U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Air Traffic Organization Policy

ORDER
JO 7110.10X

Effective Date:
April 3, 2014

SUBJ: Flight Services

This order prescribes air traffic control procedures and phraseology for use by personnel 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 judgment if they encounter situations not covered by it.

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Initiated By: AJV-0
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RECORD OF CHANGES

DIRECTIVE NO. JO 7110.10X

CHANGE TO BASIC	SUPPLEMENTS			OPTIONAL	CHANGE TO BASIC	SUPPLEMENTS			OPTIONAL

Flight Services
Explanation of Changes
Basic

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

a. 2–1–2. SPEECH RATE AND PHRASEOLOGY

This change amends FAA Order JO 7110.10, paragraph 2-1-2 in response to an update to the FAA Order JO 7210.3, Facility Operations, paragraph 10-4-1.c in 2012.

b. 6–2–5. SUFFIX TO AIRCRAFT TYPE TBL 6–2–5

This change eliminates use of the /R and /Q suffixes and provides guidance for positive identification of GNSS–equipped aircraft. This change cancels and incorporates N JO 7110.640 Global Navigation Satellite System (GNSS) Equipped Aircraft Operating on Random and Random (Impromptu)Routes, effective October 24, 2013

c. 9–5–2. AREA FORECAST (FA) SCHEDULE

This change is proposed in response to NWS Technical Implementation Notice 13-21. The change will be reflected in FAA JO 7110.10 paragraph 9-5-2. The paragraph will now state that the Alaska Area Forecasts will be issued three times a day effective October 15, 2013. Concurrently, Table 9-5-2 will be updated to reflect the new issuance times for NWS Alaska Area Forecasts.

d. 9–7–1. GENERAL - TBL 9-7-1

This change is proposed to Table 9-7-1 is needed to reflect the new issuance times for NWS Alaska Airmets which are scheduled for 615 am, 1215 pm, 615pm and 1215am local time.

e. Entire Publication

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

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Chapter 1. General

Section 1. Introduction

1–1–1. PURPOSE OF THIS ORDER

This order prescribes procedures and phraseology for use by air traffic personnel providing flight services. Flight service specialists 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.

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 7110.10W, Flight Services, dated March 7, 2013, 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. If further information is desired, direct questions through the appropriate facility/service area office staff to Flight Services Safety and Operations Policy Group.

1–1–6. SUBMISSION CUTOFF AND EFFECTIVE DATES

This order and its changes are scheduled to be published to coincide with AIRAC dates. The effective dates will be:

Publication Schedule		
Basic or Change	Cutoff Date for Submission	Effective Date of Publication
JO 7110.10X	8/22/13	4/3/14
Change 1	4/3/14	7/24/14
Change 2	7/24/14	3/5/15
Change 3	3/5/15	8/20/15
JO 7110.10Y	8/20/15	2/4/16

1–1–7. DELIVERY DATES

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

1–1–8. RECOMMENDATION FOR PROCEDURAL CHANGES

Any changes to this order must be submitted to the VP, Mission Support Services, attn.: ATC Procedures Office, AJV-11:

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.

c. Procedural changes will not be made to this order until the operational system software has been adapted to accomplish the revised procedures.

1–1–9. SUBSCRIPTION INFORMATION

This publication may be purchased from the U.S. Government Printing Office. Address subscription inquiries to:

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1–1–10. DISTRIBUTION

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

Section 2. Terms of Reference

1–2–1. WORD MEANINGS

As used in this order:

a. "Must" means a procedure is mandatory.

b. "Should" means a procedure is recommended.

c. "May" or "need not" means a procedure is optional.

d. "Will" means futurity, not a requirement for application of a procedure.

e. "Must not" means a procedure is prohibited.

f. Singular words include the plural.

g. Plural words include the singular.

h. "Aircraft" means the airframe, crew members, or both.

i. "Altitude" means indicated altitude mean sea level (MSL), flight level (FL), or both.

j. "Miles" means nautical miles unless otherwise specified and means statute miles in conjunction with visibility.

k. "Time," when used for ATC operational activities, is the hour and the minute/s in Coordinated Universal Time (UTC). Change to the next minute is made at the minute plus 30 seconds, except time checks are given to the nearest quarter minute. The word "local" or the time zone equivalent must be stated when local time is given during radio and telephone communications. The term "ZULU" may be used to denote UTC.

l. "Sector," when used in conjunction with flight service station (FSS) functions, means a specifically described geographic area that is assigned a National Airspace Data Interchange Network (NADIN) address.

m. "Tie–in facility," as indicated in FAA Order JO 7350.8, Location Identifiers, for the purposes of this order, designates the responsible facility/sector for sending/receiving flight plans, flight notification messages, and performing search and rescue duties for the listed location.

n. "Shared database" is a database within an FSS operational system that is accessible by specialists in other geographical locations.

o. "Transmit" means to send data via NADIN or Weather Message Switching Center Replacement (WMSCR) to an outside recipient or to process data internally within an operational system that shares a global database.

p. "Form" means a paper record or an automated equivalent. Both must be retained in accordance with FAA directives.

q. "History files" means one or more digital or paper repositories of data that must be retained in accordance with FAA directives.

r. "Pertinent" means relating directly and significantly to the matter at hand.

1–2–2. NOTES

Statements of fact or of an explanatory nature and relating to the use of directive material have been identified and worded as "Notes."

1–2–3. EXAMPLES

Any illustration used which serves to explain subject material is identified as an "Example."

1–2–4. PHRASEOLOGY

Phraseology depicted in this order is mandatory.

NOTE–
Exceptions to this paragraph are referenced in para 5-1-1. Emergency Determination

1–2–5. ABBREVIAITONS

Abbreviations authorized for use in the application of the procedures in this order are those contained in FAA Order JO 7340.2, Contractions.

1–2–6. JO 7110.10 CHANGES

a. Each reprinted, revised, or additional page will show the change number and the effective date of the change.

b. Bold lines in the margin of the text will mark the location of all changes except editorial corrections.

1–2–7. SYSTEM INSTRUCTIONS

Different operational systems are used to provide flight services within the United States. Each individual operational system must have instructions in the form of a user's manual or guide, either electronically or in paper form, that provide the necessary steps to accomplish the requirements set forth in this order.

Where databases are shared, local procedures may be used to facilitate the handling of flight data across the flight plan area boundaries.

Section 3. Responsibility

1–3–1. PROCEDURAL APPLICATIONS

Apply the procedures in this order, except when other procedures are contained in a letter of agreement (LOA) or other appropriate FAA documents, provided they only supplement this order and any standards they specify are not less than those in this order.

NOTE–

1. *Pilots are required to abide by applicable provisions of 14 Code of Federal Regulations (14 CFR) or any other pertinent regulations regardless of the application of any procedure in this order.*

2. *FAA Order JO 7210.3, Facility Operation and Administration, contains administrative instructions pertaining to these letters and documents.*

1–3–2. DUTY PRIORITY

Because there are many variables involved, it is impossible to provide a standard list of duty priorities that apply to every situation. Each set of circumstances must be evaluated on its own merit, and when more than one action is required, personnel must exercise their best judgment based on the facts and circumstances known to them. Action which appears most critical from a safety standpoint should be performed first.

a. The following order of duty priorities is offered as a guideline.

1. Emergency Situations. Emergency situations are those where life or property is in immediate danger.

2. Inflight Services. Inflight services are those provided to or affecting aircraft in flight or otherwise operating on the airport surface. This includes services to airborne aircraft, airport advisories, delivery of air traffic control (ATC) clearances, advisories or requests, issuance of military flight advisory messages, en route flight advisory service (EFAS), notices to airmen (NOTAM), search and rescue (SAR) communications searches, flight plan handling, transcribed or live broadcasts, weather observations, pilot weather reports (PIREP), and pilot briefings.

3. Preflight Services. Preflight services are those which directly affect aircraft operations but which are provided prior to actual departure and usually by telephone. These include pilot briefings, recorded data, flight plan filing/processing, and aircraft operational reservations.

1–3–3. DUTY FAMILIARIZATION AND TRANSFER OF POSITION RESPONSIBILITY

The transfer of position responsibility must be accomplished in accordance with appropriate facility directives each time the operational responsibility for a position is transferred from one specialist to another. The relieving specialist and the specialist being relieved must share equal responsibility for the completeness and accuracy of the position relief briefing.

a. *Purpose*. This paragraph prescribes the method and the step-by-step process for conducting a position relief briefing and transferring position responsibility from one specialist to another.

b. *Discussion.*

1. In all operational facilities, the increase in traffic density and the need for the expeditious movement of air traffic without compromising safety have emphasized the importance of the position relief process. Major problems occur whenever there is a heavy reliance upon memory unsupported by routines or systematic reminders. This procedure addresses the complete task of transferring position responsibility and the associated relief briefing.

2. Position relief unavoidably provides added workload for specialists at the time of relief. The intent of this procedure is to make the transfer of position responsibility take place smoothly and to ensure a complete transfer of information with a minimum amount of workload. The method takes advantage of a self-briefing concept in which the relieving specialist obtains needed status information by reading from the Status Information Areas to begin the relief process. Up-to-the-minute information relating to the provision of flight services to pilots and aircraft in flight requires verbal exchanges between specialists during the relief process. The method also specifies the point when the transfer of position responsibility occurs.

3. In the final part of the relief process, the specialist being relieved monitors and reviews the position to ensure that nothing has been overlooked or incorrectly displayed and that the transfer of position responsibility occurred with a complete briefing.

c. *Terms.* The following terms are important for a complete understanding of this procedure:

1. Status Information Areas. Manual or automated displays of the current status of position–related equipment and operational conditions or procedures.

2. Written Notes. Manually recorded items of information kept at designated locations on the positions of operation are elements of Status Information Areas.

3. Checklist. An ordered listing of items to be covered in a position relief briefing.

d. *Precautions.*

1. Specialists involved in the position relief process should not rush or be influenced to rush.

2. During position operation, each item of status information which is or may be an operational factor for the relieving specialist should be recorded as soon as it is operationally feasible so that it will not be forgotten or incorrectly recorded.

3. Extra care should be taken when more than one specialist relieves or is being relieved from a position at the same time; for example, combining or decombining positions.

e. *Responsibilities.* The specialist being relieved must be responsible for ensuring that any pertinent status information of which he/she is aware is relayed to the relieving specialist and is either:

1. Accurately displayed in the Status Information Areas for which he/she has responsibility, or

2. Relayed to the position having responsibility for accurately displaying the status information. Prior to accepting responsibility for a position, the relieving specialist must be responsible for ensuring that any unresolved questions pertaining to the operation of the position are resolved. The specialists engaged in a position relief must conduct the relief process at the position being relieved, unless other procedures have been established and authorized by the facility air traffic manager.

f. *Step–By–Step Process of Position Relief.*

1. Preview of the Position

RELIEVING SPECIALIST

(a) Follow the checklist and review the Status Information Areas.

NOTE–
This substep may be replaced by an authorized preduty briefing provided an equivalent review of checklist items is accomplished.

(b) Observe position equipment, operational situation, and the work environment.

(c) Listen to voice communications and observe other operational actions.

(d) Observe current and pending aircraft and vehicular traffic and correlate with flight and other movement information.

(e) Indicate to the specialist being relieved that the position has been previewed and that the verbal briefing may begin.

NOTE–
Substeps (b), (c), and (d) may be conducted concurrently or in order.

2. Verbal Briefing

SPECIALIST BEING RELIEVED

(a) Review with the relieving specialist the checklist, Status Information Areas, written notes, and other prescribed sources of information, and advise of known omissions, updates, and inaccuracies. Also, brief the relieving specialist on the abnormal status of items not listed on the Status Information Areas, as well as on any items of special operational interest calling for verbal explanation or additional discussion.

(b) Brief on traffic, if applicable.

(c) Completely answer any questions asked.

(d) Observe overall position operation. If assistance is needed, provide or summon it as appropriate.

(e) Sign off the position in accordance with existing directives or otherwise indicate that the relief process is complete.

REFERENCE–
FAAO JO 7210.3, Para 2-2-4, Duty Familiarization and the Transfer of Position Responsibility
FAAO JO 7210.3, Para 2-2-6, Sign In/Out and On/Off Procedures

RELIEVING SPECIALIST

(f) Ask questions necessary to ensure a complete understanding of the operations situation.

(g) Make a statement or otherwise indicate to the specialist being relieved that position responsibility has been assumed.

(h) Sign on the position unless a facility directive authorizes substep (g) above.

(i) Check, verify, and update the information obtained in steps 1 and 2.

g. Check position equipment in accordance with existing directives.

Chapter 2. Broadcast Procedures

Section 1. General

2–1–1. TYPES OF BROADCASTS

Weather and flight information must be broadcast/recorded by one or more of the following categories:

a. Transcribed Weather Broadcast (TWEB). (Alaska only.)

b. Telephone Information Briefing Service (TIBS).

c. Hazardous Inflight Weather Advisory Service (HIWAS).

d. Automatic Flight Information Service (AFIS). (Alaska only.)

2–1–2. SPEECH RATE AND PHRASEOLOGY

a. Data must be spoken such that:

1. The speech rate is not excessive,

2. The enunciation is of the highest quality, and;

3. Each part of the message is easily understood.

b. Standardized procedures and phraseology to be used by FSS personnel and automated equipment are to be conducted in accordance with Chapter 12, Phraseology.

2–1–3. REDUCING RECORDED WEATHER INFORMATION SERVICES

Recorded weather information services (TWEB and TIBS) may be reduced during the hours of 1800-0600 local time only. Adjust full broadcast service times to coincide with daylight hours. When a broadcast period is reduced, record the time the broadcast will be resumed, and advise users to contact flight service for weather briefings and other services.

PHRASEOLOGY–

THE TIBS RECORDING IS SUSPENDED. REGULAR RECORDED WEATHER SERVICE WILL BE RESUMED AT (time) ZULU/ (time) LOCAL. FOR PILOT WEATHER BRIEFINGS AND OTHER SERVICES, CONTACT FLIGHT SERVICE (phone number or additional telephone instructions, as appropriate).

THE TWEB RECORDING IS SUSPENDED. REGULAR RECORDED WEATHER SERVICE WILL BE RESUMED AT (time) ZULU/ (time) LOCAL. FOR PILOT WEATHER BRIEFING AND OTHER SERVICES CONTACT FLIGHT SERVICE (frequency or phone number, as appropriate).

2–1–4. CURRENT DATA

An aviation surface report is considered current for 1 hour beyond the standard time of observation (H+00) unless superseded by a special or local observation or by the next hourly report. Do not broadcast obsolete data.

2–1–5. AUTOMATED BROADCAST

Most broadcasts are automated products that are available 24 hours a day. The products must adhere to the requirements of this chapter. Specialists are responsible for monitoring the product for accuracy, speech rate, and proper enunciation before it is transmitted.

Section 2. Transcribed Weather Broadcasts (TWEB) (Alaska Only)

2–2–1. GENERAL

a. Transcribed weather broadcast service provides continuous aeronautical and meteorological information on low or medium frequency (L/MF) and very high frequency omnidirectional range (VOR) facilities.

b. At TWEB equipment locations controlling two or more VORs, the one used least for ground–to–air communications, preferably the nearest VOR, may be used as a TWEB outlet simultaneously with the nondirectional radio beacon (NDB) facility. Where this is accomplished, capability to manually override the broadcast must be provided for emergency communications.

2–2–2. CONTENT

The sequence, source, and content of transcribed broadcast material must be:

a. Introduction. State the location and preparation time.

PHRASEOLOGY–
(location) TRANSCRIBED AVIATION WEATHER BROADCAST PREPARED AT (time) ZULU.

b. Adverse Conditions. Extracted from convective significant meteorological information (SIGMET) (WST), SIGMET (WS), Airmen's Meteorological Information (AIRMET), AIRMET (WA), Center Weather Advisory (CWA), and Alert Weather Watch (AWW).

PHRASEOLOGY–
WEATHER ADVISORIES ARE IN EFFECT FOR (adverse conditions) OVER (geographical area) (list weather advisories only, no text).

c. Synopsis. A brief statement describing the type, location, and movement of weather systems and/or masses which might affect the route or the area.

d. Terminal Forecasts. Include the valid time of forecast.

PHRASEOLOGY–
TERMINAL FORECAST FOR (location) VALID UNTIL (time) ZULU.

e. Winds Aloft Forecast. Broadcast winds aloft forecast for the location nearest to the TWEB. The broadcast should include the levels from 3,000 to 12,000 feet but must always include at least two forecast levels above the surface.

PHRASEOLOGY–
WINDS ALOFT FORECAST VALID UNTIL (time) ZULU. (Location) (Altitude) (direction) AT (speed).

f. Surface Weather Reports. Record surface reports as described in paragraph 12-1-8, Weather Phraseology.

1. Broadcast local reports first, then broadcast the remainder of the reports beginning with the first station east of true north and continuing clockwise around the TWEB location.

2. Announce the location name of a surface report once.

(a) Surface weather broadcast introduction:

PHRASEOLOGY–
(Location name) AVIATION WEATHER, (4 digits of time), ZULU OBSERVATIONS.

(b) Special weather reports:

PHRASEOLOGY–
(Location name) SPECIAL REPORT (last 2 digits of time) OBSERVATION, (weather report).

g. Density Altitude. Include temperature and the statement "Check Density Altitude" as part of the surface weather broadcast for any station with a field elevation of 2,000 feet MSL or above that meets the following criteria: (See TBL 2–2–1.)

TBL 2–2–1
Density Altitude

Field Elevation	*Temperature (C)*
2,000–2,999	29 degrees or higher
3,000–3,999	27 degrees or higher
4,000–4,999	24 degrees or higher
5,000–5,999	21 degrees or higher
6,000–6,999	18 degrees or higher
7,000–higher	16 degrees or higher

h. PILOT WEATHER REPORTS

Summarize PIREPs and, if the weather conditions meet solicitation requirements, append a request for PIREPs.

PHRASEOLOGY–
PILOT REPORT OF WEATHER CONDITIONS AT (text).

i. Alert Notice (ALNOT) Alert Announcement, if applicable.

PHRASEOLOGY–
OVERDUE AIRCRAFT ALERT, (time) ZULU (aircraft identification), (color), (type), DEPARTED (airport) VIA (route), (destination). LAST KNOWN POSITION (state last known position). THIS AIRCRAFT IS OVERDUE. ALL AIRCRAFT ARE REQUESTED TO MONITOR ONE TWO ONE POINT FIVE FOR E–L–T SIGNAL. INFORM THE NEAREST F–A–A FACILITY OF ANY INFORMATION REGARDING THIS AIRCRAFT.

j. Closing statement.

PHRASEOLOGY–
PILOT WEATHER REPORTS ARE REQUESTED. FOR NOTAM, MILITARY TRAINING ACTIVITY, OR OTHER SERVICES, CONTACT A FLIGHT SERVICE STATION.

2–2–3. TESTING TWEB EQUIPMENT

When TWEB equipment is to be tested, broadcast an advisory to this effect. Ensure no obsolete information is broadcast during a testing period.

2–2–4. SERVICE MAY BE SUSPENDED

TWEB service may be suspended:

a. For routine maintenance only during periods when weather conditions within 100 miles of the broadcast outlet are equal to or better than a ceiling of 3,000 feet and visibility of 5 miles.

b. When the equipment fails. If a malfunction occurs in the recording or control unit but the tape transport unit remains operative, continue broadcasting current data. Remove data as it becomes obsolete.

2–2–5. MONITORING

a. At TWEB equipment locations, listen to at least one complete TWEB cycle each hour. Check for completeness, accuracy, speech rate, and proper enunciation. Correct any noted irregularities.

b. If practical:

1. The control facility must monitor the transmissions through local outlet.

2. The FSS associated with a remote outlet must monitor the transmissions for a sufficient period each hour to assure voice quality and clarity.

c. Promptly correct or inform the TWEB facility of any irregularities.

Section 3. Telephone Information Briefing Service (TIBS)

2–3–1. GENERAL

a. TIBS provides a continuous telephone recording of meteorological and/or aeronautical information.

1. TIBS must contain:

(a) Area and/or route briefings.

(b) Airspace procedures, if applicable.

(c) Special announcements, if applicable.

2. TIBS should also contain, but not be limited to:

(a) Surface observations (METAR).

(b) Terminal forecasts (TAF).

(c) Winds/temperatures aloft forecasts.

NOTE–
User needs should dictate the content of these recordings.

b. Each FSS sector/flight plan area must provide at least four route and/or area weather briefings. As a minimum, area briefings should encompass a 50 NM radius. Each briefing should require the pilot to access no more than two channels which must be route and/or area specific.

c. Separate channels must be designated for each route area, local meteorological/aeronautical information, special event, airspace procedures, etc.

EXAMPLE–
11 Northeast Michigan
12 Southeast Michigan
13 Southwest Michigan
14 Northwest Michigan including the Upper Peninsula
19 Aviation Events

2–3–2. AREA/ROUTE BRIEFING PROCEDURES

Service is provided 24 hours a day, but may be reduced in accordance with paragraph 2–1–3. Recorded information must be updated as conditions change.

a. Introduction. State the preparation time and the route and/or the area of coverage. The service area may be configured to meet the individual facility's needs; for example, 50 NM radius, route oriented.

NOTE–
For the purpose of TIBS broadcasts, an area briefing may be a geographic location not defined by a nautical mile radius, for example, NORTHWEST NEBRASKA.

PHRASEOLOGY–
THIS RECORDING PREPARED AT (time) LOCAL or (time) ZULU. BRIEFING SUMMARY FOR: A (number of miles) NAUTICAL MILE RADIUS OF (location),

or (location not defined by nautical mile radius),

or THE ROUTE FROM (location) TO (location).

b. Weather Advisories. Include WST, WS, WA, CWA, AWW, urgent PIREP (UUA), and any other available meteorological information that may adversely affect flight in the route/area.

PHRASEOLOGY–
WEATHER ADVISORIES ARE IN EFFECT FOR (adverse conditions) OVER (geographic area) (text).

c. VFR Not Recommended (VNR) Statement. Include this recommendation when current or forecast conditions, surface or aloft, would make flight under visual flight rules doubtful.

PHRASEOLOGY–
V–F–RFLIGHT NOT RECOMMENDED (location) DUE TO (conditions).

d. Synopsis. A brief statement describing the type, location, and movement of weather systems and/or masses which might affect the route or the area. This element may be combined with adverse conditions and/or the VNR element, in any order, when it will help to more clearly describe conditions.

e. Current Conditions. Include current weather conditions over the route/area and PIREPs on conditions reported aloft.

NOTE–
When communicating weather information on the TIBS broadcast or telephone, specialists may announce cloud heights in either group form or in hundreds or thousands of feet, such as, "seventeen-thousand" or "one-seven-thousand."

f. Density Altitude. Include the statement "Check Density Altitude" as part of the surface weather

broadcast for any weather reporting point with a field elevation of 2,000 feet MSL or above that reaches the criteria found in TBL 2−2−1.

g. En Route Forecast. Include forecast information from appropriate data; for example, area forecast (FA) synopsis, terminal aerodrome forecast (TAFs), and weather advisories.

h. Winds Aloft. Include winds aloft as forecast for the route/area as interpolated from forecast data for the local and/or the adjacent reporting locations for levels through 12,000 feet. The broadcast should include the levels from 3,000 to 12,000 feet, but must always include at least two forecast levels above the surface.

i. Request for PIREPs. When weather conditions within the area or along the route meet requirements for soliciting PIREPs (paragraph 9-2-5), include a request in the recording.

PHRASEOLOGY−
PILOT WEATHER REPORTS ARE REQUESTED. CONTACT FLIGHT WATCH or FLIGHT SERVICE, as appropriate.

j. Closing Announcement. The closing announcement must provide instructions for contacting a pilot briefer for NOTAMs, military training activity, or other information.

2−3−3. MONITORING

a. Manually prepared recordings must be monitored immediately after recording to insure accuracy of data and availability by calling 1−800−WX−BRIEF.

b. Automated TIBS products and non-meteorological recordings must be monitored once each shift to ensure clarity and accuracy.

Section 4. Hazardous Inflight Weather Advisory Service (HIWAS)

2–4–1. GENERAL

a. Hazardous Inflight Weather Advisory Service (HIWAS), available in the 48 contiguous states and the District of Columbia, is a continuous broadcast of inflight weather advisories including AWWs, WSs, WSTs, CWAs, WAs, and UUAs.

b. HIWAS broadcast areas are defined as the area within 150 NM of a HIWAS outlet.

2–4–2. PRIORITY

HIWAS broadcasts must not be interrupted/delayed except for emergency situations, when an aircraft requires immediate attention, or for reasonable use of the voice override capability on specific HIWAS outlets in order to use the limited Remote Communication Outlet (RCO) to maintain en route communications. The service must be provided 24 hours a day.

a. Make the following announcement if there are no hazardous weather advisories in the HIWAS broadcast area. Update the announcement at least every 2 hours.

PHRASEOLOGY–
THIS RECORDING PREPARED AT (time) ZULU. THERE ARE NO HAZARDOUS WEATHER ADVISORIES WITHIN A ONE-FIVE-ZERO NAUTICAL MILE RADIUS OF THIS HIWAS OUTLET.

b. Complete the update recording as soon as practical, but not more than 15 minutes from time of receipt of new hazardous weather information.

2–4–3. CONTENT

Record hazardous weather information occurring within the HIWAS broadcast area. The broadcast must include the following elements:

a. Statement of introduction including the appropriate area(s) and a recording time.

PHRASEOLOGY–
HIWAS WITHIN A ONE–FIVE–ZERO NAUTICAL MILE RADIUS OF (geographic area) RECORDED AT (time) ZULU (text).

NOTE–
Border facilities must append "in domestic U.S. airspace" to the geographical area text in the introduction statement.

b. Statement of hazardous weather, including WSTs, WSs, WAs, UUAs, AWWs, and CWAs.

c. Request for PIREPs, if applicable. (See paragraph 9–2–5, Soliciting PIREPs.)

PHRASEOLOGY–
PILOT WEATHER REPORTS ARE REQUESTED.

d. Recommendation to contact Flight Watch or Flight Service for additional details concerning hazardous weather.

PHRASEOLOGY–
CONTACT FLIGHT WATCH or FLIGHT SERVICE, as appropriate , FOR ADDITIONAL DETAILS.

2–4–4. BROADCAST PROCEDURES

a. Upon receipt of new hazardous weather information:

1. Update the HIWAS broadcast.

2. Make a HIWAS update announcement once on all communications/navigational aid (NAVAID) frequencies except on emergency, EFAS, and navigational frequencies already dedicated to continuous broadcast services. Delete reference to Flight Watch when those services are closed.

PHRASEOLOGY–
ATTENTION ALL AIRCRAFT, HAZARDOUS WEATHER ADVISORY UPDATE FOR (geographical area) IS AVAILABLE ON HIWAS, OR CONTACT FLIGHT WATCH, or FLIGHT SERVICE, as appropriate.

b. In the event that a HIWAS broadcast area is out of service, make the following announcement on all communications/NAVAID frequencies except on emergency, EFAS, and navigational frequencies already dedicated to continuous broadcast services:

PHRASEOLOGY–
ATTENTION ALL AIRCRAFT, HAZARDOUS WEATHER ADVISORY UPDATE IS AVAILABLE FROM FLIGHT WATCH or FLIGHT SERVICE, as appropriate.

NOTE–
Simultaneous announcements may cause heterodyne problems on multiple outlets having the same frequency

and interference over close outlets with known problems. Announcements may have to be rebroadcast to insure compliance.

2–4–5. SUSPENSION

HIWAS broadcasts must not be suspended for routine maintenance during periods when weather advisories have been issued for the HIWAS outlet area.

Section 5. Automatic Flight Information Service (AFIS) (Alaska Only)

2–5–1. AUTOMATIC FLIGHT INFORMATION SERVICE (AFIS)

Use the AFIS to provide advance non-control airport, meteorological, and pertinent NOTAM information to aircraft. Specialists must provide local airport advisory (LAA) information when the AFIS is not available.

NOTE–
Use of the AFIS by pilots is not mandatory, but pilots who use two-way radio communication with the FSS are urged to use the service.

a. Begin each new AFIS message with the airport/facility name and a phonetic alphabet letter. The phonetic alphabet letter must also be spoken at the end of the message and be used sequentially, beginning with "Alfa," ending with "Zulu." Full-time facilities must repeat the letter without regard to the beginning of a new day. Part–time facilities must identify the first resumed broadcast message with "Alfa."

b. The AFIS recording must be reviewed for completeness, accuracy, speech rate, and proper enunciation before being transmitted.

c. Maintain an AFIS message that reflects the most current local airport information.

1. Make a new AFIS recording when any of the following occur:

(a) Upon receipt of any new official weather, regardless of any change in values.

(b) When runway braking action reports are received that indicate runway braking is worse than that which was included in the current AFIS broadcast.

(c) When there is a change in any other pertinent data for the airport or surrounding area, such as change in favored runway, new or canceled NOTAMs, WAs, WSs, CWAs, PIREPs, or other information that facilitates the repetitive transmission of essential but routine information.

2. Omit rapidly changing data. When this occurs, the AFIS must contain a statement advising pilots whom to contact for the omitted data.

EXAMPLE–
"For latest ceiling/visibility/altimeter/wind/(other conditions) contact (facility and frequency)."

3. Broadcast, on the LAA frequency, the new airport AFIS phonetic alphabet identifier after each new recording.

4. After establishing two-way radio communication, if the pilot does not state that he/she has the current AFIS code, the specialist must either:

(a) Use LAA procedures to issue pertinent AFIS information, or

(b) Advise the pilot to return to the AFIS frequency.

5. AFIS broadcasts may be suspended within specified time periods. During these periods, the AFIS must contain a brief statement that the AFIS is suspended for the specified time and pilots should contact the FSS for LAA.

PHRASEOLOGY–
(Airport name) FLIGHT INFORMATION BROADCASTS ARE SUSPENDED UNTIL (time). CONTACT (facility name) RADIO ON (frequency) FOR AIRPORT INFORMATION.

6. Part-time and seasonal facilities must record a message with the appropriate frequency and facility contact information as well as known information regarding resumption of LAA.

PHRASEOLOGY–
(Name of FSS) HOURS OF OPERATION ARE (time) LOCAL TIME TO (time) LOCAL TIME. THE COMMON TRAFFIC ADVISORY FREQUENCY IS (frequency). PILOT CONTROLLED LIGHTING IS AVAILABLE ON (frequency). FOR ADDITIONAL INFORMATION CONTACT (name of FSS) ON (frequency).

(Name of FSS) IS CLOSED FOR THE WINTER SEASON. THE COMMON TRAFFIC ADVISORY FREQUENCY IS (frequency). PILOT CONTROLLED LIGHTING IS AVAILABLE ON (frequency). FOR ADDITIONAL INFORMATION CONTACT (name of FSS) ON (frequency).

7. Use the following format and include the following in AFIS broadcast as appropriate:

(a) (Airport/facility name) airport information.

(b) Phonetic alphabet designator.

(c) Special routing procedures in effect (when appropriate for the Ketchikan (KTN) area).

(d) Time of the AFIS preparation (UTC) followed by the word, "ZULU."

(e) Include the current weather observation and other pertinent remarks. The ceiling/sky conditions, visibility, and obstruction to vision maybe omitted if the ceiling is above 5,000 and the visibility is more than 5 miles.

EXAMPLE–
"The weather is better than five thousand and five."

(f) Favored runway and additional local information, as required.

(g) NOTAMs concerning local NAVAIDs and field conditions pertinent to flight.

EXAMPLE–
"Notice to Airmen, Iliamna NDB out of service."
"Transcribed weather broadcast out of service."

(h) Runway braking action or friction reports when provided. Include the time of the report and a word describing the cause of the runway friction problem.

PHRASEOLOGY–
RUNWAY (number) MU (first value, second value, third value) AT (time), (cause).

REFERENCE–
FAAO JO 7110.10, Para 4-4-3, Airport Advisory/RAIS Elements and Phraseology.

(i) Low-level wind shear (LLWS) advisory, including those contained in the terminal aerodrome forecast (TAF)and in PIREPs. (Include PIREP information at least 20 minutes following the report).

EXAMPLE–
"Low level wind shear is forecast."

(j) Unauthorized Laser Illumination Events. When a laser event is reported, include reported unauthorized laser illumination events on the AFIS broadcast for one hour following the last report. Include the time, location, altitude, color, and direction of the laser as reported by the pilot.

PHRASEOLOGY–
UNAUTHORIZED LASER ILLUMINATION EVENT, (UTC time), (location), (altitude), (color), (direction).

EXAMPLE–
"Unauthorized laser illumination event at zero one zero zero Zulu, eight-mile final runway one eight at three thousand feet, green laser from the southwest."

(k) Man-Portable Air Defense Systems (MANPADS) alert and advisory. Specify the nature and location of threat or incident, whether reported or observed and by whom, time (if known), and notification to pilots to advise ATC if they need to divert.

PHRASEOLOGY–
MANPADS ALERT. EXERCISE EXTREME CAUTION. MANPADS THREAT/ATTACK/POST-EVENT ACTIVITY OBSERVED/REPORTED BY (reporting agency) (location) AT (time, if known). (When transmitting to an individual aircraft) ADVISE ON INITIAL CONTACT IF YOU WANT TO DIVERT.

EXAMPLE–
"MANPADS alert. Exercise extreme caution. MANPADS threat reported by TSA, Anchorage area. Advise on initial contact if you want to divert."

"MANPADS alert. Exercise extreme caution. MANPADS attack observed by flight service station one-half mile northwest of airfield at one-two-five-zero Zulu. Advise on initial contact if you want to divert."

NOTE–
1. *Upon receiving or observing an unauthorized MANPADS alert/advisory, contact the Alaska Flight Service Information Area Group(AFSIAG) through the Alaskan Region Regional Operations Center (ROC).*

2. *Continue broadcasting the MANPADS alert/advisory until advised by national headquarters the threat is no longer present. Coordination may be through the AFSIAG or the Alaskan ROC.*

REFERENCE–
FAAO JO 7210.3, Para 2-1-9, Handling MANPADS Incidents.

(l) Any other advisories applicable to the area covered by the LAA.

(m) Local frequency advisory.

PHRASEOLOGY–
CONTACT (facility name) RADIO ON (frequency) FOR TRAFFIC ADVISORIES.

(n) Instructions for the pilot to acknowledge receipt of the AFIS message on initial contact.

EXAMPLE–
"Dillingham airport information ALFA. One six five five Zulu. Wind one three zero at eight; visibility one five;

ceiling four thousand overcast; temperature four, dew point three; altimeter two niner niner zero. Favored runway one niner. Notice to Airmen, Dillingham V-O-R out of service. Contact Dillingham Radio on one two three point six for traffic advisories. Advise on initial contact you have ALFA."

"Kotzebue information ALFA. One six five five Zulu. Wind, two one zero at five; visibility two, fog; ceiling one hundred overcast; temperature minus one two, dew point minus one four; altimeter three one zero five. Altimeter in excess of three one zero zero, high pressure altimeter setting procedures are in effect. Favored runway two six. Weather in Kotzebue surface area is below V-F-R minima - an ATC clearance is required. Notice to Airmen, Hotham NDB out of service. Contact Kotzebue Radio on one two three point six for traffic advisories and advise intentions. Transcribed Weather Broadcast out of service. Advise on initial contact you have ALFA."

Chapter 3. Pilot Briefing

Section 1. General

3–1–1. DEFINITION

Pilot briefings are the translation of weather observations and forecasts, including surface, upper air, radar, satellite, and PIREPs into a form directly usable by the pilot or flight supervisory personnel to formulate plans and make decisions for the safe and efficient operation of aircraft. These briefings must also include information on NOTAM, flow control, and other items as requested.

3–1–2. PRE-DUTY REQUIREMENTS

Before assuming pilot briefing duties, familiarize yourself sufficiently with aeronautical and meteorological conditions to effectively provide briefing service. This includes:

a. General locations of weather-causing systems and general weather conditions.

b. Detailed information of current and forecast weather conditions for the geographical area(s) of responsibility.

c. Aeronautical information; for example, NOTAM, special use airspace (SUA), temporary flight restrictions (TFR), ATC delays, etc.

REFERENCE–
Pertinent facility directives

3–1–3. PREFLIGHT BRIEFING DISPLAY

Provide a preflight briefing display for specialist/pilot use. The contents and method of display must be based on individual facility requirements; for example, available equipment and space. Additional displays, as required, must be provided to ensure availability of information at all positions. At the discretion of facility management, provide a separate display for pilot use. All material in such displays must be current.

3–1–4. WEATHER DISPLAY PRODUCTS

a. The weather graphic display should include, but not necessarily be limited to, the following analysis, prognosis, and data products:

1. Weather Depiction.

2. Surface Analysis.

3. Forecast Winds Aloft.

4. Freezing Level Graphic.

5. G-AIRMET Graphic.

6. 12- and 24-hour Low Level Significant Weather Prognosis.

7. 12-, 24-, 36-, and 48-hour Surface Prognosis.

8. High Level Significant Weather Prognosis.

9. *Current Icing Product (CIP).

10. *Forecast Icing Product (FIP).

11. *Graphical Turbulence Guidance (GTG).

