ATC) altitude restrictions if any.

c. Issue an amended clearance if a speed restriction is declined because it cannot be complied with concurrently with a previously issued altitude restriction.

EXAMPLE-

(An aircraft is cleared to cross Gordonsville VOR at 11,000. Shortly thereafter he/she is cleared to reduce his/her airspeed to 300 knots. The pilot informs the controller he/she is unable to comply with both clearances simultaneously. The controller issues an amended clearance as follows):

“Cross Gordonsville VOR at One One Thousand. Then, reduce speed to Three Zero Zero.”

NOTE-

The phrase “do the best you can” or comparable phrases are not valid substitutes for an amended clearance with altitude or speed restrictions.

REFERENCE-

FAAO JO 7110.65, Para 2-1-18, Operational Requests.
FAAO JO 7110.65, Section 6, Vectoring, Para 5-6-2, Methods.
FAAO JO 7110.65, Section 7, Speed Adjustment, Para 5-7-2, Methods.

d. Air traffic control specialists should avoid route and/or altitude changes for aircraft participating in the North American Route Program (NRP) and that are displaying “NRP” in the remarks section of their flight plan. Specialists at facilities actively participating in the High Altitude Redesign (HAR) program should avoid route and/or altitude changes for aircraft participating in full HAR and high altitude Point-to-point (PTP), and that are displaying “HAR,” or “PTP” in the remarks section of their flight plan.

NOTE-

Air traffic control specialists retain the latitude necessary to tactically resolve conflicts. Every effort should be made to ensure the aircraft is returned to the original filed flight plan/altitude as soon as conditions warrant.

REFERENCE-

FAAO JO 7110.65, Para 2-1-4, Operational Priority.
FAAO JO 7110.65, Para 2-2-15, North American Route Program (NRP) Information.
FAAO JO 7110.65, Para 2-3-2, En Route Data Entries.
FAAO JO 7210.3, Chapter 17, Section 16, North American Route Program.

4-2-6. THROUGH CLEARANCES

You may clear an aircraft through intermediate stops.

PHRASEOLOGY-

CLEARED THROUGH (airport) TO (fix).

4-2-7. ALTRV CLEARANCE

Use the phrase “via approved altitude reservation flight plan,” if the aircraft will operate in an approved ALTRV.

PHRASEOLOGY-

VIA APPROVED ALTITUDE RESERVATION (mission name) FLIGHT PLAN.

NOTE-

An ALTRV normally includes the departure, climb, cruise, and arrival phases of flight up to and including holding pattern or point/time at which ATC provides separation between aircraft.

REFERENCE-

FAAO JO 7110.65, Para 4-3-3, Abbreviated Departure Clearance.

4-2-8. IFR-VFR AND VFR-IFR FLIGHTS

a. Clear an aircraft planning IFR operations for the initial part of flight and VFR for the latter part to the fix at which the IFR part ends.

b. Treat an aircraft planning VFR for the initial part of flight and IFR for the latter part as a VFR departure. Issue a clearance to this aircraft when it requests IFR clearance approaching the fix where it proposes to start IFR operations. The phraseology **CLEARED TO (destination) AIRPORT AS FILED** may be used with abbreviated departure clearance procedures.

REFERENCE-

FAAO JO 7110.65, Para 4-3-3, Abbreviated Departure Clearance.

c. When an aircraft changes from VFR to IFR, the controller shall assign a beacon code to Mode-C equipped aircraft that will allow MSAW alarms.

d. When a VFR aircraft, operating below the minimum altitude for IFR operations, requests an IFR clearance and you are aware that the pilot is unable to climb in VFR conditions to the minimum IFR altitude:

1. Before issuing a clearance, ask if the pilot is able to maintain terrain and obstruction clearance during a climb to the minimum IFR altitude.

NOTE-

Pilots of pop-up aircraft are responsible for terrain and obstacle clearance until reaching minimum instrument altitude (MIA) or minimum en route altitude (MEA). Pilot compliance with an approved FAA procedure or an ATC instruction transfers that responsibility to the FAA; therefore, do not assign (or imply) specific course guidance that will (or could) be in effect below the MIA or MEA.

EXAMPLE-

“November Eight Seven Six, are you able to provide your

own terrain and obstruction clearance between your present altitude and six thousand feet?”

2. If the pilot is able to maintain terrain and obstruction separation, issue the appropriate clearance as prescribed in para 4-2-1, Clearance Items, and para 4-5-6, Minimum En Route Altitudes.

3. If unable to maintain terrain and obstruction separation, instruct the pilot to maintain VFR and to state intentions.

4. If appropriate, apply the provisions of para 10-2-7, VFR Aircraft In Weather Difficulty, or para 10-2-9, Radar Assistance Techniques, as necessary.

4-2-9. CLEARANCE ITEMS

The following guidelines shall be utilized to facilitate the processing of airfile aircraft:

a. Ensure the aircraft is within your area of jurisdiction unless otherwise coordinated.

b. Obtain necessary information needed to provide IFR service.

c. Issue clearance to destination, short range clearance, or an instruction to the pilot to contact a FSS or AFSS if the flight plan cannot be processed.

NOTE-

These procedures do not imply that the processing of airfiles has priority over another ATC duty to be performed.

REFERENCE-

FAAO JO 7110.65, Para 2-2-1, Recording Information.

Section 3. Departure Procedures

4-3-1. DEPARTURE TERMINOLOGY

Avoid using the term “takeoff” except to actually clear an aircraft for takeoff or to cancel a takeoff clearance. Use such terms as “depart,” “departure,” or “fly” in clearances when necessary.

REFERENCE-

FAAO JO 7110.65, Para 3-9-9, Takeoff Clearance.
FAAO JO 7110.65, Para 3-9-10, Cancellation of Takeoff Clearance.

4-3-2. DEPARTURE CLEARANCES

Include the following items in IFR departure clearances:

NOTE-

When considered necessary, controllers or pilots may initiate read backs of a clearance. Some pilots may be required by company rule to do so.

a. Always include the airport of departure when issuing a departure clearance for relay to an aircraft by an FSS, dispatcher, etc.

b. Clearance Limit.

1. Specify the destination airport when practicable, even though it is outside controlled airspace. Issue short range clearances as provided for in any procedures established for their use.

2. For Air Force One (AF1) operations, do not specify the destination airport.

NOTE-

Presidential detail is responsible for ensuring the accuracy of the destination airport.

PHRASEOLOGY-

DESTINATION AS FILED.

c. Departure Procedures.

1. Specify direction of takeoff/turn or initial heading/azimuth to be flown after takeoff as follows:

(a) Locations with Airport Traffic Control Service- Specify these items as necessary.

(b) Locations without Airport Traffic Control Service, but within a Class E surface area- specify these items if necessary. Obtain/solicit the pilot's concurrence concerning these items before issuing them in a clearance.

NOTE-

Direction of takeoff and turn after takeoff can be obtained/solicited directly from the pilot, or relayed by an FSS, dispatcher, etc., as obtained/solicited from the pilot.

(c) At all other airports- Do not specify direction of takeoff/turn after takeoff. If necessary to specify an initial heading/azimuth to be flown after takeoff, issue the initial heading/azimuth so as to apply only within controlled airspace.

2. Where only textually described obstacle departure procedures (ODP) have been published for a location and pilot compliance is necessary to insure separation, include the procedure as part of the ATC clearance.

EXAMPLE-

“Depart via the (airport name) (runway number) departure procedure.”

NOTE-

IFR takeoff minimums and departure procedures are prescribed for specific airports/runways and published in a tabular form supplement to the FAA instrument approach procedure chart and appropriate FAA Form 8260. These procedures are identified on instrument approach procedure charts with a symbol:



3. Compatibility with a procedure issued may be verified by asking the pilot if items obtained/solicited will allow him/her to comply with local traffic pattern, terrain, or obstruction avoidance.

PHRASEOLOGY-

FLY RUNWAY HEADING.

DEPART (direction or runway).

TURN LEFT/RIGHT.

WHEN ENTERING CONTROLLED AIRSPACE (instruction), FLY HEADING (degrees) UNTIL REACHING (altitude, point, or fix) BEFORE PROCEEDING ON COURSE.

FLY A (degree) BEARING/AZIMUTH FROM/TO (fix) UNTIL (time),

or

UNTIL REACHING (fix or altitude),

and if required,

BEFORE PROCEEDING ON COURSE.

EXAMPLE-

“Verify right turn after departure will allow compliance with local traffic pattern,” or “Verify this clearance will allow compliance with terrain or obstruction avoidance.”

NOTE-

If a published IFR departure procedure is not included in an ATC clearance, compliance with such a procedure is the pilot’s prerogative.

4. SIDs:

(a) Assign a SID (including transition if necessary). Assign a PDR or the route filed by the pilot, only when a SID is not established for the departure route to be flown, or the pilot has indicated that he/she does not wish to use a SID.

PHRASEOLOGY-

(SID name and number) DEPARTURE.

(SID name and number) DEPARTURE,
(transition name) TRANSITION.

EXAMPLE-

“Stroudsburg One Departure.”
“Stroudsburg One Departure, Sparta Transition.”
“Stroudsburg One RNAV Departure.”

NOTE-

If a pilot does not wish to use a SID issued in an ATC clearance, or any other SID published for that location, he/she is expected to advise ATC.

(b) If it is necessary to assign a crossing altitude which differs from the SID altitude, repeat the changed altitude to the pilot for emphasis.

PHRASEOLOGY-

(SID name) DEPARTURE, EXCEPT (revised altitude information). I SAY AGAIN (revised altitude information).

EXAMPLE-

“Stroudsburg One Departure, except cross Quaker at five thousand. I say again, cross Quaker at five thousand.”

“Astoria Two RNAV Departure, except cross Astor waypoint at six thousand. I say again, cross Astor waypoint at six thousand.”

(c) Specify altitudes when they are not included in the SID.

PHRASEOLOGY-

(SID name) DEPARTURE. CROSS (fix) AT (altitude).

EXAMPLE-

“Stroudsburg One Departure. Cross Jersey intersection at four thousand. Cross Range intersection at six thousand.”

“Engle Two RNAV departure. Cross Pilim waypoint at or above five thousand. Cross Engle waypoint at or above seven thousand. Cross Gorge waypoint at niner thousand.”

d. Route of flight. Specify one or more of the following:

1. Airway, route, course, heading, azimuth, arc, or vector.

2. The routing a pilot can expect if any part of the route beyond a short range clearance limit differs from that filed.

PHRASEOLOGY-

EXPECT FURTHER CLEARANCE VIA (airways, routes, or fixes.)

e. Altitude. Use one of the following in the order of preference listed:

NOTE-

Turbojet aircraft equipped with afterburner engines may occasionally be expected to use afterburning during their climb to the en route altitude. When so advised by the pilot, the controller may be able to plan his/her traffic to accommodate the high performance climb and allow the pilot to climb to his/her planned altitude without restriction.

1. To the maximum extent possible, Air Force One will be cleared unrestricted climb to:

(a) 9,000’ AGL or higher.

(b) If unable 9,000’ AGL or higher, then the highest available altitude below 9,000’ AGL.

2. Assign the altitude requested by the pilot.

3. Assign an altitude, as near as possible to the altitude requested by the pilot, and

(a) Inform the pilot when to expect clearance to the requested altitude unless instructions are contained in the specified SID, or

(b) If the requested altitude is not expected to be available, inform the pilot what altitude can be expected and when/where to expect it.

NOTE-

1. 14 CFR Section 91.185, says that in the event of a two-way radio communication failure, in VFR conditions or if VFR conditions are encountered after the failure, the pilot shall continue the flight under VFR and land as soon as practicable. That section also says that when the failure occurs in IFR conditions the pilot shall continue flight at

NOTE-

The pilot is authorized to conduct descent “at pilot’s discretion,” but must comply with the clearance provision to cross Lakeview VOR at 6,000 feet.

EXAMPLE-

“United Four Seventeen, descend now to flight level two seven zero, cross Lakeview V-O-R at or below one zero thousand, descend and maintain six thousand.”

NOTE-

The pilot is expected to promptly execute and complete descent to FL 270 upon receipt of the clearance. After reaching FL 270, the pilot is authorized to descend “at pilot’s discretion” until reaching Lakeview VOR. The pilot must comply with the clearance provision to cross Lakeview VOR at or below 10,000 feet. After Lakeview VOR, the pilot is expected to descend at the rates specified in the AIM until reaching 6,000 feet.

NOTE-

1. A descent clearance which specifies a crossing altitude authorizes descent at pilot’s discretion for that portion of the flight to which the crossing altitude restriction applies.
2. Any other time that authorization to descend at pilot’s discretion is intended, it must be specifically stated by the controller.
3. The pilot may need to know of any future restrictions that might affect the descent, including those that may be issued in another sector, in order to properly plan a descent at pilot’s discretion.
4. Controllers need to be aware that the descent rates in the AIM are only suggested and aircraft will not always descend at those rates.

REFERENCE-

P/CG Term- Pilot’s Discretion.

- e. When a portion of a climb/descent may be authorized at the pilot’s discretion, specify the altitude the aircraft must climb/descent to followed by the altitude to maintain at the pilot’s discretion.

PHRASEOLOGY-

CLIMB/DESCEND NOW TO (altitude), THEN CLIMB/DESCEND AT PILOT’S DISCRETION MAINTAIN (altitude).

EXAMPLE-

“United Three Ten, descend now to flight level two eight zero, then descend at pilot’s discretion maintain flight level two four zero.”

NOTE-

1. The pilot is expected to commence descent upon receipt of the clearance and to descend as prescribed in the AIM, para 4-4-10, Adherence to Clearance, until FL 280. At that point, the pilot is authorized to continue descent to

FL 240 within context of the term “at pilot’s discretion” as described in the AIM.

2. Controllers need to be aware that the descent rates are only suggested and aircraft will not always descend at those rates.

f. When the “pilot’s discretion” portion of a climb/descent clearance is being canceled by assigning a new altitude, inform the pilot that the new altitude is an “amended altitude.”

EXAMPLE-

“American Eighty Three, amend altitude, descend and maintain Flight Level two six zero.”

NOTE-

American Eighty Three, at FL 280, has been cleared to descend at pilot’s discretion to FL 240. Subsequently, the altitude assignment is changed to FL 260. Therefore, pilot’s discretion is no longer authorized.

- g. Altitude assignments involving more than one altitude.

PHRASEOLOGY-

MAINTAIN BLOCK (altitude) THROUGH (altitude).

h. Instructions to vertically navigate on a STAR/RNAV STAR/FMSP with published restrictions.

PHRASEOLOGY-

DESCEND VIA (STAR/RNAV STAR/FMSP name and number)

TERMINAL: DESCEND VIA (STAR/RNAV STAR/FMSP name and number and runway number).

EXAMPLE-

“Descend via the Mudde One Arrival.”

“Cross JCT at flight level two four zero, then descend via the Coast Two Arrival.”

TERMINAL: “Descend via the Lendy One Arrival, Runway 22 left.”

NOTE-

Clearance to “descend via” authorizes pilots:

1. To vertically and laterally navigate on a STAR/RNAV STAR/FMSP.
2. When cleared to a waypoint depicted on a STAR/RNAV STAR/FMSP, to descend from a previously assigned altitude at pilot’s discretion to the altitude depicted for that waypoint, and once established on the depicted arrival, to navigate laterally and vertically to meet all published restrictions. ATC is responsible for obstacle clearance when issuing a “descend via” clearance from a previously assigned altitude.

REFERENCE-

FAAO JO 7110.65, Para 4-5-6, Minimum En Route Altitudes.

FAAO JO 7110.65, Para 5-5-9, Separation From Obstructions.

NOTE-

3. Pilots navigating on a STAR/RNAV STAR/FMSP shall

maintain last assigned altitude until receiving clearance to “descend via.”

4. *Pilots cleared for vertical navigation using the phraseology “descend via” shall inform ATC upon initial contact.*

EXAMPLE-

“Delta One Twenty One leaving FL 240, descending via the Civit One arrival.”

REFERENCE-

AIM, Para 5-4-1, Standard Terminal Arrival (STAR), Area Navigation (RNAV) STAR, and Flight Management System Procedures (FMSP) for Arrivals.

1. Assign an altitude to cross the waypoint/fix, if no altitude is depicted at the waypoint/fix, for aircraft on a direct routing to a STAR/RNAV STAR/FMSP.

EXAMPLE-

“Proceed direct Luxor, cross Luxor at or above flight level two zero zero, then descend via the Ksino One Arrival.”

2. A descend via clearance shall not be used where procedures contain published “expect” altitude restrictions.

NOTE-

Pilots are not expected to comply with published “expect” restrictions in the event of lost communications, unless ATC has specifically advised the pilot to expect these restrictions as part of a further clearance.

3. If it is necessary to assign a crossing altitude which differs from the STAR/RNAV STAR/FMSP altitude, emphasize the change to the pilot.

PHRASEOLOGY-

DESCEND VIA THE (STAR/FMSP) ARRIVAL EXCEPT CROSS (fix, point, waypoint) (revised altitude information).

EXAMPLE-

“United 454 descend via the Haris One Arrival, except cross Haris at or above one six thousand.”

NOTE-

The aircraft should track laterally and vertically on the Haris One Arrival and should descend so as to cross Haris at or above 16,000; remainder of the arrival shall be flown as published.

4. If it is necessary to assign an interim altitude, or assign a final altitude not contained on a STAR/RNAV STAR/FMSP, the provisions of subpara 4-5-7h may be used in conjunction with subpara 4-5-7a.

PHRASEOLOGY-

DESCEND VIA THE (STAR/RNAV STAR/FMSP)

ARRIVAL EXCEPT AFTER (fix) MAINTAIN (revised altitude information).

EXAMPLE-

“United 454 descend via the Haris One Arrival, except after Bruno, maintain one zero thousand.”