12. National/Regional Radar Mosaics.

13. Radar Echo Tops.

14. Radar VAD Wind Profiles.

15. Visible/IR Satellite Imagery.

16. Constant Pressure Charts.

NOTE–
**Denotes weather products that are supplementary. They may only be used to enhance situational awareness. When discrepancies are noted, the specialist must base their decision on the primary weather product.*

b. Map features. (See FIG 3-1-1.)

c. Precipitation and obstruction to vision. (See FIG 3-1-2.)

FIG 3–1–1
Map Features Chart

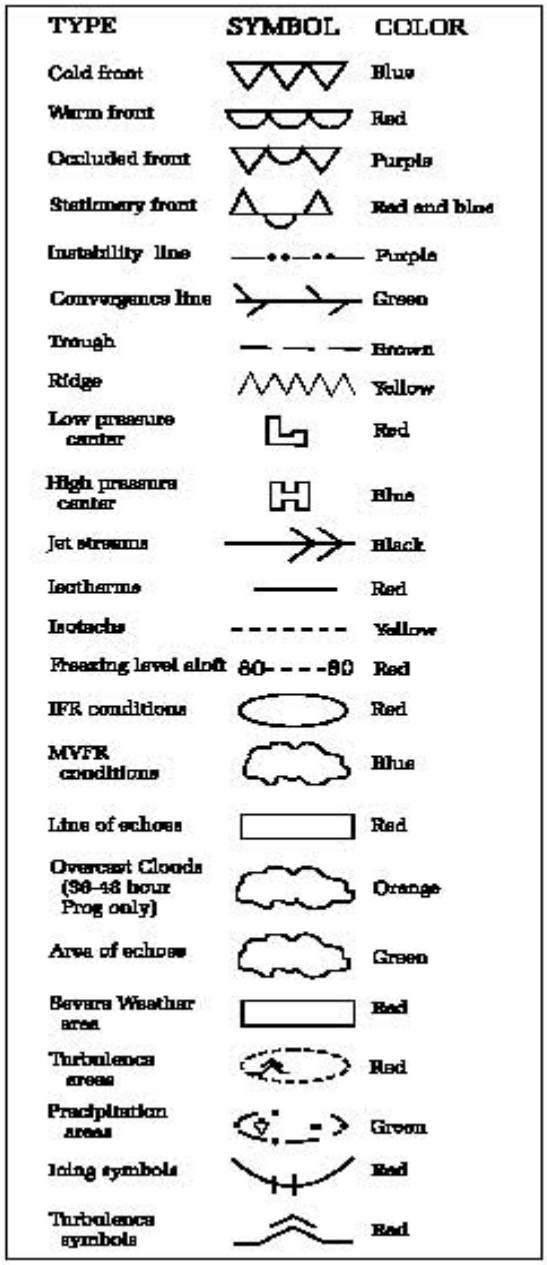
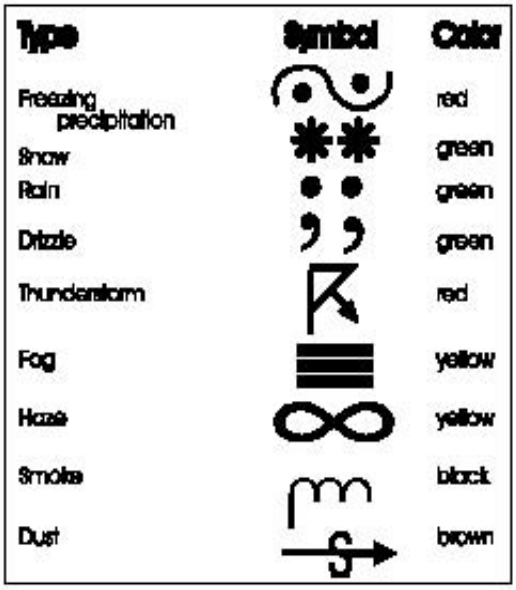


FIG 3–1–2
Precipitation and Obstruction To Vision Chart



d. Interpret and summarize weather radar displays as appropriate.

1. Use all available radar data and PIREPs to determine intensity, tops, area of coverage, movement, etc.

REFERENCE–
Pilot Controller Glossary (P/CG) Term, Precipitation Radar Weather Descriptions

2. Identify data obtained from sources other than radar display by source and time of observation.

3. Define area of coverage in relation to VORs, airways for the route structure being flown, airports or geographic points to assist the pilot in relating coverage to route of flight or destination.

EXAMPLE–
"A broken line of light to heavy echoes covers an area along and three zero miles east of a line from the Crazy Woman V–O–R to the Riverton V-O-R. Average tops between two-six thousand and three-four thousand. This line is increasing in intensity. Movement has been from northwest to southeast at three zero knots. The line includes an extreme echo one five miles in diameter on Victor Two Ninety-eight forty-eight miles southeast of the Worland V-O-R, tops four three thousand. There are no known echoes within three-zero nautical miles of Victor Eight-five or Victor Two Ninety-eight south at this time."

3–1–5. FORECASTS, WARNINGS, AND ADVISORIES

a. Use only weather forecasts, warnings, and advisories issued by a National Weather Service (NWS) office, including Center Weather Service

Units (CWSUs), the U.S. military, foreign governments, or graphics systems owned/leased by the FAA or provided through a FAA–contracted service provider.

b. Use the OUTLOOK section of WSTs to provide information on where convective activity is expected. Use the Convective Outlooks (ACUS01 KWNS) to extract pertinent forecast information regarding the convective activity.

c. When an NWS forecast requires an amendment or correction, request assistance from the appropriate NWS office.

3–1–6. UNAVAILABILITY OF DATA

Use all available means to obtain the data required to brief pilots. If a complete briefing cannot be provided due to circuit problems or missing data, inform the pilot of this fact. Brief to the extent possible. Advise the pilot of the time you expect the data to be available.

3–1–7. TYPE OF BRIEFING TO BE CONDUCTED

Provide the pilot with the type of briefing requested (standard, abbreviated, or outlook). When it is not clear initially which type briefing is desired, provide the first one or two items requested, and then ascertain if the pilot would like a standard briefing. If a standard briefing is requested, conduct the briefing in accordance with para 3–2-1. If the pilot does not desire a standard briefing, provide either an abbreviated briefing in accordance with paragraph 3-2-2 or an outlook briefing in accordance with paragraph 3-2-3.

3–1–8. LOGGING PILOT BRIEFINGS

a. Pilot briefings must be logged and retained in accordance with FAA Order 1350.15, Records Organization, Transfer, and Destruction Standards. Briefings must be logged in operational systems when possible but may be logged manually if needed for operational efficiency.

b. Operational systems must, as a minimum, automatically record the facility/sector, date, position, time, and specialist identification for each logged briefing. In addition, enter the following information:

1. Departure and destination.

2. Aircraft identification. (The pilot's name may be substituted for the aircraft identification, if unknown.)

3. Remarks, as applicable, to indicate OTLK (outlook briefing), AB (abbreviated briefing), and/or VNR.

c. To manually log pilot briefings, use one of the following FAA forms:

1. FAA Form 7233-2, Pilot Briefing Log. Use a separate form each day. Two or more forms may be used simultaneously at different operating positions. Complete boxes 1 through 3 on each form. Enter appropriate data in columns 4, 5, 6, 7, 8 (if pertinent), and 9. If the pilot's name is known, it may be substituted for the aircraft identification. As applicable, enter OTLK (outlook briefing), AB (abbreviated briefing), and/or VNR in column 8.

2. FAA Form 7233-1, Flight Plan Form. Check the "pilot briefing" block, fill in specialist's initials, and note the time started. As applicable, also enter AB, OTLK, and/or check the VNR block.

3. FAA Forms 7233-5, Inflight Contact Record, or 7230-21, Flight Progress Strip. Enter PB in block 14 if a briefing is provided. As applicable, also enter AB, OTLK, and/or VNR in the same block.

NOTE–
See Appendix B for FAA forms.

d. Where audio recorders are used, facility management may limit entries on pilot briefing records to those required for facility use.

e. Where fast-file recorders are used and the pilot states the source of a briefing on the recorder, it must be entered in the remarks field of the flight plan.

EXAMPLE–
PB/DCA
PB/DUATS

Section 2. Preflight Pilot Briefing

3–2–1. CONDUCT OF STANDARD BRIEFING

a. Brief by translating, interpreting, and summarizing available data for the intended flight. Do not read individual weather reports or forecasts unless, in your judgment, it is necessary to emphasize an important point or unless specifically requested to do so by the pilot. Obtain the following information if it is pertinent and not evident or already known:

1. Type of flight planned.

2. Aircraft identification or pilot's name.

3. Aircraft type.

4. Departure point.

5. Route of flight.

6. Destination.

7. Flight altitude(s).

8. Estimated time of departure (ETD) and estimated time en route (ETE).

b. The specialist must issue the following cautionary advisory to a pilot planning a flight outside of United States controlled airspace, unless the pilot advises they have the international cautionary advisory.

PHRASEOLOGY–
CHECK DATA AS SOON AS PRACTICAL AFTER ENTERING FOREIGN AIRSPACE, AS OUR INTERNATIONAL DATA MAY BE INACCURATE OR INCOMPLETE.

c. Using all sources of weather and aeronautical information, provide the following data when it is applicable to the proposed flight. Provide the information in subparagraphs c1 through c8 in the sequence listed except as noted.

1. *Adverse Conditions*. Include this element when meteorological or aeronautical conditions are reported or forecast that might influence the pilot to alter the proposed flight. Emphasize conditions that are particularly significant, such as low level wind shear, thunderstorms, reported icing, frontal zones along the route of flight, NOTAMs; for example, airport/runway closures, air traffic delays, TFRs etc. Weather advisories (WS, WA, WST, CWA, and AWW) must be given by stating the type of advisory followed by the pertinent information.

EXAMPLE–
"An AIRMET is in effect until 1400Z for moderate turbulence below 10,000 feet over the mountainous area of southern California."
"Palmer airport closed"

NOTE–
NOTAMs in this category may be provided with NOTAMs listed in subparagraph c8.

2. *VFR Flight Not Recommended (VNR).* Include this statement when VFR flight is proposed and sky conditions or visibilities are present or forecast, surface or aloft, that in your judgment would make flight under visual flight rules doubtful. Describe the conditions, affected locations, and times.

PHRASEOLOGY–
VFR FLIGHT NOT RECOMMENDED

EXAMPLE–
"There are broken clouds along the entire route between niner and one one thousand feet. With the approach of a cold front, these clouds are forecast to become overcast and to lower to below seven thousand with mountains and passes becoming obscured. V-F-R flight not recommended between Salt Lake City and Grand Junction after two two zero zero ZULU."
"V-F-R flight not recommended in the Seattle area until early afternoon. The current weather at Seattle is indefinite ceiling three hundred, visibility one, mist, and little improvement is expected before one eight zero zero ZULU."

NOTE–
This recommendation is advisory in nature. The decision as to whether the flight can be conducted safely rests solely with the pilot.

3. *Synopsis*. Provide a brief statement describing the type, location, and movement of weather systems and/or air masses which might affect the proposed flight. This element may be combined with adverse conditions and/or the VNR element, in any order, when it will help to more clearly describe conditions.

4. *Current Conditions*. Summarize from all available sources reported weather conditions applicable to the flight. This element may be omitted if the proposed time of departure is beyond 2 hours, unless the information is requested by the pilot. If

AUTO appears after the date/time element and is presented as a singular report, follow the location with the word "AUTOMATED."

5. *En Route Forecast*. Summarize forecast information that will affect the proposed flight; for example, area forecasts, TAFs, prognosis charts, weather advisories, etc. Provide the information in a logical order; for example, climb out, enroute, and descent.

6. *Destination Forecast*. Provide the destination forecast including significant changes expected within 1 hour before and after the estimated time of arrival (ETA).

7. *Winds Aloft*. Provide forecast winds aloft for the flight using degrees of the compass. Interpolate wind directions and speeds between levels and stations as necessary. Provide temperature information on request.

8. *Notices to Airmen (NOTAM)*. Provide NOTAM information affecting the flight:

(a) NOTAM (D). All NOTAMs (D), including SUA NOTAMs for restricted areas, aerial refueling, and night vision goggles (NVG).

NOTE–
Other SUA NOTAMs (D) such as military operations area (MOA), military training route (MTR) and warning area NOTAMs, are considered "upon request" briefing items as indicated in paragraph 3-2-1c13(a).

(b) Flight Data Center (FDC) NOTAMs not already carried in the Notices to Airmen publication.

(c) Combine this element with adverse conditions when it would be logical and advantageous to do so.

9. *Prohibited Areas P-40, P-56, and the Special Flight Rules Area (SFRA) for Washington, DC*. Include this element when pertinent to the route of flight. Advise the pilot that VFR flight within 60 miles of the DCA VOR/DME requires Special Awareness Training.

10. *ATC Delays*. Inform the pilot of ATC delays and/or flow control advisories that might affect the proposed flight.

11. *Request for PIREPs*. Include this element when in your judgment, a report of actual inflight conditions is beneficial or when conditions meet criteria for solicitation of PIREPs (paragraph 9-2-5). Advise the pilot to contact Flight Watch or Flight Service to report en route conditions.

12. *EFAS*. When appropriate, inform pilots of the availability of Flight Watch for weather updates; for example, thunderstorms, icing.

13. *Upon Request*. Provide any information requested by the pilot, including, but not limited to:

(a) Special use airspace, except those listed in paragraph 3-2-1c8(a), SUA-related airspace (air traffic control assigned airspace (ATCAA)), and MTR activity. For all SUA and MTR data requests, advise the pilot that information may be updated periodically and to contact the appropriate ATC facility for additional information while in flight.

NOTE–
For the purpose of this paragraph, SUA and related airspace includes the following types of airspace: alert area, MOA, warning area and ATCAA. MTR data includes the following types of airspace: instrument flight rule (IFR) training routes (IR), VFR training routes (VR), and slow training routes (SR).

(b) Approximate density altitude data.

(c) Information regarding such items as air traffic service and rules, customs/immigration procedures, air defense identification zone (ADIZ) rules, SAR, Flight Watch, etc.

(d) Military NOTAMs.

REFERENCE–
FAAO 7930.2, Paragraph 8-3-1, Military NOTAM Availability.

(e) Special FDC instrument approach procedure changes.

3–2–2. CONDUCT OF ABBREVIATED BRIEFING

a. Provide an abbreviated briefing when a pilot requests information to supplement mass-disseminated data; update a previous briefing; or when the pilot requests that the briefing be limited to specific information. If applicable, include the statement "VFR flight not recommended" in accordance with subparagraph 3-2-1c2. The specialist must issue the following cautionary advisory to a pilot planning a flight outside of United States controlled airspace, unless the pilot advises they have the international cautionary advisory.

PHRASEOLOGY–
CHECK DATA AS SOON AS PRACTICAL AFTER ENTERING FOREIGN AIRSPACE, AS OUR

INTERNATIONAL DATA MAY BE INACCURATE OR INCOMPLETE.

b. Conduct abbreviated briefings as follows:

1. When a pilot desires specific information only, provide the requested information. If adverse conditions are reported or forecast, advise the pilot. Provide details on these conditions, in accordance with subparagraph 3-2-1c1, at the pilot's request.

2. When a pilot requests an update to a previous briefing, obtain from the pilot the time the briefing was received and necessary background information. To the extent possible, limit the briefing to appreciable changes in meteorological and aeronautical conditions since the previous briefing.

3. When a pilot requests information to supplement data obtained through FSS mass-dissemination media, obtain pertinent background information, the specific items required by the pilot, and provide the information in the sequence listed in subparagraph 3-2-1c.

4. When a pilot requests to file a flight plan only, ask if he/she requires the latest information on adverse conditions along the route of flight. If so, provide the information pertinent to the route of flight in accordance with subparagraph 3-2-1c1.

5. Solicit PIREPs in accordance with subparagraph 3-2-1c11.

3–2–3. CONDUCT OF OUTLOOK BRIEFING

a. Provide an outlook briefing when the proposed departure is 6 hours or more from the time of the briefing. Conduct the briefing in accordance with subparagraph 3-2-1c. Omit items in subparagraphs c2, c4, and c7 through c12, unless specifically requested by the pilot or deemed pertinent by the specialist.

b. When the proposed flight is scheduled to be conducted beyond the valid time of the available forecast material, provide a general outlook and then advise the pilot when complete forecast data will be available for the proposed flight

Chapter 4. Inflight Services

Section 1. General

4–1–1. INFLIGHT SERVICES

Inflight services are those provided to or affecting aircraft inflight or otherwise operating on the airport surface. This includes services to airborne aircraft, such as airport advisories, delivery of ATC clearances, advisories or requests, issuance of military flight advisory messages, EFAS, NOTAM, SAR communications searches, flight plan handling, transcribed or live broadcast, weather observations, PIREPs, and pilot briefings.

NOTE–
Provide inflight services in accordance with the procedures in this chapter to aircraft on a "first come, first served" basis, as circumstances permit.

4–1–2. OPERATIONAL PRIORITY

a. Emergency situations are those where life or property are in immediate danger. Aircraft in distress have priority over all other aircraft.

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

c. Provide maximum assistance to search and rescue (SAR) aircraft performing a SAR mission.

d. Provide special handling as required to expedite Flight Check and automated flight inspection "Flight Check (number) Recorded" aircraft.

4–1–3. INFLIGHT WEATHER BRIEFING

Upon request, provide inflight weather briefings, in accordance with the procedure outlined in Chapter 3, Section 2.

4–1–4. INFLIGHT EQUIPMENT MALFUNCTIONS

a. Inflight equipment malfunctions include partial or complete failure of equipment which may affect either safety and/or the ability of the flight to proceed.

b. When a pilot reports a flight equipment malfunction, determine the nature and extent of any assistance desired.

c. Provide maximum assistance possible consistent with equipment and any special handling requested.

d. Relay to other specialists or facilities who will handle the aircraft all information concerning the equipment malfunction on the aircraft and any special handling requested or being provided.

4–1–5. AIRCRAFT-REPORTED NAVAID MALFUNCTIONS

a. Aircraft-reported NAVAID malfunctions are subject to varying circumstances. When an aircraft reports a ground-based NAVAID malfunction, take the following action:

1. Request a report from a second aircraft.

2. If the second aircraft reports normal operations, if able, inform the first aircraft. Record the incident on FAA Form 7230-4.

3. If the second aircraft confirms the malfunction:

(a) Notify the appropriate IFR control facility or sector.

(b) Notify Technical Operations personnel.

(c) Take NOTAM action when requested by Technical Operations personnel.

(d) Record the incident on FAA Form 7230-4.

4. In the absence of a second aircraft report:

(a) Notify Technical Operations and advise what time the initial aircraft reported the failure and when a second aircraft report might be obtained.

(b) Record the incident on FAA Form 7230-4.

b. When an aircraft reports a global positioning system (GPS)/global navigation satellite system (GNSS) anomaly:

1. Request the following information:

(a) Aircraft call sign and type of aircraft.

(b) Date and time of the occurrence.

(c) Location of anomaly.

(d) Altitude.

2. Record the incident on FAA Form 7230-4.

3. Forward this information to the traffic management unit (TMU) and Technical Operations personnel.

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

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

EXAMPLE–
"Are you receiving any WAAS service?"

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

3. If the pilot reports loss of all WAAS service, report as a GPS anomaly using procedures in paragraph 4–1–5b.

4–1–6. NAVAID FLIGHT CHECK

Provide maximum assistance to aircraft engaged in flight inspection of NAVAIDs. Unless otherwise agreed to, maintain direct contact with the pilot and provide information regarding known traffic in the area and request the pilot's intentions.

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

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

Section 2. Data Recording

4–2–1. TYPES OF DATA RECORDED

a. Operational system entries for:

1. Flight plans and related messages.

2. Logging pilot briefings and aircraft contacts.

3. Weather/Flight data messages.

b. Manual strip marking.

4–2–2. METHODS OF RECORDING DATA

a. Except as provided in 4-2-2b, all entries must be made directly into the operational system.

b. Locally-approved procedures may be used to manually record data during heavy traffic periods or system outages. Aircraft contact information should be logged in the operational system as soon as practical.

c. Use control/clearance symbols, abbreviations, location identifiers, and contractions for recording position reports, traffic clearances, and other data. When recording data either electronically or manually, you may use:

1. Plain language to supplement data when it will aid in understanding the recorded information.

2. Locally-approved contractions and identifiers for frequently used terms and local fixes not listed in either FAA Order JO 7340.2, Contractions, or FAA Order JO 7350.8, Location Identifiers. Use only within your facility, not on data or interphone circuits. All locally-approved contractions and identifiers must be placed in facility files for record and reference purposes.

d. When recording data manually, use the standard hand-printed characters shown in FIG 4–2-1 to prevent misinterpretation.

FIG 4–2–1
Hand-Printed Characters Chart

Typed	Hand Printed
A	A
B	B
C	C
D	D
E	E
F	F
G	G
H	H
I	I
J	J
K	K
L	L
M	M
N	N
O	O
P	P
Q	Q
R	R
S	S
T	T
U	U
V	V
W	W
X	X
Y	Y
Z	Z
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	Ø

NOTE–
A slant line crossing through the numeral zero and an underline of the letter "S" on handwritten portions of flight progress strips are required only when there is reason to believe the lack of these markings could lead to a misunderstanding. A slant line through the numeral zero is required on all weather data.

1. To correct or update data, draw a horizontal line through it and write the correct information adjacent to it.

2. Do not erase any item.

4–2–3. IFR/VFR/DVFR FLIGHT PLAN RECORDING

a. Use the operational system to record and file flight plans, flight plan modifications, cancellations, activations, and closures for appropriate distribution and processing. Detailed instructions are contained in the operational system manuals.

NOTE–
FSS operational systems contain an electronic equivalent of FAA Form 7233-1, Flight Plan.

b. When closing an active VFR flight plan, obtain departure point and destination, if not already known.

NOTE–
A cancelled VFR flight plan is one that is removed from a proposed list and has not been activated. A closed VFR flight plan is one that has been activated and is then removed from an inbound list.

c. Flight plan information may initially be recorded on FAA Form 7233-1 or other paper prior to entry into the operational system.

4–2–4. FLIGHT PROGRESS STRIPS (FAA FORMS 7230-21 AND 7233-5)

a. When officially used to record inflight data, use flight progress strips to record:

1. Aircraft contacts.

2. ATC clearances.

3. Pilot briefings on airborne aircraft.

4. Other operationally significant items.

b. Use a flight progress strip for each aircraft and record all contacts with that aircraft on the same strip. If supplemental strips are needed for additional writing space, keep the original and supplemental strips together.

NOTE–
Multiple flights by the same aircraft may be recorded on a single strip when situational awareness and strip bay efficiency are improved.

4–2–5. FLIGHT PROGRESS STRIPS AND ENTRY DATA

a. Flight progress strip. (See FIG 4-2-2.)

b. Flight progress strip entry. (See FIG 4-2-3 and 4-2-4.)

FIG 4–2–2
Flight Progress Strip

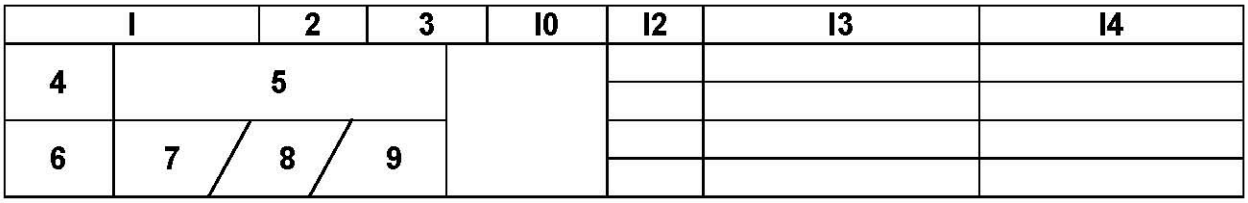


FIG 4–2–3
Strip Entry 1

NI23E	C210/R	I5Ø	↑V	I6I5	AVFP	
MFE	CRP			55	O/CRP ℄	PB DFW S CI
				I74Ø	LNDG SAT AWX ✓	VNR
AUS	I6IØ / I82Ø / 2IIØ					

FIG 4–2–4
Strip Entry 2

N3456Y	BE35		V→	I94I	O/SAT E I + // 00 ✓	REQ UA
				55	32E SAT OVC65	PB PPSN - HOU
LFT	/ /					

c. Flight progress strip Item and Information. (SeeTBL 4-2-1.)

TBL 4–2–1
Item and Information

Item	Information
1	Aircraft Identification (ACID) (To identify IFR aircraft piloted by solo USAF under-graduate pilot, the letter Z will be added to aircraft ID on the flight progress strip. Do not use the suffix in ground-to-air communications.)
2	Type of aircraft/special equipment.
3	True airspeed (TAS) and altitude (IFR). Altitude (VFR/DVFR, if known).
4	Departure point.
5	Route of flight.
6	Destination.
7	Actual departure time, or time VFR flight plan activated.
8	ETA at destination.
9	Estimated time of fuel exhaustion.
10	Type of flight.
11	Action time; for example, overdue time, fuel exhaustion time, LR contact time.
12	Time of contact with pilot.
13	Information received from pilot/another facility.
14	Data issued to the aircraft.

d. Flight progress strip abbreviation. (See TBL 4-2-2.)

TBL 4–2–2
Abbreviation

Abbreviation	Meaning
Õ	Over Flight
↓	Inbound Flight
↑	Outbound Flight
A	AIRMET (WA)
AA	Airport Advisory
CWT	Caution Wake Turbulence
D	DVFR
DA	Decided Against Flight
DD	Decided to Delay Flight
DW	Downwind
FP	Filed Flight Plan
I	IFR
IC	Incomplete Briefing
IR	Island Reporting
LR	Lake Reporting
MR	Mountain Reporting
PB	Pilot Brief
RY	Runway
S	SVFR
SR	Swamp Reporting
V	VFR
VNR	VFR Flight not recommended (Pilot Brief)
WS	SIGMET
WST	Convective SIGMET

e. Record ATC instructions and clearances completely and exactly.

f. Summarize other data using approved symbols and contractions. (See FIG 4-2-5 and FIG 4-2-6.)

FIG 4–2–5

Control Information Symbols Chart 1

Symbols	Meaning
T→( )	Depart (direction, if specified)
↑	Climb and maintain
↓	Descend and maintain
→	Cruise
@	At
X	Cross
M→	Maintain
7	Join or intercept airway/jet route/track or course
=	While in controlled airspace
△	While in control area
△↘	Enter control area
△↗	Out of control area
NW ↖ NE ↗ E →	Cleared to enter, depart or through surface area indicated direction of flight by arrow and appropriate compass letter. Maintain Special VFR conditions (altitude if appropriate) while in surface area
250 K	Aircraft requested to adjust speed to 250 knots.
-20K	Aircraft requested to reduce speed 20 knots.
+30K	Aircraft requested to increase speed 30 knots.
(W)	Local Special VFR operations in the vicinity of (name) airport are authorized until (time). Maintain special VFR conditions (altitude if appropriate).
>	Before
<	After or Past
170 (red)	Inappropriate altitude/flight level for direction of flight. (Underline assigned altitude/flight level in red.)
/	Until
( )	Alternate instructions
Restriction	Restriction
↓	At or Below
↑	At or Above
-(Dash)	From-to (route, time, etc.)
(Alt)B(Alt)	Indicates a block altitude assignment. Altitudes are inclusive, and the first altitude must be lower than the second. Example: 310B370
∨ <	Clearance void if aircraft not off ground by (time)

NOTE: The absence of an airway route number between two fixes in the route of flight indicates "direct" no symbol or abbreviation is required.

FIG 4–2–6
Control Information Symbols Chart 2

Symbols	Meaning
℄	Pilot cancelled flight plan
✓	EN ROUTE: Aircraft has reported at assigned altitude, Example: 80 ✓
✓	TERMINAL/FSS: Information forwarded (indicated information forwarded as required)
◯ (red)	EN ROUTE: Information or revised information forwarded. (Circle, in red, inappropriate altitude/flight level for direction of flight or orther control information when coordinated. Also circle, in red, the time (minutes and altitude when a flight plan or estimate is forwarded. Use this method in both inter-center and intra-center coordination)
(50)	Other than assigned altitude reported (circle reported altitude)
10 / H / 6	DME holding (use with mileages) (Upper figure indicates distance from station to DME fix; lower figure indicates length of holding pattern.) In this example, the DME fix is 10 miles out with a 6-mile pattern indicated.
(mi.)(dir.)	DME arc of VORTAC, TACAN, or MLS
(freq.)	Contact (facility) or (freq.), (time, fix, or altitude if appropriate). Insert frequency only when it is other than standard.
R	Radar contact
R	EN ROUTE: Requested altitude (preceding altitude information)
R	Radar service terminated
R	Radar contact lost
RV	Radar vector
Ⓡ	Radar handoff (circle symbol when handoff completed)
E (red)	EMERGENCY
W (red)	WARNING
P	Points out initiated. Indicated the appropriate facility, sector, or position. Example: PZFW/
FUEL	Minimum fuel

NOTE: The absence of an airway route number between two fixes in the route of flight indicates "direct" no symbol or abbreviation is required.

g. Do not record issuance of altimeter setting unless that is the only information provided during the contact.

4–2–6. AIRCRAFT CONTACTS

a. Inflight and flight watch contacts may be logged in the operational system, on flight progress strips, or on facility approved alternate forms.

b. When using flight progress strips, if the station has the aircraft's flight plan, enter "FP" in item 14 on the strip to show the flight plan is on file at the facility.

c. If there is no flight plan on file for the aircraft, the following must be obtained:

1. ACID.

2. Type of flight.

3. Time of contact.

4. Other items which are operationally significant.

d. If the inflight position is recorded, you may limit entries in the aircraft contact portion of the strip to those necessary for your use.

e. Log aircraft contacts using the operational system. The following should be logged using the symbols in TBL 4-2-3 and TBL 4-2-4:

1. Type of Briefing

(a) Standard

(b) Abbreviated

(c) Outlook

2. Type of Flight

(a) IFR

(b) VFR

(c) Defense VFR (DVFR)

3. Category of Flight

(a) Air Carrier

(b) Air Taxi

(c) Military

(d) General Aviation

4. Aircraft ID

5. Type of Service

(a) Airport advisory

(b) Clearance(s); for example, IFR, special VFR (SVFR)

6. Remarks. Operating Position (if not automatically logged by operational system)

TBL 4–2–3

Clearance Abbreviation

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

TBL 4–2–4

Miscellaneous Abbreviation

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

Section 3. Radio Communications

4–3–1. FREQUENCY USE

a. Use radio frequencies for the specific purposes for which they are intended. A frequency may be used for more than one function when required. Use the minimum number of frequencies to conduct communications. Request pilots file flight plans on discrete frequencies when possible.

b. Monitor assigned radio frequencies continuously. Keep speaker volumes at a level sufficient to hear all transmissions.

4–3–2. AUTHORIZED TRANSMISSIONS

a. Transmit only those messages necessary for safe and efficient use of the National Airspace System (NAS).

1. Relay operational information to an aircraft or its company, as requested, when abnormal conditions necessitate such requests. Do not agree to handle such messages on a regular basis.

2. Relay official FAA messages as required.

b. Inform an aircraft of the source of any message you relay from an appropriate authority.

c. Use the words or phrases in radio communications as contained in the PCG.

4–3–3. RADIO MESSAGE FORMAT

a. Use the following format for radio communications with an aircraft:

1. Identification of aircraft.

2. Identification of the calling unit.

3. The type of message to follow when this will assist the pilot.

4. The word "over," if required.

b. Specialist initiated call. State the prefix , for example "November" when establishing initial communications with U.S.–registered aircraft followed by the International Civil Aviation Organization (ICAO) phonetic pronunciation of the numbers/letters of the aircraft registration. The specialist 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–
Specialist initiated call:

"November One Two Three Four Golf, Juneau Radio, over."
"Piper Three Four Seven Seven Papa, Fort Worth Radio, A-T-C clearance, over."

c. Replying to call up from aircraft. Identification of the aircraft initiating the call up. Use the full identification in reply to aircraft with similar sounding identifications. For other aircraft, use the same identification the pilot used in initial call up; then use the correct identification after communication has been established. The specialist may state the aircraft type, model, or manufacturer's name followed by the ICAO phonetic pronunciation of the numbers/letters of the aircraft registration if used by the pilot.

EXAMPLE–
Responding to pilot's initial or subsequent call:

"Jet Commander One Two Three Four Papa."

"Bonanza One Two Three Four Tango."

"November Six Three Eight Mike Foxtrot."

d. The word "heavy" must be used as part of the identification in communications with or about heavy jet aircraft.

PHRASEOLOGY–
UNITED FIFTY-EIGHT HEAVY.

NOTE–
1. *Most airlines use the word "heavy" following the company prefix and trip number when establishing communications or when changing frequencies.*

2. *When in radio-telephone communications with "Air Force One," do not add the "heavy" designator to the call sign. State only the call sign "Air Force One" regardless of the type of aircraft.*

e. Preface a clearance or instruction intended for a specific aircraft with the identification of that aircraft.

f. Emphasize appropriate digits, letters, or similar sounding words to aid in distinguishing between similar sounding aircraft identifications.

Additionally, notify each pilot concerned when communicating with aircraft having similar sounding identifications.

EXAMPLE–
"American Five Twenty-one and American Twenty-one, transmissions being made to each of you on this frequency."

"Advisory to Cessna One Three Two Four, transmissions to Cessna One Two Three Four also being made on this frequency."

4–3–4. ABBREVIATED TRANSMISSION

Transmissions may be abbreviated as follows:

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

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

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

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

4–3–5. ROUTINE RADIO CONTACTS

Record information received from or given to the pilot. Prior to terminating the contact, provide the following information if it is pertinent and the pilot indicates that it has not been received previously.

a. *Weather Advisory.* When a weather advisory such as a WA, WS, WST, CWA, or AWW which affects an aircraft's position, route, or destination.

b. *Shifting to Flight Watch*. During hours of flight watch operation, inflight specialists must recommend shifting to the flight watch frequency for en route advisories when weather conditions in an area along the pilot's route of flight so dictate. An example would be a pilot flying into an area of marginal weather farther along the route. It would be advantageous for the pilot to contact the flight watch specialist to pursue an alternate course of action should the need arise.

PHRASEOLOGY–
FOR ADDITIONAL EN ROUTE WEATHER, CONTACT FLIGHT WATCH (frequency).

c. *NOTAM*. Inform the pilot of any pertinent NOTAMs affecting the flight.

d. *Altimeter Setting.*

1. If the aircraft is operating below 18,000 feet MSL, issue current altimeter setting obtained from direct reading instruments or received from weather reporting stations. Use the setting for the location nearest the position of the aircraft.

2. If the aircraft is arriving or departing a local airport served by an operating control tower, issue altimeter setting on request only.

3. When a pilot acknowledges that he/she has received the AFIS broadcast, specialists may omit those items contained in the broadcasts if they are current.

4. Aircraft arriving or departing from a non-towered airport which has a commissioned automated weather reporting with ground-to-air capability must be advised to monitor the automated weather frequency for the altimeter setting.

PHRASEOLOGY–
MONITOR (location) AUTOMATED WEATHER FOR CURRENT ALTIMETER.

NOTE–
This requirement is deleted if the pilot states that he/she has the automated weather.

5. When the barometric pressure is greater than 31.00 inches Hg., Flight Standards will implement high barometric pressure procedures by NOTAM, defining the geographic area affected. When this occurs, use the following procedures:

(a) IFR aircraft. Issue the altimeter setting and advise the pilot that high pressure altimeter setting procedures are in effect. Control facilities will issue specific instructions when relaying IFR clearances and control instructions through FSS facilities when the altimeter is above 31.00 inches Hg.

(b) VFR aircraft. Issue the altimeter setting. Advise the pilot that high pressure altimeter setting procedures are in effect and to use an altimeter setting of 31.00 inches Hg en route.

PHRASEOLOGY–
ALTIMETER IN EXCESS OF THREE ONE ZERO ZERO.

HIGH PRESSURE ALTIMETER SETTING PROCEDURES ARE IN EFFECT. RECOMMEND YOU SET ALTIMETER THREE ONE ZERO ZERO EN ROUTE.

NOTE–
Airports unable to accurately measure barometric pressures above 31.00 inches Hg will report the barometric pressure as missing or in excess of 31.00 inches Hg. Flight operations to or from those airports are restricted to VFR weather conditions.

REFERENCE–
AIM, Chapter 7, Section 2, Altimeter Setting Procedures
FAAO JO 7110.65 Para 2-7-2.g, Altimeter Setting Issuance Below Lowest Usable FL

e. *Incorrect Cruising Altitude*. If the aircraft is operating VFR at an altitude between 3,000 feet AGL to, but not including FL180, and reports at an incorrect cruising altitude for the direction of flight, issue a VFR cruising altitude advisory.

PHRASEOLOGY–
V-F-R CRUISING LEVELS FOR YOUR DIRECTION OF FLIGHT ARE: (Odd/Even) ALTITUDES PLUS FIVE HUNDRED FEET.

NOTE–
Facilities located in those areas where VFR altitude separation is below 3,000 feet AGL or above FL 180 must provide appropriate phraseology examples for local use.

f. *Altimeter Setting in Millibars (MBs).* If a request for the altimeter setting in MBs is received, use the setting for the location nearest the position of the aircraft and convert to the MBs equivalent value using a MBs conversion chart. If the Mbs setting is not a whole number, always round down. (See TBL 4-3-1.)

TBL 4–3–1

Millibar Conversion Chart

MILLIBAR CONVERSION CHART																
inches	*millibars*	*inches*	*millibars*	*inches*	*millibars*	*inches*	*millibars*	*inches*	*millibars*	*inches*	*millibars*	*inches*	*millibars*	*inches*	*millibars*
27.50	931.3	28.00	948.2	28.50	965.1	29.00	982.1	29.50	999.0	30.00	1015.9	30.50	1032.8	31.00	1049.8
27.51	931.6	28.01	948.5	28.51	965.5	29.01	982.4	29.51	999.3	30.01	1016.3	30.51	1033.2	31.01	1050.1
27.52	931.9	28.02	948.9	28.52	965.8	29.02	982.7	29.52	999.7	30.02	1016.6	30.52	1033.5	31.02	1050.5
27.53	932.3	28.03	949.2	28.53	966.1	29.03	983.1	29.53	1000.0	30.03	1016.9	30.53	1033.9	31.03	1050.8
27.54	932.6	28.04	949.5	28.54	966.5	29.04	983.4	29.54	1000.3	30.04	1017.3	30.54	1034.2	31.04	1051.1
27.55	933.0	28.05	949.9	28.55	966.8	29.05	983.7	29.55	1000.7	30.05	1017.6	30.55	1034.5	31.05	1051.5
27.56	933.3	28.06	950.2	28.56	967.2	29.06	984.1	29.56	1001.0	30.06	1017.9	30.56	1034.9	31.06	1051.8
27.57	933.6	28.07	950.6	28.57	967.5	29.07	984.4	29.57	1001.4	30.07	1018.3	30.57	1035.2	31.07	1052.2
27.58	934.0	28.08	950.9	28.58	967.8	29.08	984.8	29.58	1001.7	30.08	1018.6	30.58	1035.6	31.08	1052.5
27.59	934.3	28.09	951.2	28.59	968.2	29.09	985.1	29.59	1002.0	30.09	1019.0	30.59	1035.9	31.09	1052.8
27.60	934.6	28.10	951.6	28.60	968.5	29.10	985.4	29.60	1002.4	30.10	1019.3	30.60	1036.2	31.10	1053.2
27.61	935.0	28.11	951.9	28.61	968.8	29.11	985.8	29.61	1002.7	30.11	1019.6	30.61	1036.6	31.11	1053.5
27.62	935.3	28.12	952.3	28.62	969.2	29.12	986.1	29.62	1003.0	30.12	1020.0	30.62	1036.9	31.12	1053.8
27.63	935.7	28.13	952.6	28.63	969.5	29.13	986.5	29.63	1003.4	30.13	1020.3	30.63	1037.3	31.13	1054.2
27.64	936.0	28.14	952.9	28.64	969.9	29.14	986.8	29.64	1003.7	30.14	1020.7	30.64	1037.6	31.14	1054.5
27.65	936.3	28.15	953.3	28.65	970.2	29.15	987.1	29.65	1004.1	30.15	1021.0	30.65	1037.9	31.15	1054.9
27.66	936.7	28.16	953.6	28.66	970.5	29.16	987.5	29.66	1004.4	30.16	1021.3	30.66	1038.3	31.16	1055.2
27.67	937.0	28.17	953.9	28.67	970.9	29.17	987.8	29.67	1004.7	30.17	1021.7	30.67	1038.6	31.17	1055.5
27.68	937.4	28.18	954.3	28.68	971.2	29.18	988.1	29.68	1005.1	30.18	1022.0	30.68	1038.9	31.18	1055.9
27.69	937.7	28.19	954.6	28.69	971.6	29.19	988.5	29.69	1005.4	30.19	1022.4	30.69	1039.3	31.19	1056.2
27.70	938.0	28.20	955.0	28.70	971.9	29.20	988.8	29.70	1005.8	30.20	1022.7	30.70	1039.6	31.20	1056.6
27.71	938.4	28.21	955.3	28.71	972.2	29.21	989.2	29.71	1006.1	30.21	1023.0	30.71	1040.0	31.21	1056.9
27.72	938.7	28.22	955.6	28.72	972.6	29.22	989.5	29.72	1006.4	30.22	1023.4	30.72	1040.3	31.22	1057.2
27.73	939.0	28.23	956.0	28.73	972.9	29.23	989.8	29.73	1006.8	30.23	1023.7	30.73	1040.6	31.23	1057.6
27.74	939.4	28.24	956.3	28.74	973.2	29.24	990.2	29.74	1007.1	30.24	1024.0	30.74	1041.0	31.24	1057.9
27.75	939.7	28.25	956.7	28.75	973.6	29.25	990.5	29.75	1007.5	30.25	1024.4	30.75	1041.3	31.25	1058.2
27.76	940.1	28.26	957.0	28.76	973.9	29.26	990.8	29.76	1007.8	30.26	1024.7	30.76	1041.6	31.26	1058.6
27.77	940.4	28.27	957.3	28.77	974.3	29.27	991.2	29.77	1008.1	30.27	1025.1	30.77	1042.0	31.27	1058.9
27.78	940.7	28.28	957.7	28.78	974.6	29.28	991.5	29.78	1008.5	30.28	1025.4	30.78	1042.3	31.28	1059.3
27.79	941.1	28.29	958.0	28.79	974.9	29.29	991.9	29.79	1008.8	30.29	1025.7	30.79	1042.7	31.29	1059.6
27.80	941.4	28.30	958.3	28.80	975.3	29.30	992.2	29.80	1009.1	30.30	1026.1	30.80	1043.0	31.30	1059.9
27.81	941.8	28.31	958.7	28.81	975.6	29.31	992.6	29.81	1009.5	30.31	1026.4	30.81	1043.3	31.31	1060.3
27.82	942.1	28.32	959.0	28.82	976.0	29.32	992.9	29.82	1009.8	30.32	1026.8	30.82	1043.7	31.32	1060.6
27.83	942.4	28.33	959.4	28.83	976.3	29.33	993.2	29.83	1010.2	30.33	1027.1	30.83	1044.0	31.33	1061.0
27.84	942.8	28.34	959.7	28.84	976.6	29.34	992.6	29.84	1010.5	30.34	1027.4	30.84	1044.4	31.34	1061.3
27.85	943.1	28.35	960.0	28.85	977.0	29.35	993.9	29.85	1010.8	30.35	1027.8	30.85	1044.7	31.35	1061.6
27.86	943.4	28.36	960.4	28.86	977.3	29.36	994.2	29.86	1011.2	30.36	1028.1	30.86	1045.0	31.36	1062.0
27.87	943.8	28.37	960.7	28.87	977.7	29.37	994.6	29.87	1011.5	30.37	1028.4	30.87	1045.4	31.37	1062.3
27.88	944.1	28.38	961.1	28.88	978.0	29.38	994.9	29.88	1011.9	30.38	1028.8	30.88	1045.7	31.38	1062.6
27.89	944.5	28.39	961.4	28.89	978.3	29.39	995.3	29.89	1012.2	30.39	1029.1	30.89	1046.1	31.39	1063.0
27.90	944.8	28.40	961.7	28.90	978.7	29.40	995.6	29.90	1012.5	30.40	1029.5	30.90	1046.4	31.40	1063.3
27.91	945.1	28.41	962.1	28.91	979.0	29.41	995.9	29.91	1012.9	30.41	1029.8	30.91	1046.7	31.41	1063.7
27.92	945.5	28.42	962.4	28.92	979.3	29.42	996.3	29.92	1013.2	30.42	1030.1	30.92	1047.1	31.42	1064.0

27.93	945.8	28.43	962.8	28.93	979.7	29.43	996.6	29.93	1013.5	30.43	1030.5	30.93	1047.4	31.43	1064.3
27.94	946.2	28.44	963.1	28.94	980.0	29.44	997.0	29.94	1013.9	30.44	1030.8	30.94	1047.7	31.44	1064.7
27.95	946.5	28.45	963.4	28.95	980.4	29.45	997.3	29.95	1014.2	30.45	1031.2	30.95	1048.1	31.45	1065.0
27.96	946.8	28.46	963.8	28.96	980.7	29.46	997.6	29.96	1014.6	30.46	1031.5	30.96	1044.4	31.46	1065.4
27.97	947.2	28.47	964.1	28.97	981.0	29.47	998.0	29.97	1014.9	30.47	1031.8	30.97	1048.8	31.47	1065.7
27.98	947.5	28.48	964.4	28.98	981.4	29.48	998.3	29.98	1015.2	30.48	1032.2	30.98	1049.1	31.48	1066.0
27.99	947.9	28.49	964.8	28.99	981.7	29.49	998.6	29.99	1015.6	30.49	1032.5	30.99	1049.4	31.49	1066.4

4–3–6. RADIO COMMUNICATIONS TRANSFER

Transfer radio communications by specifying the following:

a. The name of the facility to be contacted and the frequency.

PHRASEOLOGY–
CONTACT (name of facility) ON (frequency).

b. In situations where an aircraft will continue to communicate with your facility, use the following:

PHRASEOLOGY–
CONTACT (name of service) ON (frequency).

4–3–7. ATC CLEARANCES, ADVISORIES, OR REQUESTS

a. Notify ATC via interphone of a pilot's request for clearance and include the departure and destination airports and, if appropriate, departing runway and time in the request. Relay, verbatim, ATC clearances, advisories, and requests received from the control facility. Give a time check to the nearest quarter minute when relaying a clearance that includes a release or void time.

NOTE–
For ATC clearances, "verbatim" means exact control instructions in the format stated in FAA Order JO 7110.65, Air Traffic Control, Chapter 4, Section 2, Clearances, and Section 3, Departure Procedures.

PHRASEOLOGY–
Aircraft on the ground:

(Facility) RADIO, CLEARANCE REQUEST.

After go-ahead from ATC,

(Aircraft identification) DEPARTING (airport), RUNWAY (number if applicable) DESTINATION (fix or airport). (If applicable), CAN BE OFF AT (time).

Aircraft airborne:

(Facility) RADIO, CLEARANCE REQUEST.

After go-ahead from ATC:

(Aircraft identification), (position), (altitude), (route), AND (destination).

b. Prefix all ATC clearances, advisories, or requests with the appropriate phrase "A-T-C CLEARS," "A-T-C ADVISES," etc.

c. When issuing information, relaying clearances, or instructions, ensure acknowledgement by the pilot.

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

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

REFERENCE-
PCG.

4–3–8. DEPARTURE REPORTS

a. When an IFR aircraft reports airborne or is observed airborne, transmit the aircraft identification and departure time to the control facility from which the clearance was received.

PHRASEOLOGY–
(Facility) RADIO. DEPARTURE. (Aircraft identification), (time).

NOTE–
1. *This includes known VFR departure times of aircraft which are to obtain IFR clearances when airborne.*

2. *The requirement for transmitting departure reports may be omitted if requested by the IFR control facility, provided the procedures are specified in a Letter of Agreement.*

b. When an aircraft which has filed an IFR flight plan requests a VFR departure, facilitate the request as follows:

1. If the facility/sector responsible for issuing the clearance is unable to issue a clearance, inform the pilot and suggest that the delay be taken on the ground. If the pilot insists upon taking off VFR and obtaining an IFR clearance in the air, relay the pilot's

intentions and, if possible, the VFR departure time to the facility/sector holding the flight plan.

2. After obtaining approval from the facility/sector responsible for issuing the IFR clearance, an aircraft planning IFR flight may be authorized to depart VFR. Inform the pilot of the proper frequency and, if appropriate, where or when to contact the facility responsible for issuing the clearance.

(a) When requesting:

PHRASEOLOGY–
(Facility) RADIO. (Aircraft identification), REQUEST V-F-R DEPARTURE.

(b) When relaying to aircraft:

PHRASEOLOGY–
A-T-C ADVISES (aircraft identification) V-F-R DEPARTURE APPROVED. CONTACT (facility) ON (frequency) AT (location or time, if required) FOR CLEARANCE.

(c) Relaying to control facility:

PHRASEOLOGY–
(Facility) RADIO. (Aircraft identification) DEPARTED V-F-R AT (time).

4–3–9. IFR FLIGHT PROGRESS REPORTS

Relay to the appropriate ATC facility the aircraft identification, position, time, altitude, estimate of next reporting point, name of subsequent reporting point, and any pilot remarks or requests including amended flight plan data.

PHRASEOLOGY–
(Facility) RADIO. PROGRESS. (Aircraft identification), (position), (altitude), (time) (name and estimate of next reporting point) (name of subsequent reporting point) (pilot's remarks).

4–3–10. ARRIVAL/MISSED APPROACH REPORTS

Relay to the appropriate ATC facility, by the most expeditious means available, the time that an IFR aircraft lands, cancels, or executes a missed approach, and intentions, if known.

4–3–11. NONDELIVERY OF MESSAGES

Inform ATC when a message has not been delivered within:

a. Three minutes of receipt; or

b. Three minutes after the specified delivery time; or

c. A specified cancellation time.

4–3–12. BROADCAST (BLIND TRANSMISSION) OF MESSAGES

Broadcast messages as requested by ATC. If no accompanying transmitting instructions are received, transmit the message four times:

a. Once upon receipt; and

b. At approximately 3-minute intervals thereafter.

4–3–13. PENETRATION OF CLASS A AIRSPACE OR PROHIBITED/RESTRICTED AREA

a. Penetration of Class A airspace. When a VFR aircraft's position report indicates penetration of Class A airspace:

1. Inform the pilot of the Class A airspace penetration and request intentions.

PHRASEOLOGY–
YOU ARE IN CLASS A AIRSPACE. AN A-T-C CLEARANCE IS REQUIRED. REQUEST YOUR INTENTIONS.

2. Inform the control facility immediately.

3. Relay ATC instructions.

b. Penetration of PROHIBITED/RESTRICTED AREA. When an aircraft report indicates penetration of a prohibited/restricted area:

1. Inform the pilot.

PHRASEOLOGY–
YOU ARE IN A PROHIBITED/RESTRICTED AREA, AUTHORIZATION IS REQUIRED. REQUEST YOUR INTENTIONS.

2. Inform the control facility immediately. Relay ATC instructions.

Section 4. Airport Advisory Services

4–4–1. TYPES OF AIRPORT ADVISORY SERVICES

Airport advisory services are provided at airports without an operating control tower that have certified automated weather reporting via voice capability. The types of service depend upon the location of the FSS and communications capabilities. There are three types:

a. Local airport advisory (LAA) is a service provided by facilities that are located on the landing airport.

b. Remote airport advisory (RAA) is a remote service which may be provided by facilities that are not located on the landing airport.

NOTE–
LAA/RAA both have:

1. Ground-to-air communication on the common traffic advisory frequency (CTAF).

2. Automated weather reporting with voice broadcasting.

3. A continuous automated weather data display.

4. Other continuous direct reading instruments, or manual observations available to the specialist.

c. Remote airport information service (RAIS) is a temporary service provided by facilities which are not located on the landing airport but have:

1. Communication capability.

2. Automated weather reporting available to the pilot at the landing airport.

NOTE–
FAA policy requires pilots to access the current automated weather prior to requesting any remote ATC services at non-towered airports. It is the pilot's responsibility to comply with the Federal Aviation Regulations (FARs) if landing clearance is required.

4–4–2. GENERAL

a. If a pilot asks for airport advisory services at an airport where the requested service is not available but one of the services is available, inform the pilot about what service is available, and provide the appropriate service.

PHRASEOLOGY–
(Airport name) AIRPORT ADVISORY IS NOT AVAILABLE. REMOTE AIRPORT INFORMATION...

b. At airports with commissioned automated weather with continuous automated voice capability, instruct the pilot to monitor the automated broadcast and advise intentions.

PHRASEOLOGY–
MONITOR (location) AUTOMATED WEATHER (frequency). ADVISE INTENTIONS.

1. When the pilot indicates receipt of automated weather, provide the appropriate non-weather elements.

2. If the pilot reports the automated weather is out of service, provide the last reported weather available and the appropriate non-weather elements.

c. Advise the pilot that the requested airport advisory/RAIS service is not available. Provide CTAF frequency and/or the automated weather frequency, when available. When not available, issue the last known surface condition and altimeter.

PHRASEOLOGY–
(Airport name) AIRPORT ADVISORY or AIRPORT INFORMATION NOT AVAILABLE. CONTACT (airport name) CTAF (frequency).

d. During initial contact, if the pilot indicates receipt of automated weather, provide only the appropriate non-weather elements. Do not provide weather information unless specifically requested by the pilot or a special report is transmitted.

EXAMPLE–
RAIS:
Pilot - "Green Bay radio, Cessna 12RG, ten northeast, landing Eau Claire, request airport information, I have the automated weather."

FSS - "Cessna 12RG, Eau Claire airport information, your traffic is a Cessna 172 entering downwind and a Convair 660 reported on final, both one minute ago. There is an airport maintenance vehicle .

e. If additional pilots initiate contact a short time after airport advisory services were provided, determine if the new pilot(s) copied the information when it was provided.

1. If the new pilot responds in the affirmative, do not repeat the information.

2. If the new pilot acknowledges the airport advisory information and then requests specific information, provide only the information requested.

NOTE–
The intent is to reduce frequency clutter while insuring that the pilots are aware of the situation as it changes.

f. Final Guard is a service provided in conjunction with airport advisory only during periods of significant and fast changing weather conditions that may affect landing and takeoff operations.

g. Where AFIS is available, confirm receipt of the current AFIS information if the pilot does not initially state the appropriate AFIS code. Issue the current AFIS information to pilots who are unable to receive the AFIS or pilots that do not have the information.

EXAMPLE–
"Verify you have information ALFA."

h. If the pilot requests special VFR clearance, provide the appropriate elements and follow the procedures in Chapter 4, Section 5, Special VFR Operations.

4–4–3. AIRPORT ADVISORY/RAIS ELEMENTS AND PHRASEOLOGY

a. State the airport name and the type of service being provided: airport advisory or airport information.

EXAMPLE–
(Airport name), AIRPORT ADVISORY . . .

Or

(Airport name), AIRPORT INFORMATION . . .

NOTE–
At FSS facilities with AFIS equipment, if an aircraft has acknowledged receipt of the AFIS message, traffic advisories and additional information need not be preceded by the phrase "(Airport name) AIRPORT ADVISORY."

b. Provide the following information as needed to best serve the current traffic situation. Do not approve or disapprove simulated instrument approaches.

1. Wind direction and speed.

2. Favored or designated runway is a service provided in conjunction with an airport advisory. The specialist must check the current wind data and provide the favored or designated runway information as follows:

(a) For takeoff and landing operations state the runway most nearly aligned into the wind.

(b) Inform the pilot when the current wind direction is varying enough that the selection of the favored runway may be affected, when there is more than 10 knots between peaks and lulls, or the pilot has requested the information.

(c) If there is no wind, state the runway currently in use, the runway favored by a shorter taxiway, or other local consideration.

(d) When airport management has designated a runway to be used under certain wind or other conditions (and has informed the FSS in writing) issue runway information accordingly.

(e) If the majority of the traffic has been using a runway other than the favored or designated runway, advise the pilot.

EXAMPLE–
Landing airport has runways 27 (longer) and 32 with most pilots utilizing the shorter runway "WIND VARIABLE BETWEEN TWO EIGHT ZERO AND THREE FOUR ZERO AT ONE FIVE GUSTS TWO EIGHT, FAVORED RUNWAY THREE TWO."

(f) When a pilot advises he/she will use a runway other than the favored or the designated runway, inform all known concerned traffic.

PHRASEOLOGY–
ATTENTION ALL AIRCRAFT. (Aircraft type) DEPARTING/LANDING RUNWAY (number).

(g) If a pilot requests the distance between an intersection and the runway end, furnish measured data from the local airport intersection takeoff diagram or other appropriate sources.

(h) The favored or designated runway is never provided with RAIS.

3. Altimeter Setting.

(a) Airport Advisory: Apply special procedures when the altimeter setting is more than 31.00 inches Hg. Stations with the capability of reading altimeter settings above 31.00 inches Hg must issue altimeter settings.

PHRASEOLOGY–
ALTIMETER IN EXCESS OF THREE ONE ZERO ZERO. HIGH PRESSURE ALTIMETER SETTING PROCEDURES ARE IN EFFECT. RECOMMEND YOU SET ALTIMETER TO THREE ONE ZERO ZERO EN ROUTE."

(b) RAIS. Do not provide the altimeter unless specifically requested. Then, provide the altimeter from the last official weather report.

4. Traffic. Information about observed or reported traffic, which may constitute a collision hazard. This may include positions of aircraft inflight and/or aircraft and vehicles operating on the airport.

PHRASEOLOGY–
TRAFFIC (Aircraft type), (position), (minutes) AGO.

5. Braking action/NOTAM. Furnish braking action reports as received from pilots or airport management to all aircraft as follows:

(a) Describe braking action using the terms fair, poor, or nil. If the pilot or airport management reports braking action in other than the foregoing terms, ask them to categorize braking action in these terms.

(b) When known, include the type of aircraft or vehicle from which the report is received.

EXAMPLE–
"Braking action poor."

"Braking action poor, reported by a Cessna Four-Oh-One."

(c) If the braking action report affects only a portion of a runway, obtain enough information from the pilot or airport management to describe braking action in terms easily understood by the pilot.

EXAMPLE–
"Braking action poor first half of Runway Six, reported by a Gulfstream Two."

"Braking action poor Runway Two-Seven, reported by a Boeing Seven Twenty-Seven."

NOTE–
Descriptive terms, such as first/last half of the runway, should normally be used rather than landmark descriptions, such as opposite the fire station, south of a taxiway.

6. NOTAM. NOTAMs concerning local NAVAIDs and local field conditions/airspace conditions pertinent to flight, for example, local NAVAIDs, TFRs.

EXAMPLE–
"All runways covered by packed snow 6 inches deep."

7. Weather. When the pilot does not have the weather conditions, issue the last reported or known weather information as follows:

(a) Airport Advisory/RAIS:

(1) Wind direction and speed.

(2) Altimeter (except RAIS).

(3) Ceiling and visibility to VFR aircraft when less than basic VFR conditions exist.

(4) Visibility to VFR aircraft when it is less than three miles in any quadrant.

(5) Touchdown runway visual range (RVR)/runway visibility value (RVV) for the runway in use where RVR/RVV readout equipment is located at the workstation providing the service.

(6) To IFR aircraft executing an instrument approach or departure and to the appropriate control facility when visibility is less than 3 miles or when the ceiling is less than 1,000 feet or below the highest circling minimum, whichever is greater.

8. Weather advisory alert. Provide in accordance with subpara 4-3-5a.

PHRASEOLOGY–
(Advisory description) IS CURRENT FOR (condition) OVER (area).

9. Density Altitude.

(a) Facilities at airports with field elevations of 2,000 feet MSL or higher, transmit a density altitude advisory to departing general aviation aircraft whenever the temperature reaches the criteria contained in TBL 2–2-1.

PHRASEOLOGY–
CHECK DENSITY ALTITUDE.

(b) Omit this advisory if pilot states the computation has been done or if the specialist is aware that a density altitude computation for that aircraft was included in the preflight briefing.

10. Wake Turbulence. Issue cautionary information to any aircraft if in your judgment wake turbulence may have an adverse effect on it.

PHRASEOLOGY–
CAUTION, WAKE TURBULENCE (traffic information).

NOTE–
Wake turbulence may be encountered by aircraft in flight as well as when operating on the airport movement area. Because wake turbulence is unpredictable, air traffic personnel are not responsible for anticipating its existence or effect.

11. Final Guard is a wind and altimeter monitoring service provided in conjunction with airport advisory during periods of significant and/or fast changing weather conditions that may affect landing and takeoff operations. The specialist must monitor the remote display of the current wind and altimeter. Provide Final Guard as follows:

(a) When the pilot reports "On final" or "Taking the active runway," the specialist must provide the current wind direction, speed, and altimeter.

(b) If during the landing or takeoff operation conditions change and, in the specialist's opinion, the changing information might be useful to the pilot, the specialist must broadcast the new wind and/or altimeter information in the blind.

(c) Pilots will not be required or expected to acknowledge the broadcast.

EXAMPLE–
"N12RG, Wind (direction) at (speed)."

NOTE–
Final Guard is never provided with RAIS.

12. Runway Friction. Upon request, provide runway friction measurement readings/values as received from airport management to aircraft as follows:

(a) At airports with friction measuring devices, provide runway friction reports, as received from airport management, to pilots. State the runway number followed by the MU number for each of the three runway zones, the time of the report in UTC, and a word describing the cause of the runway friction problem.

EXAMPLE–
"Runway two seven, MU thirty nine, thirty eight, twenty-eight at one zero one eight ZULU, ice."

(b) Issue the runway surface condition and/or the runway condition reading (RCR), if provided, to all U.S. Air Force (USAF) and Air National Guard (ANG) aircraft. Issue the RCR to other aircraft upon request.

EXAMPLE–
"Ice on runway, R-C-R zero five, patchy."

NOTE–
USAF has established RCR procedures for determining the average deceleration readings of runways under conditions of water, slush, ice, or snow. The use of RCR code is dependent upon the pilot's having a "stopping capability chart" specifically applicable to his/her aircraft. USAF offices furnish RCR information at airports serving USAF and ANG aircraft.

4–4–4. CHARTS

Keep charts depicting runways, local taxi routes, intersection takeoff information, airport traffic patterns, and instrument approach procedures convenient to the position that provides airport advisory service.

4–4–5. AUTHORIZED FREQUENCIES

a. Airport Advisory:

1. Provide airport advisory service on the appropriate discrete frequency at non-towered locations and on the tower local control frequency at an airport with a part-time tower when that facility is not operating.

2. If a pilot calls on another frequency, issue advisories on the frequency to which the pilot is listening, in addition to the appropriate Airport Advisory frequency.

3. Encourage the pilot to guard the airport advisory frequency or tower local control frequency within a 10-mile radius of the airport.

NOTE–
In situations where the inflight position is split, advise pilot of appropriate frequency to obtain Airport Advisory/RAIS.

PHRASEOLOGY–
FOR FURTHER ADVISORY SERVICE AT (airport name), MONITOR (frequency) WITHIN ONE ZERO MILES.

b. RAIS:

1. Provide RAIS on the existing discrete frequency located at the remote airport.

2. If a pilot calls and appears to be unaware that RAIS is available, offer the service.

3. If a pilot calls on another frequency, issue advisories on the frequency the pilot is listening, in addition to the appropriate airport advisory frequency.

4. If RAIS is requested when it is not offered, inform the pilot that the service is not available and follow para 4-4-2c.

NOTE–
This service is only provided at remote airports that have an existing discrete communications capability between the airport and the flight service station serving the airport and a NOTAM D announcing the availability of the service is in effect.

4–4–6. TRAFFIC CONTROL

When there is no control tower in operation and a pilot appears unaware of this fact, inform him/her as follows:

PHRASEOLOGY–
NO CONTROL TOWER IN OPERATION.

4–4–7. AIRCRAFT EQUIPMENT CHECKS

When requested, provide observed information.

EXAMPLE–
Landing gear appears to be down and in place.

Section 5. Special VFR Operation

4–5–1. AUTHORIZATION

a. Special VFR (SVFR) operations in weather conditions less than VFR minima are authorized:

1. For helicopters and fixed-wing aircraft at any location not prohibited by 14 CFR Part 91, Appendix D, Section 3, or when an exception to 14 CFR Part 91, Appendix D, Section 3, has been granted and an associated letter of agreement established.

REFERENCE–
14 CFR Part 91, Appendix D, Section 3, Locations at which fixed-wing Special VFR operations are prohibited.

2. Only within surface areas.

3. Only when requested by the pilot.

b. When the primary airport is reporting VFR, SVFR operations may be authorized for aircraft transiting surface areas when the pilot advises the inability to maintain VFR.

NOTE–
Control facilities must always retain SVFR operations authority when IFR operations are being conducted in surface areas.

4–5–2. REQUESTS FOR SPECIAL VFR CLEARANCE

a. Transmit SVFR clearances only for operations within surface areas on the basis of weather conditions. If weather conditions are not reported, transmit an SVFR clearance whenever a pilot advises unable to maintain VFR and requests an SVFR clearance, provided the pilot reports having at least 1-mile flight visibility.

PHRASEOLOGY–
ATC CLEARS (aircraft identification) TO ENTER/OUT OF/THROUGH (name) SURFACE AREA

and if required,

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

MAINTAIN SPECIAL V-F-R CONDITIONS,

and if required,

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

ATC CLEARS (aircraft identification) (coded arrival or departure procedure) ARRIVAL/DEPARTURE, (additional instructions as required).

b. Transmit clearance for local SVFR operations for a specified period (series of takeoffs and landings, etc.) upon request if the aircraft can be recalled when traffic or weather conditions require. Letters of agreement may be established.

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

c. If an aircraft operating under visual flight rules attempts to enter, depart, or operate within surface areas contrary to the provisions of 14 CFR Section 91.157 (visual flight rules), ensure the pilot is aware of the current weather conditions. Provide the following information:

1. At airports with commissioned automated weather with continuous automated voice capability, instruct the pilot to monitor the automated broadcast and advise intentions.

PHRASEOLOGY–
MONITOR (location) AUTOMATED WEATHER (frequency). ADVISE INTENTIONS.

2. At airports without a commissioned automated weather, or, if the pilot is unable to receive the automated weather broadcast, issue the most current weather report available. Advise the pilot that the weather is below VFR minima, and request the pilot's intentions.

PHRASEOLOGY–
(Location) WEATHER, CEILING (height), VISIBILITY (miles). (Location) SURFACE AREA IS BELOW V-F-R MINIMA. AN ATC CLEARANCE IS REQUIRED. ADVISE INTENTIONS.

NOTE–
Helicopters performing hover taxiing operations (normally not above 10 feet) within the boundary of the airport are considered to be taxiing aircraft.

d. At a pilot's request, issue a SVFR clearance, if appropriate, when a SVFR letter of agreement exists between an FSS and the control facility. If no agreement exists, request clearance from the control

facility. State the aircraft's location and route of flight.

PHRASEOLOGY–
(Facility name) RADIO. REQUEST SPECIAL V-F-R CLEARANCE (aircraft identification) (direction) OF (location) AIRPORT (specified routing) TO ENTER/OUT OF/THROUGH (name) AIRPORT (specified routing).

NOTE–
IFR aircraft normally have priority over SVFR aircraft.

1. If the pilot is operating outside surface area and requests SVFR clearance, issue the clearance or if unable, advise the pilot to maintain VFR outside surface area and to standby for clearance.

PHRASEOLOGY–
MAINTAIN V-F-R OUTSIDE (location) SURFACE AREA. STANDBY FOR CLEARANCE.

2. When an aircraft requests a SVFR clearance to enter surface area during periods of SVFR activity, instruct the pilot to maintain VFR conditions outside surface area pending arrival/recall/departure of SVFR operations.

PHRASEOLOGY–
MAINTAIN V-F-R CONDITIONS OUTSIDE OF THE (location) SURFACE AREA PENDING ARRIVAL/RECALL/DEPARTURE OF IFR/SPECIAL V-F-R AIRCRAFT.

3. If the pilot is operating inside the surface area and requests an SVFR clearance, advise the pilot to maintain VFR and standby for clearance.

PHRASEOLOGY–
MAINTAIN V-F-R. STANDBY FOR CLEARANCE.

e. Suspend SVFR operations when necessary to comply with instructions contained in subpara 4-5-4b or when requested by the control facility.

PHRASEOLOGY–
SPECIAL V-F-R AUTHORIZATION DISCONTINUED. RETURN TO AIRPORT OR DEPART SURFACE AREA. ADVISE INTENTIONS.

After response:

REPORT LANDING COMPLETED/CLEAR SURFACE AREA.

4–5–3. VISIBILITY BELOW 1 MILE

a. When the ground visibility is officially reported at an airport as less than 1 mile, treat requests for SVFR operations at that airport by other than helicopters as follows:

NOTE–
14 CFR Part 91 does not prohibit helicopter Special VFR flights when visibility is less than 1 mile.

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

PHRASEOLOGY–
(Location) VISIBILITY (value). A-T-C UNABLE TO ISSUE DEPARTURE CLEARANCE.

2. Inform arriving aircraft operating outside of the surface area that ground visibility is less than 1 mile and, unless an emergency exists, a clearance cannot be issued.

PHRASEOLOGY–
(Location) VISIBILITY (value). A-T-C UNABLE TO ISSUE ENTRY CLEARANCE UNLESS AN EMERGENCY EXISTS.

3. Inform arriving aircraft operating within the surface area that ground visibility is less than 1 mile and request the pilot's intentions. Relay the pilot's response to the control facility immediately.

PHRASEOLOGY–
(Location) VISIBILITY (value). ADVISE INTENTIONS.

b. When weather conditions are not officially reported at an airport and the pilot advises the flight visibility is less than 1 mile, treat request for SVFR operations at that airport by other than helicopters as follows:

NOTE–
14 CFR Part 91 prescribes use of officially reported ground visibility as the governing ground visibility for VFR and SVFR operations at airports where it is provided and landing or takeoff flight visibility where it is not.

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

PHRASEOLOGY–
UNABLE TO ISSUE DEPARTURE CLEARANCE.

2. Inform arriving aircraft operating outside the surface area that unless an emergency exists, a clearance cannot be issued.

PHRASEOLOGY–
ATC UNABLE TO ISSUE ENTRY CLEARANCE UNLESS AN EMERGENCY EXISTS.

3. Request intentions of arriving aircraft operating within surface areas. Relay the pilot's response to the control facility immediately.

PHRASEOLOGY–
ADVISE INTENTIONS.

c. Transmit a clearance to scheduled air carrier aircraft to conduct operations if ground visibility is not less than 1/2 mile.

d. Transmit a clearance to an aircraft to fly through surface area if the pilot reports flight visibility is at least 1 statute mile.

4–5–4. PREDESIGNED SPECIAL VFR CLEARANCES

Transmit predesigned SVFR clearances only during those periods authorized by the control facility.

NOTE–
The control facility may rescind this authorization at any time.

a. Apply these procedures only to aircraft equipped with a functioning two-way radio. Refer all requests for no-radio SVFR operations to the control facility.

b. Transmit clearances so that only one aircraft at a time operates in surface area unless:

1. Otherwise authorized by a letter of agreement between the control facility and the FSS.

2. A pilot requests and all pilots agree that they will maintain visual separation while operating in surface area.

PHRASEOLOGY–
MAINTAIN VISUAL SEPARATION FROM (aircraft type).

Section 6. En Route Flight Advisory Service (EFAS)

4–6–1. GENERAL

The purpose of EFAS, radio call "FLIGHT WATCH" (FW), is to provide en route aircraft with timely and pertinent weather data tailored to a specific altitude and route using the most current available sources of aviation meteorological information.

NOTE–
EFAS/Flight Watch outlets are listed in the Airport/Facility Directory (AFD).

4–6–2. POSITION RESPONSIBILITIES

Prior to assuming the duties of the flight watch position:

a. Perform a thorough self-briefing by reviewing all pertinent weather data.

b. When relieving a specialist on the flight watch position, obtain a pre-duty briefing from the person being relieved.

c. When appropriate, obtain a briefing of current and forecast weather within the flight watch area (FWA) from the CWSU of the associated air route traffic control center (ARTCC). (See para 4-6-5.)

d. Maintain currency of weather conditions and trends while assigned the flight watch position by reviewing new or revised meteorological issuances and by observing weather trends contained in current weather reports and PIREPs.

4–6–3. OPERATING PROCEDURES

a. Tailor en route flight advisories to the phase of flight that begins after climb out and ends with descent to land. Current weather and terminal forecast at the airport of first intended landing and/or the alternate airport must be provided on request. When conditions dictate, provide information on weather for alternate routes and/or altitudes to assist the pilot in the avoidance of hazardous flight conditions. Advise the pilot to contact the adjacent FWA when adverse weather conditions along the intended route extend beyond the FWA.

b. EFAS must not be used for routine inflight services; for example, flight plan filing, position reporting, or full route (preflight) briefings. If a request for information is received that is not within the scope of flight watch, advise the pilot of the appropriate FSS to contact.

EXAMPLE–
"Cessna Four Seven Five Eight Xray, Cleveland Flight Watch, contact Altoona Radio on one two two point four to file your flight plan."

c. Suggest route or destination changes to avoid areas of weather which in the judgment of the specialist constitute a threat to safe flight.

d. Alert the associated CWSU or WFO immediately of reported or observed significant weather that is not included in aviation forecasts.

4–6–4. FREQUENCIES

a. Use frequency 122.0 MHz to provide flight watch services to aircraft below FL 180.

b. Use the assigned discrete frequency to provide flight watch services to aircraft at FL 180 and above. This frequency can also be used for communications with aircraft below FL 180 when communication coverage permits.

c. Aircraft operating at FL 180 or above that contact flight watch on frequency 122.0 MHz should be advised to change to the high altitude discrete frequency for Flight Watch.

PHRASEOLOGY–
(Aircraft identification) (facility) FLIGHT WATCH, FOR SERVICE AT YOUR ALTITUDE. CONTACT FLIGHT WATCH ON (frequency).

d. Avoid the simultaneous keying of two or more transmitters on the same frequency. This action can block or hinder communications.

NOTE–
Frequency 122.0 MHz RCF outlets are geographically located to ensure communications coverage at 5,000 feet AGL and above over the conterminous United States. High altitude discrete frequency RCF outlets are geographically located to ensure communications coverage between FL 180 and FL 450 over the EFAS facility's area of responsibility. Communications practices should be guided by these restrictions.