NOTE-

The aircraft should track laterally and vertically on the Haris One Arrival and should descend so as to comply with all speed and altitude restrictions until reaching Bruno and then maintain 10,000. Upon reaching 10,000, aircraft should maintain 10,000 until cleared by ATC to continue to descend.

REFERENCE-

FAAO JO 7110.65, Para 4-7-1, Clearance Information. AIM, Para 5-4-1, Standard Terminal Arrival (STAR), Area Navigation (RNAV) STAR, and Flight Management System Procedures (FMSP) for Arrivals.

i. When a pilot is unable to accept a clearance, issue revised instructions to ensure positive control and standard separation.

NOTE-

1. *14 CFR Section 91.123 states that a pilot is not allowed to deviate from an ATC clearance “that has been obtained...unless an amended clearance is obtained” (except when an emergency exists).*

2. *A pilot is therefore expected to advise the controller if a clearance cannot be accepted when the clearance is issued. “We will try” and other such acknowledgements do not constitute pilot acceptance of an ATC clearance.*

3. *Controllers are expected to issue ATC clearances which conform with normal aircraft operational capabilities and do not require “last minute” amendments to ensure standard separation.*

4. *“Expedite” is not to be used in lieu of appropriate restrictions to ensure separation.*

REFERENCE-

FAAO JO 7110.65, Para 10-1-3, Providing Assistance.

4-5-8. ANTICIPATED ALTITUDE CHANGES

If practicable, inform an aircraft when to expect climb or descent clearance or to request altitude change from another facility.

PHRASEOLOGY-

EXPECT HIGHER/LOWER IN (number of miles or minutes) MILES/MINUTES,

or

AT (fix). REQUEST ALTITUDE/FLIGHT LEVEL CHANGE FROM (name of facility).

If required,

Section 2. Beacon Systems

5-2-1. ASSIGNMENT CRITERIA

a. General.

1. Mode 3/A is designated as the common military/civil mode for air traffic control use.

2. Make radar beacon code assignments to only Mode 3/A transponder-equipped aircraft.

b. Unless otherwise specified in a directive or a letter of agreement, make code assignments to departing, en route, and arrival aircraft in accordance with the procedures specified in this section for the radar beacon code environment in which you are providing ATC service. Give first preference to the use of discrete beacon codes.

PHRASEOLOGY-

SQUAWK THREE/ALFA (code),

or

SQUAWK (code).

NOTE-

A code environment is determined by an operating position's/sector's equipment capability to decode radar beacon targets using either the first and second or all four digits of a beacon code.

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-2. DISCRETE ENVIRONMENT

a. Issue discrete beacon codes assigned by the computer. Computer-assigned codes may be modified as required.

1. **TERMINAL.** Aircraft that will remain within the terminal facility's delegated airspace shall be assigned a code from the code subset allocated to the terminal facility.

2. **TERMINAL.** Unless otherwise specified in a facility directive or a letter of agreement, aircraft that will enter an adjacent ATTS facility's delegated airspace shall be assigned a beacon code assigned by the ARTCC computer.

NOTE-

1. *This will provide the adjacent facility advance information on the aircraft and will cause auto-acquisition of the aircraft prior to handoff.*

2. *When an IFR aircraft, or a VFR aircraft that has been assigned a beacon code by the host computer and whose flight plan will terminate in another facility's area, cancels ATC service or does not activate the flight plan, send a remove strips (RS) message on that aircraft via host keyboard, the FDIO keyboard, or call via service F.*

b. Make handoffs to other positions/sectors on the computer-assigned code.

c. Coastal facilities accepting "over" traffic that will subsequently be handed-off to an oceanic ARTCC shall reassign a new discrete beacon code to an aircraft when it first enters the receiving facility's airspace. The code reassignment shall be accomplished by inputting an appropriate message into the computer and issued to the pilot while operating in the first sector/position in the receiving facility's airspace.

NOTE-

Per an agreement between FAA and the Department of Defense, 17 Code subsets in the NBCAP have been reserved for exclusive military use outside NBCAP airspace. To maximize the use of these subsets, they have been allocated to ARTCC's underlying NBCAP airspace that do not abut an oceanic ARTCC's area. To preclude a potential situation where two aircraft might be in the same airspace at the same time on the same discrete code, it is necessary to reassign an aircraft another code as specified in subpara c.

REFERENCE-

FAAO JO 7110.65, Para 5-2-4, Mixed Environment.

FAAO JO 7110.65, Para 5-2-9, VFR Code Assignments.

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-3. NONDISCRETE ENVIRONMENT

a. Assign appropriate nondiscrete beacon codes from the function codes specified in para 5-2-6, Function Code Assignments.

b. Unless otherwise coordinated at the time of handoff, make handoffs to other positions/sectors on an appropriate nondiscrete function code.

REFERENCE-

FAAO JO 7110.65, Para 5-2-4, Mixed Environment.

FAAO JO 7110.65, Para 5-2-9, VFR Code Assignments.

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-4. MIXED ENVIRONMENT

a. When discrete beacon code capability does not exist in your area of responsibility, comply with the

procedures specified in para 5-2-3, Nondiscrete Environment.

NOTE-

In a mixed code environment, a situation may exist where a discrete-equipped position/sector exchanges control of aircraft with nondiscrete-equipped facilities or vice versa.

b. When discrete beacon code capability exists in your area of responsibility:

1. Comply with the procedures specified in para 5-2-2, Discrete Environment, and

2. Unless otherwise coordinated at the time of handoff, assign aircraft that will enter the area of responsibility of a nondiscrete-equipped position/sector an appropriate nondiscrete function code from the codes specified in para 5-2-6, Function Code Assignments, prior to initiating a handoff.

REFERENCE-

FAAO JO 7110.65, Para 4-2-8, IFR-VFR and VFR-IFR Flights.

FAAO JO 7110.65, Para 5-2-9, VFR Code Assignments.

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-5. RADAR BEACON CODE CHANGES

Unless otherwise specified in a directive or a letter of agreement or coordinated at the time of handoff, do not request an aircraft to change from the code it was squawking in the transferring facility's area until the aircraft is within your area of responsibility.

REFERENCE-

FAAO JO 7110.65, Para 4-2-8, IFR-VFR and VFR-IFR Flights.

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-6. FUNCTION CODE ASSIGNMENTS

Unless otherwise specified by a directive or a letter of agreement, make nondiscrete code assignments from the following categories:

a. Assign codes to departing IFR aircraft as follows:

1. Code 2000 to an aircraft which will climb to FL 240 or above or to an aircraft which will climb to FL 180 or above where the base of Class A airspace and the base of the operating sector are at FL 180, and for inter-facility handoff the receiving sector is also stratified at FL 180. The en route code shall not be assigned until the aircraft is established in the high altitude sector.

2. Code 1100 to an aircraft which will remain below FL 240 or below FL 180 as above.

3. For handoffs from terminal facilities when so specified in a letter of agreement as follows:

(a) Within NBCAP airspace- **Code 0100 to Code 0400** inclusive or any other code authorized by the appropriate service area office.

(b) Outside NBCAP airspace- **Code 1000** or one of the codes from **0100 to 0700** inclusive or any other code authorized by the appropriate service area office.

b. Assign codes to en route IFR aircraft as follows:

NOTE-

1. FL 180 may be used in lieu of FL 240 where the base of Class A airspace and the base of the operating sector are at FL 180, and for inter-facility handoff the receiving sector is also stratified at FL 180.

2. The provisions of subparas b2(b) and (c) may be modified by facility directive or letter of agreement when operational complexities or simplified sectorization indicate. Letters of agreement are mandatory when the operating sectors of two facilities are not stratified at identical levels. The general concept of utilizing Codes 2100 through 2500 within Class A airspace should be adhered to.

1. Aircraft operating below FL 240 or when control is transferred to a controller whose area includes the stratum involved.

(a) Code 1000 may be assigned to aircraft changing altitudes.

(b) Code 1100 to an aircraft operating at an assigned altitude below FL 240. Should an additional code be operationally desirable, **Code 1300** shall be assigned.

2. Aircraft operating at or above FL 240 or when control is transferred to a controller whose area includes the stratum involved.

(a) Code 2300 may be assigned to aircraft changing altitudes.

(b) Code 2100 to an aircraft operating at an assigned altitude from FL 240 to FL 330 inclusive. Should an additional code be operationally desirable, **Code 2200** shall be assigned.

(c) Code 2400 to an aircraft operating at an assigned altitude from FL 350 to FL 600 inclusive. Should an additional code be operationally desirable, **Code 2500** shall be assigned.

3. Code 4000 when aircraft are operating on a flight plan specifying frequent or rapid changes in

assigned altitude in more than one stratum or other conditions of flight not compatible with a stratified code assignment.

NOTE-

1. Categories of flight that can be assigned **Code 4000** include certain flight test aircraft, MTR missions, aerial refueling operation requiring descent involving more than one stratum, ALTRVs where continuous monitoring of ATC communications facilities is not required and frequent altitude changes are approved, and other aircraft operating on flight plans requiring special handling by ATC.

2. Military aircraft operating VFR or IFR in restricted/warning areas or VFR on VR routes will adjust their transponders to reply on **Code 4000** unless another code has been assigned by ATC or coordinated, if possible, with ATC.

c. Assign the following codes to arriving IFR aircraft, except military turbojet aircraft as specified in para 4-7-4, Radio Frequency and Radar Beacon Changes for Military Aircraft:

NOTE-

FL 180 may be used in lieu of FL 240 where the base of Class A airspace and the base of the operating sector are at FL 180, and for inter-facility handoff the receiving sector is also stratified at FL 180.

1. **Code 2300** may be assigned for descents while above FL 240.

2. **Code 1500** may be assigned for descents into and while within the strata below FL 240, or with prior coordination the specific code utilized by the destination controller, or the code currently assigned when descent clearance is issued.

3. The applicable en route code for the holding altitude if holding is necessary before entering the terminal area and the appropriate code in subparas 1 or 2.

REFERENCE-

FAAO JO 7110.65, Para 4-2-8, IFR-VFR and VFR-IFR Flights.
FAAO JO 7110.65, Para 5-2-3, Nondiscrete Environment.
FAAO JO 7110.65, Para 5-2-4, Mixed Environment.
FAAO JO 7110.65, Para 5-2-9, VFR Code Assignments.
FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-7. EMERGENCY CODE ASSIGNMENT

Assign codes to emergency aircraft as follows:

a. **Code 7700** when the pilot declares an emergency and the aircraft is not radar identified.

PHRASEOLOGY-

SQUAWK MAYDAY ON 7700.

b. After radio and radar contact have been established, you may request other than single-piloted helicopters and single-piloted turbojet aircraft to change from **Code 7700** to another code appropriate for your radar beacon code environment.

NOTE-

1. The code change, based on pilot concurrence, the nature of the emergency, and current flight conditions will signify to other radar facilities that the aircraft in distress is identified and under ATC control.

2. Pilots of single-piloted helicopters and single-piloted turbojet aircraft may be unable to reposition transponder controls during the emergency.

PHRASEOLOGY-

RADAR CONTACT (position). IF FEASIBLE, SQUAWK (code).

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

c. 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.

5-2-8. RADIO FAILURE

When you observe a **Code 7600** display, apply the procedures in para 10-4-4, Communications Failure.

NOTE-

Should a transponder-equipped aircraft experience a loss of two-way radio communications capability, the pilot can be expected to adjust his/her transponder to **Code 7600**.

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-9. VFR CODE ASSIGNMENTS

a. For VFR aircraft receiving radar advisories, assign an appropriate function code or computer-assigned code for the code environment in which you are providing service.

NOTE-

1. Para 5-2-2, Discrete Environment; para 5-2-3, Nondiscrete Environment, and para 5-2-4, Mixed Environment, specify code assignment procedures to follow for the three code environments.

2. Para 5-2-6, Function Code Assignments, specifies the function code allocation from which an appropriate code for the aircraft indicated in subpara a should be selected. In the terminal environment, additional function codes may be authorized by the appropriate service area office.

1. If the aircraft is outside of your area of responsibility and an operational benefit will be gained by retaining the aircraft on your frequency for the purpose of providing services, ensure that coordination has been effected:

(a) As soon as possible after positive identification, and

(b) Prior to issuing a control instruction or providing a service other than a safety alert/traffic advisory.

NOTE-

Safety alerts/traffic advisories may be issued to an aircraft prior to coordination if an imminent situation may be averted by such action. Coordination should be effected as soon as possible thereafter.

b. Instruct IFR aircraft which cancel an IFR flight plan and are not requesting radar advisory service and VFR aircraft for which radar advisory service is being terminated to squawk the VFR code.

**PHRASEOLOGY-
SQUAWK VFR.**

or

SQUAWK 1200.

NOTE-

1. Aircraft not in contact with an ATC facility may squawk 1255 in lieu of 1200 while en route to/from or within the designated fire fighting area(s).

2. VFR aircraft which fly authorized SAR missions for the USAF or USCG may be advised to squawk 1277 in lieu of 1200 while en route to/from or within the designated search area.

REFERENCE-

FAAO 7110.66, National Beacon Code Allocation Plan.

c. When an aircraft changes from VFR to IFR, the controller shall assign a beacon code to Mode C equipped aircraft that will allow MSAW alarms.

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

**5-2-10. BEACON CODE FOR PRESSURE
SUIT FLIGHTS AND FLIGHTS ABOVE
FL 600**

a. Mode 3/A, Code 4400, and discrete Codes 4440 through 4465 are reserved for use by R-71, F-12, U-2, B-57, pressure suit flights, and aircraft operations above FL 600.

NOTE-

The specific allocation of the special use codes in subset 4400 is in FAAO 7110.66, National Beacon Code Allocation Plan.

b. Ensure that aircraft remain on Code 4400 or one of the special use discrete codes in the 4400 subset if filed as part of the flight plan. Except when unforeseen events, such as weather deviations, equipment failure, etc., cause more than one aircraft with same Mode 3/A discrete beacon codes to be in the same or adjacent ARTCC's airspace at the same time, a controller may request the pilot to make a code change, squawk standby, or to stop squawk as appropriate.

NOTE-

Due to the inaccessibility of certain equipment to the flight crews, Code 4400 or a discrete code from the 4400 subset is preset on the ground and will be used throughout the flight profile including operations below FL 600. Controllers should be cognizant that not all aircraft may be able to accept the transponder changes identified in the exception. Emergency Code 7700, however, can be activated.

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

**5-2-11. AIR DEFENSE EXERCISE BEACON
CODE ASSIGNMENT****EN ROUTE**

Ensure exercise FAKER aircraft remain on the exercise flight plan filed discrete beacon code.

NOTE-

1. NORAD will ensure exercise FAKER aircraft flight plans are filed containing discrete beacon codes from the Department of Defense code allocation specified in FAAO JO 7610.4, Special Operations, Appendix 8.

2. NORAD will ensure that those FAKER aircraft assigned the same discrete beacon code are not flight planned in the same or any adjacent ARTCC's airspace at the same time. (Simultaneous assignment of codes will only occur when operational requirements necessitate.)

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-12. STANDBY OR LOW SENSITIVITY OPERATION

You may instruct an aircraft operating on an assigned code to change transponder to “standby” or “low sensitivity” position:

NOTE-

National standards no longer require improved transponder to be equipped with the low sensitivity feature. Therefore, aircraft with late model transponders will be unable to respond to a request to “squawk low.”

a. When approximately 15 miles from its destination and you no longer desire operation of the transponder.

b. When necessary to reduce clutter in a multi-target area, or to reduce “ring-around” or other phenomena, provided you instruct the aircraft to return to “normal sensitivity” position as soon as possible thereafter.

PHRASEOLOGY- SQUAWK STANDBY,

or

SQUAWK LOW/NORMAL.

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-13. CODE MONITOR

Continuously monitor the Mode 3/A radar beacon codes assigned for use by aircraft operating within your area of responsibility when nonautomated beacon decoding equipment (e.g., 10-channel decoder) is used to display the target symbol.

REFERENCE-

FAAO JO 7110.65, Para 5-2-6, Function Code Assignments.

NOTE-

In addition to alphanumeric and control symbology processing enhancements, the MEARTS, STARS, and the TPX-42 systems are equipped with automatic beacon decoders. Therefore, in facilities where the automatic beacon decoders are providing the control slash video, there is no requirement to have the nonautomated decoding equipment operating simultaneously.

REFERENCE-

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

a. This includes the appropriate IFR code actually assigned and, additionally, **Code 1200**, **Code 1255**, and **Code 1277** unless your area of responsibility includes only Class A airspace. During periods when

ring-around or excessive VFR target presentations derogate the separation of IFR traffic, the monitoring of VFR **Code 1200**, **Code 1255**, and **Code 1277** may be temporarily discontinued.

b. Positions of operation which contain a restricted or warning area or VR route within or immediately adjacent to their area of jurisdiction shall monitor **Code 4000** and any other code used in lieu of **4000** within the warning/restricted area or VR route. If by local coordination with the restricted/warning area or VR route user a code other than 4000 is to be exclusively used, then this code shall be monitored.

c. If a normally assigned beacon code disappears, check for a response on the following codes in the order listed and take appropriate action:

NOTE-

When Codes 7500 and/or 7600 have been preselected, it will be necessary for the ID-SEL-OFF switches for these codes to be left in the off position so that beacon target for an aircraft changing to one of these codes will disappear, thereby alerting the controller to make the check. This check will not be required if automatic alerting capability exists.

1. Code 7500 (hijack code).

REFERENCE-

FAAO JO 7110.65, Para 10-2-6, Hijacked Aircraft.

2. Code 7600 (loss of radio communications code).

5-2-14. FAILURE TO DISPLAY ASSIGNED BEACON CODE OR INOPERATIVE/MALFUNCTIONING TRANSPONDER

a. Inform an aircraft with an operable transponder that the assigned beacon code is not being displayed.

PHRASEOLOGY-

(Identification) RESET TRANSPONDER, SQUAWK (appropriate code).

b. Inform an aircraft when its transponder appears to be inoperative or malfunctioning.