4–6–5. NWS SUPPORT TO EFAS

The NWS support function for EFAS is as follows:

a. The associated CWSU is designated as the primary support facility for each flight watch area. The CWSU should be contacted at least once per shift for a general briefing of meteorological conditions which are impacting, or expected to impact, aviation weather within the flight watch /ARTCC area.

NOTE–
Due to assigned priorities, the CWSU meteorologist may not be able to provide in-depth briefing service for up to 2 hours after the start of the first shift of the CWSU unit. (See FAA Order JO 7210.3, Para 14-3-6, National Weather Service (NWS) Support, for establishment of operational support.)

b. During the period when the CWSU is not available to provide consultation service, WFOs are responsible for responding to EFAS facility requests regarding weather conditions prevailing within the WFO area of responsibility. The EFAS specialist should contact the responsible WFO directly for clarification of forecasts or questions concerning products originated by the WFO.

NOTE–
The ARTCC/EFAS area may encompass multiple WFO areas.

c. Consult with the Aviation Weather Center (AWC), as appropriate, when further information or clarification is needed regarding WS, WST, WA, and FA products.

4–6–6. PILOT WEATHER REPORTS

a. Actively solicit and disseminate PIREPs in accordance with Chapter 9, Section 2. Additionally, PIREPs concerning winds and temperature aloft, wind shear, turbulence, and icing must be solicited and disseminated when one or more of these conditions or criteria exist. Flight watch specialists must solicit sufficient PIREPs to remain aware of flight conditions.

b. Maintain a graphic display of pertinent PIREPs within the flight watch area. Periodically review the display, and actively solicit additional PIREPs when necessary to ensure completeness and accuracy of the information.

c. Requests for special solicitation of PIREPs from other facilities or the NWS must be honored as rapidly as operations permit.

4–6–7. GRAPHIC WEATHER DISPLAY

a. Prior to assuming flight watch duties, the specialist must review, as a minimum, the graphic information listed below (if available). After assuming duties, the specialist must continue to review graphic and written data as needed during the watch to update and maintain a thorough knowledge of weather synoptic and forecast information affecting aviation operations.

1. Weather Depiction.

2. Surface Analysis.

3. Forecast Winds Aloft.

4. G-AIRMET Graphic.

5. 12- and 24- hour low–level significant weather prognosis.

6. 36-and 48- hour low–level significant weather prognosis.

7. High–level significant weather prognosis.

8. Freezing level graphic.

9. Freezing level analysis.

10. *Current Icing Product (CIP).

11. *Forecast Icing Product (FIP).

12. *Graphical Turbulence Guidance (GTG).

13. 850 MB upper air analysis.

14. 700 MB upper air analysis.

15. 500 MB upper air analysis.

16. 300 MB upper air analysis.

17. 250 MB upper air analysis.

18. 200 MB upper air analysis.

19. 500 MB heights and vorticity analysis.

20. 500 MB heights and vorticity prognosis.

21. Severe weather outlook.

22. Lifted index analysis.

23. National weather radar summary.

24. Maximum temperature 24- and 36- hour forecast.

25. Minimum temperature 24- and 36- hour forecast.

NOTE–
**Denotes weather products that are supplementary. They may only be used to enhance situational awareness. When discrepancies are noted, the specialist must base their decision on the primary weather product.*

b. Access local and remote weather displays as necessary to maintain current knowledge of precipitation intensity, movement, and coverage. Provide pertinent real-time weather radar information that will directly impact the aircraft's flight.

4–6–8. INTERRUPTIONS TO SERVICE

Notification of temporary outages, either equipment or operational, must be made in accordance with FAA Order JO 7930.2, Notices to Airmen (NOTAM). In order to provide continuous service, notify the specialist responsible for the adjacent flight watch area of outages.

4–6–9. EMERGENCIES

a. Emergency situations must be handled in accordance with Chapter 5.

b. When working an aircraft in an emergency situation over a remote outlet, the normal procedure is to provide assistance on the initial contact frequency. Flight watch specialists should bear in mind that air traffic facilities based at, or near to, the remote location may be in a better position to assist the pilot. A decision to affect a frequency change should be based on the situation and circumstances involved in the emergency.

Chapter 5. Emergency Services

Section 1. General

5–1–1. EMERGENCY DETERMINATION

a. Because of the infinite variety of possible emergency situations, specific procedures cannot be prescribed. However, when it is believed that an emergency exists or is imminent, take a course of action which appears to be most appropriate under the circumstances and which most nearly conforms to the instructions in this manual.

b. An emergency can be either a DISTRESS or URGENCY condition, as defined in the Pilot/Controller Glossary.

NOTE–
A pilot who encounters a DISTRESS condition may declare an emergency by beginning the initial communication with the word MAYDAY, preferably repeated three times. For an URGENCY condition, the word PAN-PAN may be used in the same manner.

c. If the words MAYDAY or PAN-PAN are not used, and there is doubt that a situation constitutes an emergency or potential emergency, handle it as though it is an emergency.

d. Consider an aircraft emergency exists and inform the appropriate control facility when:

1. An emergency is declared by any of the following:

(a) The pilot.

(b) Facility personnel.

(c) Officials responsible for the operation of the aircraft.

2. Reports indicate that the aircraft's operating efficiency is so impaired that a forced landing may be/is necessary.

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

4. Intercept or escort services are requested.

5. The need for ground rescue appears likely.

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

REFERENCE–
FAAO 7110.10, Para 5-1-2c, Responsibility
FAAO 7110.10, Para 5-2-8, Emergency Locator Transmitter (ELT) Signals

5–1–2. RESPONSIBILITY

a. If in communication with an aircraft in distress, handle the emergency, and coordinate and direct the activities of assisting facilities. Transfer this responsibility to another facility only when better handling of the emergency will result.

b. Upon receipt of information about an aircraft in distress, forward detailed data to the appropriate control facility in whose area the emergency exists.

NOTE–
Notifying the appropriate control facility about a VFR aircraft emergency allows provision of IFR separation if considered necessary.

c. The ARTCC is responsible for consolidation of all pertinent ELT signal information. Notify the ARTCC of all heard or reported ELT signals.

5–1–3. OBTAINING INFORMATION

Obtain enough information to handle the emergency intelligently. Base decisions about the type of assistance needed on information and requests received from the pilot. 14 CFR Part 91 authorizes the pilot to determine a course of action.

5–1–4. COORDINATION

a. Request assistance from other facilities as soon as possible, particularly if radar is available.

b. Coordinate efforts to the extent possible to assist any aircraft believed overdue, lost, or in emergency status.

5–1–5. PROVIDING ASSISTANCE

a. Provide maximum assistance to aircraft in distress. If the aircraft is transponder-equipped and not on an IFR flight plan, instruct the pilot to squawk code 7700.

PHRASEOLOGY–
SQUAWK SEVEN SEVEN ZERO ZERO.

b. Enlist the service of available radar facilities.

5–1–6. RECORDING INFORMATION

Record all actions taken in the provision of emergency assistance.

5–1–7. SAFE ALTITUDES FOR ORIENTATIONS

a. Providing a safe altitude, during an orientation, is advisory in nature.

b. Safe altitude computations, once the aircraft position is known, are as follows:

1. Locate the maximum elevation figure on the appropriate VFR sectional chart.

2. To the maximum elevation figure,

(a) Add 1,000 feet over non-mountainous terrain; or

(b) Add 2,000 feet over mountainous terrain.

3. Designated mountainous/non-mountainous areas are found in Title 14 CFR, Part 95, subpart b.

Section 2. Operations

5–2–1. INFORMATION REQUIREMENTS

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

1. Aircraft identification, type, and transponder.

2. Nature of the emergency.

3. Pilot's desires.

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

1. Aircraft altitude.

2. Fuel remaining, in time.

3. Pilot-reported weather.

4. Pilot capability for IFR flight.

5. Time and place of last known position.

6. Heading since last known position.

7. Airspeed.

8. Navigation equipment capability.

9. NAVAID signals received.

10. Visible landmarks.

11. Aircraft color.

12. Number of people on board.

13. Point of departure and destination.

14. Emergency equipment on board.

5–2–2. FREQUENCY CHANGES

Provide assistance on the initial contact frequency. Change frequencies only when there is a valid reason. Advise the pilot to return to the initial frequency if unable to establish contact.

5–2–3. AIRCRAFT ORIENTATION

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

a. Radar.

b. NAVAIDs.

c. Pilotage.

d. Sighting by other aircraft.

5–2–4. ALTITUDE CHANGE FOR IMPROVED RECEPTION

If deemed necessary, and if weather and circumstances permit, recommend the aircraft maintain or increase altitude to improve communications or reception.

5–2–5. ALERTING CONTROL FACILITY

When an aircraft is considered to be in emergency status, alert the appropriate control facility, and forward the following information as available:

a. Facility/sector and position calling.

b. Flight plan, including color of aircraft, if known.

c. Time of last transmission received, by whom, and frequency used.

d. Last known position, estimated present position, and maximum range of flight of the aircraft based on remaining fuel and airspeed.

e. Action taken by reporting facility and proposed action.

f. Number of persons on board.

g. Fuel status.

h. Position of other aircraft near the aircraft's route of flight, when requested.

i. Whether an ELT signal has been heard or reported in the vicinity of the last known position.

j. Other pertinent information.

5–2–6. VFR AIRCRAFT IN WEATHER DIFFICULTY

If a VFR aircraft requests assistance when it encounters or is about to encounter IFR weather conditions, request the pilot contact the appropriate control facility. Inform that facility of the situation.

If the pilot is unable to communicate with the control facility, relay information and clearances.

5–2–7. AIRCRAFT POSITION PLOTS

If necessary, plot the flight path of the aircraft on a chart, including position reports, predicted positions, possible range of flight, and any other pertinent information. Solicit the assistance of other aircraft known to be operating near the aircraft in distress. Forward the information to the appropriate control facility.

5–2–8. EMERGENCY LOCATOR TRANSMITTER (ELT) SIGNALS

When an ELT signal is heard or reported:

a. Notify the ARTCC, who will coordinate with the Rescue Coordination Center (RCC).

b. If the ELT signal report was received from an airborne aircraft, attempt to obtain the following information:

1. The aircraft altitude.

2. Where and when the signal was first heard.

3. Where and when maximum signal was heard.

4. Where and when signal faded or was lost. Solicit the assistance of other aircraft known to be operating in the signal area for the same information. Relay all information obtained to the ARTCC.

c. Attempt to obtain fixes or bearings on the signal and forward any information obtained to the ARTCC.

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

d. In addition to the above, when the ELT signal strength indicates the transmitter may be on the airport or in the vicinity, notify the on-site technical operations services personnel for their action.

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

f. Attempt to locate the signal source by checking all adjacent airports not already checked by other ATC facilities for the following information:

1. Can ELT signal be heard?

2. Does signal strength indicate transmitter may be on airport?

3. Can attempt be made to locate and silence transmitter?

4. Advise the results of any action taken. Forward all information obtained and action taken to the ARTCC.

g. Notify the ARTCC if the signal source is located and whether the aircraft is in distress, plus any action taken or proposed for silencing the transmitter. Request person who located signal's source to attempt to obtain ELT make, model, etc., for relay to RCC via the ARTCC.

h. Notify the ARTCC if the signal terminates prior to location of the source.

NOTE–
1. *The ARTCC serves as the contact point for collecting information and coordinating with the RCC on all ELT signals.*

2. *Operational ground testing of ELT has been authorized during the first 5 minutes of each hour. To avoid confusing the tests with an actual alarm, the testing is restricted to no more than three audio sweeps.*

3. *Portable, handcarried receivers assigned to air traffic facilities (where no technical operations services personnel are available) may be loaned to responsible airport personnel or local authorities to assist in locating signal source.*

5–2–9. EXPLOSIVE CARGO

When you receive information that an emergency landing will be made with explosive cargo aboard, inform the pilot of the safest or least congested airport areas. Relay the explosive cargo information to:

a. The emergency equipment crew.

b. The airport management.

c. The appropriate military agencies when requested by the pilot.

5–2–10. EXPLOSIVE DETECTION DOG HANDLER TEAMS

Take the following actions upon receipt of a pilot request for the location of the nearest explosive detection K–9 team.

a. Obtain the aircraft's identification and current position, and advise the person in charge of the watch of the pilot's request.

b. Relay the pilot's request to the FAA Washington Operations Center, AEO-100, (202) 267-3333, and provide the aircraft identification and position.

c. AEO-100 will provide the nearest location. Have AEO-100 standby while the information is relayed to the pilot.

d. If the pilot wishes to divert to the airport location provided, obtain an estimated arrival time from the pilot, and advise the person in charge of the watch.

e. After the aircraft destination has been determined, provide the estimated arrival time to AEO-100. AEO–100 will then notify the appropriate airport authority at the diversion airport. In the event the K-9 team is not available at this airport, AEO-100 will advise the air traffic facility and provide them with the secondary location. Relay this to the pilot concerned for appropriate action.

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

5–2–11. INFLIGHT EQUIPMENT MALFUNCTIONS

When a pilot reports an inflight equipment malfunction, take the following action:

a. Request the nature and extent of any special handling desired.

NOTE–
14 CFR Part 91.187 requires the pilot in command of each aircraft operated in controlled airspace under IFR MUST report as soon as practical to ATC any malfunctions of navigational, approach, or communication equipment occurring in flight. This includes the degree to which the capability of the aircraft to operate IFR in the air traffic control system is impaired and the nature and extent of any assistance desired from air traffic control.

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

c. Relay any special handling required or being provided to other specialists or facilities who will subsequently handle the aircraft.

5–2–12. NAVY FLEET SUPPORT MISSIONS

Handle Navy Fleet Support Missions aircraft as follows:

a. When you receive information concerning an emergency to a U.S. Navy Special Flight Number aircraft, inform the nearest ARTCC of all pertinent information.

b. Relay the words "SPECIAL FLIGHT NUMBER" followed by the number given as part of the routine IFR flight information.

5–2–13. COUNTRIES IN THE SPECIAL INTEREST FLIGHT PROGRAM

Upon receipt of any flight movement data on an aircraft registered in a special interest country, notify the supervisor and the appropriate ARTCC immediately. Additionally, if the aircraft is making an emergency or an unscheduled landing in the United States, notify the nearest Bureau of Customs and Border protection office.

NOTE–
Special interest countries include Russia, China (not including Hong Kong, Taiwan, or Macau), Cuba, Iran, North Korea, Syria, and Sudan.

5–2–14. MINIMUM FUEL

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

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

5–2–15. AIRCRAFT BOMB THREATS

a. When information is received from any source that a bomb has been placed on, in, or near an aircraft for the purpose of damaging or destroying such

aircraft, notify the supervisor or facility manager. If the threat is general in nature, handle it as a suspicious activity. When the threat is targeted against a specific aircraft and you are in contact with that aircraft, take the following actions as appropriate:

NOTE–
1. *Facility supervisors are expected to notify the appropriate offices, agencies, and operators/air carriers according to applicable plans, directives, FAA Order JO 7210.3, Facility Operation and Administration, or military directives.*

2. *Suspicious activity is covered in FAA Order JO 7610.4, Chapter 7, Hijacked/Suspicious Aircraft Reporting and Procedures. Military facilities would report a general threat through the chain of command or according to service directives.*

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

3. *A specific threat may be directed at an aircraft registry or tail number, the air carrier flight number, the name of an operator, crew member or passenger, the departure/arrival point or times, or combinations thereof.*

1. Advise the pilot of the threat.

2. Report the threat to the Domestic Events Network (DEN) Air Traffic Security Coordinator (ATSC) via (202) 493-4170. If unable to contact the DEN ATSC notify the Transportation Security Administration/Transportation Security Operation Center (TSA/TSOC) directly at 703-563-3400.

3. Ask if the pilot desires to climb or descend to an altitude that would equalize or reduce the outside air pressure/existing cabin air pressure differential. Obtain and relay an appropriate clearance considering minimum en route altitude (MEA), minimum obstruction clearance altitude (MOCA), minimum reception altitude (MRA), and weather.

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

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

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

5. Obtain and relay clearance to a new destination, if requested.

6. When a pilot requests technical assistance or if it is apparent that such assistance is needed, do NOT suggest what actions the pilot should take concerning a bomb, but obtain the following information and notify the supervisor who will contact the DEN ATSC or TSA/TSOC as explained in a2 above.

NOTE–
This information is needed by TSA explosives experts so that the situation can be assessed and immediate recommendations made to the pilot. The aviation explosives experts may not be familiar with all military aircraft configurations but can offer technical assistance which would be beneficial to the pilot.

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

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

(c) Other details which may be pertinent.

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

1. If the pilot ignores the threat, recommend that takeoff be delayed until the pilot or aircraft operator establishes that a bomb is not aboard.

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

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

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

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

e. The handling of aircraft when a hijacker has or is suspected of having a bomb requires special considerations. Be responsive to the pilot's requests and notify supervisory personnel. Apply hijacking procedures in accordance with FAA Order JO 7610.4, Special Operations, Chapter 7, and if needed, offer assistance to the pilot according to the preceding paragraphs.

5–2–16. EMERGENCY SECURITY CONTROL OF AIR TRAFFIC (ESCAT)

a. The ESCAT Plan outlines responsibilities, procedures, and instructions for the security control of civil and military air traffic and NAVAIDs under various emergency conditions.

b. When notified of ESCAT implementation, follow the instructions received from the Air Traffic Control System Command Center (ATCSCC)/ARTCC.

1. To ensure that ESCAT actions can be taken expeditiously, periodic ESCAT tests will be conducted in connection with NORAD exercises. Tests may be local, regional, or national in scope.

2. FSS must participate in tests except where such participation will involve the safety of aircraft.

3. During ESCAT tests, all actions will be simulated.

REFERENCE–
FAAO JO 7610.4, Chapter 6, Emergency Security Control of Air Traffic (ESCAT).

Section 3. ADF/VOR Orientation

5–3–1. ACTIONS REQUIRED

When providing automatic direction finder (ADF)/VOR orientation services to an aircraft in emergency status:

a. Determine if the aircraft is in VFR or IFR weather conditions, fuel remaining, altitude, and heading.

b. If the aircraft is operating in IFR weather conditions, coordinate with the appropriate control facility.

c. Determine if the aircraft is on a flight plan. If the aircraft is not on an IFR flight plan and is in VFR weather conditions, advise the pilot to remain VFR.

5–3–2. GENERAL

When providing ADF/VOR orientation services to an aircraft in emergency status:

a. Position Fixing.

1. Advise the pilot to remain VFR, and provide local altimeter setting.

PHRASEOLOGY–
MAINTAIN V-F-R AT ALL TIMES. ADVISE IF HEADING OR ALTITUDE CHANGE IS NECESSARY TO REMAIN V-F-R. (Location) ALTIMETER (setting).

2. Obtain heading and altitude. Advise the pilot to maintain straight and level flight and to align the heading indicator with the magnetic compass.

PHRASEOLOGY–
MAINTAIN STRAIGHT AND LEVEL FLIGHT. RESET YOUR HEADING INDICATOR TO AGREE WITH YOUR MAGNETIC COMPASS. AFTER YOU HAVE DONE THIS, SAY YOUR HEADING AND ALTITUDE.

3. Determine the weather conditions and fuel status.

PHRASEOLOGY–
WHAT IS THE WEATHER AT YOUR ALTITUDE AND FUEL REMAINING IN TIME?

4. Advise the pilot to maintain the same heading, verify the aircraft has ADF equipment, and determine the airspeed.

PHRASEOLOGY–
CONTINUE HEADING (degrees). WHAT TYPE OF NAVIGATIONAL EQUIPMENT DO YOU HAVE ON BOARD, AND WHAT IS YOUR AIRSPEED?

5. Advise the pilot to tune the ADF receiver to the NDB. Provide the NDB name, identifier, and frequency.

PHRASEOLOGY–
TUNE YOUR A-D-F RECEIVER TO THE (name) RADIO BEACON, FREQUENCY (frequency), IDENTIFICATION (ident). CHECK VOLUME UP, AND IDENTIFY THE STATION. ADVISE WHEN YOU HAVE DONE THIS.

6. After acknowledgment has been received, advise the pilot to set the ADF function switch to the ADF position and report the reading.

PHRASEOLOGY–
IF YOU HAVE A ROTATING COMPASS CARD (ROSE) ON YOUR A-D-F INDICATOR, MAKE CERTAIN NORTH IS AT THE TOP OF THE DIAL. TURN THE FUNCTION SWITCH TO THE A-D-F POSITION. WHEN THE NEEDLE STABILIZES, ADVISE THE A-D-F NEEDLE READING.

REFERENCE–
The Instrument Flying Handbook. North may mean "north, N, zero (0) or 360."

7. Compute the magnetic bearing.

(a) Relative Bearing (RB) + Magnetic Heading (MH) = Magnetic Bearing (MB)

(b) If the MB exceeds 360 degrees, subtract 360 to determine MB; for example, 480 degrees - 360 degrees = 120 degrees MB.

8. Advise the pilot of direction from the NDB.

PHRASEOLOGY–
YOU ARE (direction) OF THE (name) RADIO BEACON.

b. Orientation.

1. Turn the aircraft inbound to the NDB being used. Provide the direction of the turn and the heading to be flown. Advise the pilot to report when established on that heading.

PHRASEOLOGY–
FOR A-D-F ORIENTATION, TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

2. Notify the appropriate control facility. Provide all required information including the aircraft's position and heading.

3. Verify that the aircraft is established on a line of position to the NDB.

PHRASEOLOGY–
WHAT IS YOUR A-D-F NEEDLE READING?

4. Provide heading adjustments as needed for the aircraft to continue inbound to the NDB.

(a) If the pilot indicates an ADF reading other than 3-6-0, compute the new heading and advise the aircraft.

PHRASEOLOGY–
TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

(b) After pilot reports established and needle is on 3-6-0, heading adjustments are not necessary.

PHRASEOLOGY–
CONTINUE HEADING (degrees).

c. Cross-fixing. After the aircraft is established inbound to the NDB, use the following procedures:

1. Advise the pilot to tune the ADF receiver to the NDB to be used for cross-fixing. Provide the NDB name, identifier, and frequency.

PHRASEOLOGY–
TUNE YOUR A-D-F RECEIVER TO THE (name) RADIO BEACON, FREQUENCY (frequency), IDENTIFICATION (identification). CHECK VOLUME UP, AND IDENTIFY THE STATION. ADVISE WHEN YOU HAVE DONE THIS.

2. After acknowledgment has been received, request ADF reading.

PHRASEOLOGY–
WHEN THE NEEDLE STABILIZES, ADVISE THE A-D-F NEEDLE READING.

3. Compute and plot the second line of position.

NOTE–
The intersection of the two lines of position is the aircraft's position at the time of the second ADF reading.

4. Advise the pilot of the aircraft's position and the safe altitude for orientation in that area.

PHRASEOLOGY–
YOU ARE (miles) (direction) OF THE (name) RADIO BEACON. THE SAFE ALTITUDE FOR ORIENTATIONS IN THAT AREA IS (feet).

5. Request pilot's intentions and provide assistance, as requested.

PHRASEOLOGY–
WHAT ARE YOUR INTENTIONS?

5–3–3. VOR ORIENTATION/VOR CROSS-FIX

When using VOR orientation and/or cross-fix procedures, determine the aircraft's position as follows:

a. Position Fixing.

1. Advise the pilot to remain VFR and provide the local altimeter setting.

PHRASEOLOGY–
MAINTAIN V-F-R AT ALL TIMES. ADVISE IF HEADING OR ALTITUDE CHANGE IS NECESSARY TO REMAIN V-F-R. (Location) ALTIMETER (setting).

2. Obtain heading and altitude. Advise the pilot to maintain straight and level flight and to align the heading indicator to agree with the magnetic compass.

PHRASEOLOGY–
MAINTAIN STRAIGHT AND LEVEL FLIGHT. RESET YOUR HEADING INDICATOR TO AGREE WITH YOUR MAGNETIC COMPASS. AFTER YOU HAVE DONE THIS, SAY YOUR HEADING AND ALTITUDE.

3. Determine the weather conditions and the fuel status.

PHRASEOLOGY–
WHAT IS THE WEATHER AT YOUR ALTITUDE AND FUEL REMAINING IN TIME.

4. Advise the pilot to maintain the same heading, verify the aircraft has VOR equipment, and determine the airspeed.

PHRASEOLOGY–
CONTINUE HEADING (degrees). WHAT TYPE OF NAVIGATIONAL EQUIPMENT DO YOU HAVE ON BOARD, AND WHAT IS YOUR AIRSPEED?

5. If the pilot calls on a simplex frequency, such as 122.2, advise the pilot to tune the receiver to the VOR you have selected. Provide the VOR name, frequency, and communication procedures.

PHRASEOLOGY–
CONTINUE TRANSMITTING THIS FREQUENCY. TUNE YOUR V-O-R RECEIVER TO THE (name) V-O-R, FREQUENCY (frequency) IDENTIFICATION (identification). CHECK VOLUME UP, AND IDENTIFY THE STATION. ADVISE WHEN YOU HAVE DONE THIS.

NOTE–
If the pilot calls on duplex (122.1), use the VOR the pilot is tuned as the initial VOR.

6. Determine the aircraft's course selector reading.

PHRASEOLOGY–
ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING.

7. Advise the pilot of the aircraft's position.

PHRASEOLOGY–
YOU ARE (direction) OF THE (name) V-O-R.

b. Orientation.

1. Turn the aircraft inbound to the VOR being used. Provide the direction of turn and the heading to be flown. Advise the pilot to report when established on that heading.

PHRASEOLOGY–
FOR V-O-R ORIENTATION, TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

2. Notify the appropriate control facility. Provide all the required information including the aircraft's position and heading.

3. Verify that the aircraft is established on a line of position to the VOR.

PHRASEOLOGY–
WHAT IS THE POSITION OF YOUR LEFT/RIGHT NEEDLE?

4. Provide heading adjustments as needed for the aircraft to continue inbound to the VOR.

(a) When the pilot indicates the left/right needle is not centered, advise the pilot to re-center needle with a "TO" indication and report the course selector reading.

PHRASEOLOGY–
Pilot response indicates needle not centered:

ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING. (If appropriate) TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED (degrees).

(b) After the aircraft is established on the inbound radial, advise the aircraft to continue on the inbound heading.

PHRASEOLOGY–
CONTINUE HEADING (degrees).

5. Plot line of position.

c. Cross-fixing. After the aircraft is established inbound to the VOR, use the following procedures:

1. Advise the pilot to tune the receiver to the VOR you have selected for cross-fixing. Provide VOR name, frequency, and lost communications procedures.

PHRASEOLOGY–
CONTINUE TRANSMITTING THIS FREQUENCY. TUNE YOUR V-O-R RECEIVER TO THE (name) V-O-R, FREQUENCY (frequency), IDENTIFICATION (identification). CHECK VOLUME UP. IF COMMUNICATION IS NOT ESTABLISHED IMMEDIATELY, RETURN TO THIS FREQUENCY.

2. Using only the voice feature of the second VOR, establish positive communication with the aircraft.

PHRASEOLOGY–
(Name) RADIO TRANSMITTING ON THE (name) V-O-R. HOW DO YOU HEAR? OVER.

NOTE–
Transmit only on the frequency of the VOR being used for cross-fixing, if available.

3. After communication has been reestablished, advise the pilot to re-center the VOR left/right needle and advise the reading.

PHRASEOLOGY–
ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING.

4. If the pilot is transmitting on duplex (122.1) and the cross fix VOR has no voice capability, provide the following instructions.

PHRASEOLOGY–
CONTINUE TRANSMITTING THIS FREQUENCY. TUNE YOUR VOR RECEIVER TO THE (name) VOR, FREQUENCY (frequency), IDENTIFICATION (ident). CHECK VOLUME UP AND IDENTIFY THE STATION. ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING (PAUSE).

RETUNE YOUR VOR RECEIVER TO THE (name) VOR, FREQUENCY (frequency), IDENTIFICATION (identification). SAY YOUR AIRCRAFT IDENTIFICATION AND THE (name) VOR COURSE SELECTOR READING.

5. Advise the pilot to continue the inbound heading.

PHRASEOLOGY–
CONTINUE HEADING (degrees).

6. Plot the new line of position from the second VOR, advise the pilot of the aircraft's position, and the safe altitude for orientation in that area.

PHRASEOLOGY–
YOU ARE (miles) (direction) OF THE (name) V-O-R. THE SAFE ALTITUDE FOR ORIENTATIONS IN THAT AREA IS (feet).

NOTE–
The intersection of the two lines of position is the aircraft's position at the time of the second VOR reading.

7. Request the pilot's intentions.

PHRASEOLOGY–
WHAT ARE YOUR INTENTIONS?

5–3–4. GUIDANCE TO AIRPORT

After establishing the aircraft's position and if the pilot requests guidance to the airport:

a. Plot the course to the airport.

b. Provide the course guidance information to the pilot.

1. Advise the pilot of the direction of the turn and the heading to the airport.

PHRASEOLOGY–
FOR A HEADING TO THE (name) AIRPORT, TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

2. After the pilot reports established on the heading to the airport, advise the pilot of the position in relation to the airport.

PHRASEOLOGY–
YOU ARE (miles) (direction) OF THE (name) AIRPORT. CONTINUE HEADING (degrees).

3. Continue to provide assistance in the form of pilotage and airport information as necessary.

PHRASEOLOGY–
DO YOU SEE ANY PROMINENT LANDMARKS?

ARE YOU FAMILIAR WITH THE (name) AIRPORT?

(Name) AIRPORT FIELD ELEVATION (feet). IT HAS (number and surface type) RUNWAYS. THE RUNWAY/S RUN (direction). THE AIRPORT IS LOCATED (direction/distance) FROM (landmark visible to the aircraft).

4. Advise the pilot to report the landing airport in sight.

PHRASEOLOGY–
REPORT AIRPORT IN SIGHT.

5. Determine when the pilot no longer needs assistance.

PHRASEOLOGY–
DO YOU REQUIRE FURTHER ASSISTANCE?

6. When the pilot indicates assistance is no longer required, terminate the service. Provide the CTAF frequency, if appropriate, and the local altimeter setting.

PHRASEOLOGY–
(VOR/ADF) ORIENTATION SERVICE TERMINATED. COMMON TRAFFIC ADVISORY FREQUENCY (frequency). ALTIMETER (setting).

NOTE–
CTAF is defined as a UNICOM, Multicom, FSS, or airport traffic control tower (ATCT) frequency.

7. Notify appropriate control facility of the aircraft's position, termination of services, and the pilot's intentions.

Section 4. Global Positioning System (GPS)

5–4–1. ACTIONS REQUIRED

When providing GPS orientation services to an aircraft in emergency status:

a. Determine if the aircraft is in VFR or IFR weather conditions, fuel remaining, altitude, and heading.

b. If the aircraft is operating in IFR weather conditions, coordinate with the appropriate control facility.

c. Determine if the aircraft is on a flight plan. If the aircraft is not on an IFR flight plan and is in VFR weather conditions, advise the pilot to remain VFR.

5–4–2. GPS ORIENTATION

When using GPS orientation, determine the aircraft's position as follows:

a. Position fixing.

1. Advise the pilot to remain VFR and provide the local altimeter setting.

PHRASEOLOGY–
MAINTAIN V-F-R AT ALL TIMES. ADVISE IF HEADING OR ALTITUDE CHANGE IS NECESSARY TO REMAIN V-F-R. (Location) ALTIMETER (setting).

2. Obtain heading and altitude. Advise the pilot to maintain straight and level flight and to align the heading indicator with the magnetic compass.

PHRASEOLOGY–
MAINTAIN STRAIGHT AND LEVEL FLIGHT. RESET YOUR HEADING INDICATOR TO AGREE WITH YOUR MAGNETIC COMPASS. AFTER YOU HAVE DONE THIS, SAY YOUR HEADING AND ALTITUDE.

3. Determine the weather conditions and fuel status.

PHRASEOLOGY–
WHAT IS THE WEATHER AT YOUR ALTITUDE AND FUEL REMAINING IN TIME.

4. Advise the pilot to maintain the same heading, verify the aircraft has GPS equipment, and determine the airspeed.

PHRASEOLOGY–
CONTINUE HEADING (degrees). WHAT TYPE OF NAVIGATIONAL EQUIPMENT DO YOU HAVE ON BOARD, AND WHAT IS YOUR AIRSPEED?

b. Orientation.

1. Advise pilot to turn on GPS or if GPS is turned on advise pilot to turn it off and back on.

2. Advise pilot to report when GPS is initialized.

NOTE–
This procedure ensures the GPS unit is not in simulator mode and does not have data displayed that may be misinterpreted.

3. Ask pilot for position information.

(a) Latitude and longitude

(b) Fix radial distance from NAVAID, airport, or fix

4. Plot the position of aircraft.

NOTE–
The position is the aircraft's position at the time of the GPS reading.

5. Advise the pilot of the aircraft's position and the safe altitude for orientation in that area.

PHRASEOLOGY–
YOU ARE (miles) (direction) OF THE (name) NAVAID/AIRPORT. THE SAFE ALTITUDE FOR ORIENTATIONS IN THAT AREA IS (feet).

6. Notify the appropriate control facility. Provide all required information including the aircraft's position and heading.

7. Request pilot's intentions and provide assistance, as requested.

PHRASEOLOGY–
WHAT ARE YOUR INTENTIONS?

5–4–3. GUIDANCE TO AIRPORT

After establishing the aircraft's position and if the pilot requests guidance to the airport:

a. Plot the course to the airport.

b. Provide the course guidance information to the pilot.

1. Advise the pilot of the direction of the turn and the heading to the airport.

PHRASEOLOGY–
FOR A HEADING TO THE (name) AIRPORT, TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

2. After the pilot reports established on the heading to the airport, advise the pilot of the position in relation to the airport.

PHRASEOLOGY–
YOU ARE (miles) (direction) OF THE (name) AIRPORT. CONTINUE HEADING (degrees).

3. Continue to provide assistance in the form of pilotage and airport information as necessary.

PHRASEOLOGY–
DO YOU SEE ANY PROMINENT LANDMARKS?

ARE YOU FAMILIAR WITH THE (name) AIRPORT?

(Name) AIRPORT FIELD ELEVATION (feet). IT HAS (number and surface type) RUNWAYS. THE RUNWAY/S RUN (direction). THE AIRPORT IS LOCATED (direction/distance) FROM (landmark visible to the aircraft).

4. Advise the pilot to report the landing airport in sight.

PHRASEOLOGY–
REPORT AIRPORT IN SIGHT.

5. Determine when the pilot no longer needs assistance.

PHRASEOLOGY–
DO YOU REQUIRE FURTHER ASSISTANCE?

6. When the pilot indicates assistance is no longer required, terminate the service. Provide the CTAF frequency, if appropriate, and the local altimeter setting.

PHRASEOLOGY–
(GPS) ORIENTATION SERVICE TERMINATED. COMMON TRAFFIC ADVISORY FREQUENCY (frequency). ALTIMETER (setting).

NOTE–
CTAF is defined as a UNICOM, Multicom, FSS, or ATCT frequency.

7. Notify appropriate control facility of the aircraft's position, termination of services, and the pilot's intentions.

Chapter 6. Flight Data

Section 1. General

6–1–1. COMMUNICATIONS SERVICE

Most flight movement data exchanged outside of the facility is processed by automated systems such as NADIN. It is important to adhere to strict format and procedures during normal operations as well as system interruption periods.

a. Circuit interruption notifications should be as follows:

1. Consult your operational system handbook and standard operating procedures for detailed instructions regarding circuit interruption notification procedures.

2. Notify any guarding facility/sector, the Aeronautical Information System Replacement (AISR) Customer Service Center, and NADIN.

b. All outage reports should refer to the correct circuit and/or equipment identification numbers. Facilities should obtain and record ticket numbers provided by AISR or the TELCO authority.

c. AISR and NADIN telephone numbers.

1. NADIN/ATLANTA: (KATLYTYX) 770 210-7675.

2. NADIN/SALT LAKE CITY: (KSLCYTYX) 801 320-2172.

3. AISR Helpdesk: 866-466-1336.

d. Weather Message Switching Center Replacement (WMSCR) telephone numbers.

1. WMSCR/ATLANTA: 770-210-7574.

2. WMSCR/SALT LAKE CITY: 801-320-2046.

6–1–2. FLIGHT PLANS

Filing a VFR flight plan is recommended. Brief pilots, as appropriate, on the following:

a. Identify the tie-in station for the departure point, and advise the pilot to report departure time directly to that facility.

b. When a departure report is unlikely because of inadequate communications capability, advise the pilot that the flight plan will be activated using the proposed departure time as the actual departure time. Include “ASMD DEP” in remarks. The pilot is responsible for closing, cancelling, or extending the flight plan if the flight is cancelled or delayed.

c. Determine the flight plan area in which the destination is located. Request the pilot close the flight plan with the tie-in facility. Provide the pilot the tie-in facility/sector contact information upon request.

d. Recommend that a separate flight plan be filed for each leg of a VFR flight.

e. Request the pilot inform FSS whenever the filed time en route changes more than 30 minutes.

f. On return flights from remote areas, such as a fishing site, establish a mutually acceptable date/time with the pilot for alerting search and rescue.

g. When a pilot files to an airport served by a part-time FSS and the ETA is during the period the facility is closed, ask the pilot to close with the associated FSS, identified in FAA Order JO 7350.8, Location Identifiers, and the Airport/Facility Directory.

h. Upon request, inform pilots filing IFR flight plans of the appropriate and most effective means of obtaining IFR departure clearances.

i. When a pilot files a DVFR flight plan, advise the pilot to activate with Flight Service. Also advise the pilot that a discrete beacon code will be assigned upon activation.

NOTE–
1. *A discrete beacon code may be assigned when the flight plan is filed, as necessary. If the pilot wants to file a DVFR flight plan that departs outside the facility’s flight plan area, provide the applicable toll-free number for the departure FSS.*

2. *Discrete beacon codes are assigned to facilities in accordance with FAA Order JO 7110.66, National Beacon Code Allocation Plan.*

6–1–3. FLIGHT PLAN DATA

Handle flight plan data as follows:

a. Record flight plan data on a domestic or ICAO flight plan form or electronic equivalent. Locally approved procedures may be used to manually record data prior to entry into the operational system. Flight plan data received from an operations office may be limited to only those items required for ATC or SAR purposes, provided the operations office obtains complete information on the flight.

b. Accept military flight plan proposals, cancellations, and closures from any source, including collect telephone calls.

NOTE–
Part-time operations offices must provide complete information in the event it is needed for SAR purposes.

6–1–4. TYPES OF DATA RECORDED

a. Operational system entries for:

1. Flight plans and related messages.

2. Logging pilot briefings and aircraft contacts.

3. Service A/B messages.

b. Manual strip marking.

6–1–5. METHODS OF RECORDING DATA

a. Except as provided in para 4-2-2b, all entries must be made directly into the operational system.

b. Locally approved procedures may be used to manually record data during heavy traffic periods or system outages. Aircraft contact information should be logged in the operational system as soon as practical.

c. Use control/clearance symbols, abbreviations, location identifiers, and contractions for recording position reports, traffic clearances, and other data. When recording data either electronically or manually, you may use:

1. Plain language to supplement data when it will aid in understanding the recorded information.

2. Locally approved contractions and identifiers for frequently used terms and local fixes not listed in FAA Order JO 7340.2, Contractions, or FAA Order JO 7350.8, Location Identifiers. Use only within your facility, not on data or interphone circuits. All locally approved contractions and identifiers must be placed in facility files for record and reference purposes.

d. When recording data manually, use the standard hand-printed characters shown in FIG 6–1-1 to prevent misinterpretation.

FIG 6–1–1
Hand-Printed Characters Chart

Typed	Hand Printed
A	A
B	B
C	C
D	D
E	E
F	F
G	G
H	H
I	I
J	J
K	K
L	L
M	M
N	N
O	O
P	P
Q	Q
R	R
S	S
T	T
U	U
V	V
W	W
X	X
Y	Y
Z	Z
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	Ø

NOTE–
A slant line crossing through the numeral zero and an underline of the letter "S" on handwritten portions of flight progress strips are required only when there is reason to believe the lack of these markings could lead to a misunderstanding. A slant line through the numeral zero is required on all weather data.

e. To correct or update data, draw a horizontal line through it and write the correct information adjacent to it.

f. Do not erase any item.

6–1–6. IFR/VFR/DVFR FLIGHT PLAN RECORDING

a. Use the operational system to record and file flight plans, flight plan modifications, cancellations, activations, and closures for appropriate distribution and processing. Detailed instructions are contained in the operational system manuals.

NOTE–
FSS operational systems contain the electronic equivalent of FAA Form 7233-1, Flight Plan

b. When closing an active VFR flight plan, obtain departure point and destination, if not already known.

NOTE–
A cancelled VFR flight plan is one that is removed from a proposed list and has not been activated. A closed VFR flight plan is one that has been activated and is now removed from an inbound list.

c. Flight plan information may initially be recorded on FAA Form 7233-1 or other paper prior to entry into the operational system

6–1–7. PART-TIME FSS CLOSURE ACTION

Part-time facilities must forward the following information to the designated guard FSS.

a. Inbound flights - all information.

b. Outbound flights - VFR and IFR flight plan data when proposed departure time and/or ETA is within the period from 1 hour prior to closing until 1 hour after opening.

c. All other pertinent information; for example, NOTAMs and pending outages.

6–1–8. TELEPHONE REQUESTS FOR ATC CLEARANCES

When a telephone request for an ATC clearance is received, positively verify the departure location by airport name or location identifier, and the city name and state.

NOTE–
1. *With telephone calls being received from larger geographic areas, verification of the departure location may prevent a critical safety situation involving similar or identical airport or city names possibly located in different states.*

2. *City refers to a city, town, village or publicly recognized place.*

3. *Refer to FAA Order JO 7110.10, Para 4-3-7, ATC Clearances, Advisories, or Requests, for guidance on relaying ATC clearances.*

Section 2. Flight Plan Proposals

6–2–1. FLIGHT PLAN RECORDING

Record flight plans on FAA Form 7233-1, Flight Plan, or electronic equivalent. Completion of all blocks or fields is not required in every case, and all items filed are not always transmitted. Use authorized abbreviations where possible. The instructions below are for completion of FAA Form 7233-1. For electronic versions of flight plan forms, refer to that system's operating instructions.

NOTE–
Use FAA Form 7233-4, International Flight Plan, for international flights as well as flights in domestic U.S. airspace in which automatic assignment of RNAV routes is desired. See para 6-2-3, Flight Plans with Area Navigation (RNAV) Routes in Domestic U.S. Airspace.

a. *Item 1*. Type of flight plan. Check the appropriate box.

b. *Item 2*. Aircraft Identification. Enter as follows, but do not exceed seven alphanumeric characters:

1. Civil Aircraft Including Air Carrier. Aircraft letter/digit registration including the letter "T" prefix for air taxi aircraft, the letter "L" for MEDEVAC aircraft, or the three-letter aircraft company designator specified in FAA Order JO 7340.2, Contractions, followed by the trip or the flight number.

EXAMPLE–
N12345
TN5552Q
AAL192
LN751B

NOTE–
The letter "L" must not be entered in Item 2 of the flight plan for air carrier or air taxi MEDEVAC aircraft. Include the word "MEDEVAC" in the remarks section of the flight plan.

2. U.S. Military Aircraft.

(a) Use the military abbreviation followed by the last five digits of the aircraft's number. For certain tactical mission aircraft, enter the assigned three-to-six letter code word followed by a one-to-four digit number. (See TBL 6-2-1)

TBL 6–2–1
Military

Abbreviation	*Military Service*
A	USAF
C	Coast Guard
E	Air Evacuation
G	Air/Army National Guard
L	LOGAIR (USAF contract)
R	Army
RCH	REACH (USAF Air Mobility Command)
S	Special Air Mission
VM	Marine Corps
VV	Navy

(b) Aircraft carrying the President, Vice President, and/or their family members will use the identifiers in the following tables. (See TBL 6–2–2 and TBL 6–2–3)

TBL 6–2–2
President and Family

Service	*President*	*Family*
Air Force	AF1	EXEC1F
Marine	VM1	EXEC1F
Navy	VV1	EXEC1F
Army	RR1	EXEC1F
Coast Guard	C1	EXEC1F
Guard	G1	EXEC1F
Commercial	EXEC1	EXEC1F

TBL 6–2–3
Vice President and Family

Service	*Vice President*	*Family*
Air Force	AF2	EXEC2F
Marine	VM2	EXEC2F
Navy	VV2	EXEC2F
Army	RR2	EXEC2F
Coast Guard	C2	EXEC2F
Guard	G2	EXEC2F
Commercial	EXEC2	EXEC2F

3. Canadian Military Aircraft. The abbreviations must be followed by a number group not to exceed four digits. (See TBL 6–2–4.)

TBL 6–2–4
Canadian Military

Abbreviation	*Military Service*
CFC	Canadian Forces
CTG	Canadian Coast Guard

c. *Item 3*. Aircraft Type. Insert the name or abbreviation (two-to-four alphanumeric characters) of the manufacturer's or military designation. For amateur-built/experimental aircraft, use HXA, HXB, or HXC, in accordance with the FAA Order JO 7110.65, Appendix C, Aircraft Information Specific Homebuilt/Experimental, spell out aircraft type in Remarks.

1. Prefix to Aircraft Type (one-to-two alphanumeric characters). For IFR operations, if the aircraft's weight class is heavy, indicate this with the prefix "H." If a formation flight is planned, enter the number and type of aircraft; for example, 2H/B52.

2. Suffix to Aircraft Type (one alpha character). Indicate for IFR operations the aircraft's radar transponder, DME, or RNAV (includes LORAN) capability by adding the appropriate symbol preceded by a slant (/). (See TBL 6-2-5.)

TBL 6–2–5

Suffix to Aircraft Type

	Navigation Capability	Transponder Capability	Suffix
RVSM	No GNSS, No RNAV	Transponder with Mode C	/W
	RNAV, No GNSS	Transponder with Mode C	/Z
	GNSS	Transponder with Mode C	/L
No RVSM	No DME	No transponder	/X
		Transponder with no Mode C	/T
		Transponder with Mode C	/U
	DME	No transponder	/D
		Transponder with no Mode C	/B
		Transponder with Mode C	/A
	TACAN	No transponder	/M
		Transponder with no Mode C	/N
		Transponder with Mode C	/P
	RNAV, No GNSS	No transponder	/Y
		Transponder with no Mode C	/C
		Transponder with Mode C	/I
	GNSS	No transponder	/V
		Transponder with no Mode C	/S
		Transponder with Mode C	/G

NOTE–

The /E and /F suffixes will only be used by aircraft operating to and from airports within the U.S., unless authorized by the controlling authority.

REFERENCE–

FAAO JO 7110.65, Para 2-3-8 and TBL 2-3-10, Aircraft Equipment Suffixes.

d. *Item 4*. True Airspeed (TAS Knots). Enter two-to- four digits for TAS in knots; M followed by three digits for Mach number; or SC for "speed classified."

e. *Item 5*. Departure Point. Enter two-to-twelve alphanumeric and slant characters for name or identifier of the departure airport or point over which the flight plan is activated.

f. *Item 6*. Departure Time. Enter departure time in UTC.

g. *Item 7*. Cruising Altitude. Proposed altitude or flight level using two-to-seven characters; for example, 80 or 080, OTP, OTP/125, VFR, ABV/060.

h. *Item 8*. Route of Flight. Enter identifiers for airways or jet routes to clearly indicate the proposed flight path. For direct flight, use names or identifiers of navigation aids, Navigation Reference System (NRS) waypoints, and geographical points or coordinates. If more than one airway or jet route is to be flown, clearly indicate the transition points.

NOTE–
1. *On some direct flights beyond the departure center's airspace, it may be necessary to include a fix in the adjacent center's airspace or latitude/longitude coordinates, as appropriate, to facilitate computer acceptance. Local procedures should be applied to these special situations.*

2. *NRS waypoints consist of five alphanumeric characters, which include the ICAO Flight Information Region (FIR) identifier, followed by the letter corresponding to the FIR subset (ARTCC area for the contiguous U.S.), the latitude increment in single digit or group form, and the longitude increment.*

EXAMPLE–
"KD34U"

i. *Item 9*. Destination. Enter two-to-twelve alphanumeric and/or slant characters for name or identifier of the destination airport or point over which the flight plan is to be cancelled.

j. *Item 10*. Estimated Time En route. Enter in hours and minutes the total elapsed time between departure and destination in four-digit format, for example, 0215.

k. *Item 11*. Remarks. Information necessary for ATC, search and rescue operations, and any other data pertinent to the flight or provided by the pilot. For RM: field only - Use 1-80 characters beginning with *, #, $, or %. (See TBL 6-2-6.)

TBL 6–2–6

*****	transmit remarks to all centers.
#	transmit remarks to departure centers only.
$	transmit remarks only to those addresses in the CP field of the flight notification message.
%	for remarks not to be transmitted.

l. *Item 12*. Fuel on Board. Enter in hours and minutes in four-digit format; for example, 0330.

m. *Item 13*. Alternate Airport/s. Enter the location identifier if specified by the pilot.

n. *Item 14*. Pilot's Name, Telephone Number, Aircraft's Home Base. Self-explanatory.

NOTE–
Pilot's name not required if BASEOPS/Aircraft Operators name and contact data is provided.

o. *Item 15*. Number Aboard. Self-explanatory.

p. *Item 16*. Color of Aircraft. Use authorized contractions when available. (See TBL 6–2–7.)

TBL 6–2–7
Code and Color

Code	*Color*		*Code*	*Color*
A	Amber		B	Blue
BE	Beige		BK	Black
BR	Brown		G	Green
GD	Gold		GY	Gray
M	Maroon		O	Orange
OD	Olive Drab		P	Purple
PK	Pink		R	Red
S	Silver		T	Tan
TQ	Turquoise		V	Violet
W	White		Y	Yellow

NOTE–
1. *For ICAO flight plans, see Appendix A.*

2. *Local procedures may be developed for use on the reverse side of FAA Form 7233–1.*

6–2–2. OUTBOUNDS DEPARTING FROM OUTSIDE FLIGHT PLAN AREA

For domestic flight plans, accept flight plans regardless of departure point within the NAS. Forward VFR flight plan proposals for aircraft proposing to depart from outside the facility's flight plan area to the tie-in facility/sector for the departure point. Insert the originator of the flight plan into the "Remarks" field. Transmit the proposed flight plan in the following format:

a. Type of flight.

b. Aircraft identification.

c. Aircraft type.

d. Departure point.

e. Destination.

f. Proposed departure time/ETE.

g. Remarks.

EXAMPLE–
FF PAENYFYX
DTG PAFAYFYX
VFR N1234 BE9L ENA FAI P1330/0130 $FP PAFAYFYX

NOTE–
For civil flight movement messages with remarks, precede the remarks with a dollar symbol ($).

6–2–3. FLIGHT PLANS WITH AREA NAVIGATION (RNAV) ROUTES IN DOMESTIC U.S. AIRSPACE

Use FAA Form 7233-4, International Flight Plan, and use the following guidelines for pilots filing flight plans in domestic U.S. airspace if automatic assignment of any of the following RNAV routes are desired:

a. RNAV standard instrument departure (SID);

b. RNAV standard terminal arrival route (STAR); and/or

c. RNAV point-to-point (PTP).

ICAO Flight Plan procedures are located in Appendix A.

Section 3. IFR Flight Plan Handling

6–3–1. IFR FLIGHT PLANS

IFR flight plans should consist of items 1 through 17 of FAA Form 7233-1 or electronic equivalent. Items 1 through 11 must be transmitted to the ARTCC as part of the IFR flight plan proposal. Items 12 through 17 must be retained by the FSS or in the operational system and be available upon request.

NOTE–
1. *Part-time FSSs must forward items 1 through 17 in accordance with para 6-1-7, Part-time FSS Closure Action.*

2. *Procedures for automatic assignment of RNAV routes are contained in para 6-2-3, Flight Plans with Area Navigation (RNAV) Routes in Domestic U.S. Airspace.*

6–3–2. NOTIFYING ARTCC

Transmit flight plans and flight plan amendments to the ARTCC for the departure point. Facilities should use FAA Order JO 7350.8, Location Identifiers, or the appropriate aeronautical charts to determine the ARTCC to which each transmission must be made. Transmit flight plans (if necessary) and flight plan amendments via interphone to the flight data position (error referral position) or departure sector when the aircraft's proposed departure time is less than 15 minutes from transmittal time. Advise the ARTCC's departure sector or flight data position (error referral position), via interphone, when a message is received indicating ineligibility or a response is not received via data terminal within 10 minutes. Transmit flight plans as follows:

a. When multiple (two or more) flight plans are received from the same aircraft, or for flight plans which propose alternating VFR and IFR, stopover, or terminal area delay, the station receiving the flight plans transmits separate flight plans to the appropriate ARTCCs for each IFR portion or segment.

b. Transmit flight plans specifying special use airspace delays (MOAs, warning areas, restricted areas, ATCAA) as in subpara 6–3–2 a except when letters of agreement specify otherwise.

c. Aerial refueling delays, or any other en route delays not covered in subparas. 6–3–2 a or b and not involving a change of altitude stratum, do not require separate messages. Delay information must be filed within the route of flight. If a change of altitude stratum is indicated, transmit separate messages as in subparas 6–3–2 a or b.

d. When a composite, stopover, or terminal area delay flight plan is revised:

1. Before departure, transmit the information to the original addressees plus any new addressees.

2. After departure, transmit the information to all new addresses that are affected by the change.

e. When a flight is to depart after 0500 hours local time on the day following the filing of the flight plan, do not transmit the flight plan to the ARTCC until after 0000 hours local time.

NOTE–
In the event of a time zone difference between the station and the associated ARTCC, use the ARTCC's local time in determining transmission time.

f. Address all IFR flight plan messages to the ARTCC serving the point of departure and all concerned oceanic and non-conterminous air traffic service (ATS) units, except FAA ATCTs.

NOTE–
The ARTCC within whose control area IFR flight is proposed to begin will forward the proposed tower en route flight plan data to the appropriate departure terminal facility.

g. For flights inbound to the conterminous U.S. from Alaska or Hawaii, address only the first conterminous U.S. ARTCC; for example, for a proposed flight from Sitka to Houston, address PAZAZQZX, CZVRZQZX, and KZSEZQZX.

REFERENCE–
FAAO JO 7110.65, Para 2-2-2, Forwarding Information.

6–3–3. IFR FLIGHT PLAN CONTROL MESSAGES

Transmit all proposed IFR flight plan messages to the ARTCC within whose control area IFR flight is proposed to begin.

a. Communications Functions. Flight plan data messages must be addressed to the computer only. All other types of messages for ARTCC attention must be addressed to the Flight Data position only. Acknowledgements for all numbered messages will

be received from the computer or the Flight Data position indicating receipt by the ARTCC, but not necessarily computer acceptance. (See TBL 6-3-1.)

TBL 6–3–1
ARTCC ID & Computer Flight Data

ARTCC	*ID*	*Computer*	*Flight Data*
Albuquerque	ZAB	KZABZQZX	KZABZRZX
Atlanta	ZTL	KZTLZQZX	KZTLZRZX
Anchorage	ZAN	PAZAZQZX	PAZAZRZX
Boston	ZBW	KZBWZQZX	KZBWZRZX
Chicago	ZAU	KZAUZQZX	KZAUZRZX
Cleveland	ZOB	KZOBZQZX	KZOBZRZX
Denver	ZDV	KZDVZQZX	KZDVZRZX
Fort Worth	ZFW	KZFWZQZX	KZFWZRZX
Honolulu	ZHN	PHZHZQZX	PHZHZRZX
Houston	ZHU	KZHUZQZX	KZHUZRZX
Indianapolis	ZID	KZIDZQZX	KZIDZRZX
Jacksonville	ZJX	KZJXZQZX	KZJXZRZX
Kansas City	ZKC	KZKCZQZX	KZKCZRZX
Los Angeles	ZLA	KZLAZQZX	KZLAZRZX
Memphis	ZME	KZMEZQZX	KZMEZRZX
Miami	ZMA	KZMAZQZX	KZMAZRZX
Minneapolis	ZMP	KZMPZQZX	KZMPZRZX
New York	ZNY	KZNYZQZX	KZNYZRZX
Oakland	ZOA	KZ0AZQZX	KZOAZRZX
Salt Lake	ZLC	KZLCZQZX	KZLCZRZX
San Juan	ZLU	TJZSZQZX	TJZSZRZX
Seattle	ZSE	KZSEZQZX	KZSEZRZX
Washington	ZDC	KZDCZQZX	KZDCZRZX

b. Adhere to a fixed order of data. Do not exceed the stated maximum number of characters or elements allowed for each field in messages addressed to an ARTCC computer. Flight plans filed containing more than the stated character maximums should be sent using the ARTCC flight data address.

c. For manual entry into Service B, one space character must be entered at the end of each data field. The first data field of a message need not be preceded by a space. The last data field of a message need not be followed by a space.

d. Each field of data is composed of one or more elements. Discrete elements of information within a field are separated by delimiters, generally slashes (/) or periods (ABC..DEF).

e. Messages addressed using a ARTCC flight data address (see TBL 6-3-1) are not processed by the ARTCC computer. Response and/or interpretation of these messages are dependent on flight data personnel action. The prime consideration of these types of messages must be the readability of the transmitted data.

f. All domestic flight data processing computers have the capability to return acknowledgments to the source and, depending on local adaption, return error messages and accept amendments. Notify the appropriate ARTCC Data Systems Specialist or Primary A position when it is suspected that a flight plan has been erroneously rejected by the computer.

g. IFR flight plans specifying stopovers or terminal area delays require separate messages be sent to the appropriate ARTCCs for each segment. Unless otherwise covered by a letter of agreement, treat flight plans proposing SUA delays in the same manner. Separate messages are also required for any other en route delays if a change of altitude stratum is proposed at the delay point. See subparagraph 6–3–4n8(b)(2) for delays not involving a change of altitude stratum.

h. Some fields contain the necessary functions to operate the computer data terminal adapters and are designated by alpha characters (HIO..RAW-ER.V23.EUG/D0+30..16S). Do not separate these fields with spaces.

6–3–4. IFR FLIGHT PLAN CONTROL MESSAGE FORMAT

For En Route Automation System Flight Data Processing (EAS FDP) acceptance, the complete message contents, the order of data, the number of characters allowed within any data field or element, and any associated operational procedures or restrictions are as follows (as used here, “field” refers to EAS FDP field):

NOTE–
Detailed operating instructions for processing IFR Flight Plans are contained in the operational system instructions.

a. Start of Message Code (Field A). (New Line Key)

b. Preamble Line (Field B). Consists of originator, priority, and addressee(s).

c. Originator Line (Field C). Consists of a six-digit date-time group and the eight-character originator identifier.

d. End of Line Function (Field E). Same as subpara 6–3–4a.

e. Source Identification (Field 00). Nine or ten characters required followed by a space character in the following order:

1. The three-character address of the originating facility.

2. Four characters (digits) to indicate the time (in UTC) the flight plan was composed by the originator.

3. Three characters (digits) representing the number of the message; for example, 021. It is recommended that numbering systems be restarted with 001 at the beginning of each day (0000Z).

NOTE–
There are no spaces between characters in subparas 6–3–4e1, 2, and 3.

f. Message Type (Field 01). The letters "FP" followed by a space character.

g. Aircraft Identification (Field 02). Consists of two-to-seven alphanumeric characters followed by a space character. The first character of the identification must be a letter.

1. Phrases such as FLYNET, Snow Time, etc., which do not identify specific aircraft but are supplemental data defining a special mission or function, must be contained in remarks (Field 11).

2. For foreign aircraft identifications with a numeric as the first character, insert an X as the first character and explain in the remarks section.

h. Aircraft Data (Field 03). Consists of two-to-nine characters followed by a space character. Aircraft data within the field may vary from one-to-three elements consisting of:

1. Number of aircraft (when more than one) and/or the heavy aircraft indicator. For heavy aircraft the indicator is "H/." This element contains a maximum of two characters followed by a slash.

EXAMPLE–
2/F15
3H/B52
10/F18

2. Type of Aircraft. This element is mandatory and contains two-to-four characters consisting of the authorized aircraft designator as contained in FAA Order JO 7340.2, Contractions. Enter military designators of aircraft, omitting prefixes and suffixes pertaining to aircraft mission or model.

3. Equipment Suffix. This element consists of a slash (/) followed by one letter which is one of the approved designators identifying transponder and/or navigation gear.

i. Airspeed (Field 05). Consists of two-to-four characters followed by a space character. This field must indicate the filed true airspeed in knots or Mach number.

EXAMPLE–
350
M075

j. Departure Point or Coordination Fix (Field 06). Consists of two-to-twelve characters followed by a space character. This field contains the departure point or fix at which an aircraft will pick up IFR. It must be a fix, not an airway. For proposed departures, it must match the first element in the route of flight; and for IFR pickups, it must match either the first element in the route of flight or the third element if the ./. or VFR is used as the second element.

k. Proposed Departure Time (Field 07). Consists of five or seven characters followed by a space character. This field contains the letter "P" followed by a four or six digit time group in UTC.

l. Requested Altitude (Field 09). Consists of two-to-seven characters followed by a space character. Altitudes or flight levels, as appropriate, must be expressed in hundreds of feet, but without leading zeros. The letters "OTP" must be entered in this field to indicate a requested altitude of VFR conditions-on-top. If a VFR conditions-on-top altitude is provided, it must be entered as "OTP/XXX where "XXX" is a VFR altitude. Blocked altitudes are indicated by entering the lower altitude of the requested block, the letter "B," and the higher altitude of the block; for example, 80B100, 240B270, with no spaces.

m. End of Line (New Line Key) (Field E). The first occurrence of Field E must always follow Field 09 of the message. Any time a subsequent end of line becomes necessary, if used within Field 10, it must be preceded by the appropriate element separator (not a space). If used within Field 11, Field E may be entered at any point within the remarks sequence.

n. Route of Flight (Field 10). The route of flight consists of departure point or pickup point (PUP), the route of flight, and normally a destination followed by a space character.

1. Field 10 is a fixed sequence field and must begin with a fix; for example, fix, airway, fix, airway etc. The last element may be a fix or one of the route elements VFR, DVFR, or XXX (incomplete route indicator). An element is separated from another element by a period character.

2. When consecutive fix elements or route elements are filed, the fixed sequence format is maintained by inserting two period characters between the filed Field 10 elements; for example, fix..fix or airway..airway.

3. When a pilot files an airway..airway combination, obtain the point of transition and insert it in the transmitted flight plan; for example, SGF.J105..J24.STL.J24. The foregoing does not apply if the first encountered fix happens to be the next filed junction point within the route.

NOTE–
Airway..airway combinations in the route of flight require a defined junction (either five-character alphanumeric, location identification, or pre-defined fix-radial-distance).

4. The slash character (/) is used to file a latitude/longitude fix or in describing an ETE.

5. The maximum number of filed field elements for computer-addressed flight plans is 40. Double period insertions do not count against the 40-element limitation. Transmit flight plans filed exceeding the route element limitation to the ARTCC, not its computer.

6. Fix Descriptions. A fix must be filed in one of the following ways:

(a) Fix Name. Domestic, Canadian, and International identifiers of two-to-five alphanumeric characters.

(b) Fix Radial Distance (FRD). Consists of eight-to-eleven alphanumeric characters in the following sequence: Two-to-five characters identifying a NAVAID, three characters of azimuth expressed in degrees magnetic, and three characters of distance expressed in nautical miles from the NAVAID. Zeros preceding a significant character must be entered before the azimuth and distance components as required to assure the transmission of three characters for each.

(c) Latitude/Longitude. Consists of nine-to-twelve characters entered as follows: The latitude must appear as the first component as four numbers (trailing zeros required) followed by an optional letter "N" or "S." If the optional letter is omitted, north is understood. Latitude must be separated from longitude with a slash (/) element separator. Longitude must appear as the second component as four or five digits (trailing zeros required, leading zero optional) followed by an optional letter "W" or "E." If the optional letter is omitted, west is understood.

(d) Navigation Reference System (NRS) Waypoints. NRS waypoints consist of five alphanumeric characters, which include the ICAO FIR identifier, followed by the letter corresponding to the FIR subset (ARTCC area for the contiguous U.S.), the latitude increment in single digit or group form, and the longitude increment.

EXAMPLE–
"KD34U"

7. Route Descriptions. A route must be filed in one of the following ways:

(a) Airway. The official airway designator must be filed.

(b) Coded Routes. Coded routes are a shorthand method of describing a route segment or segments which may have an altitude profile described, an adapted airspeed within the route, re-entry or loop routes as an option, or a time delay at a fix within the route as an option. Some of the principal uses of coded routes are as follows:

(1) Instrument Departures (DP). DP, if used, must be filed by the computer code designator as the second element of Field 10 and be followed by the transition or exit fix.

(2) Standard Terminal Arrivals (STARs). STAR, if used, must be filed by the computer code designator as the next to last element of Field 10 and immediately follow the entry or transition fix.

(3) Published Radials. Published radials (for example, within a preferred route) are considered airways. Do not file unpublished radials.

EXAMPLE–
.JFK053..DPK017
.RBV020

(4) Military Routes. Certain military routes (for example, MTR and air refueling tracks/anchors), are considered coded routes. The route designator must be preceded and followed by the entry and exit

fixes in terms of fix/radial/distance (FRD), and re-entry information may be suffixed to certain military coded routes as follows:

[a] The entry and exit fix must be associated with a fix on the route, and the entry fix must be prior to the exit fix on the route.

EXAMPLE–
TNP355025..IR252
PKE107012

[b] Routes having re-entries for a single strategic training range (STR) site must contain the entry of alternate entry fix in terms of FRD, the route designator followed immediately by a plus sign (+), either the letter "R" (1st STR site) or "S" (2nd STR site), and a digit indicating the number of re-entries.

EXAMPLE–
(FRD) IR240+R2 (FRD)
(FRD) IR240+S3 (FRD)

[c] Routes having re-entries for two STR sites must contain the entry/alternate fix in terms of FRD, the route designator followed immediately by a plus sign (+), the letter "R," and a digit indicating the number of re-entries on the first STR site, immediately followed by second plus sign (+), the letter "S," and a digit indicating the number of re-entries on the second STR site.

EXAMPLE–
(FRD) IR240+R2+S3 (FRD)

[d] STR routes must be entered and exited at the respective primary fix. Alternate STR routes must be entered/exited at the alternate entry/exit fix. The routes must be identified by an individual name.

EXAMPLE–
(FRD) IR240+R2 (FRD) (Primary)
(FRD) IR240A+R2 (FRD) (Alternate)

(5) North American Routes (NAR). NAR routes are numerically coded over existing airways and route systems from and to specific coastal fixes serving the North Atlantic.

EXAMPLE–
.NA9
.NA50

(6) Stereo Routes. A stereo route must specify a pre-stored stereo tag. An "FP" message may be entered with a stereo tag as the only Field 10 entry, which causes the Field 10 data stored for the stereo tag to be substituted for the stereo tag and processed as the filed Field 10. Additionally, the filed departure point (Field 06) must agree with the stored departure point.

(7) Incomplete Route Indicator (XXX). When XXX, the incomplete route indicator, appears in Field 10, the element preceding the XXX element must be a fix.

(8) VFR or DVFR element. When VFR or DVFR is the second element of Field 10, the filed fix following VFR or DVFR must be internal to the ARTCC's area to whom the flight plan was initially submitted. When VFR or DVFR is other than the second element in Field 10, the element preceding the VFR or DVFR must be a filed fix.

8. Fix Suffix.

(a) En Route Delay Suffix consists of an element separator (/), followed by the letter D, followed by the hours and minutes separated by a plus sign (+). Must be appended to a fix.

EXAMPLE–
.STL/D1+30
.PKE107012/D2+05

(b) Use of this suffix is limited to the following cases:

(1) Aerial Refueling Tracks and Anchors. The suffix is appended to the entry fix.

EXAMPLE–
.ICT248055/D0+30.AR330

(2) En route delays not involving a change of altitude stratum and not involving a stopover, terminal area delay, or SUA delay unless specifically covered by a letter of agreement with the receiving ARTCC.

(c) ETE Suffix. Consists of an element separator (/) and four digits appended to the destination. Leading zeros are required, and the time en route is expressed in hours and minutes.

EXAMPLE–
.STL/0105

9. A period is not required after the last element of Field 10. If remarks (Field 11) are present, a space is required after the last element of Field 10. If remarks are not present, no space is required and Field F (End of Message) should be the next entry.

o. Remarks (Field 11). Consists of the appropriate remarks code character and the remarks. Spaces are permitted within the remarks field to separate words

or contractions. Remarks must be transmitted in Field 11 whenever a pilot files the information on the flight plan. A remark is required whenever there is a modification to the flight plan by the specialist.

1. If it is necessary to make modifications to the filed route of flight for the purpose of achieving computer acceptance of the input due, for example, to correct a fix or an airway identification, "FRC," meaning "Full Route Clearance Necessary," or "FRC/(fix)," will be added to the remarks. "FRC" or "FRC/(fix)" must always be the first item of intra-center remarks. When "FRC" or "FRC/(fix)" appears on a flight progress strip, the controller issuing the ATC clearance to the aircraft must issue a full route clearance to the specified fix, or if no fix is specified, for the entire route. "FRC" or "FRC/(fix)" must always be first in Remarks (Field 11).

NOTE–
INPUT OPERATORS ARE LIMITED TO MAKING ONLY THOSE CHANGES REQUIRED FOR COMPUTER ACCEPTANCE. Modifications, such as those to conform with traffic flows and preferred/recommended routings, must only be made by the pilot or his/her operations office or the controller responsible for initiating the clearance to the aircraft.

2. In the case of applicable military flights requesting that the flight plan is not passed to air defense radar (NOPAR), NOPAR must be the first item in Remarks (Field 11).

3. Remarks for military flight plans filing an IR route must contain the IR route designator, entry time prefaced by the letter "E," exit time prefaced by the letter "X," and MARSA when applicable. Remarks for flight plans filing a terminal area delay must contain the airport identifier at which the delay will occur, followed by the letter "D," followed by the duration of the delay in hours plus minutes, followed by the destination airport. These should be the first item in Remarks (Field 11).

4. When a pilot files an FAA-assigned three-letter company designator, if the designator and/or radiotelephony is new or changed, the authorized radiotelephony call sign must be included in the remarks field for at least 60 days following the effective date. In cases where there is no three-letter identifier assignment or a three-letter identifier is used in a medical emergency, the assigned radiotelephony must be included in the remarks field.

NOTE–
1. *A radiotelephony may be assigned by the FAA without assigning a three-letter identifier. Special radiotelephony assignments are usually temporary and for commemorative flights, large number of aircraft in an organized race, aircraft operating during an emergency or disaster condition, or aircraft requiring special handling for test purposes.*

2. *The pilot is responsible for knowing when it is appropriate to file the radiotelephony in remarks under the 60 day rule or for special radiotelephony assignments. The pilot may also request that the radiotelephony be filed in remarks due to special needs of the flight.*

p. End of Message Function (Field F). Consists of enter function.

6–3–5. ADDITIONAL MESSAGES

The following messages are eligible for input to ARTCC computers via Service B, in addition to the flight plan ("FP") message:

a. Remove Strip (RS). The purpose of the RS message input is to advise the computer that data on a particular flight is no longer valid and in effect cancels the flight plan and removes it from computer storage.

1. Eligibility. RS messages may be entered only for flight plans which:

(a) Are proposed flights.

(b) Have been previously entered by the same source entering the RS message.

(c) The flight plan is inactive; for example, a departure strip must not yet have been printed. Otherwise, the following rejection message is returned: "REJECT--NOT YOUR CONTROL."

2. Format. Fields 01 (Message type) and 02 (Aircraft Identification) are required.

EXAMPLE–
RS SWA138

b. Amendment (AM) Message. The purpose of the AM message is to change data previously stored in the ARTCC computer.

1. Eligibility. Same as for the RS message (above).

2. Format. AM messages sent to the ARTCC computer must follow a specific format. First, the field to be amended must be identified, then the amended information given. The ARTCC computer

recognizes the following fields by either number or name: (See TBL 6-3-2.)

TBL 6–3–2
Field Number and Name

Field	*Field Number*	*Field Name*
Aircraft Identification	02	AID
Aircraft Type	03	TYP
Speed	05	SPD
Departure/Coordination Pt.	06	FIX
Proposed Time	07	TIM
Altitude	09	RAL
Route of Flight	10	RTE
Remarks	11	RMK

3. Restrictions.

(a) If Field 02 is to be amended, no other field may be amended in the same message. If Field 02 and other fields are to be amended, send an RS message and re-enter the entire corrected flight plan. If an attempt is made to amend Field 02 within a multiple amendment message or to amend Field 02 to M, the following rejection message is returned: "REJECT—INVALID AMENDMENT."

NOTE–
Alternate procedure is to send two amendments - the first amends field 2; the second amends the other field or fields.

(b) Field 07 Amendments. An attempt to amend Field 07 to anything other than a P-time is not allowed. If such an amendment is attempted, the following error message is returned:
"COFIE INVALID TIME PREFIX."

(c) Amendment to Fields 06, 07, and 10: Where Fields 06, 07, and 10 are amended with a single AM message, the following rules apply:

(1) The amended Field 06 replaces the previously stored coordination fix (Field 06).

(2) The amended Field 07, with appropriate letter prefix, replaces the previously stored coordination time (Field 07).

(3) The amended route data (Field 10) may completely replace the previously filed Field 10 or may be merged with the filed Field 10.

(4) If the last element of the amended route data is followed by a destination indicator, this last element becomes the new destination fix.

(5) When amended route data is merged with filed data, it replaces all data between the departure point and the first non-amended element remaining in the field. The last element of the amended data must match the first element of the remaining non-amended data, otherwise the following rejection message is returned: "REJECT––(last element) CANNOT MERGE."

(d) Amendment to Field 10 Only. Except as permitted above, a Field 10 amendment must be the only field amended; no other field may be amended with the same message. Otherwise, the following is returned: "REJECT—INVALID AMENDMENT."

EXAMPLE–

Message Type	*Aircraft Identification*	*Field to be Revised*	*New Field Data*	*Field to be Revised*	*New Field Data*
AM	TWA179	07	P0800	08	350
AM	UAL466	07	0300		
AM	AAL4355	10	ORD.J60 .DEN		

c. Correction Message (CM). When the ARTCC computer detects an error in a flight plan, an error message is generated to the sender when the sender is within the departure ARTCC's adapted boundaries.