PHRASEOLOGY-

(Identification) YOUR TRANSPONDER APPEARS INOPERATIVE/MALFUNCTIONING, RESET, SQUAWK (appropriate code).

c. Ensure that the subsequent control position in the facility or the next facility, as applicable, is notified when an aircraft transponder is malfunctioning/inoperative.

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-15. INOPERATIVE OR MALFUNCTIONING INTERROGATOR

Inform aircraft concerned when the ground interrogator appears to be inoperative or malfunctioning.

PHRASEOLOGY-

(Name of facility or control function) **BEACON INTERROGATOR INOPERATIVE/MALFUNCTIONING.**

REFERENCE-

FAAO JO 7110.65, Para 5-1-3, Radar Use.

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-16. FAILED TRANSPONDER IN CLASS A AIRSPACE

Disapprove a request or withdraw previously issued approval to operate in Class A airspace with a failed transponder solely on the basis of traffic conditions or other operational factors.

REFERENCE-

FAAO JO 7110.65, Para 5-1-3, Radar Use.

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-17. VALIDATION OF MODE C READOUT

Ensure that Mode C altitude readouts are valid after accepting an interfacility handoff, initial track start, track start from coast/suspend tabular list, missing, or unreasonable Mode C readouts. For TPX-42 and equivalent systems ensure that altitude readout is valid immediately after identification. (TCDD-/BANS-equipped tower cabs are not required to validate Mode C readouts after receiving interfacility handoffs from TRACONS according to the procedures in para 5-4-3, Methods, subpara a4.)

a. Consider an altitude readout valid when:

1. It varies less than 300 feet from the pilot reported altitude, or

PHRASEOLOGY-

(If aircraft is known to be operating below the lowest useable flight level),

SAY ALTITUDE.

or

(If aircraft is known to be operating at or above the lowest useable flight level),

SAY FLIGHT LEVEL.

2. You receive a continuous readout from an aircraft on the airport and the readout varies by less than 300 feet from the field elevation, or

NOTE-

A continuous readout exists only when the altitude filter limits are set to include the field elevation.

REFERENCE-

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

FAAO JO 7110.65, Para 5-14-5, Selected Altitude Limits.

FAAO JO 7210.3, Para 11-2-3, Display Data.

3. You have correlated the altitude information in your data block with the validated information in a data block generated in another facility (by verbally coordinating with the other controller) and your readout is exactly the same as the readout in the other data block.

b. When unable to validate the readout, do not use the Mode C altitude information for separation.

c. Whenever you observe an invalid Mode C readout below FL 180:

1. Issue the correct altimeter setting and confirm the pilot has accurately reported the altitude.

PHRASEOLOGY-

(Location) **ALTIMETER** (appropriate altimeter), **VERIFY ALTITUDE.**

2. If the altitude readout continues to be invalid:

(a) Instruct the pilot to turn off the altitude-reporting part of his/her transponder and include the reason; and

(b) Notify the operations supervisor-in-charge of the aircraft call sign.

PHRASEOLOGY-

STOP ALTITUDE SQUAWK. ALTITUDE DIFFERS BY (number of feet) **FEET.**

d. Whenever you observe an invalid Mode C readout at or above FL 180, unless the aircraft is descending below Class A airspace:

1. Confirm that the pilot is using 29.92 inches of mercury as the altimeter setting and has accurately reported the altitude.

PHRASEOLOGY-

CONFIRM USING TWO NINER NINER TWO AS YOUR ALTIMETER SETTING.

(If aircraft is known to be operating at or above the lowest useable flight level),

VERIFY FLIGHT LEVEL.

2. If the Mode C readout continues to be invalid:

(a) Instruct the pilot to turn off the altitude-reporting part of his/her transponder and include the reason; and

(b) Notify the operational supervisor-in-charge of the aircraft call sign.

PHRASEOLOGY-

STOP ALTITUDE SQUAWK. ALTITUDE DIFFERS BY (number of feet) FEET.

e. Whenever possible, inhibit altitude readouts on all consoles when a malfunction of the ground equipment causes repeated invalid readouts.

5-2-18. ALTITUDE CONFIRMATION-MODE C

Request a pilot to confirm assigned altitude on initial contact unless:

NOTE-

For the purpose of this paragraph, “initial contact” means a pilot’s first radio contact with each sector/position.

- a.** The pilot states the assigned altitude, or
- b.** You assign a new altitude to a climbing or a descending aircraft, or
- c.** The Mode C readout is valid and indicates that the aircraft is established at the assigned altitude, or
- d. TERMINAL.** The aircraft was transferred to you from another sector/position within your facility (intrafacility).

PHRASEOLOGY-

(In level flight situations), VERIFY AT (altitude/flight level).

(In climbing/descending situations),

(if aircraft has been assigned an altitude below the lowest useable flight level),

VERIFY ASSIGNED ALTITUDE (altitude).

or

(If aircraft has been assigned a flight level at or above the lowest useable flight level),

VERIFY ASSIGNED FLIGHT LEVEL (flight level).

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-19. ALTITUDE CONFIRMATION-NON-MODE C

a. Request a pilot to confirm assigned altitude on initial contact unless:

NOTE-

For the purpose of this paragraph, “initial contact” means a pilot’s first radio contact with each sector/position.

- 1.** The pilot states the assigned altitude, or
- 2.** You assign a new altitude to a climbing or a descending aircraft, or
- 3. TERMINAL.** The aircraft was transferred to you from another sector/position within your facility (intrafacility).

PHRASEOLOGY-

(In level flight situations), VERIFY AT (altitude/flight level).

(In climbing/descending situations), VERIFY ASSIGNED ALTITUDE/FLIGHT LEVEL (altitude/flight level).

b. USA. Reconfirm all pilot altitude read backs.

PHRASEOLOGY-

(If the altitude read back is correct),

AFFIRMATIVE (altitude).

(If the altitude read back is not correct),

NEGATIVE. CLIMB/DESCEND AND MAINTAIN (altitude),

or

NEGATIVE. MAINTAIN (altitude).

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-20. AUTOMATIC ALTITUDE REPORTING

Inform an aircraft when you want it to turn on/off the automatic altitude reporting feature of its transponder.

PHRASEOLOGY-
SQUAWK ALTITUDE,

or

STOP ALTITUDE SQUAWK.

NOTE-

Controllers should be aware that not all aircraft have a capability to disengage the altitude squawk independently from the beacon code squawk. On some aircraft both functions are controlled by the same switch.

REFERENCE-

FAAO JO 7110.65, Para 5-2-17, Validation of Mode C Readout.
FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.
P/CG Term- Automatic Altitude Report.

**5-2-21. INFLIGHT DEVIATIONS FROM
TRANSPONDER/MODE C REQUIREMENTS
BETWEEN 10,000 FEET AND 18,000 FEET**

Apply the following procedures to requests to deviate from the Mode C transponder requirement by aircraft operating in the airspace of the 48 contiguous states and the District of Columbia at and above 10,000 feet MSL and below 18,000 feet MSL, excluding the airspace at and below 2,500 feet AGL.

NOTE-

1. 14 CFR Section 91.215(b) provides, in part, that all U.S. registered civil aircraft must be equipped with an operable, coded radar beacon transponder when operating in the altitude stratum listed above. Such transponders shall have a Mode 3/A 4096 code capability, replying to Mode 3/A interrogation with the code specified by ATC, or a Mode S capability, replying to Mode 3/A interrogations with the code specified by ATC. The aircraft must also be equipped with automatic pressure altitude reporting equipment having a Mode C capability that automatically replies to Mode C interrogations by transmitting pressure altitude information in 100-foot increments.

2. The exception to 14 CFR Section 91.215 (b) is 14 CFR Section 91.215(b)(5) which states: except balloons, gliders, and aircraft without engine-driven electrical systems.

REFERENCE-

FAAO JO 7210.3, Chapter 19, Temporary Flight Restrictions.

a. Except in an emergency, do not approve inflight requests for authorization to deviate from 14 CFR Section 91.215(b)(5)(i) requirements originated by aircraft without transponder equipment installed.

b. Approve or disapprove other inflight deviation requests, or withdraw approval previously issued to such flights, solely on the basis of traffic conditions and other operational factors.

c. Adhere to the following sequence of action when an inflight VFR deviation request is received from an aircraft with an inoperative transponder or Mode C, or is not Mode C equipped:

1. Suggest that the aircraft conduct its flight in airspace unaffected by the CFRs.

2. Suggest that the aircraft file an IFR flight plan.

3. Suggest that the aircraft provide a VFR route of flight and maintain radio contact with ATC.

d. Do not approve an inflight deviation unless the aircraft has filed an IFR flight plan or a VFR route of flight is provided and radio contact with ATC is maintained.

e. You may approve an inflight deviation request which includes airspace outside your jurisdiction without the prior approval of the adjacent ATC sector/facility providing a transponder/Mode C status report is forwarded prior to control transfer.

f. Approve or disapprove inflight deviation requests within a reasonable period of time or advise when approval/disapproval can be expected.

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-22. BEACON TERMINATION

Inform an aircraft when you want it to turn off its transponder.

PHRASEOLOGY-

STOP SQUAWK.

(For a military aircraft when you do not know if the military service requires that it continue operating on another mode),

STOP SQUAWK (mode in use).

REFERENCE-

FAAO JO 7110.65, Para 5-3-3, Beacon Identification Methods.

5-2-23. ALTITUDE FILTERS**TERMINAL**

Set altitude filters to display Mode C altitude readouts to encompass all altitudes within the controller's jurisdiction. Set the upper limits no lower than 1,000 feet above the highest altitude for which the controller is responsible. In those stratified positions, set the lower limit to 1,000 feet or more below the

lowest altitude for which the controller is responsible. When the position's area of responsibility includes down to an airport field elevation, the facility will normally set the lower altitude filter limit to encompass the field elevation so that provisions of para 2-1-6, Safety Alert, and para 5-2-17, Validation of Mode C Readout, subpara a2 may be applied. Air traffic managers may authorize temporary suspension of this requirement when target clutter is excessive.

Section 3. Radar Identification

5-3-1. APPLICATION

Before you provide radar service, establish and maintain radar identification of the aircraft involved, except as provided in para 5-5-1, Application, subparas b2 and 3.

REFERENCE-

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

5-3-2. PRIMARY RADAR IDENTIFICATION METHODS

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

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

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

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

NOTE-

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

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

NOTE-

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

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

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

NOTE-

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

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

2. Only one aircraft is observed making these turns.

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

REFERENCE-

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

FAAO JO 7110.65, Para 5-12-11, Surveillance Unusable.

5-3-3. BEACON IDENTIFICATION METHODS

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

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

NOTE-

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

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

**PHRASEOLOGY-
IDENT.**

SQUAWK (code) AND IDENT.

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

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

**PHRASEOLOGY-
SQUAWK STANDBY,**

then

SQUAWK NORMAL.

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

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

NOTE-

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

REFERENCE-

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

**5-3-4. TERMINAL AUTOMATION SYSTEMS
IDENTIFICATION METHODS****TERMINAL**

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

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

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

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

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

REFERENCE-

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

5-3-5. QUESTIONABLE IDENTIFICATION

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

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

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

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

REFERENCE-

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

5-3-6. POSITION INFORMATION

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

5-3-7. IDENTIFICATION STATUS

a. Inform an aircraft of radar contact when:

1. Initial radar identification in the ATC system is established.

2. Subsequent to loss of radar contact or terminating radar service, radar identification is reestablished.

PHRASEOLOGY-

RADAR CONTACT (position if required).

b. Inform an aircraft when radar contact is lost.

PHRASEOLOGY-

RADAR CONTACT LOST (alternative instructions when required).

5-3-8. TARGET MARKERS

EN ROUTE

Retain data blocks that are associated with the appropriate target symbol in order to maintain continuous identity of aircraft. Retain the data block until the aircraft has exited the sector or delegated airspace, and all potential conflicts have been resolved; including an aircraft that is a point out. The data block shall display flight identification and altitude information, as a minimum. The displayed altitude may be assigned, interim, or reported.

5-3-9. TARGET MARKERS

TERMINAL

a. Retain data blocks that are associated with the appropriate target symbol in order to maintain continuous identity of aircraft. Retain the data block until the aircraft has exited the sector or delegated airspace, and all potential conflicts have been resolved; including an aircraft that is a point out. The data block shall display flight identification and altitude information, as a minimum.

NOTE-

Where delegated airspace extends beyond Class B and/or Class C airspace, the following will apply: If a VFR aircraft is clear of Class B and Class C airspace and radar services have been terminated then retention of the data block is no longer required.

b. During prearranged coordination procedures, the controllers who penetrate another controller's airspace shall display data block information of that controller's aircraft which shall contain, at a minimum, the position symbol and altitude information.

REFERENCE-

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

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

FAAO JO 7110.65, Para 5-4-8, Automated Information Transfer (AIT).

FAAO JO 7110.65, Para 5-4-10, Prearranged Coordination.

FAAO JO 7210.3, Para 3-7-7, Prearranged Coordination.

2. Necessary coordination has been accomplished with all controllers through whose area of jurisdiction the aircraft will pass prior to entering the receiving controller's area of jurisdiction, except when such coordination is the receiving controller's responsibility as stated in para 5-4-6, Receiving Controller Handoff, and unless otherwise specified by a LOA or a facility directive.

3. Restrictions issued to ensure separation are passed to the receiving controller.

d. After transferring communications, continue to comply with the requirements of subparas c1 and 2.

e. Comply with restrictions issued by the receiving controller unless otherwise coordinated.

f. Comply with the provisions of para 2-1-17, Radio Communications Transfer, subparas a and b. To the extent possible, transfer communications when the transfer of radar identification has been accepted.

NOTE-

Before the ARTS/STARS "modify/quick look" function is used to transfer radar identification, a facility directive which specifies communication transfer points is required.

g. Advise the receiving controller of pertinent information not contained in the data block or flight progress strip unless covered in a LOA or facility directive. Pertinent information includes:

1. Assigned heading.
2. Air speed restrictions.
3. Altitude information issued.

4. Observed track or deviation from the last route clearance.

5. The beacon code if different from that normally used or previously coordinated.

6. Any other pertinent information.

h. Ensure that the data block is associated with the appropriate target.

i. Initiate verbal coordination to verify the position of primary or nondiscrete targets when using the automated handoff functions except for intrafacility handoffs using single-sensor systems or multisensor systems operating in a mosaic RDP mode.

j. Initiate verbal coordination before transferring control of a track when "CST," "FAIL," "NONE,"

"NB," "NX," "IF," "NT", or "TRK" is displayed in the data block.

k. Advise the receiving controller that radar monitoring is required when the aircraft is on a direct route initiated by ATC that exceeds usable NAVAID distances.

l. Issue restrictions to the receiving controller which are necessary to maintain separation from other aircraft within your area of jurisdiction before releasing control of the aircraft.

m. Consider the target being transferred as identified on the receiving controller's display when the receiving controller acknowledges receipt verbally or has accepted an automated handoff.

n. Accomplish the necessary coordination with any intervening controllers whose area of jurisdiction is affected by the receiving controller's delay in the climb or the descent of an aircraft through the vertical limits of your area of jurisdiction when the receiving controller advises you of that delay before accepting the transfer of radar identification unless otherwise specified by a LOA or a facility directive.

5-4-6. RECEIVING CONTROLLER HANDOFF

The receiving controller shall:

a. Ensure that the target position corresponds with the position given by the transferring controller or that there is an appropriate association between an automated data block and the target being transferred before accepting a handoff.

REFERENCE-

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

FAAO JO 7110.65, Para 2-1-15, Control Transfer.

FAAO JO 7110.65, Para 5-4-5, Transferring Controller Handoff.

b. Issue restrictions that are needed for the aircraft to enter your sector safely before accepting the handoff.

c. Comply with restrictions issued by the initiating controller unless otherwise coordinated.

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

NOTE-

Those en route facilities using host software that provides capability for passing interim altitude shall include the specific operations and procedures for use of this procedure in a LOA between the appropriate facilities.

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

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

e. After accepting a handoff from another controller, confirm the identity of primary target by advising the aircraft of its position, and of a beacon target by observing a code change, an “ident” reply, or a “standby” squawk unless one of these was used during handoff. These provisions do not apply at those towers and GCAs which have been delegated the responsibility for providing radar separation within designated areas by the parent approach control facility and the aircraft identification is assured by sequencing or positioning prior to the handoff.

REFERENCE-

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

f. When using appropriate equipment, consider a discrete beacon target’s identity to be confirmed when:

1. The data block associated with the target being handed off indicates the computer assigned discrete beacon code is being received, or

2. You observe the deletion of a discrete code that was displayed in the data block, or

NOTE-

When the aircraft generated discrete beacon code does not match the computer assigned beacon code, the code generated will be displayed in the data block. When the aircraft changes to the assigned discrete code, the code disappears from the data block. In this instance, the observance of code removal from the data block satisfies confirmation requirements.

3. You observe the numeric display of a discrete code that an aircraft has been instructed to squawk or reports squawking.

g. Initiate verbal coordination prior to accepting control of a track when “CST,” “NAT,” “NT,” “NONE,” “NB,” “NX,” “OLD,” “OL,” “AMB,” “AM,” “TU”, or “TRK” is displayed in the data block.

1. When an automated interfacility handoff action is initiated and “AMB” or “AM” is displayed in the full data block, advise the other facility that a disparity exists between the position declared by their computer and that declared by your ARTS/PIDP/STARS system.

2. When an automated inter-facility handoff action is initiated and “NAT,” “NT,” “TU”, or “TRK” is displayed in the full data block, advise the other facility if a disparity exists between the position declared by their computer and the actual target position.

h. Advise the transferring controller, prior to accepting the transfer of radar identification, that you will delay the climb or the descent of an aircraft through the vertical limits of the transferring controller’s area of jurisdiction, unless otherwise specified in a LOA or a facility directive.

NOTE-

Those en route facilities using HOST software that provides capability for passing interim altitude shall include the specific operations and procedures for use of this procedure in a LOA between the appropriate facilities.

i. If you decide, *after* accepting the transfer of radar identification, to delay the aircraft’s climb or descent through the vertical limits of the transferring controller’s area of jurisdiction, advise the transferring controller of that decision as soon as possible. You now have the responsibility to ensure that the necessary coordination is accomplished with any intervening controller(s) whose area of jurisdiction is affected by that delay, unless otherwise specified in a LOA or a facility directive.

NOTE-

Those en route facilities using HOST software that provides capability for passing interim altitude shall include the specific operations and procedures for use of this procedure in a LOA between the appropriate facilities.

5-4-7. POINT OUT

a. The transferring controller shall:

1. Obtain verbal approval before permitting an aircraft to enter the receiving controller’s delegated airspace. **TERMINAL.** Automated approval may be utilized in lieu of verbal, provided the appropriate automation software is operational (automated point out function), and the procedures are specified in a facility directive/LOA.

2. Obtain the receiving controller's approval before making any changes to an aircraft's flight path, altitude, or data block information after the point out has been approved.

NOTE-

Those en route facilities using HOST software that provides capability for passing interim altitude shall include the specific operations and procedures for use of this procedure in a LOA between the appropriate facilities.

3. Comply with restrictions issued by the receiving controller unless otherwise coordinated.

4. Be responsible for subsequent radar handoffs and communications transfer, including flight data revisions and coordination, unless otherwise agreed to by the receiving controller or as specified in a LOA.

b. The receiving controller shall:

1. Ensure that the target position corresponds with the position given by the transferring controller or that there is an association between a computer data block and the target being transferred prior to approving a point out.

2. Be responsible for separation between point out aircraft and other aircraft for which he/she has separation responsibility.

3. Issue restrictions necessary to provide separation from other aircraft within his/her area of jurisdiction.

5-4-8. AUTOMATED INFORMATION TRANSFER (AIT)

Transfer radar identification, altitude control, and/or en route fourth line control information, without verbal coordination under the following conditions:

- a. During radar handoff; and
- b. Via information displayed in full data blocks; and
- c. Within the same facility, except as provided in para 5-4-9, Interfacility Automated Information Transfer; and
- d. When following procedures specified in your facility AIT directive.

REFERENCE-

FAAO JO 7110.65, Para 5-4-11, En Route Fourth Line Data Block Usage.

5-4-9. INTERFACILITY AUTOMATED INFORMATION TRANSFER

EN ROUTE

Transfer radar identification without verbal coordination under the following conditions:

- a. During radar handoff; and
- b. Via information displayed in full data blocks; and
- c. On aircraft at assigned altitude in level flight; and
- d. Only the first sector within the receiving facility shall utilize the procedure; and
- e. When following procedures specified in your facility AIT directive and LOA.

5-4-10. PREARRANGED COORDINATION

Prearranged coordination allowing aircraft under your control to enter another controller's area of jurisdiction may only be approved provided procedures are established and published in a facility directive/LOA in accordance with FAAO JO 7210.3, para 3-7-7, Prearranged Coordination.

NOTE-

Under no circumstances may one controller permit an aircraft to enter another's airspace without proper coordination. Coordination can be accomplished by several means; i.e., radar handoff, automated information transfer, verbal, point-out, and by prearranged coordination procedures identified in a facility directive that clearly describe the correct application. Airspace boundaries should not be permitted to become barriers to the efficient movement of traffic. In addition, complete coordination, awareness of traffic flow, and understanding of each position's responsibility concerning penetration of another's airspace cannot be overemphasized.

REFERENCE-

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

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

FAAO JO 7110.65, Para 5-4-8, Automated Information Transfer (AIT).

FAAO JO 7210.3, Para 3-7-7, Prearranged Coordination.

5-4-11. EN ROUTE FOURTH LINE DATA BLOCK USAGE

a. The en route fourth line data block shall be used to forward only the specified control information listed below. Any additional control information shall be forwarded via other communication methods. En route fourth line data block free text area may be

used by individual sector teams for recording any additional information the team deems appropriate for managing the sector, but shall be removed prior to initiation of identification transfer.

REFERENCE-

FAAO JO 7110.65, Para 5-4-5, Transferring Controller Handoff, subpara b.

b. The en route fourth line data block area shall be used for coordination purposes only in association with radar identified aircraft.

c. When automated information transfer (AIT) procedures are applied, en route fourth line usage for transfer of control information shall be specifically defined within facility AIT directive.

REFERENCE-

FAAO JO 7110.65, Para 5-4-8, Automated Information Transfer (AIT).

FAAO JO 7210.3, Para 4-3-8, Automated Information Transfer (AIT).

d. Coordination format for assigned headings shall use the designation character “H” preceding a three-digit number.

EXAMPLE-

H080, H270

e. Aircraft assigned a heading until receiving a fix or joining a published route shall be designated with assigned heading format followed by the fix or route.

EXAMPLE-

H080/ALB, 080/J121, PH/ALB

NOTE-

1. The notation “PH” may be used to denote present heading.

2. The character “H” may be omitted as a prefix to the heading assignment only if necessary due to character field limitations, and it does not impede understanding.

f. Aircraft authorized specific weather deviation or lateral weather deviation until able to proceed direct to a fix shall be designated with the identified characters: D-deviation, L-left, R-right, N-north, E-east, S-south, W-west.

EXAMPLE-

DN, D20L, DR/ATL, D30R/ATL

g. Coordination format for assigned airspeeds shall use the designation character “S” preceding a three-digit number.

NOTE-

A “+” notation may be added to denote an assigned speed at or greater than the displayed value. A “-” notation may be added to denote an assigned speed at or less than the displayed value.

EXAMPLE-

S210, S250, S250+, S280-

h. Aircraft assigned a Mach number shall use the designation “M” preceding the two-digit assigned value.

EXAMPLE-

M80, M80+, M80-

REFERENCE-

FAAO JO 7110.65, Para 5-4-11, En Route Fourth Line Data Block Usage, subpara gNOTE.

i. Aircraft authorized to conduct celestial navigation training within 30 NM of the route centerline specified within the en route clearance.

EXAMPLE-

CELNAV

j. Coordination format for aircraft requesting an altitude change shall use the designation characters “RQ” preceding a three-digit number.

EXAMPLE-

RQ170, RQ410

k. Coordination format for aircraft requesting a route change shall use the designation “RQ/” preceding a specific fix identifier.

EXAMPLE-

RQ/LAX, RQ/NEUTO

l. The acceptance of a handoff by the receiving controller shall constitute receipt of the information contained within the en route fourth line data block. It is the responsibility of the receiving controller to advise the transferring controller if any information is not understood, or needs to be revised.

NOTE-

Due to system and character limitations the usage of these standardized entries may require additional support via facility directive in order to provide complete coordination.

m. All other control information shall be coordinated via other methods.

Section 9. Class B Service Area- Terminal

7-9-1. APPLICATION

Apply Class B services and procedures within the designated Class B airspace.

a. No person may operate an aircraft within Class B airspace unless:

1. The aircraft has an operable two-way radio capable of communications with ATC on appropriate frequencies for that Class B airspace.

2. The aircraft is equipped with the applicable operating transponder and automatic altitude reporting equipment specified in para (a) of 14 CFR Section 91.215, except as provided in para (d) of that section.

7-9-2. VFR AIRCRAFT IN CLASS B AIRSPACE

a. VFR aircraft must obtain an ATC clearance to operate in Class B airspace.

REFERENCE-

FAAO JO 7110.65, Para 2-1-18, Operational Requests.
FAAO JO 7110.65, Para 2-4-22, Airspace Classes.

PHRASEOLOGY-

CLEARED THROUGH/TO ENTER/OUT OF BRAVO AIRSPACE,

and as appropriate,

VIA (route). MAINTAIN (altitude) WHILE IN BRAVO AIRSPACE.

or

CLEARED AS REQUESTED.

(Additional instructions, as necessary.)

REMAIN OUTSIDE BRAVO AIRSPACE. (When necessary, reason and/or additional instructions.)

NOTE-

1. Assignment of radar headings, routes, or altitudes is based on the provision that a pilot operating in accordance with VFR is expected to advise ATC if compliance will cause violation of any part of the CFR.

2. Separation and sequencing for VFR aircraft is dependent upon radar. Efforts should be made to segregate

VFR traffic from IFR traffic flows when a radar outage occurs.

b. Approve/deny requests from VFR aircraft to operate in Class B airspace based on workload, operational limitations and traffic conditions.

c. Inform the pilot when to expect further clearance when VFR aircraft are held either inside or outside Class B airspace.

d. Inform VFR aircraft when leaving Class B airspace.

PHRASEOLOGY-

LEAVING (name) BRAVO AIRSPACE,

and as appropriate,

RESUME OWN NAVIGATION, REMAIN THIS FREQUENCY FOR TRAFFIC ADVISORIES, RADAR SERVICE TERMINATED, SQUAWK ONE TWO ZERO ZERO.

7-9-3. METHODS

a. To the extent practical, clear large turbine engine-powered airplanes to/from the primary airport using altitudes and routes that avoid VFR corridors and airspace below the Class B airspace floor where VFR aircraft are operating.

NOTE-

Pilots operating in accordance with VFR are expected to advise ATC if compliance with assigned altitudes, headings, or routes will cause violation of any part of the CFR.

b. Vector aircraft to remain in Class B airspace after entry. Inform the aircraft when leaving and reentering Class B airspace if it becomes necessary to extend the flight path outside Class B airspace for spacing.

NOTE-

14 CFR Section 91.131 states that "Unless otherwise authorized by ATC, each person operating a large turbine engine-powered airplane to or from a primary airport for which a Class B airspace area is designated must operate at or above the designated floors of the Class B airspace area while within the lateral limits of that area." Such authorization should be the exception rather than the rule.

REFERENCE-

FAAO JO 7110.65, Para 5-1-10, Deviation Advisories.

c. Aircraft departing controlled airports within Class B airspace will be provided the same services as those aircraft departing the primary airport.

REFERENCE-

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

7-9-4. SEPARATION

a. Standard IFR services to IFR aircraft.

b. VFR aircraft must be separated from VFR/IFR aircraft that weigh more than 19,000 pounds and turbojets by no less than:

1. 1 1/2 miles separation, or
2. 500 feet vertical separation, or

NOTE-

Apply the provisions of para 5-5-4, Minima, when wake turbulence separation is required.

3. Visual separation, as specified in para 7-2-1, Visual Separation, para 7-4-2, Vectors for Visual Approach, and para 7-6-7, Sequencing.

NOTE-

Issue wake turbulence cautionary advisories in accordance with para 2-1-20, Wake Turbulence Cautionary Advisories.

c. For the application of Class Bravo airspace separation requirements, the V-22 Osprey must be treated as a fixed-wing aircraft. It is an SRS Category II aircraft but weighs more than 19,000 pounds. The V-22 Osprey must be separated from VFR/IFR aircraft by minimum identified in subparagraph b above.

d. VFR aircraft must be separated from all VFR/IFR aircraft which weigh 19,000 pounds or less by a minimum of:

1. Target resolution, or
2. 500 feet vertical separation, or

NOTE-

1. Apply the provisions of para 5-5-4, Minima, when wake turbulence separation is required.

2. Aircraft weighing 19,000 pounds or less include all aircraft in SRS Categories I and II plus G73, STAR, S601, BE30, SW3, B190 and C212.

3. Visual separation, as specified in para 7-2-1, Visual Separation, para 7-4-2, Vectors for Visual Approach, and para 7-6-7, Sequencing.

NOTE-

Issue wake turbulence cautionary advisories in accordance with para 2-1-20, Wake Turbulence Cautionary Advisories.

REFERENCE-

P/CG Term- Lateral Separation.

P/CG Term- Radar Separation.

P/CG Term- Target Resolution.

P/CG Term- Visual Separation.

7-9-5. TRAFFIC ADVISORIES

a. Provide mandatory traffic advisories and safety alerts, between all aircraft.

b. Apply merging target procedures in accordance with para 5-1-8, Merging Target Procedures.

7-9-6. HELICOPTER TRAFFIC

VFR helicopters need not be separated from VFR or IFR helicopters. Traffic advisories and safety alerts shall be issued as appropriate.

7-9-7. ALTITUDE ASSIGNMENTS

a. Altitude information contained in a clearance, instruction, or advisory to VFR aircraft shall meet MVA, MSA, or minimum IFR altitude criteria.

b. Issue altitude assignments, if required, consistent with the provisions of 14 CFR Section 91.119.

NOTE-

The MSAs are:

1. Over congested areas, an altitude at least 1,000 feet above the highest obstacle,
2. Over other than congested areas, an altitude at least 500 feet above the surface.

REFERENCE-

FAAO JO 7110.65, Para 4-5-2, Flight Direction.

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

FAAO JO 7110.65, Para 4-5-6, Minimum En Route Altitudes.

c. Aircraft assigned altitudes which are contrary to 14 CFR Section 91.159 shall be advised to resume altitudes appropriate for the direction of flight when the altitude assignment is no longer required or when leaving Class B airspace.

PHRASEOLOGY-

RESUME APPROPRIATE VFR ALTITUDES.

7-9-8. APPROACH INTERVAL

The tower shall specify the approach interval.

2. Aircraft requesting security services should not normally be held. However, if holding is necessary or workload/traffic conditions prevent immediate provision of ATC security services, inform the pilot to remain outside the designated area until conditions permit the provision of ATC security services. Inform the pilot of the expected length of delay.

PHRASEOLOGY-

(A/C call sign) REMAIN OUTSIDE OF THE (location) AND STANDBY. EXPECT (time) MINUTES DELAY.

c. Termination of Service.

1. If the aircraft is not landing within the designated area, provide security services until the aircraft exits the area and then advise the aircraft to squawk VFR and that frequency change is approved.

PHRASEOLOGY-

SQUAWK VFR, FREQUENCY CHANGE APPROVED.

or

CONTACT (facility identification).

2. When an aircraft is landing at an airport inside the area, instruct the pilot to remain on the assigned transponder code until after landing.

PHRASEOLOGY-

(ACID) REMAIN ON YOUR ASSIGNED TRANSPONDER CODE UNTIL YOU LAND, FREQUENCY CHANGE APPROVED.

3. Using approved handoff functionality, transfer the data blocks of all security tracked aircraft that will enter another sector/position for coordination of aircraft information/location. Upon acceptance of the transferred information, instruct the pilot to contact the next sector/positions' frequency.

9-2-11. SECURITY NOTICE (SECNOT)

Upon receiving notification of a SECNOT, the controller must forward all information on the subject aircraft to the FLM/CIC. If information is not known, broadcast call sign on all frequencies and advise the FLM/CIC of the response.

REFERENCE-

*P/CG Term - Security Notice.
FAAO JO 7210.3, Chapter 19, Section 9, Security Notice (SECNOT).*

9-2-12. 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 JO 7210.3, Para 2-7-7, Cooperation With Law Enforcement Agencies.*

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

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.

9-2-13. 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. MARSAs 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 MARSAs.

4. MARSAs 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 MARSAs is terminated.

REFERENCE-

FAAO JO 7110.65, *Para 2-1-11, Use of MARSAs.*

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

FAAO JO 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 MARSAs 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 MARSAs remaining in effect.

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

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

NOTE-

Altitude or course changes issued will automatically void MARSAs.

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

REFERENCE-

FAAO JO 7110.65, Para 6-6-2, Exceptions.

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 JO 7110.65, Para 9-2-14, Military Operations Above FL 600.

9-2-14. 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 JO 7110.65, Para 9-2-13, Military Aerial Refueling.

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 JO 7110.65, Para 4-3-3, Abbreviated Departure Clearance.

9-2-15. 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.

9-2-16. 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 JO 7610.4, Para 4-4-4, Avoidance of Hazardous Radiation Areas.

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.

9-2-17. 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 JO 7110.65, Para 2-1-4, Operational Priority.
FAAO JO 7110.65, Para 2-4-20, Aircraft Identification.
FAAO JO 7610.4, Para 4-4-4, Avoidance of Hazardous Radiation Areas.

9-2-18. AWACS/NORAD SPECIAL FLIGHTS

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

- a. En route altitude changes +/- 2,000 feet from the requested flight level.
- b. Radar vectors or minor route changes that do not impede progress towards the destination orbit.

NOTE-

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

9-2-19. WEATHER RECONNAISSANCE FLIGHTS

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

a. When a dropsonde release time is received from a TEAL or NOAA mission aircraft, workload and priorities permitting, controllers shall advise the mission aircraft of any traffic estimated to pass through the area of the drop at altitudes below that of the mission aircraft. This traffic advisory shall include:

1. Altitude.
2. Direction of flight.
3. ETA at the point closest to drop area (or at the fix/intersection where drop will occur).

NOTE-

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

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

REFERENCE-

FAAO JO 7110.65, Para 4-2-1, Clearance Items.
FAAO JO 7110.65, Para 4-2-2, Clearance Prefix.
FAAO JO 7110.65, Para 4-2-3, Delivery Instructions.

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

REFERENCE-

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

9-2-20. EVASIVE ACTION MANEUVER

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

NOTE-

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

1. Flying a zigzag pattern on both the left and right side of the flight plan route centerline. Altitude deviations are made in conjunction with the lateral maneuvering.
2. Lateral deviations from the route centerline will not normally exceed 12 miles. Altitude variations shall not exceed plus or minus 1,000 feet of the assigned flight level; i.e., confined within a 2,000 foot block.

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

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

c. Altitude.

PHRASEOLOGY-

**CLEARED TO CONDUCT EVASIVE ACTION
MANEUVER FROM (fix) TO (fix),**

and

(number of miles) EITHER SIDE OF CENTERLINE,

and

MAINTAIN (altitude) THROUGH (altitude),

and

COMPLETE MANEUVER AT (fix) AT (altitude).