NOTE–
These procedures may not apply to all operational systems.

1. Eligibility. CM messages may be entered only for the period for which the departure ARTCC's program is adapted, normally 5 minutes. After that time, the flight plan in error drops out to the ARTCC Primary A position for re-entry. The sender has primary responsibility for corrective action.

NOTE–
Error messages are generated only on messages from sending stations within the adaptation parameters of the departure ARTCC and for only that portion of the route within that ARTCC's adapted boundaries. Other flight plans in error are referred to a Primary A position.

2. Format. Responses to error messages must be transmitted in the form of a CM message within the time parameters adapted for your ARTCC.

EXAMPLE–

ARTCC–Generated Error Message:

Sending Facility	*MSG Type*	*MSG NR*	*Field in Error*	*Data in Error*	*Reason*
DCA	Error	123	08	9A	FORMAT
CM Format:					
Field 00		MSG Type		Correct Data	
DCA 1820123		CM		090	

3. When a CM message in response to an error message results in any change to a pilot-filed Field 06 (Departure Point) or Field 10 (Route of Flight) once the flight plan has been accepted, an AM message must be sent to add a field 11 intra-ARTCC remark. In remarks, insert "FRC PILOT FILED (original data)."

4. Should a "NOT YOUR CONTROL" response be received, do not retransmit the flight plan or the AM. Confirm ARTCC receipt of the flight plan or AM (FRC/REMARKS) via interphone with the Primary A position. (See TBL 6-3-3.)

TBL 6–3–3

Computer Flight Data Input

COMPUTER FLIGHT DATA INPUT CHART			
Field	*Element*	*Example*	*Requirements*
A	Start of Message (SOM code)	New Line Key	Required for SOM recognition.
B	Preamble Line	FF KZFWZQZX	Provides priority, and addressee.
C	Originator	DTG KMLCYFYX	Required for ending the message header.
D	End of Line	(New Line Key)	EOL.
E	End of Message	(Enter Function)	End of Message.

6–3–6. COORDINATE RNAV ROUTES

a. When accepting flight plans containing coordinate RNAV routes, ensure that the route of flight after the departure fix is defined by latitude/longitude coordinates and a fix identifier.

b. The arrival fix must be identified by both the latitude/longitude coordinates and the fix identifier.

EXAMPLE–

(1)	*(2)*	*(3)*	*(4)*	*(4)*	*(5)*
MIA	SRQ	3407/10615	3407/11546	TNP	LAX

1. Departure airport.

2. Departure fix.

3. Intermediate fixes defined by latitude/longitude coordinates.

4. Arrival fix for the destination airport in terms of both the latitude/longitude coordinates and the fix identifier.

5. Destination airport.

Section 4. Flight Plan Handling

6–4–1. FLIGHT PLAN ACTIVATION

a. If a departure report has not been received within a predetermined time, but not less than 1 hour of the proposed departure time, and specific arrangements have not been made to activate the flight plan, cancel and store in the history file.

b. The FSS history file is used for statistical and historical purposes. Movement messages, pilot briefings, and aircraft contacts are stored in the history files automatically and retained for 15 days.

c. When a pilot reports an actual departure time of more than 2 hours prior to the current clock time, request an updated ETE based on the aircraft's present position. Amend the ETE in the existing flight plan and activate the flight plan using the current time as the time of departure and inform the pilot of the new ETA.

6–4–2. DEPARTURE REPORT MESSAGE

When a pilot activates a flight plan with other than the facility holding the flight plan, transmit a numbered message to the departure tie-in facility.

EXAMPLE–
FF KRCAYXYX
DTG KHONYFYX
HON001 RCA
N98765 D1645 RCA ALW

6–4–3. ACKNOWLEDGING NUMBERED MESSAGES

Acknowledge a numbered message as soon as practical after receipt. Prefix the acknowledgement with the letter "R" followed by a space and then the 3-digit message number.

EXAMPLE–
FF KMMVYFYX
DTG KRNOYFYX
R 001

6–4–4. FLIGHT NOTIFICATION MESSAGE

a. When a departure report is received or the pilot requests an assumed departure, transmit a flight notification message to the destination tie-in facility as specified in FAA Order JO 7350.8, Location Identifiers. Telephone or interphone, when available, may be used for flights of 30 minutes or less. The flight notification message must contain the following information:

1. Type of flight plan (VFR or IFR).

2. Aircraft identification.

3. Aircraft type.

4. Departure point.

5. Destination.

6. ETA (If more than 24 hours, may use DTG).

7. Remarks, preceded by a $ sign (as appropriate).

EXAMPLE–
FF KBOIYFYX
DTG KCDCYFYX
VFR N2346F AC11/U PVU BOI 1348 $ASMD DEP

NOTE–
The operational system will automatically format the required items and transmit the flight notification message when activated.

b. When the proposed flight plan is received from another FSS, base operations (BASOPS), or direct user access terminal (DUAT) vendor and the departure facility has only partial flight plan data, add a remark indicating the Service B address of the facility holding the complete flight plan. Operational systems will automatically add this to the "Remarks" section of the flight plan.

EXAMPLE–
FF KBOIYFYX
DTG KCDCYFYX
VFR N12345 C182/U PVU BOI 1958 $FPKIADXCLX

c. If the pilot elects to close the flight plan with a facility other than the designated tie-in facility, send the flight notification message with remarks to both tie-in facilities; for example, FIRIV FAI. The designated tie-in facility must assume both destination and search and rescue responsibility

EXAMPLE–
FF PAENYFYX PAFAYFYX
DTG KJNUYFYX
VFR N2346F AC11 JNU FAI 1303
$FIRIV ENA

NOTE–
The operational system will auto address to the tie-in facility. Because the pilot elected to FIRIV with ENA (a facility other than the tie-in facility), the message must also be manually addressed to ENA.

d. The facility with which the pilot elects to close the flight plan must forward a numbered closure message to the designated tie-in facility.

e. On civil flight plans, if the pilot advises of stopover points, show these in remarks.

EXAMPLE–
FF KBOIYFYX
DTG KCDCYFYX
VFR N12345 C182/U PVU BOI 1958 $LNDG
TWF

f. On military flight plans, in remarks use coded data pertinent to services, passengers, or cargo. In the absence of remarks, enter the letter "N" (meaning none) in the remarks field.

REFERENCE–
DOD Flight Information Publication, General Planning Document.

1. Flight notification messages with remarks generate an alert at designated workstations.

2. When landing at a civil airport, if there are no remarks with the flight notification message, it is placed on the Inbound List with no alerts for notification purposes.

3. When landing at a military airport, all flight notification messages generate an alert.

EXAMPLE–
FF KRCAYXYX
DTG KRIUYFYX
IFR DECAL01 T18/R SMF RCA 0135
$AP3NP3S

FF KBOIYFYX
DTG KCDCYFYX
VFR R54321 2/UH1/U SLC BOI 1943 $N

g. Address military stopover flight notification messages to and obtain acknowledgements from the destination tie-in facility serving all destinations.

1. For the first leg, transmit the items in subparas 6-4-4a and 6-4-4f.

2. For each subsequent leg, transmit the destination, ETE, and remarks applicable to that leg only, prior to (/). Remarks pertaining to the entire flight are entered in the "Remarks" section of the original flight plan and are transmitted to all addressees.

3. Separate stopover legs by inserting a slant (/) at the end of each leg except the last. Begin each leg on a new line.

EXAMPLE–
FF KANDYFYX KGNVYFYX KMIAYFYX
DTG KDCAYFYX
IFR VV12345 P3 ADW CHS 1300/
NIP 01+30 A5 BALL DP10 AP5 S/
MIA 02+30 NO DE-ICING EQUIPMENT

4. For composite flights, specify type flight plan as the first item of each leg.

5. When en route delays are involved, include delay time in ETE.

h. Apply military flight plan procedures to all civil aircraft landing at military bases.

NOTE–
It is the civil pilot's responsibility to obtain permission (from military authorities) to land at a military base.

i. Apply civil flight plan procedure to civil aircraft departing military bases and en route to civil airports.

6–4–5. SUSPENDING FLIGHT NOTIFICATION MESSAGES

a. Suspend the flight notification message or proposal message until acknowledgment is received from the addressee, then store in the history file.

b. If an acknowledgment is not received within the following time period, use the telephone or interphone to assure delivery.

1. Thirty minutes after departure if ETE is between 30 minutes and 2 hours.

2. One hour before ETA if ETE is 2 hours or more.

3. Thirty minutes after departure if remaining overnight (RON)/VIP information is contained in remarks of a military flight notification.

c. When an acknowledgment for a message is required and has not been received in accordance with the procedure described above, retransmit the complete message to the addressee.

d. Messages awaiting acknowledgment are suspended on the Suspense List. It contains a list of all numbered Service B messages and those messages

transmitted from the flight plan mask not acknowledged by all the addressees.

1. The message identification is the aircraft identification for flight notifications and/or the message number for all other message types.

2. Acknowledgments received via NADIN will be automatically processed if they are in the proper format.

3. Improperly formatted acknowledgments will be directed to a list for manual processing and will generate an alert at designated workstations for editing.

4. The Suspense List will display the aircraft identification and message numbers in chronological order of transmission times and the addressees for each message with an indication of those that have not acknowledged.

5. If a transmission has not been acknowledged by all addressees within 30 minutes, an alert will be generated by the operational system.

6. Upon receipt of a Suspense alert, retransmit the message to addressees who have not acknowledged the message.

7. When an acknowledgment message is received from any other source, such as interphone/telephone or facility guarding for the addressee, the specialist must manually acknowledge the message.

6–4–6. ACKNOWLEDGING FLIGHT NOTIFICATION MESSAGES

Acknowledge a flight notification message or proposal as soon as practical after receipt. Prefix the acknowledgment with the letter "R" followed by a space and then the full aircraft identification.

EXAMPLE–
FF KRCAYXYX
DTG KRIUYFYX
R DECAL01

NOTE–
The operational system will automatically acknowledge flight notification messages which are received in or have been edited into the correct format.

6–4–7. ACTION BY ADDRESSEES

In addition to acknowledging receipt of flight notification, addressees must take the following actions:

a. Military IFR flights.

1. Notify BASOPS, if applicable, of the inbound flight.

2. Upon request, deliver flight plan amendments to the ARTCC.

3. File the flight notification message in the operational system history files or with the daily traffic.

4. Forward the actual departure time to the destination tie-in facility for the next destination.

b. Military VFR flights.

1. Notify BASOPS, if applicable, of the inbound flight.

2. Suspense the message, await closure/cancellation/departure and assume destination station responsibility.

3. Forward the departure time to the destination tie-in facility and assume departure station responsibility.

4. All flight notification messages are suspended on the Inbound List. An entry on the list will remain there until the flight plan is closed. Thirty minutes after the ETA, if the flight plan has not been closed, it is considered overdue and will generate an alert at designated workstations.

c. If no information is received (for example, departure time, revised ETA) indicating that the flight is still active prior to the void time, close the flight plan and note this on the flight notification message and file.

6–4–8. MAJOR FLIGHT PLAN CHANGES FROM EN ROUTE AIRCRAFT

a. Change of Destination.

1. When a civil aircraft on a VFR flight plan or a military aircraft on any flight plan changes destination, obtain, as a minimum, the following information if not already known:

(a) Type of flight plan.

(b) Aircraft identification.

(c) Aircraft type.

(d) Departure point.

(e) Old destination.

(f) Present position.

(g) Altitude and route.

(h) New destination.

(i) Estimated time en route.

2. Transmit a revised flight notification message to the departure, original, and new destination tie-in facilities containing the type of flight, aircraft identification, aircraft type, departure point, new destination, new ETA, and in Remarks, aircraft position and time, the words "ORIG DESTN" followed by the identifier of the original destination.

EXAMPLE–
VFR Change of Destination:
FF KBOIYFYX KSEAYFYX
DTG KCDCYFYX
VFR N98789 C182/U PVU GEG 2230 $0VR SLC 1900 ORIG DESTN BOI

IFR Change of Destination:
FF KRCAYXYX KTIKYXYX KRIUYFYX
DTG KCDCYFYX
IFR DECAL01 T43/R SMF TIK 0230 $AP3NP3S OVR SLC 2330 ORIG DESTN RCA

b. Change from IFR to VFR. When a civil aircraft changes from an IFR to a VFR flight plan, obtain all flight plan information and send a flight notification message to the destination tie-in facility. Include the type of flight plan, aircraft identification and type, departure point, destination, ETA, and pertinent remarks.

EXAMPLE–
FF KABQYFYX
DTG KOAKYFYX
VFR N87690 C182/U SFO ELP 2100 $CNLD
IFR OVER BFL

NOTE–
Obtaining the name of the original flight plan source may provide additional information if the aircraft becomes overdue.

c. Military Change from IFR to VFR or VFR to IFR. When a military aircraft changes from IFR to VFR, or VFR to IFR, or requests that other significant information be forwarded, transmit this information to the destination station.

EXAMPLE–
FF KTIKYXYX
DTG KDENYFYX
DECAL01 CHGD TO VFR RON

6–4–9. CHANGE IN ETA

When an aircraft wants to change its ETE, obtain a new ETA, and forward the information to the destination tie-in facility as a numbered message. The destination tie-in facility must acknowledge and, thereafter, use the new ETA as the standard for any necessary follow-up action; for example, QALQ message.

EXAMPLE–
FF KENAYFYX
DTG KSEAYFYX
SEA001 ENA
N34567 E2140

REFERENCE–
FAA0 7210.3, Para. 13-1-3.c. Flight Plan Area.

6–4–10. FLIGHT PLAN CLOSURE

Do not transmit arrival reports except under unusual circumstances or in the following cases:

a. Transmit arrival or other information involving FAA or Canadian MOT aircraft by a numbered message to any facility requested by the pilot.

EXAMPLE–
FF KDCAYFYX
DTG KHHRYFYX
HHR002 DCA
N2 A0839 (Remarks, as appropriate)

b. For U.S. military aircraft, transmit arrival reports to the departure station only when:

1. Requested by BASOPS.

2. Special military flights arrive.

c. When a pilot closes a flight plan with a station that has not received a flight notification message, obtain as a minimum, the departure point, the flight planned destination point, and the station with which the flight plan was filed.

1. If the station receiving the closure is the tie-in station for the planned destination, transmit a numbered arrival message to the departure station with the remark "FPNO" and the departure point and destination identifiers. The departure station must relay the arrival information to the station holding the flight plan notification message in the active file.

EXAMPLE–
FF KDCAYFYX
DTG KMIVYFYX
MIV001 DCA
N8567 A1745 FPNO PHF NMK

2. If the station receiving the closure message is not the destination tie-in station, transmit a numbered closure message to the destination tie-in station, including the aircraft identification, the closure time, the departure point, and destination. Remarks are optional.

EXAMPLE–
FF KHUFYFYX
DTG KDAYYFYX
DAY003
N11ND C1217 LOU IND LNDD CMH

6–4–11. MILITARY FLIGHTS TO/FROM U.S.

a. To U.S. If "REQ ARR" is in remarks, suspend the flight plan until arrival information is received from BASOPS and forward to the departure location.

b. From U.S. If requested by BASOPS, include "REQ ARR" in remarks section of ICAO flight plan. Terminate suspense action only after receipt of an arrival message and delivery to BASOPS.

Section 5. Military Operations

6–5–1. SPECIAL MILITARY FLIGHTS

a. Advise the ARTCC of flight notification messages, progress reports, changes en route, and related messages concerning Presidential or Vice Presidential flights.

b. Alaska. In addition to the above, give advance notice to all RCCs along the route of flight. Telephone SARCC (907) 752-0227 or (907) 752-0128. Initiate communications search procedures if arrival is not received within 15 minutes after ETA, and immediately notify Alaskan NORAD Region Control Center (ANRCC).

6–5–2. MILITARY FOREIGN FLIGHTS

Generally, all military foreign flights are required to clear through specified military bases. Pilots normally will not file flight plans directly with an FSS unless BASOPS is not available. BASOPS with no Service B access will forward an ICAO-type flight plan message via their tie-in FSS for relay through the Aeronautical Fixed Telecommunications Network (AFTN). BASOPS should specify all addressees, both ATC and operational, in accordance with ICAO standards and military regulations.

6–5–3. USAF/USN UNDERGRADUATE PILOTS

Aircraft piloted by solo USAF/USN undergraduate student pilots (who may occasionally request revised clearances), are normally restricted to flight in VFR conditions. The aircraft identification in the flight plan must include the letter "Z" as a suffix. Do not use this suffix in ground-to-air communication.

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

6–5–4. MESSAGE HANDLING

Accept and forward messages from any military authority that concern aircraft movement, national defense, safety of flight, or emergencies. This includes, but is not limited to, the following:

a. Flight Advisory Messages.

1. The FSS originating the advisory or receiving it from the originating BASOPS must determine the FSS nearest the aircraft's estimated position for VFR flights, or the appropriate ARTCC for IFR flights. Transmit a numbered message only to the facility identified. Include in the text "FLT ADVY," aircraft identification and type, and route of flight, in that order. The last item must be the identifier of the originating BASOPS or FSS. Plain language may be used.

EXAMPLE–
FF KZIDZRZX
DTG KCOUYFYX
COU005 ZID
FLT ADVY A12345 T38 GVW J80 DAY
DAY WX BLO LNDG MIN. SUG PROCD CVG.
ADZ INTENTIONS DLVR 1625
GVW BASOPS

2. Inform the originator if unable to deliver the flight advisory within 15 minutes. Store the message in the history files.

b. Electronic Counter Measure (ECM) Alerts. Transmit a numbered message via Service B to tie-in stations serving the addressees. If acknowledgements are not received within 1 hour, deliver via telephone.

c. REACH and SAM Flight Messages. Forward to the airlift command post specified by the pilot if message contains request "Pass to Air Mobility Command & Airlift Command Post (AMC ACP)," specified by the pilot.

Section 6. IFR/DVFR ADIZ Flight Plans

6–6–1. AIRCRAFT MOVEMENT INFORMATION SERVICES (AMIS) WITHIN AN ADIZ-IFR

In addition to the normal handling of aircraft operating in accordance with IFR, ADIZ penetration information or position reports on IFR operations outside of controlled airspace must be forwarded immediately to the appropriate ARTCC.

6–6–2. AMIS WITHIN AN ADIZ-DVFR

For security control of air traffic, specific information contained in flight plans filed by a pilot operating or proposing to operate in accordance with DVFR within an ADIZ must be forwarded to NORAD.

NOTE–
Other offices, military and civil, as well as pilots, may file DVFR flight plans for civil aircraft with a FSS for forwarding to NORAD.

6–6–3. FORWARDING DVFR INFORMATION

a. Forward DVFR flight plan information to NORAD via the Service B NORAD address or by telephone.

NOTE–
1. *The following NORAD addresses are group addresses that include all appropriate NORAD sectors and law enforcement:*
KZAMZQZX – the contiguous 48 states and San Juan.
PHIRAOCZ – Hawaii
PAEDYYYX – Alaska

2. *NORAD will not send an acknowledgement and must be manually acknowledged from the suspense list by the specialist. (NORAD Headquarters assumes responsibility for receipt.)*

b. DVFR flight plans must be entered into the operational system for processing in accordance with system instructions and include the following information:

1. Aircraft call sign.

2. Number and type of aircraft.

3. Altitude (within ADIZ).

4. True airspeed.

5. Time of departure.

(a) When the flight plan information is provided before the aircraft's departure, enter as a proposal. Depart the flight plan immediately upon receipt of the actual departure time.

(b) If arrangements cannot be made to obtain the actual departure time, forward the ETD.

6. Point of departure.

7. ETA.

8. Destination.

9. Remarks.

(a) DVFR discrete transponder code.

(b) True airspeed.

(c) Estimated point of penetration of the ADIZ (latitude/longitude or fix-radial-distance), except in Alaska.

(d) Estimated time of penetration of the ADIZ, except in Alaska.

(e) If no arrival report (NORIV) will be filed with an appropriate aeronautical facility, include the contraction "NORIV" as a non-transmitted remark. Do not pass "NORIV" to NORAD.

EXAMPLE–
1210 135 3442/09345 1446

NOTE–
On a proposed flight plan, a single "X" may replace the DVFR discrete transponder code, true airspeed, estimated point of penetration of the ADIZ, or the estimated time of penetration of the ADIZ.

EXAMPLE–
Missing true airspeed:
1210 X 3442/09345 1446

Missing estimated point of ADIZ penetration and time:
1210 135 XX

c. Forward DVFR flight plan information for aircraft operating into Canada using the same procedures in paragraph 6-6-3b, except add "DVFR" in remarks and transmit the information to the appropriate Canadian transborder tie-in facility.

6–6–4. STOPOVER DVFR FLIGHT PLANS

Accept stopover DVFR flight plans filed on those aircraft planning one or more landings (within an

ADIZ) en route to the destination, provided the information in para 6−6−3 is furnished for each segment of flight. Remind the pilot that 14 CFR Part 99 requires departure times to be made good and that a written record should be retained of these times at each departure point.

Section 7. Law Enforcement Messages

6–7–1. LAW ENFORCEMENT ALERT MESSAGES (LEAM)

The El Paso Intelligence Center (EPIC) is a law enforcement organization composed of multiple Federal agencies, including the FAA. The principal mission of EPIC is to facilitate the exchange of information and tactical intelligence on illicit activity and to support, through the intelligence process, Federal, State, and Local investigations concerning violation of Federal, State, and Local statutes as they apply to narcotics, aliens, currency, and weapons.

EPIC also supports law enforcement efforts conducted by foreign counterparts throughout the world. In response to an increased multi-agency need, EPIC develops into a fully coordinated, tactical intelligence center supported by databases and resources from member agencies. EPIC issues a LEAM that pertains to stolen aircraft. Upon receipt of a LEAM from EPIC, take the following actions:

a. Stolen Aircraft Alerts.

1. Stolen aircraft alerts request recipients to watch for and report on the location and movement of an aircraft which has been reported stolen.

2. Keep active until included in a stolen aircraft summary or until cancelled.

3. Upon receipt, check records for any aircraft contact, beginning with the date the aircraft was reported stolen.

4. Relay any information available to the office listed on the alert.

b. Stolen Aircraft Summaries.

1. Stolen aircraft summaries should be used to replace and consolidate all the individual stolen aircraft alerts received in the interim.

2. Monthly summaries are sent as soon as possible after the end of the month. They include aircraft registration numbers, aircraft type, and the date/time stolen and/or recovered.

c. All LEAM.

1. Distribute the stolen aircraft alerts and summaries, at the discretion of the air traffic manager, to all parties, fixed base operators, airport managers, etc.

REFERENCE–
FAAO 1600.29, Para 7c(6), Stolen Aircraft Alert Procedure.

2. Check local records for the previous 24 hours.

3. Notify by telephone 1-888-873-3742 [USE EPIC], 1-915-760-2226 for the Air Watch Desk, or 1–915–760-2200 for the General Watch Desk) of any contact within the past 24 hours. Also, notify the Regional Duty Officer for relay to the cognizant Transportation Security Administration Aviation Command Center.

4. Subsequent aircraft transactions must be monitored and require the same notification as defined in subparagraph 6-7-1c3.

5. Take no action regarding the aircraft, crew, or passengers other than normal air traffic job related functions.

6. Cease all actions upon receipt of a cancellation or a summary that does not include this aircraft's registration number.

6–7–2. INITIATING LEAMs

Any inquiries from airport managers, aircraft owners, or law enforcement entities to initiate an alert message must be directed to EPIC. EPIC is interfaced with the National Crime Information Center, which gives them access to any stolen aircraft report entered by law enforcement agencies. FAA facilities must not volunteer to relay this information to EPIC. Assistance must be limited to providing EPIC phone number(s) as specified in subparagraph 6-7-1c3 or advising the inquiring party to go through normal law enforcement channels.

Section 8. Non–Emergency Parachute Jumping

6–8–1. COORDINATION

All pertinent information received from pilots prior to and during parachute jumping activity must be forwarded to other affected ATC facilities.

6–8–2. PRE-JUMP RADIO COMMUNICATIONS

a. When a pre-jump radio call required by 14 CFR Section 105.13 is received, contact the ARTCC sector or terminal facility in whose airspace the jump begins. If the controller has pertinent traffic, advise the jump aircraft to contact the control facility on the appropriate frequency for traffic information.

b. If the aircraft is unable to contact the control facility direct, obtain traffic information and relay it to the aircraft.

EXAMPLE–
"Cessna Four Zero Yankee, A-T-C advises traffic, Cessna Four Twenty-One passing SPUTS intersection eastbound on Victor One Fifty-Seven at seven thousand."

Section 9. SECURITY NOTICE (SECNOT)

6–9–1. SECURITY NOTICE (SECNOT)

A SECNOT is a request originated by the Domestic Events Network (DEN) 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, the search area, and an expiration time. The search area, as defined by the ATSC, can 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 canceled.

NOTE–
1. *The DEN will notify the FSS of the SECNOT by telephone.*

2. *The ATSC may expand the search area or expiration time following the initial notification of the security notice.*

6–9–2. ACTION UPON RECEIVING A SECNOT

a. As soon as a SECNOT is received, the facility must attempt to locate the aircraft by checking all airports in the search area that could accommodate the aircraft. Relay the SECNOT to all terminal facilities in the search area.

NOTE–
1. *Terminal facilities will reply directly to the DEN.*

2. *The DEN is responsible for coordination with ARTCCs.*

b. When contacting airports or offices outside official Government agencies, provide no further information other than what is in the SECNOT.

c. Upon receiving information about the SECNOT aircraft, immediately notify the DEN.

d. If the aircraft is located, notify the DEN immediately, and cancel the SECNOT.

e. The priority of duty for handling a SECNOT is that of emergency situations as described in Paragraph 1–3–2, Duty Priority.

f. Record the initiation of a SECNOT on FAA Form 7230-4, Daily Record of Facility Operation, or electronic equivalent. Include the aircraft identification, search area, and expiration time in the log entry.

6–9–3. CANCELING A SECNOT

The SECNOT stays current until the aircraft is located, the search is canceled by the ATSC, or when the expiration time is reached.

a. Workload permitting, notify all previously alerted air traffic facilities if the SECNOT is canceled before the expiration time is reached.

b. Record the cancellation on FAA Form 7230-4, Daily Record of Facility Operation, or electronic equivalent.

Chapter 7. International Operations

Section 1. Messages and Formats

7–1–1. GENERAL

a. Title 14 of the U.S. Code of Federal Regulations (14 CFR) and the International Civil Aviation Organization (ICAO) require flight plans for all civil aircraft operation between the United States and foreign locations. Bureau of Customs and Border Protection requirements, international flight plan information, and ADIZ penetration requirements are listed in other publications; for example, the FAA International Flight Information Manual (IFIM), the Bureau of Customs and Border Protection Guide for Private Flyers, the Aeronautical Information Manual (AIM), Aeronautical Information Publication (AIP), 14 CFR Part 91, and 14 CFR Part 99. Landing Rights Airports (LRA) and Airports of Entry (AOE) are listed in the Airport/Facility Directory (A/FD) Supplements.

b. This chapter provides guidance to FSS facilities when transmitting international flight movement messages. It incorporates relevant information from ICAO and 14 CFR documents. All personnel required to handle international messages must be familiar with ICAO documents containing instructions for preparing and transmitting communications through the Aeronautical Fixed Telecommunications Network (AFTN) circuits. These documents should be retained at facilities. FSS personnel must not act as agents for any aircraft operating or dispatching company.

NOTE–
International telecommunications instructions are found in International Standards and Recommended Practices, ICAO Annex 10 – Aeronautical Telecommunications, Volume II. PANS ATM DOC 4444, Procedures for Air Navigation Services, lists various ATS movement messages. Location indicators are contained in ICAO Document 7910, and Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services are contained in ICAO DOC 8585. FAA policies concerning acceptance of messages for international transmission are contained in 14 CFR Part 189.

c. Address the message to the proper FSS gateway facility/sector for handling. FSSs that transmit only occasional international messages or are unable to determine the correct addressing for all air traffic units concerned may refer or transfer the pilot to the proper gateway facility/sector. The FSS gateway facility/sector and their areas of responsibilities are as follows

1. Miami FSS Sector (MIA): Africa, Bermuda, Canada, Caribbean, Central America, Europe, North Atlantic, and South America.

2. Kenai FSS (ENA): Alaska.

3. Honolulu (HNL)/Oakland (OAK) Sectors: Pacific.

4. Seattle Sector (SEA): Pacific Northwest to Alaska

d. To ensure that the FSS gateway facility/sector understands your request, include T (transmit) instructions in the first line of text.

EXAMPLE–
FF KOAKYFYX

DTG PAJNYFYX

OAK T ALL INTL ADDRESSEES

(Text)

e. Use of FAA Form 7233-4 is mandatory for all IFR flights that will depart U.S. domestic airspace and enter international airspace. The filer is responsible for providing the information required in items 3 through 19.

7–1–2. AIR TRAFFIC SERVICE (ATS) MESSAGES

ATS messages, as used in this section, is a generic term meaning and including: flight information, alerting, air traffic advisory, and air traffic control (ATC) services.

7–1–3. CATEGORIES OF MESSAGES

The following ATS messages, with their normal priority indicators, are authorized for transmission by any means; for example, AFTN, NADIN,

interphone, computer-to-computer, or via the aeronautical mobile service, as applicable.

a. Emergency Messages.

1. Distress messages and distress traffic, including alerting (ALR) messages relating to distress (DETRESFA) phase-SS.

2. Urgency messages, including alerting messages relating to an alert (ALERFA) phase or to an uncertainty (INCERFA) phase-SS.

3. Other messages concerning known or suspected emergencies which do not fall under subparas 7−1−3a1 and a2 and radio communications failure (RCF) messages-FF or higher as required.

b. Movement and Control Messages.

1. Flight plan (FPL)-FF.

2. Amendment and coordination messages.

(a) Departure (DEP)-FF.

(b) Delay (DLA)-GG.

(c) Arrival (ARR)-GG.

(d) Boundary estimate (EST)-FF.*

(e) Modification (CHG)-FF.*

(f) Coordination (CDN)-FF.*

(g) Acceptance (ACP)-FF.*

3. Cancellation (CNL)-GG.*

4. Clearances, flow control (SPL, CHG, CDN)-FF or DD.*

5. Transfer of control (TCX)-FF.*

6. Requests (RQS)-FF.*

7. Position reports (AIREP)-FF.*

c. Flight Information Messages.

1. Traffic information-FF.*

2. Meteorological information (MET)-FF or GG.

3. Operation of aeronautical facilities and essential airport information (NOTAM)-GG.

** Normally exchanged between ATC units via voice circuits.*

d. Technical Messages. Four categories of these messages are specified for use on computer-to-computer circuits only. They will not be sent on AFTN or NADIN circuits.

7−1−4. SERVICE MESSAGES

a. NADIN immediately generates a service message to an originator when incorrect code or routing indicators are detected.

EXAMPLE−
FF KZKCZQZX
031840 KSLCYTYX
SVC. ZKC121 QTA RPT
FF KZKCZQZX
031840 KSLCYTYX
SVC. ZKC122 QTA MSR

b. Assign the appropriate priority indicator to international service messages. When service messages refer to messages previously transmitted, assign the same priority prefix. Identify a service message by inserting “SVC” as the first item of the text.

EXAMPLE−
FF TJSJYFYX
DTG KSEAYFYX
SVC. RUMES 231015
(Text)

7−1−5. TRANSMISSION VIA NADIN

International messages are generally introduced on NADIN for relay to AFTN circuits.

a. Operational Systems use the ICAO Flight Plan or Service-B message formats as described in the Operational System operating procedures.

b. Handle international messages on NADIN for relay to AFTN as follows:

1. Start of message. New Line Key.

2. Preamble (priority, space, addressee(s).

(a) Priority. Two-character precedence field.

(b) Addressee(s). Not to exceed 69 characters or seven addressees, each addressee separated by a space.

(c) End of Line (EOL) new line key.

(d) End of Text (EOT) (enter function).

7–1–6. TRANSMISSION OF ATS MESSAGES

a. Air traffic service messages are interchanged in the international air traffic control system in the following modes:

1. The preferred step-by-step mode wherein each ACC/ARTCC sends forward the full current (updated) flight plan information as the flight progresses.

2. The simultaneous mode wherein information extracted from the filed flight plan (FPL) is sent simultaneously to all ATS units along the route of flight. In this mode, only amendments to the FPL, plus necessary control information, are forwarded from center to center as the flight progresses.

b. Prepare and transmit ATS messages as described below. Address these messages as follows:

1. Include an eight-character addressee indicator for each addressee. When the number of addressees required is more than the operational system parameters allow, two or more transmissions of the message must be made. The eight-letter combination addressee indicators are composed as follows:

(a) The four-letter ICAO location indicator; for example, MPTO. Use only those listed in ICAO DOC 7910 (Location Indicators). Some ICAO eight-character addressees for Mexico and Canada are listed in FAAO JO 7350.8, Location Identifiers.

(b) A four-letter designator for the facility type/office, or if no designator has been assigned, affix YXYX for military, ZZZX for aircraft in flight, or YYYX for all other cases; for example, MTPPYYYX. (See Note.)

REFERENCE–
ICAO DOC 8585, Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.

NOTE–
The most frequently used and authorized designators are:
YAYX Government Civil Aviation Authority (FAARegional Office or Headquarters).
YCYX Rescue Coordination Center (RCC).
YDYX Authority Supervising the Aerodrome.
YFYX Aeronautical Fixed Station FSS/IATSC).
YMYX Meteorological Office (NWS).
YNYX International NOTAM Office (NOF).
YTYX Telecommunications Authority.
YWYX Military Flight Operational Control Center (ACP)
YXYX Military Organization (BASOPS).
YYYX Organization not allocated a two-letter designator.
ZOZX Oceanic Air Traffic Control Center.
ZPZX Air Traffic Service Reporting Office.
ZQZX Computer Facility at ACC/ARTCC.
ZRZX ACC/ARTCC. (Center in charge of a FIR/UIR when the message is relevant to a VFR flight (AMIS)).
ZTZX Aerodrome Control Tower.
ZZZX Aircraft in flight.

(c) A one-letter designator will appear following an air carrier designator to indicate the department or division of the organization addressed.

2. Filing time. A six-digit date/time group indicating the time the message is filed with the FSS for transmission.

c. Originator Indicator. Consists of an eight-letter sequence similar to an address indicator, identifying the place of origin and the organization originating the message.

d. Supplementary Address and Origin Information. When the four-letter designators YXYX, ZZZX, or YYYX are used, identify the aircraft operator or organization at the beginning of the text preceding the start-of-ATS data symbol ((- -), in the same order as in the addressee(s) and/or originator indicator(s). Where there is more than one such insertion, the last should be followed by the word “stop.” Where there are one or more insertions in respect to addressee indicators plus an insertion in respect to the originator indicator, the word “from” is to appear before that relating to the originator.

e. When addressing flight plan messages or related amendments and flight plan cancellation messages to centers, use one of the four-letter designators as follows:

1. If message is relevant to IFR and:

(a) The ARTCC is computer-equipped (U.S. ARTCCs), use ZQZX.

(b) The center is not computer-equipped, use ZRZX.

(c) Relevant to oceanic operations, use ZOZX.

NOTE–
Some centers may request specific addressing different from above. ZTZX and ZPZX are used internationally, but are not used in internal U.S. application.

2. If message is VFR (AMIS), use ZRZX.

3. If SVC or administrative, use ZRZX.

7–1–7. ORIGINATING MESSAGES

a. Messages for ATS purposes may be originated with ATS units by aircraft in flight, or, through local arrangements, a pilot, the operator, or their designated representative.

b. Accept airfiled flight plans or changes in destination information from aircraft inbound from foreign locations and, if requested by the pilot, enter Customs notification service.

c. Do not accept round-robin flight plans to international locations, other than Canada.

NOTE–
1. *Only accept VFR round-robin flight plans to Canada if the filer of the flight plan is in possession of a valid numbered letter of authorization and adheres to the provisions contained therein.*

2. *Individual requests for the temporary authorization letter should be directed to the appropriate service area office.*

3. *The temporary authorization letter mandates the pilot, or responsible party, to provide the FSS with a name, telephone number and authorization number for inclusion in the remarks section of the flight plan.*

4. *FSS must log a double (2) count for the round-robin flight plan.*

d. Do not accept assumed departure flight plans when the destination is in a foreign country other than Canada.

e. Aircraft movement, control, and flight information messages for purposes other than ATS, such as operational control, must be originated by the pilot, the operator, or their designated representative.

7–1–8. ADDRESSING MESSAGES

a. Addressing the flight plan is determined by the point of departure, the destination, and the FIR boundaries to be penetrated during the course of the flight.

b. Address IFR FPL messages to the ARTCC serving the airport of departure and to all ATS units (including oceanic) providing air traffic control service or concerned with flight along part or the whole of the route to be flown except FAA ATCTs and other conterminous U.S. ARTCCs.