9-2-21. NONSTANDARD FORMATION/ CELL OPERATIONS

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

REFERENCE-

FAAO JO 7610.4, Chapter 12, Section 12, Formation Flight.

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

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

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

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

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

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

9-2-22. OPEN SKIES TREATY AIRCRAFT

a. OPEN SKIES aircraft will be identified by the call sign "OSY" (OPEN SKIES) followed by 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 JO 7110.65, Para 2-1-4, Operational Priority, subpara n.

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

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

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

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

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

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

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

(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.

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.

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.”

AIRCRAFT WEIGHT CLASSES

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

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

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

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.

TBLA-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							

TBLA-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 TBLA-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.
Aeronca Chief/Super Chief, Pushpak	AR11	1P/S	500	500	I	1
Aeronca Sedan	AR15	1P/S	500	500	I	2
14 Junior, Cruiseair, Cruiseair Senior Cruisemaster	B14A	1P/S	1,030	1,030	I	1
14 Bellanca 260/A/B/C	B14C	1P/S	1,500		I	
17 Viking, Super Viking, Turbo Viking	BL17	1P/S	1,100	1,100	I	1
19 Skyrocket	BL19	1P/S			I	
8 Decathlon, Scout	BL8	1P/S	1,000	1,000	I	2
Champion Lancer 402	CH40	2P/S	650	1,000	II	
7 ACA/ECA Champ, Citabria,	CH7A	1P/S	750	750	I	1
7 GCBC/KCAB Citabria	CH7B	1P/S	1,100	1,100	I	1
T-250 Aries	T250	1P/S			I	

BOEING COMPANY (USA)

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

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

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

BOMBARDIER (Canada)*(Also CANADAIR)*

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

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:

PREDICTIVE WIND SHEAR ALERT SYSTEM (PWS)
SECURITY NOTICE (SECNOT)

b. Terms Modified:

AUTOMATIC FLIGHT INFORMATION SERVICE (AFIS)
BRAKING ACTION ADVISORIES
LOCAL AIRPORT ADVISORY (LAA)
ONE-MINUTE WEATHER
REMOTE AIRPORT ADVISORY (RAA)
SAFETY LOGIC SYSTEM ALERTS
TRACEABLE PRESSURE STANDARD

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

AUTOLAND APPROACH- An autoland approach is a precision instrument approach to touchdown and, in some cases, through the landing rollout. An autoland approach is performed by the aircraft autopilot which is receiving position information and/or steering commands from onboard navigation equipment.

Note: Autoland and coupled approaches are flown in VFR and IFR. It is common for carriers to require their crews to fly coupled approaches and autoland approaches (if certified) when the weather conditions are less than approximately 4,000 RVR.

(See COUPLED APPROACH.)

AUTOMATED INFORMATION TRANSFER- A precoordinated process, specifically defined in facility directives, during which a transfer of altitude control and/or radar identification is accomplished without verbal coordination between controllers using information communicated in a full data block.

AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM- A facility which can deliver, in a matter of minutes, a surface picture (SURPIC) of vessels in the area of a potential or actual search and rescue incident, including their predicted positions and their characteristics.

(See FAAO JO 7110.65, Para 10-6-4, INFLIGHT CONTINGENCIES.)

AUTOMATED PROBLEM DETECTION (APD)- An Automation Processing capability that compares trajectories in order to predict conflicts.

AUTOMATED PROBLEM DETECTION BOUNDARY (APB)- The adapted distance beyond a facilities boundary defining the airspace within which URET performs conflict detection.

(See USER REQUEST EVALUATION TOOL.)

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

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

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

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

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

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

AUTOMATED WEATHER SYSTEM- Any of the automated weather sensor platforms that collect weather data at airports and disseminate the weather information via radio and/or landline. The systems currently consist of the Automated Surface Observing System (ASOS), Automated Weather Sensor System (AWSS) and Automated Weather Observation System (AWOS).

AUTOMATED UNICOM- Provides completely automated weather, radio check capability and airport advisory information on an Automated UNICOM system. These systems offer a variety of features, typically selectable by microphone clicks, on the UNICOM frequency. Availability will be published in the Airport/Facility Directory and approach charts.

AUTOMATIC ALTITUDE REPORT-

(See ALTITUDE READOUT.)

AUTOMATIC ALTITUDE REPORTING- That function of a transponder which responds to Mode C interrogations by transmitting the aircraft's altitude in 100-foot increments.

AUTOMATIC CARRIER LANDING SYSTEM- U.S. Navy final approach equipment consisting of precision tracking radar coupled to a computer data link to provide continuous information to the aircraft, monitoring capability to the pilot, and a backup approach system.

AUTOMATIC DEPENDENT SURVEILLANCE (ADS) [ICAO]- A surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position fixing systems, including aircraft identification, four dimensional position and additional data as appropriate.

AUTOMATIC DEPENDENT SURVEILLANCE-BROADCAST (ADS-B)- A surveillance system in which an aircraft or vehicle to be detected is fitted with cooperative equipment in the form of a data link transmitter. The aircraft or vehicle periodically broadcasts its GPS-derived position and other information such as velocity over the data link, which is received by a ground-based transmitter/receiver (transceiver) for processing and display at an air traffic control facility.

(See GLOBAL POSITIONING SYSTEM.)

(See GROUND-BASED TRANSCEIVER.)

AUTOMATIC DEPENDENT SURVEILLANCE-CONTRACT (ADS-C)- A data link position reporting system, controlled by a ground station, that establishes contracts with an aircraft's avionics that occur automatically whenever specific events occur, or specific time intervals are reached.

AUTOMATIC DIRECTION FINDER- An aircraft radio navigation system which senses and indicates the direction to a L/MF nondirectional radio beacon (NDB) ground transmitter. Direction is indicated to the pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft depending on the type of indicator installed in the aircraft. In certain applications, such as military, ADF operations may be based on airborne and ground transmitters in the VHF/UHF frequency spectrum.

(See BEARING.)

(See NONDIRECTIONAL BEACON.)

AUTOMATIC FLIGHT INFORMATION SERVICE (AFIS) - ALASKA FSSs ONLY- The continuous broadcast of recorded non-control information at airports in Alaska where a FSS provides local airport advisory service. The AFIS broadcast automates the repetitive transmission of essential but routine information such as weather, wind, altimeter, favored runway, breaking action, airport NOTAMs, and other applicable information. The information is continuously broadcast over a

discrete VHF radio frequency (usually the ASOS/AWSS/AWOS frequency.)

AUTOMATIC TERMINAL INFORMATION SERVICE- The continuous broadcast of recorded noncontrol information in selected terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information; e.g., "Los Angeles information Alfa. One three zero zero Coordinated Universal Time. Weather, measured ceiling two thousand overcast, visibility three, haze, smoke, temperature seven one, dew point five seven, wind two five zero at five, altimeter two niner niner six. I-L-S Runway Two Five Left approach in use, Runway Two Five Right closed, advise you have Alfa."

(See ICAO term AUTOMATIC TERMINAL INFORMATION SERVICE.)

(Refer to AIM.)

AUTOMATIC TERMINAL INFORMATION SERVICE [ICAO]- The provision of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts throughout the day or a specified portion of the day.

AUTOROTATION- A rotorcraft flight condition in which the lifting rotor is driven entirely by action of the air when the rotorcraft is in motion.

a. Autorotative Landing/Touchdown Autorotation. Used by a pilot to indicate that the landing will be made without applying power to the rotor.

b. Low Level Autorotation. Commences at an altitude well below the traffic pattern, usually below 100 feet AGL and is used primarily for tactical military training.

c. 180 degrees Autorotation. Initiated from a downwind heading and is commenced well inside the normal traffic pattern. "Go around" may not be possible during the latter part of this maneuver.

AVAILABLE LANDING DISTANCE (ALD)- The portion of a runway available for landing and roll-out for aircraft cleared for LAHSO. This distance is measured from the landing threshold to the hold-short point.

AVIATION WEATHER SERVICE- A service provided by the National Weather Service (NWS) and FAA which collects and disseminates pertinent weather information for pilots, aircraft operators, and ATC. Available aviation weather reports and

B

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

BASE LEG-

(See TRAFFIC PATTERN.)

BEACON-

(See AERONAUTICAL BEACON.)

(See AIRPORT ROTATING BEACON.)

(See AIRWAY BEACON.)

(See MARKER BEACON.)

(See NONDIRECTIONAL BEACON.)

(See RADAR.)

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

(See NONDIRECTIONAL BEACON.)

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

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

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

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

(See ICAO term BLIND VELOCITY.)

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

BLIND TRANSMISSION-

(See TRANSMITTING IN THE BLIND.)

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

BLIND ZONE-

(See BLIND SPOT.)

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

BOUNDARY LIGHTS-

(See AIRPORT LIGHTING.)

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

(See RUNWAY CONDITION READING.)

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

BREAKOUT- A technique to direct aircraft out of the approach stream. In the context of close parallel operations, a breakout is used to direct threatened aircraft away from a deviating aircraft.

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

(See ICAO term BROADCAST.)

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

L

LAA-

(See LOCAL AIRPORT ADVISORY.)

LAAS-

(See LOW ALTITUDE ALERT SYSTEM.)

LAHSO- An acronym for “Land and Hold Short Operation.” These operations include landing and holding short of an intersecting runway, a taxiway, a predetermined point, or an approach/departure flightpath.

LAHSO-DRY- Land and hold short operations on runways that are dry.

LAHSO-WET- Land and hold short operations on runways that are wet (but not contaminated).

LAND AND HOLD SHORT OPERATIONS- Operations which include simultaneous takeoffs and landings and/or simultaneous landings when a landing aircraft is able and is instructed by the controller to hold-short of the intersecting runway/taxiway or designated hold-short point. Pilots are expected to promptly inform the controller if the hold short clearance cannot be accepted.

(See PARALLEL RUNWAYS.)

(Refer to AIM.)

LANDING AREA- Any locality either on land, water, or structures, including airports/heliports and intermediate landing fields, which is used, or intended to be used, for the landing and takeoff of aircraft whether or not facilities are provided for the shelter, servicing, or for receiving or discharging passengers or cargo.

(See ICAO term LANDING AREA.)

LANDING AREA [ICAO]- That part of a movement area intended for the landing or take-off of aircraft.

LANDING DIRECTION INDICATOR- A device which visually indicates the direction in which landings and takeoffs should be made.

(See TETRAHEDRON.)

(Refer to AIM.)

LANDING DISTANCE AVAILABLE [ICAO]- The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

LANDING MINIMUMS- The minimum visibility prescribed for landing a civil aircraft while using an instrument approach procedure. The minimum applies with other limitations set forth in 14 CFR Part 91 with respect to the Minimum Descent Altitude (MDA) or Decision Height (DH) prescribed in the instrument approach procedures as follows:

a. Straight-in landing minimums. A statement of MDA and visibility, or DH and visibility, required for a straight-in landing on a specified runway, or

b. Circling minimums. A statement of MDA and visibility required for the circle-to-land maneuver.

Note: Descent below the established MDA or DH is not authorized during an approach unless the aircraft is in a position from which a normal approach to the runway of intended landing can be made and adequate visual reference to required visual cues is maintained.

(See CIRCLE-TO-LAND MANEUVER.)

(See DECISION HEIGHT.)

(See INSTRUMENT APPROACH PROCEDURE.)

(See MINIMUM DESCENT ALTITUDE.)

(See STRAIGHT-IN LANDING.)

(See VISIBILITY.)

(Refer to 14 CFR Part 91.)

LANDING ROLL- The distance from the point of touchdown to the point where the aircraft can be brought to a stop or exit the runway.

LANDING SEQUENCE- The order in which aircraft are positioned for landing.

(See APPROACH SEQUENCE.)

LAST ASSIGNED ALTITUDE- The last altitude/flight level assigned by ATC and acknowledged by the pilot.

(See MAINTAIN.)

(Refer to 14 CFR Part 91.)

LATERAL NAVIGATION (LNAV)- A function of area navigation (RNAV) equipment which calculates, displays, and provides lateral guidance to a profile or path.

LATERAL SEPARATION- The lateral spacing of aircraft at the same altitude by requiring operation on different routes or in different geographical locations.

(See SEPARATION.)

LDA-

(See LOCALIZER TYPE DIRECTIONAL AID.)
(See ICAO Term LANDING DISTANCE AVAILABLE.)

LF-

(See LOW FREQUENCY.)

LIGHTED AIRPORT- An airport where runway and obstruction lighting is available.

(See AIRPORT LIGHTING.)
(Refer to AIM.)

LIGHT GUN- A handheld directional light signaling device which emits a brilliant narrow beam of white, green, or red light as selected by the tower controller. The color and type of light transmitted can be used to approve or disapprove anticipated pilot actions where radio communication is not available. The light gun is used for controlling traffic operating in the vicinity of the airport and on the airport movement area.

(Refer to AIM.)

LOCAL AIRPORT ADVISORY (LAA)- A service provided by facilities, which are located on the landing airport, have a discrete ground-to-air communication frequency or the tower frequency when the tower is closed, automated weather reporting with voice broadcasting, and a continuous ASOS/AWSS/AWOS data display, other continuous direct reading instruments, or manual observations available to the specialist.

(See AIRPORT ADVISORY AREA.)

LOCAL TRAFFIC- Aircraft operating in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.

(See TRAFFIC PATTERN.)

LOCALIZER- The component of an ILS which provides course guidance to the runway.

(See INSTRUMENT LANDING SYSTEM.)
(See ICAO term LOCALIZER COURSE.)
(Refer to AIM.)

LOCALIZER COURSE [ICAO]- The locus of points, in any given horizontal plane, at which the DDM (difference in depth of modulation) is zero.

LOCALIZER OFFSET- An angular offset of the localizer from the runway extended centerline in a direction away from the no transgression zone (NTZ)

that increases the normal operating zone (NOZ) width. An offset requires a 50 foot increase in DH and is not authorized for CAT II and CAT III approaches.

LOCALIZER TYPE DIRECTIONAL AID- A NAVAID used for nonprecision instrument approaches with utility and accuracy comparable to a localizer but which is not a part of a complete ILS and is not aligned with the runway.

(Refer to AIM.)

LOCALIZER USABLE DISTANCE- The maximum distance from the localizer transmitter at a specified altitude, as verified by flight inspection, at which reliable course information is continuously received.

(Refer to AIM.)

LOCATOR [ICAO]- An LM/MF NDB used as an aid to final approach.

Note: A locator usually has an average radius of rated coverage of between 18.5 and 46.3 km (10 and 25 NM).

LONG RANGE NAVIGATION-

(See LORAN.)

LONGITUDINAL SEPARATION- The longitudinal spacing of aircraft at the same altitude by a minimum distance expressed in units of time or miles.

(See SEPARATION.)
(Refer to AIM.)

LORAN- An electronic navigational system by which hyperbolic lines of position are determined by measuring the difference in the time of reception of synchronized pulse signals from two fixed transmitters. Loran A operates in the 1750-1950 kHz frequency band. Loran C and D operate in the 100-110 kHz frequency band.

(Refer to AIM.)

LOST COMMUNICATIONS- Loss of the ability to communicate by radio. Aircraft are sometimes referred to as NORDO (No Radio). Standard pilot procedures are specified in 14 CFR Part 91. Radar controllers issue procedures for pilots to follow in the event of lost communications during a radar approach when weather reports indicate that an aircraft will likely encounter IFR weather conditions during the approach.

(Refer to 14 CFR Part 91.)
(Refer AIM.)

O

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

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

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See STANDARD INSTRUMENT DEPARTURES.)

(Refer to AIM.)

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

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

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

(a) 400 feet, or

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

2. For runways serving only small airplanes:

(a) 300 feet for precision instrument runways.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ODAPS-

(See OCEANIC DISPLAY AND PLANNING SYSTEM.)

ODP-

(See OBSTACLE DEPARTURE PROCEDURE.)

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

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

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

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

OFT-

(See OUTER FIX TIME.)

OM-

(See OUTER MARKER.)

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

ON COURSE-

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

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

(See ON-COURSE INDICATION.)

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

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

ONER-

(See OCEANIC NAVIGATIONAL ERROR REPORT.)

OPERATIONAL-

(See DUE REGARD.)

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

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

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

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

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

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

(See CLEARED FOR THE OPTION.)

(Refer to AIM.)

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

PRECISION APPROACH RADAR- Radar equipment in some ATC facilities operated by the FAA and/or the military services at joint-use civil/military locations and separate military installations to detect and display azimuth, elevation, and range of aircraft on the final approach course to a runway. This equipment may be used to monitor certain nonradar approaches, but is primarily used to conduct a precision instrument approach (PAR) wherein the controller issues guidance instructions to the pilot based on the aircraft's position in relation to the final approach course (azimuth), the glidepath (elevation), and the distance (range) from the touchdown point on the runway as displayed on the radar scope.

Note: The abbreviation "PAR" is also used to denote preferential arrival routes in ARTCC computers.

(See GLIDEPATH.)

(See PAR.)

(See PREFERENTIAL ROUTES.)

(See ICAO term PRECISION APPROACH RADAR.)

(Refer to AIM.)

PRECISION APPROACH RADAR [ICAO]- Primary radar equipment used to determine the position of an aircraft during final approach, in terms of lateral and vertical deviations relative to a nominal approach path, and in range relative to touchdown.

Note: Precision approach radars are designed to enable pilots of aircraft to be given guidance by radio communication during the final stages of the approach to land.

PRECISION OBSTACLE FREE ZONE (POFZ)- An 800 foot wide by 200 foot long area centered on the runway centerline adjacent to the threshold designed to protect aircraft flying precision approaches from ground vehicles and other aircraft when ceiling is less than 250 feet or visibility is less than 3/4 statute mile (or runway visual range below 4,000 feet.)

PRECISION RUNWAY MONITOR (PRM)- Provides air traffic controllers with high precision secondary surveillance data for aircraft on final approach to parallel runways that have extended centerlines separated by less than 4,300 feet. High resolution color monitoring displays (FMA) are required to present surveillance track data to controllers along with detailed maps depicting approaches and no transgression zone.

PREDICTIVE WIND SHEAR ALERT SYSTEM (PWS)- A self-contained system used onboard some aircraft to alert the flight crew to the presence of a potential wind shear. PWS systems typically monitor 3 miles ahead and 25 degrees left and right of the aircraft's heading at or below 1200' AGL. Departing flights may receive a wind shear alert after they start the takeoff roll and may elect to abort the takeoff. Aircraft on approach receiving an alert may elect to go around or perform a wind shear escape maneuver.

PREFERENTIAL ROUTES- Preferential routes (PDRs, PARs, and PDARs) are adapted in ARTCC computers to accomplish inter/intrafacility controller coordination and to assure that flight data is posted at the proper control positions. Locations having a need for these specific inbound and outbound routes normally publish such routes in local facility bulletins, and their use by pilots minimizes flight plan route amendments. When the workload or traffic situation permits, controllers normally provide radar vectors or assign requested routes to minimize circuitous routing. Preferential routes are usually confined to one ARTCC's area and are referred to by the following names or acronyms:

a. **Preferential Departure Route (PDR)**. A specific departure route from an airport or terminal area to an en route point where there is no further need for flow control. It may be included in an Instrument Departure Procedure (DP) or a Preferred IFR Route.

b. **Preferential Arrival Route (PAR)**. A specific arrival route from an appropriate en route point to an airport or terminal area. It may be included in a Standard Terminal Arrival (STAR) or a Preferred IFR Route. The abbreviation "PAR" is used primarily within the ARTCC and should not be confused with the abbreviation for Precision Approach Radar.

c. **Preferential Departure and Arrival Route (PDAR)**. A route between two terminals which are within or immediately adjacent to one ARTCC's area. PDARs are not synonymous with Preferred IFR Routes but may be listed as such as they do accomplish essentially the same purpose.

(See PREFERRED IFR ROUTES.)

PREFERRED IFR ROUTES- Routes established between busier airports to increase system efficiency and capacity. They normally extend through one or more ARTCC areas and are designed to achieve balanced traffic flows among high density terminals. IFR clearances are issued on the basis of these routes except when severe weather avoidance procedures or

other factors dictate otherwise. Preferred IFR Routes are listed in the Airport/Facility Directory. If a flight is planned to or from an area having such routes but the departure or arrival point is not listed in the Airport/Facility Directory, pilots may use that part of a Preferred IFR Route which is appropriate for the departure or arrival point that is listed. Preferred IFR Routes are correlated with DPs and STARs and may be defined by airways, jet routes, direct routes between NAVAIDs, Waypoints, NAVAID radials/DME, or any combinations thereof.

(See CENTER'S AREA.)

(See INSTRUMENT DEPARTURE PROCEDURE.)

(See PREFERENTIAL ROUTES.)

(See STANDARD TERMINAL ARRIVAL.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

(Refer to NOTICES TO AIRMEN PUBLICATION.)

PRE-FLIGHT PILOT BRIEFING-

(See PILOT BRIEFING.)

PREVAILING VISIBILITY-

(See VISIBILITY.)

PRIMARY RADAR TARGET- An analog or digital target, exclusive of a secondary radar target, presented on a radar display.

PRM-

(See ILS PRM APPROACH and PRECISION RUNWAY MONITOR.)

PROCEDURE TURN- The maneuver prescribed when it is necessary to reverse direction to establish an aircraft on the intermediate approach segment or final approach course. The outbound course, direction of turn, distance within which the turn must be completed, and minimum altitude are specified in the procedure. However, unless otherwise restricted, the point at which the turn may be commenced and the type and rate of turn are left to the discretion of the pilot.

(See ICAO term PROCEDURE TURN.)

PROCEDURE TURN [ICAO]- A maneuver in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

Note 1: Procedure turns are designated "left" or "right" according to the direction of the initial turn.

Note 2: Procedure turns may be designated as being made either in level flight or while

descending, according to the circumstances of each individual approach procedure.

PROCEDURE TURN INBOUND- That point of a procedure turn maneuver where course reversal has been completed and an aircraft is established inbound on the intermediate approach segment or final approach course. A report of "procedure turn inbound" is normally used by ATC as a position report for separation purposes.

(See FINAL APPROACH COURSE.)

(See PROCEDURE TURN.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

PROFILE DESCENT- An uninterrupted descent (except where level flight is required for speed adjustment; e.g., 250 knots at 10,000 feet MSL) from cruising altitude/level to interception of a glideslope or to a minimum altitude specified for the initial or intermediate approach segment of a nonprecision instrument approach. The profile descent normally terminates at the approach gate or where the glideslope or other appropriate minimum altitude is intercepted.

PROGRESS REPORT-

(See POSITION REPORT.)

PROGRESSIVE TAXI- Precise taxi instructions given to a pilot unfamiliar with the airport or issued in stages as the aircraft proceeds along the taxi route.

PROHIBITED AREA-

(See SPECIAL USE AIRSPACE.)

(See ICAO term PROHIBITED AREA.)

PROHIBITED AREA [ICAO]- An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

PROPOSED BOUNDARY CROSSING TIME- Each center has a PBCT parameter for each internal airport. Proposed internal flight plans are transmitted to the adjacent center if the flight time along the proposed route from the departure airport to the center boundary is less than or equal to the value of PBCT or if airport adaptation specifies transmission regardless of PBCT.

PROPOSED DEPARTURE TIME- The time that the aircraft expects to become airborne.

PROTECTED AIRSPACE- The airspace on either side of an oceanic route/track that is equal to one-half

the lateral separation minimum except where reduction of protected airspace has been authorized.

PT-

(See PROCEDURE TURN.)

PTP-

(See POINT-TO-POINT.)

PTS-

(See POLAR TRACK STRUCTURE.)

PUBLISHED INSTRUMENT APPROACH PROCEDURE VISUAL SEGMENT- A segment on an IAP chart annotated as “Fly Visual to Airport” or

“Fly Visual.” A dashed arrow will indicate the visual flight path on the profile and plan view with an associated note on the approximate heading and distance. The visual segment should be flown as a dead reckoning course while maintaining visual conditions.

PUBLISHED ROUTE- A route for which an IFR altitude has been established and published; e.g., Federal Airways, Jet Routes, Area Navigation Routes, Specified Direct Routes.

PWS-

(See PREDICTIVE WIND SHEAR ALERT SYSTEM.)

RADAR SERVICE- A term which encompasses one or more of the following services based on the use of radar which can be provided by a controller to a pilot of a radar identified aircraft.

a. Radar Monitoring- The radar flight-following of aircraft, whose primary navigation is being performed by the pilot, to observe and note deviations from its authorized flight path, airway, or route. When being applied specifically to radar monitoring of instrument approaches; i.e., with precision approach radar (PAR) or radar monitoring of simultaneous ILS/MLS approaches, it includes advice and instructions whenever an aircraft nears or exceeds the prescribed PAR safety limit or simultaneous ILS/MLS no transgression zone.

(See ADDITIONAL SERVICES.)

(See TRAFFIC ADVISORIES.)

b. Radar Navigational Guidance- Vectoring aircraft to provide course guidance.

c. Radar Separation- Radar spacing of aircraft in accordance with established minima.

(See ICAO term RADAR SERVICE.)

RADAR SERVICE [ICAO]- Term used to indicate a service provided directly by means of radar.

a. Monitoring- The use of radar for the purpose of providing aircraft with information and advice relative to significant deviations from nominal flight path.

b. Separation- The separation used when aircraft position information is derived from radar sources.

RADAR SERVICE TERMINATED- Used by ATC to inform a pilot that he/she will no longer be provided any of the services that could be received while in radar contact. Radar service is automatically terminated, and the pilot is not advised in the following cases:

a. An aircraft cancels its IFR flight plan, except within Class B airspace, Class C airspace, a TRSA, or where Basic Radar service is provided.

b. An aircraft conducting an instrument, visual, or contact approach has landed or has been instructed to change to advisory frequency.

c. An arriving VFR aircraft, receiving radar service to a tower-controlled airport within Class B airspace, Class C airspace, a TRSA, or where sequencing service is provided, has landed; or to all

other airports, is instructed to change to tower or advisory frequency.

d. An aircraft completes a radar approach.

RADAR SURVEILLANCE- The radar observation of a given geographical area for the purpose of performing some radar function.

RADAR TRAFFIC ADVISORIES- Advisories issued to alert pilots to known or observed radar traffic which may affect the intended route of flight of their aircraft.

(See TRAFFIC ADVISORIES.)

RADAR TRAFFIC INFORMATION SERVICE-

(See TRAFFIC ADVISORIES.)

RADAR VECTORING [ICAO]- Provision of navigational guidance to aircraft in the form of specific headings, based on the use of radar.

RADIAL- A magnetic bearing extending from a VOR/VORTAC/TACAN navigation facility.

RADIO-

a. A device used for communication.

b. Used to refer to a flight service station; e.g., "Seattle Radio" is used to call Seattle FSS.

RADIO ALTIMETER- Aircraft equipment which makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the surface.

RADIO BEACON-

(See NONDIRECTIONAL BEACON.)

RADIO DETECTION AND RANGING-

(See RADAR.)

RADIO MAGNETIC INDICATOR- An aircraft navigational instrument coupled with a gyro compass or similar compass that indicates the direction of a selected NAVAID and indicates bearing with respect to the heading of the aircraft.

RAIS-

(See REMOTE AIRPORT INFORMATION SERVICE.)

RAMP-

(See APRON.)

RANDOM ALTITUDE- An altitude inappropriate for direction of flight and/or not in accordance with FAAO JO 7110.65, Para 4-5-1, VERTICAL SEPARATION MINIMA.

RANDOM ROUTE- Any route not established or charted/published or not otherwise available to all users.

RC-

(See **ROAD RECONNAISSANCE.**)

RCAG-

(See **REMOTE COMMUNICATIONS AIR/GROUND FACILITY.**)

RCC-

(See **RESCUE COORDINATION CENTER.**)

RCO-

(See **REMOTE COMMUNICATIONS OUTLET.**)

RCR-

(See **RUNWAY CONDITION READING.**)

READ BACK- Repeat my message back to me.

RECEIVER AUTONOMOUS INTEGRITY MONITORING (RAIM)- A technique whereby a civil GNSS receiver/processor determines the integrity of the GNSS navigation signals without reference to sensors or non-DoD integrity systems other than the receiver itself. This determination is achieved by a consistency check among redundant pseudorange measurements.

RECEIVING CONTROLLER- A controller/facility receiving control of an aircraft from another controller/facility.

RECEIVING FACILITY-

(See **RECEIVING CONTROLLER.**)

RECONFORMANCE- The automated process of bringing an aircraft's Current Plan Trajectory into conformance with its track.

REDUCE SPEED TO (SPEED)-

(See **SPEED ADJUSTMENT.**)

REIL-

(See **RUNWAY END IDENTIFIER LIGHTS.**)

RELEASE TIME- A departure time restriction issued to a pilot by ATC (either directly or through an authorized relay) when necessary to separate a departing aircraft from other traffic.

(See ICAO term **RELEASE TIME.**)

RELEASE TIME [ICAO]- Time prior to which an aircraft should be given further clearance or prior to which it should not proceed in case of radio failure.

REMOTE AIRPORT ADVISORY (RAA)- A remote service which may be provided by facilities, which are not located on the landing airport, but have a discrete ground-to-air communication frequency or tower frequency when the tower is closed, automated weather reporting with voice available to the pilot at the landing airport, and a continuous ASOS/AWSS/AWOS data display, other direct reading instruments, or manual observation is available to the AFSS specialist.

REMOTE AIRPORT INFORMATION SERVICE (RAIS)- A temporary service provided by facilities, which are not located on the landing airport, but have communication capability and automated weather reporting available to the pilot at the landing airport.

REMOTE COMMUNICATIONS AIR/GROUND FACILITY- An unmanned VHF/UHF transmitter/receiver facility which is used to expand ARTCC air/ground communications coverage and to facilitate direct contact between pilots and controllers. RCAG facilities are sometimes not equipped with emergency frequencies 121.5 MHz and 243.0 MHz.

(Refer to AIM.)

REMOTE COMMUNICATIONS OUTLET- An unmanned communications facility remotely controlled by air traffic personnel. RCOs serve FSSs. RTRs serve terminal ATC facilities. An RCO or RTR may be UHF or VHF and will extend the communication range of the air traffic facility. There are several classes of RCOs and RTRs. The class is determined by the number of transmitters or receivers. Classes A through G are used primarily for air/ground purposes. RCO and RTR class O facilities are nonprotected outlets subject to undetected and prolonged outages. RCO (O's) and RTR (O's) were established for the express purpose of providing ground-to-ground communications between air traffic control specialists and pilots located at a satellite airport for delivering en route clearances, issuing departure authorizations, and acknowledging instrument flight rules cancellations or departure/landing times. As a secondary function, they may be used for advisory purposes whenever the aircraft is below the coverage of the primary air/ground frequency.

REMOTE TRANSMITTER/RECEIVER-

(See **REMOTE COMMUNICATIONS OUTLET.**)

S

SAA-

(See SPECIAL ACTIVITY AIRSPACE.)

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

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

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

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

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

SAFETY LOGIC SYSTEM ALERTS-

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

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

b. FALSE ALERT-

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SAR-

(See SEARCH AND RESCUE.)

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

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

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

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

SDF-

(See SIMPLIFIED DIRECTIONAL FACILITY.)

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

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

(See FLIGHT SERVICE STATION.)

(See RESCUE COORDINATION CENTER.)

(Refer to AIM.)

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

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

(See SEARCH AND RESCUE.)

SECNOT-

(See SECURITY NOTICE.)

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

SECTIONAL AERONAUTICAL CHARTS-

(See AERONAUTICAL CHART.)

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

SECURITY NOTICE (SECNOT) - A SECNOT is a request originated by the Air Traffic Security Coordinator (ATSC) for an extensive communications search for aircraft involved, or suspected of being involved, in a security violation.

A SECNOT will include the aircraft identification, search area, and expiration time. The search area, as defined by the ATSC, could be a single airport, multiple airports, a radius of an airport or fix, or a route of flight. Once the expiration time has been reached, the SECNOT is considered to be cancelled.

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

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

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

(Refer to AIM.)

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

a. Initial Approach- The segment between the initial approach fix and the intermediate fix or the

point where the aircraft is established on the intermediate course or final approach course.

(See ICAO term INITIAL APPROACH SEGMENT.)

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

(See ICAO term INTERMEDIATE APPROACH SEGMENT.)

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

(See ICAO term FINAL APPROACH SEGMENT.)

d. Missed Approach- The segment between the missed approach point or the point of arrival at decision height and the missed approach fix at the prescribed altitude.

(Refer to 14 CFR Part 97.)

(See ICAO term MISSED APPROACH PROCEDURE.)

SEPARATION- In air traffic control, the spacing of aircraft to achieve their safe and orderly movement in flight and while landing and taking off.

(See SEPARATION MINIMA.)

(See ICAO term SEPARATION.)

SEPARATION [ICAO]- Spacing between aircraft, levels or tracks.

SEPARATION MINIMA- The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

(See SEPARATION.)

SERVICE- A generic term that designates functions or assistance available from or rendered by air traffic control. For example, Class C service would denote the ATC services provided within a Class C airspace area.

SEVERE WEATHER AVOIDANCE PLAN- An approved plan to minimize the affect of severe weather on traffic flows in impacted terminal and/or ARTCC areas. SWAP is normally implemented to provide the least disruption to the ATC system when flight through portions of airspace is difficult or impossible due to severe weather.

SEVERE WEATHER FORECAST ALERTS- Preliminary messages issued in order to alert users that a Severe Weather Watch Bulletin (WW) is being issued. These messages define areas of possible severe thunderstorms or tornado activity. The messages are unscheduled and issued as required by the Storm Prediction Center (SPC) at Norman, Oklahoma.

(See AIRMET.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(See SIGMET.)

SFA-

(See SINGLE FREQUENCY APPROACH.)

SFO-

(See SIMULATED FLAMEOUT.)

SHF-

(See SUPER HIGH FREQUENCY.)

SHORT RANGE CLEARANCE- A clearance issued to a departing IFR flight which authorizes IFR flight to a specific fix short of the destination while air traffic control facilities are coordinating and obtaining the complete clearance.

SHORT TAKEOFF AND LANDING AIRCRAFT- An aircraft which, at some weight within its approved operating weight, is capable of operating from a runway in compliance with the applicable STOL characteristics, airworthiness, operations, noise, and pollution standards.

(See VERTICAL TAKEOFF AND LANDING AIRCRAFT.)

SIAP-

(See STANDARD INSTRUMENT APPROACH PROCEDURE.)

SID-

(See STANDARD INSTRUMENT DEPARTURE.)

SIDESTEP MANEUVER- A visual maneuver accomplished by a pilot at the completion of an instrument approach to permit a straight-in landing on a parallel runway not more than 1,200 feet to either side of the runway to which the instrument approach was conducted.

(Refer to AIM.)

SIGMET- A weather advisory issued concerning weather significant to the safety of all aircraft.

SIGMET advisories cover severe and extreme turbulence, severe icing, and widespread dust or sandstorms that reduce visibility to less than 3 miles.

(See AIRMET.)

(See AWW.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(See ICAO term SIGMET INFORMATION.)

(Refer to AIM.)

SIGMET INFORMATION [ICAO]- Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

SIGNIFICANT METEOROLOGICAL INFORMATION-

(See SIGMET.)

SIGNIFICANT POINT- A point, whether a named intersection, a NAVAID, a fix derived from a NAVAID(s), or geographical coordinate expressed in degrees of latitude and longitude, which is established for the purpose of providing separation, as a reporting point, or to delineate a route of flight.