NOTE–
Within the North Atlantic (NAT) Region, FPLs on turbo jet aircraft transiting the control areas of Gander Oceanic, New York Oceanic, Reykjavik, Santa Maria Oceanic, Shanwick Oceanic and Sondrestrom (south of 70 degrees) within 90 nautical miles of the control area boundary, must be addressed to the adjacent ACC to provide lateral separation. For all other aircraft, a 120 nautical mile proximity limit must apply.

c. Transmit all IFR FPLs to ARTCCs not less than 1 hour prior to the proposed departure time. Do not hold FPLs until after departure time and transmit as a combined FPL and departure message (DEP). Separate FPL and DEP messages must be transmitted.

NOTE–
ICAO flight plans do not require an acknowledgment to the transmitting facility.

d. Address aircraft movement messages only to those ATS units responsible for the provision of relevant service, except when requested by the operator concerned, these messages, when transmitted via the AFTN, may also be routed, as specified by the operator or a representative to:

1. One addressee at the point of intended landing or point of departure.

2. Not more than two operational control units concerned.

e. The ARTCC serving the departure airport must transmit the DEP message on IFR aircraft to all known recipients of the FPL message. Flights between conterminous U.S. and Canada (excluding Gander Oceanic), Alaska, Hawaii and Puerto Rico do not require DEP messages. Discontinuance of DEP messages affecting the route of flight can only be accomplished by ICAO Regional Air Navigation Agreement.

7–1–9. FLIGHT PLAN FORMS AND INSTRUCTIONS

a. All IFR flights that depart U.S. domestic airspace and enter international airspace must use FAA Form 7233-4, International Flight Plan (see Appendix A), the ICAO Model Flight Plan Form in ICAO DOC 4444, or an electronic equivalent. The flight plan filer is responsible for providing the information required in items 3 through 19.

1. The procedure described in paragraph a. above also applies to IFR flight plans originating within or transiting Pacific Flight Information Regions (FIR) and flying to or from FIRs beyond the Pacific Region including the North American (NAM) Region.

NOTE–
The NAM Region encompasses the conterminous U.S., Alaska, and Canada to the North Pole.

2. VFR flights within the conterminous U.S., Canada, Mexico, Honolulu, Alaska, and San Juan domestic control areas may use FAA Form 7233-1, Flight Plan, or an electronic equivalent.

b. When paper forms are used, record on the form the time the flight plan was filed. This time will constitute evidence of the pilot's intention to comply with Customs, Immigration, and Public Health requirements and will be made available upon request from these authorities

7–1–10. ICAO ATS MESSAGE FORMAT

The following are examples of ICAO message types most likely to appear on AFTN/NADIN circuits. The number above the data corresponds to the field type numbers on the flight plan form (FAA Form 7233-4) and on the chart of Standard ATS Messages and Their Composition, Appendix A.

a. Departure Message (DEP). ARTCCs are the designated ATS unit responsible for originating and transmitting DEP messages on all IFR aircraft departing airports within their center boundaries. IFR flight plans must be transmitted to ARTCCs at least 1 hour before departure. This allows ARTCCs to determine recipients of DEP message when domestic portions are transmitted to ARTCCs in an automated format. Do not hold FPLs and combine with DEP into a single message.

b. Delay Message (DLA). Transmitted when departure of an aircraft, for which an FPL message has been transmitted, is postponed or delayed more than 30 minutes after the estimated time of departure contained in the FPL.

c. Alerting Message (ALR). Relating to an overdue situation on an aircraft.

d. Supplementary Flight Plan (SPL). Information must be sent to ATS units that transmit Request Supplementary Flight Plan (RQS) messages.

e. Arrival Message (ARR). Sent only on Canadian MOT, U.S. DOT, or FAA aircraft or upon request.

f. Current Flight Plan (CPL) Message. Originated by and transmitted in a step-by-step mode between successive ACCs and between the last ACC to the control at the airport of intended landing. CPLs contain only information relevant to that portion of the route of flight which extends from the point of entry into the next control area or FIR to the airport of intended landing.

g. Acceptance (ACP) Message. Transmitted when the data contained in a CPL message are found to be acceptable to the receiving ACC.

h. Flight Plan Cancellation (CNL) Message. Transmitted when a current (CPL) or filed flight plan (FPL) message was transmitted and the flight is canceled.

7–1–11. FLIGHT PLAN CHANGES AND CANCELLATIONS

a. Assume departure station duties when a flight plan change is received from an aircraft en route to a foreign location.

REFERENCE–
FAAO JO 7110.10, Para 6-4-8, Major Flight Plan Changes from En Route Aircraft
FAAO JO 7110.10, Para 6-4-9, Change in ETA.

b. An FSS receiving a VFR flight plan cancellation report from aircraft en route to a foreign location must transmit a cancellation message to the appropriate foreign tie-in facility.

REFERENCE–
FAAO JO 7110.10, Para 6-4-10, Flight Plan Closure.

7–1–12. AIR MOBILE SERVICE (AMS)

a. Air Mobile Service (AMS) is an international air/ground communications network. It provides service to en route aircraft primarily in support of ATC and company operations, and collects meteorological data for dissemination. Although in the U.S. this service is provided via contract (ARINC), FAA flight service facilities may be required to relay information on a case-by-case basis.

b. The AMS network is composed of individual units geographically limited to areas where effective coordination and cooperation between ground stations are possible.

c. For any individual route segment, the AMS communication requirements will normally be met by two or more network stations serving the flights on that route segment. In general, these primary stations serve the ACC serving the FIRs and the points of takeoff and landing. In some cases, additional

suitably located stations are required to complete the communications coverage.

d. Each of these stations may be required at some stage of the flight to exchange communications with the aircraft, and when not so engaged, to intercept, as required, communications exchanged between the aircraft and any one of the other stations.

e. Stations providing regular network service to aircraft operation along route segments in an ACC's FIR are termed regular stations. Other network stations will only be required to assist communications for that FIR in the event of communications failure.

f. When communications permit, aircraft should transmit their messages to the primary station of the network from which they can most readily be delivered to their ultimate destination. In particular, aircraft reports required by ATC should be transmitted to the network station serving the ATC center in whose area the aircraft is flying. Conversely, messages to aircraft in flight should be transmitted direct to the aircraft by the network station serving the location of the originator.

g. Messages passed from aircraft to a network station should be intercepted and acknowledged by other stations which serve locations where the information is also required. Such intercepts provide instantaneous delivery of information and eliminates the transmission of messages over the AFTN. Networks may not be used for transmission of aircraft reports except under the intercept principle. Acknowledgments of intercept must be made immediately after the acknowledgment of receipt by the station to which the message was passed. In the absence of acknowledgment of intercept within 1 minute, the station accepting the message from the aircraft must forward the message via the AFTN to the ultimate destination.

h. In areas or on routes where radio operations, lengths of flights, or distance between stations require additional measures to ensure continuity of communications throughout the route segment, the stations must share the responsibility of primary guard whereby each station will provide the primary guard for that portion of the flight during which the messages from the aircraft can be handled most effectively by that station.

i. During its tenure of primary guard, each station will:

1. Be responsible for designating primary and secondary frequencies for communications with aircraft.

2. Receive all position reports and handle other messages from and to the aircraft essential to the safe conduct of the flight.

3. Be responsible for the action required in case of failure of communication.

j. Transfer of primary guard from one primary station to the next will normally take place at the time of traversing FIR or control area boundaries. When communications conditions so demand, a station may be required to retain primary guard beyond geographical boundaries or release its guard before the aircraft reaches a boundary.

7–1–13. AIREPs (POSITION REPORTS)

a. AIREPs are messages from an aircraft to a ground station. AIREPs are normally comprised of the aircraft's position, time, flight level, ETA over its next reporting point, destination ETA, fuel remaining, and meteorological information. When recording an AIREP on data terminals or written copy, the following procedures must be used.

1. Each line must begin at the left margin.

2. A new line must be used for each transmission.

3. If communications allow, each report must contain the following items in the order shown:

(a) Message type aerodrome reference point (ARP).

(b) Call sign of the calling station (aircraft).

(c) Text of the message.

(d) Call sign of the station called or receiving station followed by the appropriate abbreviation to indicate received, readback, or no reply heard.

(e) Call sign of station(s) acknowledging intercept followed by appropriate abbreviation to indicate received.

(f) Designation of frequency used.

EXAMPLE–
**2866QM 8903VO 13300YH*
*2932QI *5631TY 11384XM*

2998QL 6532UA 13294YF
5628TO 10048WH 17904ZC
**For Alaskan domestic use only.*

(g) Time in UTC of the communication.

4. Missing parts of the message text must be indicated by the letter **"**M.**"**

EXAMPLE–
ARP CPC583 KBRO 2100 F330 MMTM 2128
ETA XMMMX 2248 FUEL 0324
KNEW RB
MMMX R
TO2103

b. AIREPs may be filed from any aircraft inflight within World Meteorological Organization (WMO) areas of responsibility in conformity with ICAO requirements for position, operational, or meteorological reporting in AIREP format. AIREP information must be disseminated to ATC, company, and meteorological offices as required. AIREPs consist of three sections comprised of 12 items. AIREPs may be filed in one, two, or three sections as follows:

1. Section 1, Routine report. A position report (PSNRP) comprising the Message Type Designator -ARP and the following items:

(a) Item 1, Aircraft identification.

(b) Item 2, Position. Record position in latitude (degrees as two numerics, or degrees and minutes as four numerics, followed without a space by N or S) and longitude (degrees as three numerics, or degrees and minutes as five numerics, followed without a space by E or W) or as a significant point identified by a coded designator (two-to-five characters) or as a significant point followed by a magnetic bearing (three numerics) and a distance in nautical miles (three numerics) from the point, such as 4620N07805W, 4620N078W, 46N078W, LN, MAY or DUB180040. Precede significant point by ABM (abeam), if applicable.

(c) Item 3, Time. Record time in hours and minutes UTC (four numerics). The time recorded must be the actual time of the aircraft at the position and not the time of origination or transmission of the report.

(d) Item 4, Flight level or altitude. Record flight level as "F" followed by three numerics when on standard pressure altimeter setting, such as F370. Record altitude in meters followed by M, or in feet followed by FT, when on QNH. Record ASC (level) when climbing, or DES (level) when descending to a new level after passing the significant point.

(e) Item 5, Next position and time over. Record the next reporting point and the estimated time over such reporting point, or record the estimated position that will be reached 1 hour later, according to the position reporting procedures in effect. Use the data conventions specified in subpara 7-1-13b1(b), Item 2, Position, for position. Record time in minutes past the hour (two numerics) or in hours and minutes UTC (four numerics) when necessary.

EXAMPLE–
PSNRP portion of AIREP prepared by De Ridder and addressed to Canadian Pacific Airlines (CPC) in Toronto and Mexico City:
FF CYYZCPCX MMMXXMZT
122105 KDRIYFYX
ARP CPC583 KBRO 2100 F370 MMTM28
KNEW RB
MMMM R
TO2103]

2. Section 2. When reported by the pilot:

(a) Item 6, Estimated Time of Arrival (ETA). Record ETA by the four-letter location indicator of the airport of first intended landing, or if no location indicator exists, the name of the airport followed by the estimated time of arrival at this aerodrome in hours and minutes UTC (four numerics).

(b) Item 7, Endurance. Record fuel in hours and minutes (four numerics).

3. Section 3. A full AIREP comprising a PSNRP, company information, and en route meteorological information.

(a) Item 8, Air temperature. Record PS (plus) or MS (minus), no space, followed by the temperature in degrees centigrade corrected for instrument error and airspeed, such as MS05.

(b) Item 9, Spot wind or mean wind and position. Spot wind is used whenever practical and normally refers to the position given in subpara 7-1-13b1(b), Item 2, Position. When a spot wind is given for any other location, record its position. Whenever it is not practical to record spot wind, record the mean wind between two fixes, followed by the word "mean," and the position of the midpoint between the two fixes. Record wind direction in degrees true (three numerics) and wind speed in knots (two or three numerics), separated by an oblique

stroke, such as 345/55. Record the direction of variable winds of a given strength as VRB, such as VRB/10. Record light and variable winds or calm as LV. If wind position is required, record latitude and longitude to the nearest whole degree, using the data convention specified in Item 2, such as 22N180W.

EXAMPLE–
AIREP comprised of PSNRP and aircraft operator information:
FF CYYZCPCX MMMXXMZT
122105 KDRIYFYX
ARP CPC583 KBRO 2100 F370 MMTM28
MMMX 2248 FUEL 0324
KNEW RB
MMMX R
TO2103

(c) Item 10, Turbulence (TURB). Record severe turbulence as TURB SEV and moderate turbulence as TURB MOD. If turbulence is experienced in cloud, add INC (in cloud). If in subsonic flight, report severe turbulence as soon as possible after occurrence. This requires AIREP SPECIAL. Record and report moderate turbulence only if encountered within last 10 minutes prior to reaching position in subpara 7-1-13b1(b), Item 2, Position. If in transonic or supersonic flight, report severe or moderate turbulence as soon as possible after occurrence. This requires AIREP SPECIAL.

(d) Item 11, Icing. Record severe icing as ICE SEV, moderate icing as ICE MOD. Report severe icing as soon as possible after occurrence. This requires AIREP SPECIAL. Record and report moderate icing only if encountered within last 10 minutes prior to reaching position in subpara 7-1-13b1(b), Item 2, Position.

(e) Item 12, Supplementary Information. Record data which in the opinion of the pilot-in-command are of aeronautical interest.

(1) Present Weather. Rain (RA), Snow (SN), Freezing rain (FZRA), Funnel cloud (FC) Waterspout or tornado (+FC), Thunderstorm (TS) on or near flight path, Front (FRONT).

(2) Clouds. If heights of cloud bases and/or tops can be accurately ascertained, amount of clouds scattered (SCT) if clear intervals predominate, broken (BKN) if cloud masses predominate, or continuous (CNS) type of clouds only if cumulonimbus (CB), and an indication of the bases (BASE) and/or the tops (TOP) together with the respective height indication F (number) or (number) or (number) M/ or (number) FT.

(3) Turbulence and Icing. Moderate turbulence (TURB MOD) if in subsonic flight, or moderate aircraft icing (ICE MOD) observed prior to the last 10 minutes.

(4) D-Value. Reading or radio altimeter minus reading of pressure altimeter set to 1013.2 mb and corrected for calibration and position error; record differences as PS (plus) or MS (minus), no space, followed by the number of meters or feet.

EXAMPLE–
Full AIREP:
FF CYYZCPCX MMMXXMZT KMIAYMYX
162215 TJSJYFYX
ARP CPC583 2709N05415W 2212 F330
23N056W 59 0035 FUEL 0324 M534 310/60
MEAN 2543N05532W TURB MOD ICE MOD SCT
CB TOP F280
TJSJ RB
TO2214

NOTE–
Transmit to the WMO office serving the FIR where the report is made.

(5) Operationally Significant Weather Radar Echoes (echo or echo line). True bearing of center of echo or line and distance from aircraft in nautical miles; if appropriate, indicate weather intensifying or weakening and whether no gaps, some gaps, or frequent gaps are observed.

(6) Significant differences between conditions encountered and those forecast for the flight, such as forecast thunderstorms not observed or freezing rain not forecast.

(7) If the position of the phenomenon reported is not the same as the position given under subpara 7-1-13b1(b), Item 2, Position, report it after the phenomenon.

7–1–14. AIREP SPECIALS (ARS)

a. Turbulence. TURB SEV encountered while in subsonic flight is reported as soon as possible after occurrence and requires AIREP SPECIAL. TURB MOD is reported only if encountered within 10 minutes prior to reaching reporting position. If in transonic or supersonic flight, TURB MOD and SEV is reported as soon as possible and requires AIREP SPECIAL.

b. Icing. ICE SEV is reported as soon as possible after occurrence and requires AIREP SPECIAL. ICE

MOD is reported only if encountered within last 10 minutes prior to reaching reporting position.

EXAMPLE–
FF KMIAYMYX
211538 TJSJYFYX
ARS PAA101 5045N02015W 1536 F310 ASC
F350 51N030W 21 FUEL 0900 ICE SEV

7–1–15. ARTCC RELAY OF VFR MESSAGES

ARTCC operators must relay all international VFR flight movement messages to the adjacent FSS unless that facility is also an addressee.

NOTE–
If an overseas unit erroneously routes a VFR movement message to an ARTCC, the automatic NADIN switch will not divert it to an FSS.

Section 2. Customs Notification and ADIZ Requirements

7–2–1. FLIGHT PLAN/CUSTOMS REQUIREMENTS

Specific flight plan, Customs, and other requirements of individual countries are listed in the FAA International Flight Information Manual, IFIM.

7–2–2. INBOUND AIRCRAFT: CUSTOMS REQUIREMENTS

a. All aircraft entering U.S. airspace from a foreign port must provide at least 1 hour advance notice to the U.S. Customs and Border Protection (CBP) at the point of first intended landing.

b. Aircraft arriving from the following location must furnish a notice of intended arrival to CBP at the nearest designated airport to point of crossing for the first landing in the U.S.

1. Via the U.S./Mexican border or the Pacific Coast from a foreign location in the Western Hemisphere south of 33 degrees north latitude.

2. From the Gulf of Mexico or the Atlantic Coasts from a place in the Western Hemisphere south of 30 degrees north latitude from any place in Mexico.

3. From the U.S. Virgin Islands.

4. From Puerto Rico, which if from Puerto Rico, are conducting VFR flight.

c. This notice must be given at least 1 hour before crossing the U.S. coastline or border. The advance notice of arrival must include the following:

1. Aircraft registration number.

2. Name of aircraft commander.

3. Number of U.S. citizen passengers.

4. Number of alien passengers.

5. Place of last departure.

6. Estimated time and location of crossing U.S. border/coastline.

7. Estimated time of arrival.

8. Name of intended U.S. airport of first landing.

d. The pilot may make any required notification directly to the CBP through the Electronic Advance Passenger Information System (eAPIS) at: https://eapis.cbp.dhs.gov/. Alternate methods may include telephone, radio, or other means, or may be furnished through the FAA to the CBP.

REFERENCE–
U.S. Customs and Border Protection Guide for Private Flyers.

e. When Customs flight notification service is requested, as indicated by inclusion of ADCUS in remarks, deliver the complete message to the associated CBP office as soon as practical. Relay additional or amended information to the CBP in order to properly comply with requirements; for example, when actual arrival time varies from ETA by more than 15 minutes.

1. Provide the service only for those airports where availability is advertised in the AFD on flight notification messages. Pilots are responsible for making their own Customs arrangements for other airports.

2. Notify only the CBP office which, in turn, is responsible for notifying other inspection agencies concerned.

f. Prefiled Customs notification requests for flights returning to the U.S. must be delivered to the CBP office not earlier than 23 hours in advance.

g. When an airborne aircraft identifies an airport of first intended landing that is not one of the designated airports, advise the pilot that this airport is not a designated airport of first landing.

PHRASEOLOGY–
BE ADVISED THAT YOUR DESTINATION IS NOT A CUSTOMS AND BORDER PROTECTION DESIGNATED FIRST LANDING AIRPORT. WHAT ARE YOUR INTENTIONS?

NOTE–
If a pilot insists on landing at a non-designated airport, pass this information to nearest Customs and Border Protection office.

h. When a flight notification message containing ADCUS in remarks identifies a non-designated airport of first intended landing, notify the message originator to advise the pilot that the filed destination is not a designated airport.

PHRASEOLOGY–
ADVISE (aircraft identification) THAT THE FILED DESTINATION IS NOT A CUSTOMS AND BORDER PROTECTION DESIGNATED FIRST LANDING AIRPORT.

NOTE–
The FAA's role in this program is advisory only. Any appearance of action of enforcing compliance must be avoided. Any questions should be directed to the U.S. Customs and Border Protection.

i. Record the time of receipt of Customs requests. This time will constitute evidence of the pilot's intention to comply with CBP, Immigration, and Public Health requirements and will be made available upon request from these authorities.

7–2–3. INBOUND AIRCRAFT: ADIZ REQUIREMENTS

a. Unless otherwise authorized by ATC, no person may operate an aircraft into, within, or across an ADIZ unless that person has filed a flight plan with an appropriate aeronautical facility.

b. Unless otherwise authorized by ATC, no person may operate an aircraft into, within, or across an ADIZ unless that aircraft is equipped with a coded radar beacon transponder and automatic pressure altitude reporting equipment having altitude reporting capability that automatically replies to interrogations by transmitting pressure altitude information in 100-foot increments.

NOTE–
This paragraph does not apply to the operation of an aircraft which was not originally certificated with an engine-driven electrical system and which has not subsequently been certified with such a system installed; for example, a balloon or glider.

c. Pilots of aircraft entering the United States through an ADIZ are required to comply with the provisions of 14 CFR Sections 99.17 and 99.19.

d. Forward information on DVFR aircraft inbound to the U.S. to NORAD via Service B or by telephone. Forward the following information:

1. Aircraft call sign.

2. Number and type of aircraft.

3. Altitude (within ADIZ).

4. True airspeed.

5. Time of departure.

6. Point of departure.

7. Destination.

8. ETA.

9. Remarks: DVFR discrete transponder code; estimated first point of penetration of ADIZ (latitude/longitude or fix-radial-distance); estimated time of penetration of ADIZ.

EXAMPLE–
1210 135 3442/09345 1446

NOTE–
1. *See para 6-3-3, IFR Flight Plan Control Messages .*

2. *Further information on ADIZ requirements is contained in 14 CFR Part 99.*

Section 3. Alerting Service

7–3–1. GENERAL

a. Alerting service must be provided:

1. For all aircraft provided with ATC service.

2. Insofar as practical, to all other aircraft having filed a flight plan or otherwise known to an air traffic service.

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

b. Additional information related to ICAO Search and Rescue procedures can be found in ICAO ANNEX 11, Chapter 5, Alerting Service.

c. Apply domestic SAR procedures for the U.S. portion of the flight.

7–3–2. ALERTING PHASES

a. Air traffic services units must notify rescue coordination centers immediately when an aircraft is considered to be in a state of emergency in accordance with the following:

1. Uncertainty phase when:

(a) No communication has been received from an aircraft within a period of 30 minutes after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier.

(b) An aircraft fails to arrive within 30 minutes of the estimated time of arrival last notified to or estimated by air traffic services units, whichever is later, except when no doubt exists as to the safety of the aircraft and its occupants.

2. Alert phase when:

(a) Following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft.

(b) An aircraft has been cleared to land and fails to land within five minutes of the estimated time of landing and communication has not been reestablished with the aircraft.

(c) Information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely.

(d) An aircraft is known or believed to be the subject of unlawful interference.

3. Distress phase when:

(a) Following the alert phase further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress.

(b) The fuel on board is considered to be exhausted or thought to be insufficient to enable the aircraft to reach safety.

(c) Information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely.

(d) Information is received and it is reasonably certain that the aircraft is about to make or has made a forced landing.

b. In addition to the initial notification, the Rescue Coordination Center (RCC) must, without delay, be furnished with:

1. Any useful additional information, especially on the development of the state of emergency through subsequent phases.

2. Information that the emergency situation no longer exists.

7–3–3. ALERTING MESSAGE CONTENTS

a. The notification must contain as much of the following information as is available in the order listed.:

NOTE–
1. *For supplemental flight plan information, transmit an "RQS" Message. This information is used in the transmission of the INCERFA.*

2. *See paragraph 1-2-7, Operational System Instructions, for message formats.*

EXAMPLE–
FF SVZMZRZX
231247 KMIAYFYX
(RQS-N1234-SVMI-KMIA

1. INCERFA, ALERFA, DETRESFA, as appropriate to the phase of the emergency.

2. Agency and person calling.

3. Nature of the emergency.

4. Significant information from the flight plan.

5. Unit which made last contact, time, and frequency used.

6. Last position report and how determined.

7. Color and distinctive marks of aircraft.

8. Any action taken by reporting office.

9. Other pertinent remarks.

EXAMPLE–
(INCERFA)
SS MMMXYAYX
DTG KSANYFYX
(ALR-INCERFA/KSAN/OVERDUE
-N1234S-VG
-C172
-KRNO2000
-MMLP0130
-REQ ACK OR ARR ACFT OVERDUE YOUR STN)

(ALERFA)
SS MMMXYAYX
TEXT:(ALR-ALERFA/KSAN/OVERDUE)
(text remains same except for remarks information).

(DETRESFA)
SS MMMXYAYX
TEXT:(ALR-DETRESFA/KSAN/OVERDUE
(text remains same except for remarks information).

b. The cancellation of action initiated by the RCC is the responsibility of that center.

EXAMPLE–
(CANCELLATION)
SS MMMXYAYX
020618 KMIAYFYX
(ALR-ALERFA/KMIAYFYX/CNLD
N1234 LOCATED)

NOTE–
Transmit cancellation messages for INCERFA and DETRESFA using same format as above.

Section 4. Canadian Movement and Control Messages (Transborder Flights Only)

7–4–1. GENERAL

Except as indicated in this section, handle Transborder Canadian movement and control messages as described in Sections 1, 2, and 3. Do not include ADCUS in flight plan remarks because NAV CANADA no longer alerts Canadian Customs. CANPASS authorizations are the obligation of the pilot, at the number in subpara 7-4-3a.

7–4–2. INBOUNDS FROM CANADA

a. Do not accept VFR flight plans other than air filed flight plans for aircraft departing from Canada. Refer individuals to the appropriate NAVCANADA facility to file flight plans out of Canada. Do not accept round-robin flight plans to international locations, other than Canada.

b. The operational system should automatically format the required items of the flight notification message when activated. Deliver VFR and IFR ADCUS to the CBP. File IFR messages after delivery.

c. Facilities acknowledge receipt of flight notification messages as soon as practical by transmitting the letter "R" followed by the full aircraft identification; for example, R N711VR. Suspense VFR flight notification messages until arrival or closure information is received. Remove IFR messages from the inbound list after delivery.

7–4–3. OUTBOUNDS TO CANADA

a. When Customs notification service is requested advise the pilot to contact Canada's Private Aircraft Program for Customs (CANPASS) at 888-226-7277 and include CANPASS in the remarks section of the flight plan. If the pilot informs that he/she has contacted CANPASS, place CANPASS in the remarks section of the flight plan. Process outbound flight plans in accordance with Chapter 6 and subparas 7-4-3d and e.

b. Accept Customs notification requests from inflight aircraft for relay via flight notification message only for airports of entry where Customs flight notification service is provided and when proposed ETA is during Customs service hours.

c. Upon notification of departure of VFR flights, transmit a flight notification message directly to the destination Canadian relay facility. Include CANPASS in the remarks.

NOTE–

1. *The operational system will automatically format the required items and transmit the flight notification message when activated if the proposed flight plan was filed in accordance with subparas 7-4-3d and 7-4-3e.*

2. *Facilities address messages to the destination relay facility listed in FAAO JO 7350.8, Location Identifiers. Facilities transmit flight notification messages for VFR flights in accordance with para 6-4-4, Flight Notification Message. Flight notification messages included the type of flight plan as the first item of the notification message. CANPASS is required in the remarks, as appropriate.*

EXAMPLE–

FF CZYZZFZX
DTG KBUFYFYX
VFR N711VR C182 BUF YYZ 1735 CANPASS

d. IFR Flight Plans

1. CANPASS Flight Plans.

NOTE–

The operational system should automatically format the required items and transmit the flight notification message.

EXAMPLE–

FR:I AI:N1234 AT:C421/R TS:280
DD:DSM TM:P1800 AE:200
RT:DSM..CYYZ
AD:CYYZ TE:0300 RM:$CANPASS
FB:0400 AA:
PD:JOE PILOT
HB:DSM NB:2 CR:R/W TL:
OP:
CP:
TA:2100

FR:I AI:N1234 AT:C421/R TS:280 DD:DSM
TM:P1800 AE:200
RT:DSM..CYYZ
AD:CYYZ TE:0300 RM:$CANPASS
FB:0400 AA:
PD:JOE PILOT
HB:DSM NB:2 CR:R/W TL:
OP:&C

CP:CZYZZFZX
TA:2100

2. Send a flight notification message on airfile IFR aircraft that has requested Customs notification. Place CANPASS (if prior notification) in the remarks section of the flight notification message. If the pilot files a flight plan, but gives no indication that CANPASS procedures have been implemented, or prefers to leave the notification off of the flight plan, leave the remarks section blank and allow the NAV CANADA specialists to handle the situation upon arrival.

e. VFR Flight Plans.

NOTE–
The operational system will automatically format the required items and transmit the flight notification message.

EXAMPLE–
EXAMPLE-
AIRFILED
FR:V AI:N1234 AT:C150 TS:90 DD:BUF
TM:D1800 AE:045 RT:BUF..CYYZ
AD:CYYZ TE:0030 RM:$CANPASS 2 FB:0330 AA:
PD:JOE PILOT
HB:DSM NB:2 CR:5/W TL:
OP:&C
CP:CZYZZFZX
TA:1830

CANPASS
FR:V AI:N1234 AT:C150 TS:90 DD:BUF
TM:P1800 AE:045 RT:BUF..CYYZ
AD:CYYZ TE:0030 RM:$CANPASS
FB:0330 AA:
PD:JOE PILOT
HB:DSM NB:2 CR:5/W TL:
OP:&C
CP:CZYZZFZX
TA:1830

f. Refer to the Canada and North Atlantic IFR and VFR supplements to determine Customs hours of service, availability of Customs flight notification service (CANPASS), and the relay facility for infrequently used Airports of Entry not listed in FAA Order JO 7350.8, Location Identifiers.

g. Suspense VFR message until acknowledgment is received.

REFERENCE–
FAAO JO 7110.10, Para 8-5-2, Canadian Transborder.

1. If an acknowledgment is not received within 30 minutes after departure, retransmit the message. AISR facilities transmit the contraction "REQ ACP" (request acceptance) and the complete aircraft identification.

EXAMPLE–
FF CZYZZFZX
DTG KBUFYFYX
REQ ACP N711VR

2. If acknowledgment is not received within 1 hour after departure, use interphone or telephone to deliver. In any event, assure delivery prior to ETA.

3. Refer to Section B of the Canada and North Atlantic IFR Supplements for Canadian FSS and Area Control Center (ACC) telephone numbers.

h. When correcting or revising a message, retransmit the complete message preceded by the contraction CHG (change).

EXAMPLE–
FF CZYZZFZX
DTG KBUFYFYX
CHG VFR N711VR C182 BUF YYZ 1845
CANPASS

FF CZYZZFZX
DTG KBUFYFYX
CHG VFR N711VR C182 BUF YYZ 1845 CANPASS

i. Do not transmit IFR flight notification messages except for military aircraft or Customs notification purposes.

NOTE–
Canada will not acknowledge receipt of these messages.

j. When available, use interphone or telephone for flights of 30 minutes or less.

7–4–4. OUTBOUNDS TO CANADA DEPARTING FROM OUTSIDE FLIGHT PLAN AREA

Accept flight plans regardless of departure point within the NAS. (See para 7-4-1 and subpara 7-4-3a for CANPASS guidance.)

a. Forward VFR flight plan information for aircraft departing from outside the facility's flight plan area to the tie-in SECTOR/FSS for the departure point in the following format:

1. Aircraft identification.

2. Aircraft type.

3. Departure point.

4. Destination.

5. Proposed departure time/ETE.

6. Remarks.

EXAMPLE–
FF PAKTYFYX
DTG KSEAYFYX
N711VR C182 KTN YYJ P1630/0330 CANPASS

b. Forward IFR flight plan information for aircraft proposing to depart from outside the facility's flight plan area in accordance with Para 6-3-1, Domestic IFR Flight Plans. If Customs flight notification service (ADCUS) is requested, advise the pilot to contact CANPASS at 888-226-7277; include CANPASS information as an intrafacility remark, and transmit the proposal message to both the ARTCC and the tie-in SECTOR/FSS. Enter the ARTCC computer address last.

EXAMPLE–
FF KAOOYFYX KZOBZQZX
DTG KDCAYFYX
DCA2010001 FP N1234P P28R/A 150 PIT P0200
150 PIT..CIP..DKK..BUF..YYZ/0130 CANPASS

NOTE–
The operational system will automatically format the required items and transmit the flight notification message.

c. Identify the tie-in SECTOR/FSS, and advise the pilot to report departure time directly to that facility.

NOTE–
While the report may be relayed through another facility, it is the pilot's responsibility to notify the tie-in SECTOR/FSS of the departure time.

d. Upon receipt of the departure report, the tie-in SECTOR/FSS is responsible for delivery of the flight notification message to Canada.

1. Transmit a flight notification message in accordance with para 6-4-4, Flight Notification Message.

NOTE–
If a departure report has not been received within 1 hour of the proposed departure time, cancel and file the proposed flight plan.

2. The operational system changed should automatically format the required items and transmit the flight notification message.

e. Acknowledgment from the departure point tie-in SECTOR/FSS is required for both VFR and IFR proposals.

7–4–5. IFR FLIGHT PLANS DEPARTING CANADIAN AIRPORTS

a. Accept IFR flight plans departing from Canadian airports and destined to the U.S. Transmit a proposal message in ARTCC HOST computer format to the associated Canadian ACC. Address messages to the ACC listed in FAA Order JO 7350.8, Location Identifiers.

NOTE–
FSSs in Alaska will still accept Canada to Canada IFR flight plans.

b. Canada does not acknowledge for proposal messages. Do not expect or request acknowledgment.

7–4–6. SEARCH AND RESCUE MESSAGES

Provide Search and Rescue for flights inbound from Canada in accordance with Chapter 8.

Section 5. Mexican Movement and Control Messages (Transborder Flights Only)

7–5–1. GENERAL

Except as outlined in this section, handle transborder Mexican movement and control messages as described in Sections 1, 2, and 3. IFR flight plans to Mexico require the ICAO flight plan form.

7–5–2. INBOUNDS FROM MEXICO

a. Flight notification messages.

1. When received in the proper format, VFR flight notification messages are automatically acknowledged and suspended by the operational system. Deliver VFR and IFR ADCUS messages to CBP. Store IFR ADCUS messages in the history file, as appropriate.

2. Acknowledge receipt of a flight notification message as soon as practical by transmitting the letter R followed by the full ACID; e.g., R N7llVR. Deliver VFR and IFR ADCUS messages to CBP. Suspense VFR flight notification messages until arrival or closure information is received. File IFR messages. Remove IFR inbounds from Mexico from the inbound list once ADCUS message is delivered to CBP.

b. Search and Rescue. Provide search and rescue service in accordance with standard format/time increments listed in Section 3, Alerting Service, and Chapter 8, Search and Rescue (SAR) Procedures. The departure station in Mexico is responsible for initiating SAR action until an acknowledgment of the flight notification message is received.

7–5–3. OUTBOUNDS TO MEXICO

a. When customs notification service is requested for an airport-of-entry, include ADCUS, the number of persons on board, and the pilot's name in the remarks section of the flight plan.

NOTE–
Mexican customs regulations require that only international airports-of-entry may be used for first landing.

REFERENCE–
FAAO JO 7350.8, Location Identifiers.

1. If the pilot still intends to land at a destination other than an airport-of-entry, advise the pilot that the flight plan will not be used for Customs or search and rescue service in Mexico.

2. Transmit the flight notification message to the Regional Flight Dispatch Office, not the destination tie-in station.

NOTE–
If the correct addressee cannot be determined, transmit to the nearest border Regional Flight Dispatch Office.

b. When a pilot files an IFR flight plan and customs notification service is requested for an airport-of-entry, include ADCUS and the information listed in subpara 7–5–3a. Transmit to the appropriate ARTCC.

NOTE–
Mexico requires notification of an inbound aircraft before its arrival. The inclusion of ADCUS in the remarks section of an IFR flight plan or flight notification message satisfies this requirement.

c. VFR Flight Plans.

1. Upon notification of departure of VFR flights, transmit a flight notification message. When Customs notification service is requested for an airport-of-entry include ADCUS and the information listed in subpara 7–5–3a. Address messages to the ICAO addressee for the appropriate destination location.

2. If a VFR flight plan is filed with a destination other than an airport-of-entry, transmit the flight notification message to the Regional Flight Dispatch Office, not the destination tie-in station. If the correct addressee cannot be determined, transmit to the nearest border Regional Flight Dispatch Office.

NOTE–
Facilities with interphone/telephone capability may relay flight notification messages by this method.

REFERENCE–
FAAO JO 7350.8, Location Identifiers.

3. Address messages to the ICAO addressee for the appropriate destination location. Transmit the following information:

(a) Type of flight.

(b) Aircraft identification.

(c) Aircraft type.

(d) Departure point.

(e) Destination.

(f) ETA.

(g) Remarks.

EXAMPLE–
FF MMCUXMXO
DTG KSJTYFYX
VFR N1234S C182 SJT MMCU 1400 $ADCUS 4ZUCHERMANN

d. If acknowledgment is not received within 30 minutes after departure, transmit a "request acceptance" message to the destination station tie-in addressee and to the Regional Flight Dispatch Office. Manually address the message to the designated Regional Flight Dispatch Office.

REFERENCE–
FAAO JO 7350.8, Location Identifiers.

EXAMPLE–
FF MMCUXMXO MMMYXMXO
REQ ACP N1234S

e. The Regional Flight Dispatch Office involved will then normally send an acknowledgment to the departure station and assume responsibility for the flight notification message.

f. If acknowledgment/acceptance is not received within 1 hour of the departure, use interphone/telephone or other available means to deliver the message to the appropriate Regional Flight Dispatch Office. See TBL 7–5–1 for telephone numbers. For a complete address, add xmxo to the identifier.