SIMPLIFIED DIRECTIONAL FACILITY- A NAVAID used for nonprecision instrument approaches. The final approach course is similar to that of an ILS localizer except that the SDF course may be offset from the runway, generally not more than 3 degrees, and the course may be wider than the localizer, resulting in a lower degree of accuracy.

(Refer to AIM.)

SIMULATED FLAMEOUT- A practice approach by a jet aircraft (normally military) at idle thrust to a runway. The approach may start at a runway (high key) and may continue on a relatively high and wide downwind leg with a continuous turn to final. It terminates in landing or low approach. The purpose of this approach is to simulate a flameout.

(See FLAMEOUT.)

SIMULTANEOUS 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:

a. Alert Area- Airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. Alert Areas are depicted on aeronautical charts for the information of nonparticipating pilots. All activities within an Alert Area are conducted in accordance with Federal Aviation Regulations, and pilots of participating aircraft as well as pilots transiting the area are equally responsible for collision avoidance.

b. Controlled Firing Area- Airspace wherein activities are conducted under conditions so controlled as to eliminate hazards to nonparticipating aircraft and to ensure the safety of persons and property on the ground.

c. Military Operations Area (MOA)- A MOA is airspace established outside of Class A airspace area to separate or segregate certain nonhazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted.

(Refer to AIM.)

d. Prohibited Area- Airspace designated under 14 CFR Part 73 within which no person may operate

an aircraft without the permission of the using agency.

(Refer to AIM.)

(Refer to En Route Charts.)

e. Restricted Area- Airspace designated under 14 CFR Part 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency. Restricted areas are depicted on en route charts. Where joint use is authorized, the name of the ATC controlling facility is also shown.

(Refer to 14 CFR Part 73.)

(Refer to AIM.)

f. Warning Area- A warning area is airspace of defined dimensions extending from 3 nautical miles outward from the coast of the United States, that contains activity that may be hazardous to nonparticipating aircraft. The purpose of such warning area is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both.

SPECIAL VFR CONDITIONS- Meteorological conditions that are less than those required for basic VFR flight in Class B, C, D, or E surface areas and in which some aircraft are permitted flight under visual flight rules.

(See SPECIAL VFR OPERATIONS.)

(Refer to 14 CFR Part 91.)

SPECIAL VFR FLIGHT [ICAO]- A VFR flight cleared by air traffic control to operate within Class B, C, D, and E surface areas in metrological conditions below VMC.

SPECIAL VFR OPERATIONS- Aircraft operating in accordance with clearances within Class B, C, D, and E surface areas in weather conditions less than the basic VFR weather minima. Such operations must be requested by the pilot and approved by ATC.

(See SPECIAL VFR CONDITIONS.)

(See ICAO term SPECIAL VFR FLIGHT.)

SPEED-

(See AIRSPEED.)

(See GROUND SPEED.)

SPEED ADJUSTMENT- An ATC procedure used to request pilots to adjust aircraft speed to a specific value for the purpose of providing desired spacing.

Pilots are expected to maintain a speed of plus or minus 10 knots or 0.02 Mach number of the specified speed. Examples of speed adjustments are:

- a. "Increase/reduce speed to Mach point (number.)"
- b. "Increase/reduce speed to (speed in knots)" or "Increase/reduce speed (number of knots) knots."

SPEED BRAKES- Moveable aerodynamic devices on aircraft that reduce airspeed during descent and landing.

SPEED SEGMENTS- Portions of the arrival route between the transition point and the vertex along the optimum flight path for which speeds and altitudes are specified. There is one set of arrival speed segments adapted from each transition point to each vertex. Each set may contain up to six segments.

SQUAWK (Mode, Code, Function)- Activate specific modes/codes/functions on the aircraft transponder; e.g., "Squawk three/alpha, two one zero five, low."

(See TRANSPONDER.)

STA-

(See SCHEDULED TIME OF ARRIVAL.)

STAGING/QUEUING- The placement, integration, and segregation of departure aircraft in designated movement areas of an airport by departure fix, EDCT, and/or restriction.

STAND BY- Means the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority. Also means to wait as in "stand by for clearance." The caller should reestablish contact if a delay is lengthy. "Stand by" is not an approval or denial.

STANDARD INSTRUMENT APPROACH PROCEDURE (SIAP)-

(See INSTRUMENT APPROACH PROCEDURE.)

STANDARD INSTRUMENT DEPARTURE (SID)- A preplanned instrument flight rule (IFR) air traffic control (ATC) departure procedure printed for pilot/controller use in graphic form to provide obstacle clearance and a transition from the terminal area to the appropriate en route structure. SIDs are primarily designed for system enhancement to expedite traffic flow and to reduce pilot/controller

workload. ATC clearance must always be received prior to flying a SID.

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See OBSTACLE DEPARTURE PROCEDURE.)

(Refer to AIM.)

STANDARD RATE TURN- A turn of three degrees per second.

STANDARD TERMINAL ARRIVAL- A preplanned instrument flight rule (IFR) air traffic control arrival procedure published for pilot use in graphic and/or textual form. STARs provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area.

STANDARD TERMINAL ARRIVAL CHARTS-

(See AERONAUTICAL CHART.)

STANDARD TERMINAL AUTOMATION REPLACEMENT SYSTEM (STARS)-

(See DTAS.)

STAR-

(See STANDARD TERMINAL ARRIVAL.)

STATE AIRCRAFT- Aircraft used in military, customs and police service, in the exclusive service of any government, or of any political subdivision, thereof including the government of any state, territory, or possession of the United States or the District of Columbia, but not including any government-owned aircraft engaged in carrying persons or property for commercial purposes.

STATIC RESTRICTIONS- Those restrictions that are usually not subject to change, fixed, in place, and/or published.

STATIONARY RESERVATIONS- Altitude reservations which encompass activities in a fixed area. Stationary reservations may include activities, such as special tests of weapons systems or equipment, certain U.S. Navy carrier, fleet, and anti-submarine operations, rocket, missile and drone operations, and certain aerial refueling or similar operations.

STEP TAXI- To taxi a float plane at full power or high RPM.

STEP TURN- A maneuver used to put a float plane in a planing configuration prior to entering an active sea lane for takeoff. The STEP TURN maneuver should only be used upon pilot request.

STEPDOWN FIX- A fix permitting additional descent within a segment of an instrument approach

procedure by identifying a point at which a controlling obstacle has been safely overflown.

STEREO ROUTE- A routinely used route of flight established by users and ARTCCs identified by a coded name; e.g., ALPHA 2. These routes minimize flight plan handling and communications.

STOL AIRCRAFT-

(See **SHORT TAKEOFF AND LANDING AIRCRAFT**.)

STOP ALTITUDE SQUAWK- Used by ATC to inform an aircraft to turn-off the automatic altitude reporting feature of its transponder. It is issued when the verbally reported altitude varies 300 feet or more from the automatic altitude report.

(See **ALTITUDE READOUT**.)

(See **TRANSPONDER**.)

STOP AND GO- A procedure wherein an aircraft will land, make a complete stop on the runway, and then commence a takeoff from that point.

(See **LOW APPROACH**.)

(See **OPTION APPROACH**.)

STOP BURST-

(See **STOP STREAM**.)

STOP BUZZER-

(See **STOP STREAM**.)

STOP SQUAWK (Mode or Code)- Used by ATC to tell the pilot to turn specified functions of the aircraft transponder off.

(See **STOP ALTITUDE SQUAWK**.)

(See **TRANSPONDER**.)

STOP STREAM- Used by ATC to request a pilot to suspend electronic attack activity.

(See **JAMMING**.)

STOPOVER FLIGHT PLAN- A flight plan format which permits in a single submission the filing of a sequence of flight plans through interim full-stop destinations to a final destination.

STOPWAY- An area beyond the takeoff runway no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted takeoff, without causing structural damage to the airplane, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff.

STRAIGHT-IN APPROACH IFR- An instrument approach wherein final approach is begun without first having executed a procedure turn, not necessarily completed with a straight-in landing or made to straight-in landing minimums.

(See **LANDING MINIMUMS**.)

(See **STRAIGHT-IN APPROACH VFR**.)

(See **STRAIGHT-IN LANDING**.)

STRAIGHT-IN APPROACH VFR- Entry into the traffic pattern by interception of the extended runway centerline (final approach course) without executing any other portion of the traffic pattern.

(See **TRAFFIC PATTERN**.)

STRAIGHT-IN LANDING- A landing made on a runway aligned within 30° of the final approach course following completion of an instrument approach.

(See **STRAIGHT-IN APPROACH IFR**.)

STRAIGHT-IN LANDING MINIMUMS-

(See **LANDING MINIMUMS**.)

STRAIGHT-IN MINIMUMS-

(See **STRAIGHT-IN LANDING MINIMUMS**.)

STRATEGIC PLANNING- Planning whereby solutions are sought to resolve potential conflicts.

SUBSTITUTE ROUTE- A route assigned to pilots when any part of an airway or route is unusable because of NAVAID status. These routes consist of:

a. Substitute routes which are shown on U.S. Government charts.

b. Routes defined by ATC as specific NAVAID radials or courses.

c. Routes defined by ATC as direct to or between NAVAIDs.

SUNSET AND SUNRISE- The mean solar times of sunset and sunrise as published in the Nautical Almanac, converted to local standard time for the locality concerned. Within Alaska, the end of evening civil twilight and the beginning of morning civil twilight, as defined for each locality.

SUPER HIGH FREQUENCY- The frequency band between 3 and 30 gigahertz (GHz). The elevation and azimuth stations of the microwave landing system operate from 5031 MHz to 5091 MHz in this spectrum.

SUPPLEMENTAL WEATHER SERVICE LOCATION- Airport facilities staffed with contract

personnel who take weather observations and provide current local weather to pilots via telephone or radio. (All other services are provided by the parent FSS.)

SUPPS- Refers to ICAO Document 7030 Regional Supplementary Procedures. SUPPS contain procedures for each ICAO Region which are unique to that Region and are not covered in the worldwide provisions identified in the ICAO Air Navigation Plan. Procedures contained in Chapter 8 are based in part on those published in SUPPS.

SURFACE AREA- The airspace contained by the lateral boundary of the Class B, C, D, or E airspace designated for an airport that begins at the surface and extends upward.

SURPIC- A description of surface vessels in the area of a Search and Rescue incident including their predicted positions and their characteristics.

(Refer to FAAO JO 7110.65, Para 10-6-4, INFLIGHT CONTINGENCIES.)

SURVEILLANCE APPROACH- An instrument approach wherein the air traffic controller issues instructions, for pilot compliance, based on aircraft position in relation to the final approach course (azimuth), and the distance (range) from the end of the runway as displayed on the controller's radar scope. The controller will provide recommended altitudes on final approach if requested by the pilot.

(Refer to AIM.)

SWAP-

(See SEVERE WEATHER AVOIDANCE PLAN.)

SWSL-

(See SUPPLEMENTAL WEATHER SERVICE LOCATION.)

SYSTEM STRATEGIC NAVIGATION- Military activity accomplished by navigating along a preplanned route using internal aircraft systems to maintain a desired track. This activity normally requires a lateral route width of 10 NM and altitude range of 1,000 feet to 6,000 feet AGL with some route segments that permit terrain following.

system providing the aircrew 'Low Altitude warnings' to allow immediate pilot action.

TERRAIN FOLLOWING- The flight of a military aircraft maintaining a constant AGL altitude above the terrain or the highest obstruction. The altitude of the aircraft will constantly change with the varying terrain and/or obstruction.

TETRAHEDRON- A device normally located on uncontrolled airports and used as a landing direction indicator. The small end of a tetrahedron points in the direction of landing. At controlled airports, the tetrahedron, if installed, should be disregarded because tower instructions supersede the indicator.

(See SEGMENTED CIRCLE.)

(Refer to AIM.)

TF-

(See TERRAIN FOLLOWING.)

THAT IS CORRECT- The understanding you have is right.

360 OVERHEAD-

(See OVERHEAD MANEUVER.)

THRESHOLD- The beginning of that portion of the runway usable for landing.

(See AIRPORT LIGHTING.)

(See DISPLACED THRESHOLD.)

THRESHOLD CROSSING HEIGHT- The theoretical height above the runway threshold at which the aircraft's glideslope antenna would be if the aircraft maintains the trajectory established by the mean ILS glideslope or MLS glidepath.

(See GLIDESLOPE.)

(See THRESHOLD.)

THRESHOLD LIGHTS-

(See AIRPORT LIGHTING.)

TIBS-

(See TELEPHONE INFORMATION BRIEFING SERVICE.)

TIME GROUP- Four digits representing the hour and minutes from the Coordinated Universal Time (UTC) clock. FAA uses UTC for all operations. The term "ZULU" may be used to denote UTC. The word "local" or the time zone equivalent shall be used to denote local when local time is given during radio and telephone communications. When written, a time

zone designator is used to indicate local time; e.g. "0205M" (Mountain). The local time may be based on the 24-hour clock system. The day begins at 0000 and ends at 2359.

TIS-B-

(See TRAFFIC INFORMATION SERVICE-BROADCAST.)

TMA-

(See TRAFFIC MANAGEMENT ADVISOR.)

TMPA-

(See TRAFFIC MANAGEMENT PROGRAM ALERT.)

TMU-

(See TRAFFIC MANAGEMENT UNIT.)

TODA [ICAO]-

(See ICAO Term TAKE-OFF DISTANCE AVAILABLE.)

TOI-

(See TRACK OF INTEREST.)

TORA [ICAO]-

(See ICAO Term TAKE-OFF RUN AVAILABLE.)

TORCHING- The burning of fuel at the end of an exhaust pipe or stack of a reciprocating aircraft engine, the result of an excessive richness in the fuel air mixture.

TOTAL ESTIMATED ELAPSED TIME [ICAO]- For IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome.

(See ICAO term ESTIMATED ELAPSED TIME.)

TOUCH-AND-GO- An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway.

TOUCH-AND-GO LANDING-

(See TOUCH-AND-GO.)

TOUCHDOWN-

a. The point at which an aircraft first makes contact with the landing surface.

b. Concerning a precision radar approach (PAR), it is the point where the glide path intercepts the landing surface.

(See ICAO term TOUCHDOWN.)

TOUCHDOWN [ICAO]- The point where the nominal glide path intercepts the runway.

Note: Touchdown as defined above is only a datum and is not necessarily the actual point at which the aircraft will touch the runway.

TOUCHDOWN RVR-

(See VISIBILITY.)

TOUCHDOWN ZONE- The first 3,000 feet of the runway beginning at the threshold. The area is used for determination of Touchdown Zone Elevation in the development of straight-in landing minimums for instrument approaches.

(See ICAO term TOUCHDOWN ZONE.)

TOUCHDOWN ZONE [ICAO]- The portion of a runway, beyond the threshold, where it is intended landing aircraft first contact the runway.

TOUCHDOWN ZONE ELEVATION- The highest elevation in the first 3,000 feet of the landing surface. TDZE is indicated on the instrument approach procedure chart when straight-in landing minimums are authorized.

(See TOUCHDOWN ZONE.)

TOUCHDOWN ZONE LIGHTING-

(See AIRPORT LIGHTING.)

TOWER- A terminal facility that uses air/ground communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area. Authorizes aircraft to land or takeoff at the airport controlled by the tower or to transit the Class D airspace area regardless of flight plan or weather conditions (IFR or VFR). A tower may also provide approach control services (radar or nonradar).

(See AIRPORT TRAFFIC CONTROL SERVICE.)

(See APPROACH CONTROL FACILITY.)

(See APPROACH CONTROL SERVICE.)

(See MOVEMENT AREA.)

(See TOWER EN ROUTE CONTROL SERVICE.)

(See ICAO term AERODROME CONTROL TOWER.)

(Refer to AIM.)

TOWER EN ROUTE CONTROL SERVICE- The control of IFR en route traffic within delegated airspace between two or more adjacent approach control facilities. This service is designed to expedite traffic and reduce control and pilot communication requirements.

TOWER TO TOWER-

(See TOWER EN ROUTE CONTROL SERVICE.)

TPX-42- A numeric beacon decoder equipment/system. It is designed to be added to terminal radar systems for beacon decoding. It provides rapid target identification, reinforcement of the primary radar target, and altitude information from Mode C.

(See AUTOMATED RADAR TERMINAL SYSTEMS.)

(See TRANSPONDER.)

TRACEABLE PRESSURE STANDARD- The facility station pressure instrument, with certification/calibration traceable to the National Institute of Standards and Technology. Traceable pressure standards may be mercurial barometers, commissioned ASOS/AWSS or dual transducer AWOS, or portable pressure standards or DASI.

TRACK- The actual flight path of an aircraft over the surface of the earth.

(See COURSE.)

(See FLIGHT PATH.)

(See ROUTE.)

(See ICAO term TRACK.)

TRACK [ICAO]- The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (True, Magnetic, or Grid).

TRACK OF INTEREST (TOI)- Displayed data representing an airborne object that threatens or has the potential to threaten North America or National Security. Indicators may include, but are not limited to: noncompliance with air traffic control instructions or aviation regulations; extended loss of communications; unusual transmissions or unusual flight behavior; unauthorized intrusion into controlled airspace or an ADIZ; noncompliance with issued flight restrictions/security procedures; or unlawful interference with airborne flight crews, up to and including hijack. In certain circumstances, an object may become a TOI based on specific and credible intelligence pertaining to that particular aircraft/object, its passengers, or its cargo.

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BRIEFING GUIDE



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

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

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1. PARAGRAPH NUMBER AND TITLE: 2-4-20. AIRCRAFT IDENTIFICATION

2. BACKGROUND: NORAD no longer requires a specific 2-letter call sign. This requirement was tied to a particular piece of equipment that is no longer used. NORAD interceptors now use standard Air Force tactical call signs

3. CHANGE:

<u>OLD</u>	<u>NEW</u>
2-4-20. AIRCRAFT IDENTIFICATION	2-4-20. AIRCRAFT IDENTIFICATION
title through a6(h)2EXAMPLE-	No Change
(i) <u>NORAD interceptors. An assigned double letter 2-digit flight number.</u>	Delete
<u>EXAMPLE-</u> <u>“Alfa Kilo One Five.”</u>	Delete

1. PARAGRAPH NUMBER AND TITLE: 2-6-4. WEATHER AND CHAFF SERVICES

2. BACKGROUND: Mandatory phraseology that ATC must use when issuing weather information to pilots is cumbersome.

3. CHANGE:

<u>OLD</u>	<u>NEW</u>
2-6-4. WEATHER AND CHAFF SERVICES	2-6-4. WEATHER AND CHAFF SERVICES
title through d4NOTE-	No Change
PHRASEOLOGY- <i>(Intensity) PRECIPITATION BETWEEN (number) O’CLOCK AND (number) O’CLOCK, (number) MILES. MOVING (direction) AT (number) KNOTS, TOPS (altitude). <u>PRECIPITATION AREA IS (number) MILES IN DIAMETER.</u></i>	PHRASEOLOGY- <i><u>AREA OF</u> (Intensity) PRECIPITATION BETWEEN (number) O’CLOCK AND (number) O’CLOCK, (number) MILES. MOVING (direction) AT (number) KNOTS, TOPS (altitude). PRECIPITATION AREA IS (number) MILES IN DIAMETER.</i>
EXAMPLE-	EXAMPLE-
1. “ <u>Extreme</u> precipitation between eleven o’clock and one o’clock, one zero miles moving east at two zero knots, tops flight level three niner zero.”	1. “ <u>Area of extreme</u> precipitation between eleven o’clock and one o’clock, one zero miles moving east at two zero knots, tops flight level three niner zero.”
2. “ <u>Heavy</u> precipitation between ten o’clock and two o’clock, one five miles. <u>Precipitation area</u> is two five miles in diameter.”	2. “ <u>Area of heavy</u> precipitation between ten o’clock and two o’clock, one five miles. <u>Area</u> is two five miles in diameter.”
3. “ <u>Heavy to Extreme</u> precipitation between ten o’clock and two o’clock, one five miles. <u>Precipitation area</u> is two five miles in diameter.”	3. “ <u>Area of heavy to extreme</u> precipitation between ten o’clock and two o’clock, one five miles. <u>Area</u> is two five miles in diameter.”
REFERENCE-	No Change
e	No Change
PHRASEOLOGY- <i>PRECIPITATION BETWEEN (number) O’CLOCK AND (number) O’CLOCK, (number) MILES. MOVING (direction) AT (number) KNOTS, TOPS (altitude), <u>PRECIPITATION AREA IS (number) MILES IN DIAMETER, INTENSITY UNKNOWN.</u></i>	PHRASEOLOGY- <i><u>AREA OF</u> PRECIPITATION BETWEEN (number) O’CLOCK AND (number) O’CLOCK, (number) MILES. MOVING (direction) AT (number) KNOTS, TOPS (altitude), <u>AREA IS (number) MILES IN DIAMETER, INTENSITY UNKNOWN.</u></i>

1. PARAGRAPH NUMBER AND TITLE: 3-1-8. LOW LEVEL WIND SHEAR/MICROBURST ADVISORIES

2. BACKGROUND: In 1988, the Federal Aviation Administration (FAA) directed that all commercial aircraft must install onboard wind shear detection systems by the end of 1993. These reactive wind shear systems process data from standard aircraft instruments to determine the presence of wind shear. The reactive system, therefore, only advises a pilot of a wind shear event, which allows an increase in engine power and possible escape of the hazard. Upon receiving an alert, the flight crew may opt to abort take-off, go-around, or perform a wind shear escape maneuver.

3. CHANGE:

OLD
3-1-8. LOW LEVEL WIND SHEAR/MICROBURST ADVISORIES

a. When low level wind shear/microburst is reported by pilots, Integrated Terminal Weather System (ITWS), or detected on wind shear detection systems such as LLWAS NE++, LLWAS-RS, WSP, or TDWR, controllers shall issue the alert to all arriving and departing aircraft. Continue the alert to aircraft until it is broadcast on the ATIS and pilots indicate they have received the appropriate ATIS code. A statement shall be included on the ATIS for 20 minutes following the last report or indication of the wind shear/microburst.

REFERENCE-

PHRASEOLOGY-

Add

Add

NEW
3-1-8. LOW LEVEL WIND SHEAR/MICROBURST ADVISORIES

a. When low level wind shear/microburst is reported by pilots, Integrated Terminal Weather System (ITWS), or detected on wind shear detection systems such as LLWAS NE++, LLWAS-RS, WSP, or TDWR, controllers **must** issue the alert to all arriving and departing aircraft. Continue the alert to aircraft until it is broadcast on the ATIS and pilots indicate they have received the appropriate ATIS code. A statement **must** be included on the ATIS for 20 minutes following the last report or indication of the wind shear/microburst.

Delete

No Change

NOTE-

Some aircraft are equipped with Predictive Wind Shear (PWS) alert systems that warn the flight crew of a potential wind shear up to 3 miles ahead and 25 degrees either side of the aircraft heading at or below 1200' AGL. Pilot reports may include warnings received from PWS systems.

REFERENCE-

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

FAAO JO 7110.65, Para 2-9-3, Content.

FAAO JO 7110.65, Para 3-10-1, Landing Information.

1. PARAGRAPH NUMBER AND TITLE: 3-10-5. LANDING CLEARANCE

2. BACKGROUND: Following a declared emergency (smoke indication) by a flight crew, the air traffic controller changed the assigned landing runway to the runway that emergency equipment responded to. The emergency flight crew read back the new runway assignment; however, due to increased tasks on the flight deck, this change was not understood and the flight crew continued their approach to the previously assigned runway. This phraseology was suggested in National Transportation Safety Board (NTSB) recommendation A-06-65 following this incident of miscommunication when the assigned landing runway is changed during an emergency arrival. This phraseology will help to clearly communicate a change.

3. CHANGE:

OLD
3-10-5. LANDING CLEARANCE

NEW
3-10-5. LANDING CLEARANCE

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

PHRASEOLOGY-
CLEARED TO LAND,

or

RUNWAY (designator) CLEARED TO LAND.

a. Issue landing clearance. Restate the landing runway whenever more than one runway is active or an instrument approach is being conducted to a closed runway. **If the landing runway is changed, controllers must preface the landing clearance with “Change to runway.”**

PHRASEOLOGY-
CLEARED TO LAND,

or

RUNWAY (designator) CLEARED TO LAND.

or

CHANGE TO RUNWAY (designator) CLEARED TO LAND.

1. PARAGRAPH NUMBER AND TITLE: 5-2-10. BEACON CODE FOR PRESSURE SUIT FLIGHTS AND FLIGHTS ABOVE FL600

2. BACKGROUND: Certain beacon codes are reserved for use by R-71, F-12, U-2, B-57, pressure suit flights, and aircraft operations above FL 600.

3. CHANGE:

OLD

5-2-10. BEACON CODE FOR PRESSURE SUIT FLIGHTS AND FLIGHTS ABOVE FL600

a. Mode 3/A, **Code 4400**, and discrete **Codes 4401 through 4477** are reserved for use by R-71, F-12, U-2, B-57, pressure suit flights, and aircraft operations above FL 600.

NEW

5-2-10. BEACON CODE FOR PRESSURE SUIT FLIGHTS AND FLIGHTS ABOVE FL600

a. Mode 3/A, **Code 4400**, and discrete **Codes 4440 through 4465** are reserved for use by R-71, F-12, U-2, B-57, pressure suit flights, and aircraft operations above FL 600.

1. PARAGRAPH NUMBER AND TITLE: 5-3-4. TERMINAL AUTOMATION SYSTEMS IDENTIFICATION METHODS

2. BACKGROUND: The Operations Review Team at Birmingham ATCT (BHM) discovered a discrepancy in FAAO JO 7110.65 revealing the high probability that a National Airspace System (NAS) automated system term, “TRK,” used in conduct of aircraft identification in terminal automated systems, was omitted from paragraph 5-3-4a(2). BHM operates in airspace to the south near Montgomery TRACON (MGM) where there is no terminal short-range radar coverage below 5,000 feet. One of the long-range radar sites continues to track aircraft; therefore, the aircraft data block displays “TRK” on the BHM Standard Terminal Automation Radar System (STARS) display. During automated handoffs there is confusion whether the auto-acquired aircraft track is or is not legitimately identified due to discrepancies between Paragraph 5-4-5j, Transferring Controller Handoff, Paragraph 5-4-6g, Receiving Controller Handoff, and Paragraph 5-5-4f(Note 2), Minima. The BHM Operations Review Team forwarded their concern to the Eastern Service Area, who in turn forwarded it to Terminal Safety and Operations Support (TSOS). TSOS is taking the necessary action(s) to correct this deficiency.

3. CHANGE:

OLD

5-3-4. TERMINAL AUTOMATION SYSTEMS IDENTIFICATION METHODS

NEW

5-3-4. TERMINAL AUTOMATION SYSTEMS IDENTIFICATION METHODS

title through a1

No Change

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

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

1. PARAGRAPH NUMBER AND TITLE: 5-4-5. TRANSFERRING CONTROLLER HANDOFF

2. BACKGROUND: The Operations Review Team at Birmingham ATCT (BHM) discovered a discrepancy in FAAO JO 7110.65 revealing the high probability that a National Airspace System (NAS) automated system term, “TRK,” used in conduct of aircraft identification in terminal automated systems, was omitted from paragraph 5-4-5j. BHM operates in airspace to the south near Montgomery TRACON (MGM) where there is no terminal short-range radar coverage below 5,000 feet. One of the long-range radar sites continues to track aircraft; therefore, the aircraft data block displays “TRK” on the BHM Standard Terminal Automation Radar System (STARS) display. During automated handoffs, there is confusion whether the auto-acquired aircraft track is or is not legitimately identified due to discrepancies between Paragraph 5-3-4a(2), Terminal Automation System Identification Methods, Paragraph 5-4-6g, Receiving Controller Handoff and Paragraph 5-5-4d(Note 2), Minima. The BHM Operations Review Team forwarded their concern to the Eastern Service Area, who in turn forwarded it to Terminal Safety and Operations Support (TSOS). TSOS is taking the necessary action(s) to correct this deficiency.

3. CHANGE:

OLD

NEW

5-4-5. TRANSFERRING CONTROLLER HANDOFF

5-4-5. TRANSFERRING CONTROLLER HANDOFF

title through i

No Change

j. Initiate verbal coordination before transferring control of a track when “CST,” “FAIL,” “NONE,” “NB,” “NX,” “IF,” or “NT” is displayed in the data block.

j. Initiate verbal coordination before transferring control of a track when “CST,” “FAIL,” “NONE,” “NB,” “NX,” “IF,” “NT” , or “**TRK**” is displayed in the data block.

1. PARAGRAPH NUMBER AND TITLE: 5-4-6. RECEIVING CONTROLLER HANDOFF

2. BACKGROUND: The Operations Review Team at Birmingham ATCT (BHM) discovered a discrepancy in FAAO JO 7110.65 revealing the high probability that a National Airspace System (NAS) automated system term, “TRK,” used in conduct of aircraft identification in terminal automated systems, was omitted from paragraph 5-4-6g and 5-4-6g(2). BHM operates in airspace to the south near Montgomery TRACON (MGM) where there is no terminal short-range radar coverage below 5,000 feet. One of the longrange radar sites continues to track aircraft; therefore, the aircraft data blocks displays “TRK” on the BHM Standard Terminal Automation Radar System (STARS) display. During automated handoffs there is confusion whether the auto-acquired aircraft track is or is not legitimately identified due to discrepancies between Paragraph 5-3-4a(2), Terminal Automation Systems Identification Methods, Paragraph 5-4-5j, Transferring Controller Handoff, and Paragraph 5-5-4f(Note 2) Minima. The BHM Operations Review Team forwarded their concern to Eastern Service Area, who in turn forwarded it to Terminal Safety and Operations Support (TSOS). TSOS is taking the necessary action(s) to correct this deficiency.

3. CHANGE:

OLD

NEW

5-4-6. RECEIVING CONTROLLER HANDOFF

5-4-6. RECEIVING CONTROLLER HANDOFF

title through f3

No Change

g. Initiate verbal coordination prior to accepting control of a track when “CST,” “NAT,” “NT,” “NONE,” “NB,” “NX,” “OLD,” “OL,” “AMB,” “AM,” or “TU” is displayed in the data block.

g. Initiate verbal coordination prior to accepting control of a track when “CST,” “NAT,” “NT,” “NONE,” “NB,” “NX,” “OLD,” “OL,” “AMB,” “AM,” “TU”, or “**TRK**” is displayed in the data block.

1

No Change

2. When an automated interfacility handoff action is initiated and “NAT,” “NT,” or “TU” is displayed in the full data block, advise the other facility if a disparity exists between the position declared by their computer and the actual target position.

2. When an automated inter-facility handoff action is initiated and “NAT,” “NT,” “TU”, or “**TRK**” is displayed in the full data block, advise the other facility if a disparity exists between the position declared by their computer and the actual target position.

1. PARAGRAPH NUMBER AND TITLE: 7-9-4. SEPARATION

2. BACKGROUND: The characteristics of the Osprey (V22) is listed in Appendix B, Aircraft Information Helicopters/Rotorcrafts of the FAAO JO 7110.65S. Controllers could possibly interpret that the Osprey be treated as a helicopter for the application of Class Bravo airspace separation standards. The Osprey’s same runway separation (SRS) category is “II” and weighs more than 19,000 pounds. In Bravo airspace, the separation requirements between all SRS “I” and “II” aircraft weighing 19,000 pounds or less is target resolution. To avoid any misinterpretation, the Osprey is to be considered a fixed-wing aircraft for the application of Bravo airspace separation requirements.

3. CHANGE:

OLD

NEW

7-9-4. SEPARATION

7-9-4. SEPARATION

title through a

No Change

b. VFR aircraft shall be separated from VFR/IFR aircraft that weigh more than 19,000 pounds and turbojets by no less than:

b. VFR aircraft must be separated from VFR/IFR aircraft that weigh more than 19,000 pounds and turbojets by no less than:

1 through 3~~NOTE-~~

No Change

Add

c. For the application of Class Bravo airspace separation requirements, the V-22 Osprey must be treated as a fixed-wing aircraft. It is an SRS Category II aircraft but weighs more than 19,000 pounds. The V-22 Osprey must be separated from VFR/IFR aircraft by minimum identified in subparagraph b above.

c. VFR aircraft shall be separated from all VFR/IFR aircraft which weigh 19,000 pounds or less by a minimum of:

d. VFR aircraft must be separated from all VFR/IFR aircraft which weigh 19,000 pounds or less by a minimum of:

1. PARAGRAPH NUMBER AND TITLE: 9-2-11. SECURITY NOTICE

2. BACKGROUND: The FAA has found it necessary to increase security measures within the National Airspace System. The special flight rules area (SFRA) is one of the recent security related changes. Aircraft that enter an SFRA or temporary

flight restriction (TFR) without proper approval may be intercepted by DOD aircraft. Pilots of the noncompliant aircraft are subject to regulatory and or legal action. Recent events have highlighted the fact that the FAA has no adequate way to search for aircraft that have violated national security procedures. The security notice process provides a tool that will enable the FAA to locate aircraft that violate national security measures.

3. CHANGE:

<u>OLD</u>	<u>NEW</u>
Add	<u>9-2-11. SECURITY NOTICE (SECNOT)</u>
Add	<u>Upon receiving notification of a SECNOT, the controller must forward all information on the subject aircraft to the FLM/CIC. If information is not known, broadcast call sign on all frequencies and advise the FLM/CIC of the response.</u>
Add	<u>REFERENCE-</u> <u>P/CG Term - Security Notice.</u> <u>FAAO JO 7210.3, Chapter 19, Section 9, Security Notice (SECNOT).</u>
9-2-<u>11</u> through 9-2-<u>21</u>	Renumbered 9-2-<u>12</u> through 9-2-<u>22</u>

1. PARAGRAPH NUMBER AND TITLE: APPENDIX A. Aircraft Information Fixed-Wing Aircraft

2. BACKGROUND: Appendix A is being revised to harmonize FAA weight category standards with those of the International Civil Aviation Organization (ICAO). All aircraft with a maximum certificated takeoff weight of more than 41,000 pounds but less than 300,000 pounds maximum certificated takeoff weight will now be classified as a “Large” aircraft according to FAA standards. Aircraft with a maximum certificated takeoff weight of 300,000 pounds or more will now be classified as a “Heavy” aircraft according to FAA and ICAO weight classification standards.

This change reclassifies all B757 aircraft as “Large” aircraft; however, controllers are required to apply the special wake turbulence separation criteria as specified in paragraph 5-5-4. This change cancels and incorporates N JO 7110.525, Appendix A, Aircraft Information Fixed-Wing Aircraft, effective April 8, 2010.

3. CHANGE:

<u>OLD</u>	<u>NEW</u>
Appendix A. Aircraft Information Fixed-Wing Aircraft	Appendix A. Aircraft Information Fixed-Wing Aircraft
title through AIRCRAFT WEIGHT CLASSES	No Change
a. Heavy. Aircraft capable of takeoff weights of <u>more than 255,000 pounds</u> whether or not they are operating at this weight during a particular phase of flight.	a. Heavy. Aircraft capable of takeoff weights of <u>300,000 pounds or more</u> 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 <u>255,000 pounds</u>.	b. Large. Aircraft of more than 41,000 pounds, maximum certificated takeoff weight, up to <u>but not including 300,000 pounds</u>.

OLD**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.
Title through 747SP			No Change			
757-200 (C-32)	B752	2J/L	3,500	2,500	III	7
757-300	B753	2J/H	3,500	2,500	III	8

NEW**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.
Title through 747SP			No Change			
757-200 (C-32)	B752	2J/L	3,500	2,500	III	7
757-300	B753	2J/L	3,500	2,500	III	8