TBL 7–5–1
Mexican Regional Flight Dispatch Office Phone Numbers

Mexican Regional Flight Dispatch Office Telephone Numbers		
REGION	*IDENTIFIER*	*TELEPHONE NUMBER*
CENTRO (Central)	MMMX	01152 5 762–7062 01152 5 784–40–99 ext. 153 01152 5 762–58–77 ext. 153
NORESTE (Northeast)	MMMY	01152 83 454–020 ext. 141
NOROESTE (Northwest)	MMMZ	01152 67 23–114 01152 67 22–075 ext. 140
OCCIDENTE (West)	MMGL	01152 36 890–121 ext. 32 and 167
SURESTE (Southeast)	MMMD	01152 99 231–186 ext. 149

g. Do not accept round-robin flight plans to Mexico.

Chapter 8. Search and Rescue (SAR) Procedures

Section 1. General

8–1–1. RESPONSIBILITY FOR SAR ACTION

a. The departure tie-in facility/sector is responsible for SAR action until the destination tie-in facility/sector acknowledges receipt of the flight notification message. SAR responsibility is then transferred to the destination tie-in facility/sector.

NOTE–
Tie-in facilities may include an FSS, Military BASOPS, foreign facilities, etc.

b. The National SAR Plan assigns search and rescue responsibilities as follows:

1. To the military agencies for conducting physical search and rescue operations.

2. To the FAA for:

(a) Providing emergency service to aircraft in distress.

(b) Assuring that SAR procedures will be initiated if an aircraft becomes overdue or unreported. This is accomplished through the ATC system for IFR aircraft and the flight plan program and/or reports of overdue aircraft received at air traffic facilities for VFR aircraft.

(c) Attempting to locate overdue or unreported aircraft by information request (INREQ) and alert notice (ALNOT) communications search.

(d) Cooperating in the physical search by making all possible facilities available for use by the searching agencies.

NOTE–
The National SAR Plan is outlined in the AIM.

c. FSSs serve as the central point for collecting and disseminating information on overdue or missing aircraft which are not on an IFR flight plan.

d. ARTCCs serve as the central points for collecting information, coordinating with SAR, and conducting a communications search by distributing any necessary ALNOTs concerning:

1. Overdue or missing IFR aircraft.

2. Aircraft in an emergency situation occurring in their respective areas

3. Aircraft on a combined VFR/IFR or an air-filed IFR flight plan, and 30 minutes have passed since the pilot requested IFR clearance, and neither communications nor radar contact can be established.

4. Overdue or missing aircraft which have been authorized to operate in accordance with a SVFR clearance.

e. The ARTCC serves as the contact point for collecting information and coordinating with the RCC on all ELT signals.

8–1–2. OVERDUE AIRCRAFT ON FLIGHT PLAN

Consider an aircraft on a VFR or DVFR flight plan overdue when it fails to arrive 30 minutes after its ETA and communications or location cannot be established.

8–1–3. OVERDUE AIRCRAFT NOT ON FLIGHT PLAN

Consider an aircraft not on a flight plan as overdue:

a. At the actual time a reliable source reports it to be at least 1 hour late at destination. Based on this overdue time, initiate a communications search and proceed directly to the ALNOT phase. When such a report is received, verify (if possible) that the aircraft actually departed and that the request is for a missing aircraft rather than a person. Refer missing person reports to the appropriate authorities.

b. If you have reason to believe that an aircraft is overdue prior to 1 hour after its ETA, take the appropriate action immediately.

REFERENCE–
FAAO JO 7110.10, Para 8-2-1, Communications Search
FAAO JO 7110.10, Para 8-4-1, ALNOT

Section 2. Overdue Aircraft Action

8–2–1. COMMUNICATIONS SEARCH

a. As soon as a VFR/DVFR aircraft (military or civil) becomes overdue, the destination tie-in facility/sector (including intermediate destination tie-in facilities for military aircraft) must initiate a communications search to locate the aircraft by checking the following:

1. Destination airport

2. Flight plan phone number, if available

3. BASOPS, if applicable

4. Customs, if applicable

5. ATC facilities as applicable

6. DUAT vendor, if applicable

b. If the aircraft has not been located, check the following:

1. Departure airport

2. All airports adjacent to the destination that could accommodate the aircraft

3. Appropriate ARTCC sectors

8–2–2. QALQ

a. If the communications search does not locate the aircraft, and the flight plan is not held by the destination station, transmit a QALQ to the facility/sector that holds the flight plan.

Possible Flight Plan Originators:

KxxxYFYX	Flight Service Station/Sector
KxxxYXYX	Military BASOPS
KIADXCLX or KMIVXDTC	DUAT Vendors
KAISXCLX	AISR

NOTE–
QALQ is used to solicit information that is not accessible. If the flight plan information is already available to the destination tie-in facility/sector, QALQ is not required."

b. The QALQ message text must begin with the contraction "QALQ" followed by the aircraft identification.

EXAMPLE–
QALQ N12345

c. If the specialist determines that the communications search cannot be completed prior to the INREQ transmission time, the QALQ must be transmitted in time to receive the information for the INREQ message. The communications search must continue without reference to time until such a time that the aircraft is located, the communications search is complete, or the search is suspended.

d. In the case of a U.S.-registered aircraft, or any aircraft known to be piloted by or transporting U.S. citizens and en route within a foreign country or between two foreign countries, if an overdue report is received either from someone directly concerned or from aviation authorities of a foreign country, notify the Washington Communications Control Center immediately via Service B message addressed to KRWAYAYX.

e. Automated systems will accept properly formatted QALQs, INREQs, ALNOTs, INCERFAs, ALERFAs, and DETRESFAs and place them on the SAR list. A SAR alert may be generated at designated workstations. SAR messages must be deleted from the SAR list when the SAR is cancelled.

8–2–3. ACTION BY DEPARTURE STATION ON RECEIPT OF QALQ

Upon receipt of the QALQ message, the departure tie-in facility must check for any information about the aircraft, and take the following actions:

a. If the aircraft is located, notify the destination facility. This may be delivered via Service B message or recorded communications.

b. If unable to obtain additional information, transmit a message to the destination tie-in facility containing all information not previously sent. Include any verbal or written remarks which could be pertinent to the search.

NOTE–
For operational systems using a common data base, the departure and destination station may be considered the same.

EXAMPLE–
QALQ N4367V
[flight plan information]
[additional pertinent information]

8–2–4. CANCELLATION OF THE QALQ

If the aircraft is located by the destination facility after the QALQ is sent, transmit a cancellation message addressed to all recipients of the QALQ.

EXAMPLE–
QALQ N4367V CNLD

Section 3. Information Requests (INREQs)

8–3–1. INREQ

If the reply to the QALQ is negative or the aircraft has not been located within 30 minutes after it becomes overdue, whichever occurs first:

a. The destination tie-in facility/sector must transmit a numbered INREQ message addressed to:

1. Flight plan originator (if other than DUATS or AISR)

2. En route FSS as applicable

3. KSARYCYX (includes RCC, AISR, and DUAT vendors)

4. En route ARTCCs as applicable

5. BASOPS if destination or departure tie-in facility

6. Other addresses the specialist deems beneficial to the search.

b. Include the flight plan and any other pertinent information in the INREQ message which could assist in search activities. Retrieve data from the history files, format the message, and transmit. Provide the aircraft's last known position as the final item of the message. The message text must begin with the contraction "INREQ," followed by the aircraft identification.

EXAMPLE–
DCA001 (appropriate three–character identifiers)
INREQ N12345
[flight plan information]
[additional pertinent information]

c. If the departure airport, route of flight, destination airport or alternate airports are within 50 miles of the Great Lakes, notify Cleveland RCC via recorded telecommunications line

d. If the flight is within the Honolulu sector, notify Honolulu SARCC via recorded telecommunications line.

e. RCC does not have transmit capability. Acknowledgement is not required for messages to RCC.

f. If additional information is received in INREQ reply messages, transmit the information, as necessary, to all original addressees.

8–3–2. ACTION UPON RECEIPT OF INREQ

Stations receiving an INREQ must take the following action:

a. Search facility records for information regarding the aircraft. Expand the communications search to include all flight plan area airports along the proposed route of flight that could accommodate the aircraft. Notify appropriate ATC facilities. Reply to the INREQ within 1 hour of receipt with flight plan and other pertinent information. If unable to complete the communications search within 1 hour, forward a status report followed by a final report when the search is complete.

EXAMPLE–
HNL001 (appropriate three–character identifiers)
INREQ N1234A [status report]

HNL001 (appropriate three–character identifiers)
INREQ N1234A [final report]

NOTE–
Upon receipt of INREQs and ALNOTs, ATCTs and ARTCCs are required to check facility records, report findings to the FSS that alerted them within 1 hour, and retain in an active status until canceled.

REFERENCE–
FAAO JO 7110.65, Para 10-3-4, ALNOT.

b. If the INREQ indicates that the departure airport, route of flight, destination airport or alternate airports are within 50 miles of the Great Lakes, notify Cleveland RCC via recorded telecommunications line.

c. For facilities that have any portion of their incoming calls and/or Service B diverted to another facility, notify that facility of the INREQ. The facility receiving diverted calls or Service B traffic must check their records and advise of any information or contact with the aircraft.

8–3–3. CANCELLATION OF INREQ

The INREQ originator must transmit a cancellation message containing the location of the aircraft to all INREQ addressees if the aircraft is located. Notify associated ATC facilities.

EXAMPLE–
LOU001 (appropriate three–character identifiers)
INREQ N1234A CNLD LCTD BWG

Section 4. Alert Notices (ALNOTs)

8–4–1. ALNOT

a. If the replies to the INREQ are negative, or if the aircraft is not located within 1 hour after transmission of the INREQ, whichever occurs first, the destination station must transmit an ALNOT addressed to:

1. Flight Plan Originator (If other than DUATS or AISR)

2. KSARYCYX (Includes RCC, AISR and DUAT vendors).

3. KxxxYAYX (appropriate Regional Operations Center (ROC))

4. Add ARTCCs 50NM either side of route

5. BASOPS if destination or departure tie-in facility, or the home base of the aircraft

6. Other addresses deemed beneficial to the search by the specialist

b. Expand the communications search area to that area extending 50 miles on either side of the proposed route of flight from the last reported position to the destination. The search area may be expanded to the maximum range of the aircraft at the request of the RCC or by the destination station.

c. If the departure airport, route of flight, destination airport, or alternate airports are within 50 miles of the Great Lakes, notify Cleveland RCC via recorded telecommunications line.

d. Include all information from the INREQ, plus any additional information received that could assist in search activities. Provide the aircraft's last known position as the final item in the message. The message text must begin with the contraction "ALNOT," followed by the aircraft identification

EXAMPLE–
ALNOT N12345
[flight plan information]
[additional pertinent information]

e. Ten minutes after the ALNOT is issued, call the RCC to ensure delivery of the ALNOT and to answer any inquiries.

NOTE–
1. *Alaska: Joint Base Elmendorf Richardson, RCC at 907-551-7230, 800-420-7230, or DSN 317–551–7230.*

2. *RCC (Tyndall AFB) phone numbers are: 800-851-3051 or 850-283-5955.*

f. If additional pertinent information is received, transmit the information, as necessary, to all original addressees.

8–4–2. ACTION UPON RECEIPT OF ALNOT

Upon receipt of an ALNOT, including those received from other ATC facilities, each station whose flight plan area extends into the ALNOT search area must:

a. Immediately conduct an expanded communications search of those airports which fall within the ALNOT search area that could accommodate the aircraft and that were not checked during the INREQ search. Notify the appropriate ATC facilities. Request the appropriate law enforcement agency to check airports which cannot be contacted otherwise.

b. For ARTCC issued ALNOTS, coordinate with the issuing facility to determine the extent of communications already completed prior to contacting airports and other ATC facilities whose flight plan area extends into the ALNOT search area

c. Within 1 hour after receipt of the ALNOT, notify the originator of the results or status of the communications search. Transmit pertinent information, such as aircraft location or position report, to the destination station.

EXAMPLE–
ALNOT N1234A [status report]
ALNOT N1234A [final report]

d. Alaska. FSSs within the ALNOT search area must broadcast the ALNOT. (See Para 2-2-2i, ALNOT Alert Announcement)

e. Request search assistance from aircraft traversing the search area.

8–4–3. REPORTING ALNOT STATUS TO RCC

If the expanded communications search fails to locate the aircraft, or if 1 hour has elapsed since ALNOT transmission, whichever occurs first, the destination station must call the RCC with a status update. When appropriate, update Cleveland RCC. Provide RCC

with all pertinent information about the overdue aircraft not already provided in the ALNOT which may include:

a. Agency and the person calling.

b. Details of the flight plan. If the aircraft was not on a flight plan, include all the facts about the source of the report.

c. Time the last radio transmission was received, by whom, and the frequency used.

d. Last position report.

e. Whether an ELT signal was heard or reported along the route of flight.

f. Action taken and the proposed action by the reporting FSS.

g. Furnish positions of other aircraft known to be along or near the route of flight of the missing aircraft.

8–4–4. CANCELLATION OF ALNOT

The ALNOT remains current until the aircraft is located and/or the search is suspended by the RCC. In either case, the ALNOT originator must transmit a cancellation message with the location of the aircraft, if known, addressed to all recipients of the original ALNOT. Each facility must notify all previously alerted facilities and agencies of the cancellation.

EXAMPLE–
ALNOT N12345 CNLD ACFT LCTD JAX
ALNOT N1513B CNLD SEARCH SUSPENDED

Section 5. Other SAR Actions

8–5–1. CONTACT WITH AIRCRAFT CROSSING HAZARDOUS AREA

When lake, island, mountain, swamp reporting, or special reporting service programs have been established and a pilot requests the service, establish radio contact every 10 minutes (or at designated position checkpoints) with the aircraft while it is crossing the hazardous area. If contact with the aircraft is lost for more than 15 minutes, begin search and rescue at the ALNOT phase.

NOTE–
Hazardous Area Reporting Service and chart depictions are published in the AIM

8–5–2. CANADIAN TRANSBORDER

a. Assume SAR responsibility on transborder aircraft upon acknowledgment of the inbound flight notification message.

b. When SAR action is initiated, the destination and departure facilities are responsible for all communications search actions within their respective countries and for alerting their respective RCC.

c. Canadian communications search procedures and action times are similar to U.S. procedures. They will address all SAR messages to the U.S. departure FSS, which is then responsible for initiating SAR action for the U.S. portion of the route of flight.

d. For inbounds from Canada, apply standard U.S. SAR procedures contained in this chapter for the U.S. portion of the route. Include the Canadian departure facility as an addressee on all SAR messages since that facility is responsible for initiating SAR action for the Canadian portion of the route of flight.

e. Upon receipt of a Canadian QALQ, the departure FSS must take the following actions:

1. Check history files for any information about the aircraft.

2. If unable to obtain additional information, or within 15 minutes after receipt of the QALQ, transmit a message to the destination facility containing all flight plan information not previously sent.

f. Upon receipt of a Canadian INREQ, the departure FSS must transmit an INREQ for the U.S. portion of the route of flight and reply to Canada within 1 hour in accordance with standard INREQ procedures.

g. Upon receipt of a Canadian ALNOT, the departure FSS must transmit an ALNOT for the U.S. portion of the route and reply to Canada within 1 hour in accordance with standard ALNOT procedures.

NOTE–
Some U.S. airspace is controlled by Canadian ATC facilities, which may also be addressed when appropriate.

Chapter 9. FAA Weather Services

Section 1. General

9–1–1. INTRODUCTION

Surface meteorological observations are filed at scheduled and unscheduled intervals with stations having sending capability to WMSCR for dissemination on the Service A domestic aviation weather system. These reports are aviation routine weather reports (METAR) and aviation selected special weather reports (SPECI). All reports must include a report type and the six-digit time of the observation. Computer sorting and validation requires exact adherence to format and procedure at all times.

9–1–2. SCHEDULED TRANSMISSION TIMES

a. METAR REPORTS. Transmit METAR between H+55 and H+00.

b. SPECI AND DELAYED OR CORRECTED REPORTS. Transmit SPECI, delayed or corrected reports as soon as possible after H+00.

9–1–3. DISTRIBUTION

Most meteorological and NOTAM data exchanged outside of the facility is dependent on WMSCR. It is important to follow strict format and procedures during normal operations, as well as during system interruption periods.

a. Circuit interruption. Notify WMSCR and/or NADIN and the appropriate Telco servicing company and/or technical help desk.

b. Record the circuit and/or equipment identification numbers in all outage reports. Facilities should obtain and record ticket numbers provided by the Telco authority and/or technical help desk.

c. WMSCR telephone numbers:

WMSCR (KNKAWMSC):
Atlanta 770-210-7574.
Salt Lake City 801-320-2046

Section 2. Pilot Weather Report (UA/UUA)

9–2–1. GENERAL

PIREPs are filed at unscheduled times with stations having sending capability to WMSCR for dissemination on the Service A domestic aviation weather system. These reports must be entered into the operational system as individual reports, not appended to a surface observation.

9–2–2. PREPARATION FOR TRANSMISSION

Record PIREP data directly into the operational system, on FAA Form 7110-2, or on other material deemed appropriate; for example, 5'' x 8'' plain paper.

9–2–3. RESPONSIBILITY

FSS specialists must actively solicit PIREPs in conjunction with preflight and inflight communications with pilots and assure timely dissemination of the PIREP information. Each facility should make special efforts to obtain PIREPs on departure and arrival weather conditions at airports within their flight plan area.

9–2–4. PIREP DISPLAY

Maintain a PIREP graphical display to conform to the particular requirements of your facility. If it is posted for internal use only, symbology may be used at the facility's discretion. If it is displayed as a pilot self-briefing aid, the use of contractions, such as overcast (OVC), must be applicable.

9–2–5. SOLICITING PIREPs

a. Solicit PIREPs for the affected area(s) when one or more of the following weather conditions exist, are reported, or forecast to occur:

1. Ceilings at or below 5,000 feet.

2. Visibility reported on the surface or aloft is 5 miles or less.

3. Thunderstorms and related phenomenon.

4. Turbulence of moderate degree or greater.

5. Icing of light degree or greater.

6. Wind shear.

7. Volcanic eruption, ash clouds, and/or detection of sulfur gases: hydrogen sulfide (H_2S) or sulfur dioxide (SO_2) in the cabin..

(a) If only H_2S or SO_2 is reported, ask the pilot if volcanic ash clouds are in the vicinity.

(b) The smell of sulfur gases in the cockpit may indicate volcanic activity that has not yet been detected or reported and/or possible entry into an ash-bearing cloud. H_2S, also known as sewer gas, has the odor of rotten eggs. SO_2 is identifiable as the sharp, acrid odor of a freshly struck match.

NOTE–
Pilots may forward PIREPs regarding volcanic activity using the format described in the Volcanic Activity Reporting Form (VAR) as depicted in the AIM

b. Also, solicit PIREPs regardless of weather conditions when:

1. A NWS or ATC facility indicates a need because of a specific weather or flight assistance situation.

2. Necessary to determine flying conditions pertinent to natural hazards (mountain passes, ridges, peaks) between the weather reporting stations.

3. The station is designated as responsible for PIREPs in an offshore coastal area.

c. Flight watch specialists must solicit sufficient PIREPs to remain aware of flight conditions.

d. To solicit PIREPs within a specific area, broadcast a request on NAVAIDs, transcribed broadcast facilities, or a selected communications frequency.

PHRASEOLOGY–
PILOT WEATHER REPORTS ARE REQUESTED (location/area). CONTACT (name) RADIO/FLIGHT WATCH ON (frequency) TO REPORT THESE CONDITIONS.

9–2–6. DATA TO BE INCLUDED IN PIREPs

Include the following reports of flight conditions, as appropriate:

a. Height and coverage of cloud bases, tops, and layers.

b. Flight visibility.

c. Restrictions to visibility and weather occurring at altitude.

d. Air temperature and changes to temperature with altitude or range.

e. Direction and speed of wind aloft.

f. Duration and intensity of turbulence.

REFERENCE–
FAAO JO 7110.10, Para 9-2-7.

g. Extent, type, and intensity of icing.

REFERENCE–
FAAO JO 7110.10, Para 9-2-8.

h. Weather conditions and cloud cover through mountain passes and over ridges and peaks.

i. Location, extent, and movement of thunderstorms and/or tornadic activity.

j. Excessive winds aloft, LLWS, and other phenomena bearing on safety and efficiency of flight.

9–2–7. REPORTING TURBULENCE IN PIREPs

a. Turbulence reports must include location, altitude, or range of altitudes, and aircraft type, and should include whether in clouds or clear air. The degree of turbulence, intensity, and duration (occasional, intermittent, and continuous) is determined by the pilot.

1. Light. Loose objects in aircraft remain at rest.

2. Moderate. Unsecured objects are dislodged. Occupants feel definite strains against seat belts and shoulder straps.

3. Severe. Occupants thrown violently against seat belts. Momentary loss of aircraft control. Unsecured objects tossed about.

4. Extreme. Aircraft is tossed violently about, impossible to control. May cause structural damage.

b. Report Clear Air Turbulence (CAT) or CHOP if used by the pilot to describe the type of turbulence.

9–2–8. REPORTING ICING CONDITIONS IN PIREPs

a. Icing reports must include location, altitude or range of altitudes, aircraft type, air temperature, intensity, and type of icing.

b. Icing types.

1. Rime. Rough, milky, opaque ice formed by the instantaneous freezing of small super-cooled water droplets.

2. Clear. A glossy, clear or translucent ice formed by the relatively slow freezing of large super-cooled water droplets.

3. Mixed. A combination of rime and clear.

c. Icing intensity.

1. Trace. Ice becomes perceptible. Rate of accumulation slightly greater than sublimation. Deicing/anti-icing equipment is not utilized unless encountered for an extended period of time (over 1 hour).

2. Light. The rate of accumulation may create a problem if flight is prolonged in this environment (over 1 hour). Occasional use of deicing/anti-icing equipment removes/prevents accumulation. It does not present a problem if deicing/anti-icing is used.

3. Moderate. The rate of accumulation is such that even short encounters become potentially hazardous, and use of deicing/anti-icing equipment or diversion is necessary.

4. Severe. The rate of accumulation is such that deicing/anti-icing equipment fails to reduce or control the hazard. Immediate diversion is necessary.

9–2–9. MEANS USED TO SOLICIT PIREPs

Inform pilots of a need for PIREPs. The following methods may be used to collect PIREPs:

a. During preflight weather briefings.

b. On post-flight contacts.

c. During regular air-ground contacts.

d. Broadcast a request on NAVAID frequencies.

e. Append a request on HIWAS, TIBS, VOR-TWEB, or TWEB broadcasts.

f. Request PIREPs from air carrier and military operations offices, military pilot-to-forecaster units, and local aircraft operators.

g. Solicit from other air traffic facilities.

9–2–10. PIREP CLASSIFICATION

Categorize PIREPs as follows:

a. URGENT. The following weather phenomena must be classified as an URGENT (UUA) PIREP:

1. Tornadoes, funnel clouds, or waterspouts.

2. Severe or extreme turbulence (including clear air turbulence).

3. Severe icing.

4. Hail.

5. Low level wind shear. Classify LLWS PIREPs as UUA if the pilot reports air speed fluctuations of 10 knots or more. Classify reports of LLWS with air speed fluctuations less than 10 knots as routine. If airspeed fluctuation is not reported, classify PIREP as UUA.

NOTE–
LLWS defined as windshear within 2,000 feet of the surface.

6. Volcanic eruption, ash clouds, and/or detection of sulfur gases (H_2S or SO_2) in the cabin.

(a) If a pilot only reported the smell of H_2S or SO_2 in the cabin and confirmed no volcanic ash clouds were present, classify the report as a ROUTINE PIREP.

(b) The smell of sulfur gases in the cockpit may indicate volcanic activity that has not yet been detected or reported and/or possible entry into an ash-bearing cloud. H_2S, also known as sewer gas, has the odor of rotten eggs. SO_2 is identifiable as the sharp, acrid odor of a freshly struck match. .

7. Any other weather phenomena reported which are considered by the specialist as being hazardous, or potentially hazardous, to flight operations.

b. ROUTINE. Classify as ROUTINE (UA) all PIREPs received except those listed above.

9–2–11. PIREP HANDLING

Upon receipt of a PIREP, accomplish the following:

a. Urgent.

1. Deliver to the ARTCC Weather Coordinator as soon as possible.

2. Enter on Service A at the first opportunity.

3. Use in weather briefings, as appropriate.

b. Routine.

1. Transmit on Service A as soon as practical.

2. Broadcast in accordance with established procedures in Chapter 2.

3. Use in weather briefings, as appropriate.

9–2–12. OFFSHORE COASTAL ROUTES

When your station has been given responsibility for collecting offshore coastal route PIREPs:

a. Include the coastal water area when soliciting PIREPs. At least one PIREP is required hourly regardless of weather conditions.

b. The following flight plan sectors are responsible for collecting offshore coastal routes in the contiguous 48 states, Hawaii, and Puerto Rico: HNL, SJU, SAN, HHR, OAK, MMV, SEA, BGR,BDR, MIV, DCA, RDU, MCN, GNV, PIE, MIA, ANB, GWO, DRI, CXO, and SJT

NOTE–
The Flight Services Safety and Operations Policy Group assigns PIREP responsibility for an offshore coastal area, route, or route segment to a specific station. The area assigned will be within the same ARTCC area as the station, and the station must have adequate air-ground communications coverage over its assigned offshore area.

9–2–13. PIREP PREPARATION

To assure proper dissemination of PIREPs to all system users, the encoding procedures listed below must be followed:

a. Identify each element by a Text Element Indicator (TEI).

b. Ensure each report includes TEIs for message type, location, time, altitude/flight level, aircraft type, and at least one other to describe the reported phenomena.

c. Precede each TEI, except message type, with a space and a solidus (/).

d. Follow each TEI, except altitude/flight level, with a space.

e. Insert zeros in reported values when the number of digits in the report is less than the number required by the format.

f. Use only authorized aircraft designators and contractions.

g. In the location TEI, include any three character alphanumeric identifier to describe locations or routes. Use only authorized identifiers from FAA Order JO 7350.8, Location Identifiers.

h. Omit entries of TEIs, except as listed in subpara 9-2-13b, for which no data was reported.

9–2–14. PIREP FORMAT

Using TEIs as described below, prepare PIREPs for system entry in the following format:

a. UUA or UA. Message type - Urgent or Routine PIREP.

b. /OV.

1. Location in reference to a VHF NAVAID or an airport, using the three or four alphanumeric identifier. If appropriate, encode the identifier, then three digits to define a radial and three digits to define the distance in nautical miles.

EXAMPLE–
/OV KJFK
/OV KJFK107080
/OV KFMG233016/RM RNO 10SW

2. Route segment. Two or more fixes to describe a route.

EXAMPLE–
/OV KSTL-KMKC
/OV KSTL090030-KMKC045015

c. /TM. Time that the reported phenomenon occurred or was encountered. Report time in four digits UTC.

EXAMPLE–
/TM 1315

d. /FL. Altitude/flight level. Enter the altitude in hundreds of feet (MSL) where the phenomenon was first encountered. If not known, enter UNKN. If the aircraft was climbing or descending, enter the appropriate contraction (DURC or DURD) in the remarks/RM TEI. If the condition was encountered within a layer, enter the altitude range within the appropriate TEI describing the condition.

EXAMPLE–
/FL093
/FL310
/FLUNKN /RM DURC

e. /TP. Type aircraft. Enter aircraft type. f not known, enter UNKN. Icing and turbulence reports must always include the aircraft type.

EXAMPLE–
/TP AEST
/TP C150
/TP P28R
/TP UNKN

f. /SK. Sky condition. Report height of cloud bases, tops, and cloud coverage as follows:

1. Enter the height of the base of a layer of clouds in hundreds of feet (MSL) using three digits. Enter the top of a layer in hundreds of feet (MSL) preceded by the word ”-TOP.” If reported as clear above the highest cloud layer, enter a space and ”SKC” following the reported level.

EXAMPLE–
/SK OVC100-TOP110/ SKC
/SK OVC015-TOP035/OVC230
/SK OVC-TOP085

2. Use authorized contractions for cloud cover.

EXAMPLE–
SKC
FEW
SCT
BKN
OVC

3. Cloud cover amount ranges will be entered with a hyphen and no spaces separating the amounts; i.e., BKN-OVC.

EXAMPLE–
/SK SCT-BKN050-TOP100
/SK BKN-OVCUNKN-TOP060/BKN120-TOP150/ SKC

4. Unknown heights are indicated by the contraction UNKN.

EXAMPLE–
/SK OVC065-TOPUNKN

5. If a pilot indicates he/she is in the clouds, enter IMC in the remarks.

EXAMPLE–
/SK OVC065-TOPUNKN /RM IMC

6. When more than one layer is reported, separate layers by a solidus (/).

g. /WX. Flight visibility and flight weather. Report weather conditions encountered by the pilot as follows:

1. Flight visibility, if reported, will be the first entry in the /WX field. Enter as FV followed by a two-digit visibility value rounded down, if necessary, to the nearest whole statute mile and append "SM" (FV03SM). If visibility is reported as unrestricted, enter FV99SM.

2. Enter flight weather types using one or more of the standard surface weather reporting symbols contained in TBL 9-2-1.

TBL 9–2–1
Weather Type and Symbols

Type	*METAR Code*
Drifting / Blowing Snow	DRSN/BLSN
Drifting Dust	DRDU
Drifting Sand	DRSA
Drizzle/Freezing Drizzle	DZ/FZDZ
Dust / Blowing Dust	DU/BLDU
Duststorm	DS
Fog (vis < 5/8SM)	FG
Freezing Fog	FZFG
Freezing Rain	FZRA
Funnel Cloud	FC
Hail (aprx 1/4" dia or more)	GR
Hail Shower	SHGR
Haze	HZ
Ice Crystals	IC
Ice Pellets/ Showers	PL/SHPL
Mist (vis 5/8SM or more)	BR
Patchy Fog	BCFG
Patchy Fog on part of Arpt	PRFG
Rain / Showers	RA/SHRA
Sand / Blowing Sand	SA/BLSA
Sandstorms	SS
Shallow Fog	MIFG
Sml Hail/Snow Pellet Showers	SHGS
Sml Hail/Snow Pellets	GS
Smoke	FU
Snow Grains	SG
Snow / Showers	SN/SHSN
Spray	PY
Squalls	SQ
Thunderstorm	TS
Tornado/Waterspout	+FC
Unknown Precipitation	UP
Volcanic Ash (incl. eruption, H_2S or SO_2)	VA
Well developed Dust/Sand Whirls	PO

3. Intensity of precipitation (- for light, no qualifier for moderate, and + for heavy) must be indicated with precipitation types, except ice crystals and hail, including those associated with a thunderstorm and those of a showery nature.

4. Intensity of obscurations must be ascribed as moderate or + heavy for dust and sand storms only. No intensity for blowing dust, blowing sand, or blowing snow.

EXAMPLE–
/WX FV01SM +DS000-TOP083/ SKC /RM DURC

5. When more than one form of precipitation is combined in the report, the dominant type must be reported first.

EXAMPLE–
/WX FV00SM +TSRAGR

6. When FC is entered in /WX, FUNNEL CLOUD is spelled out on /RM. When +FC is entered in /WX, TORNADO or WATERSPOUT is spelled out in the /RM TEI.

EXAMPLE–
/WX FC /RM FUNNEL CLOUD
/WX +FC /RM TORNADO or WATERSPOUT

7. When the size of hail is stated, enter in 1/4 increments in remarks /RM TEI.

8. The proximity qualifier VC (Vicinity) is only used with TS, FG, FC, +FC, SH, PO, BLDU, BLSA, and BLSN.

EXAMPLE–
/WX FV02SM BLDU000-TOP083 VC W

9. When more than one type of weather is reported enter in the following order: 1) TORNADO, WATERSPOUT, OR FUNNEL CLOUD; 2) Thunderstorm with or without associated precipitation; 3) Weather phenomena in order of decreasing predominance. No more than three groups in a single PIREP.

10. Weather layers must be entered with the base and/or top of the layer when reported. Use the same format as in the /SK TEI.

EXAMPLE–
/WX FU002-TOP030

h. /TA. Air Temperature. Report outside air temperature using two digits in degrees Celsius. Prefix negative temperatures with a M; for example, /TA 08 or /TA M08.

i. /WV. Wind direction and speed. If reported, wind direction from which the wind is blowing must be coded using three figures. Directions less than 100 degrees must be preceded by a “0”. For example, a wind direction of 90 degrees is coded as 090. The wind speed must be entered as a two or three digit group immediately following the wind direction. The speed must be coded in whole knots using the hundreds digit (if not zero) and the tens and units digits. The wind group always ends with ”KT” to indicate that winds are reported in knots. Speeds of less than 10 knots must be coded using a leading zero. For example, a wind speed of 8 knots must be coded 08KT and a wind speed of 112 knots must be coded 112kt.

EXAMPLE–
/WV 28080KT
/WV 28008KT
/WV 280105KT

j. /TB. Turbulence. Report intensity, type, and altitude as follows:

1. Intensity. Enter duration if reported by the pilot (INTMT, OCNL, CONS) and intensity using contractions LGT, MOD, SEV, or EXTRM. Separate a range or variation of intensity with a hyphen; for example, MOD-SEV. If turbulence was not encountered, enter NEG.

2. Type. Enter CAT or CHOP if reported by the pilot.

3. Altitude. Report altitude only if it differs from value reported in /FL. When a layer of turbulence is reported, separate height values with a hyphen. If lower or upper limits are not defined, use BLO or ABV.

EXAMPLE–
/TB LGT 040
/TB MOD-SEV BLO 080
/TB MOD-SEV CAT 350
/TB NEG 120-180
/TB MOD CHOP 220/NEG 230-280
/TB MOD CAT ABV 290

k. IC. Icing. Report intensity, type and altitude of icing as follows:

1. Intensity. Enter intensity first using contractions TRACE, LGT, MOD, or SEV. Separate reports of a range or variation of intensity with a hyphen. If icing was not encountered, enter NEG.

2. Type. Enter the reported icing type as RIME, CLR, or MX.

3. Altitude. Enter the reported icing/altitude only if different from the value reported in the /FL TEI. Use a hyphen to separate reported layers of icing. Use ABV or BLO when a layer is not defined.

EXAMPLE–
/IC LGT-MOD MX 085
/IC LGT RIME
/IC MOD RIME BLO 095
/IC SEV CLR 035-062

4. When icing is reported always report temperature in the /TA TEI.

l. /RM. Remarks. Use this TEI to report a phenomenon which is considered important but does not fit in any of the other TEIs. This includes, but is not limited to, low level wind shear (LLWS) reports, thunderstorm lines, coverage and movement, size of hail (1/4'' increments), lightning, clouds observed but not encountered, geographical or local description of where the phenomenon occurred, International Standard Atmospheric (ISA) reports and contrails. Report hazardous weather first. Describe LLWS to the extent possible.

1. Wind Shear. +/- 10 Kts or more fluctuations in airspeed, within 2,000 Ft of the surface, requires an UUA report. When Low Level Wind Shear is entered in a pilot report enter LLWS as the first remark in the /RM TEI. LLWS may be reported as -, +, or +/- depending on how it effects the aircraft. If the location is different than the /OV or /FL fields, include the location in the remarks.

EXAMPLE–
/RM LLWS +/-15 KT SFC-008 DURC RY22 JFK

2. FUNNEL, CLOUD, TORNADO, and WATERSPOUT are entered with the direction of movement if reported.

EXAMPLE–
/RM TORNADO E MOV E

3. Thunderstorm. Enter coverage (ISOL, FEW, SCT, NMRS) and description (LN,BKN LN,SLD LN) if reported. Follow with "TS," the location and movement, and the type of lightning if reported.

EXAMPLE–
/RM NMRS TS S MOV E GR1/2

4. Lightning. Enter frequency (OCNL, FRQ, CONS), followed by type (LTGIC, LTGCC, LTGCG, LTGCA, or combinations), if reported.

EXAMPLE–
/RM OCNL LTGICCG

5. Electric Discharge. Enter DISCHARGE followed by the altitude.

EXAMPLE–
/RM DISCHARGE 120

6. Clouds. Use remarks when clouds can be seen but were not encountered and reported in /SK.

EXAMPLE–
/RM CB E MOV N
/RM OVC BLO

7. Plain Language. If specific phraseology is not adequate, use plain language to describe the phenomena or local geographic locations. Include remarks that do not fit in other TEIs like DURC, DURD, RCA, TOP, TOC, or CONTRAILS.

EXAMPLE–
/RM BUMPY VERY ROUGH RIDE
/RM CONTRAILS
/UA/OV BIS270030/TM 1445/FL060/TP CVLT/TB LGT /RM Donner Summit Pass

8. Volcanic Activity. Volcanic eruption, ash clouds, and/or sulfur gases are Urgent PIREPs. Reports of volcanic activity must include as much information as possible; for example, the name of the mountain, ash clouds observed and their movement, the height of the top and bottom of the ash clouds, etc.

(a) If a pilot detected the smell of sulfur gases (H_2S or SO_2) in the cabin and reported volcanic ash clouds, include "VA" in Weather and "H2S," "SO2," or "SULFUR SMELL" in Remarks.

NOTE–
The smell of sulfur gases in the cockpit may indicate volcanic activity that has not yet been detected or reported and/or possible entry into an ash-bearing cloud. H_2S, also known as sewer gas, has the odor of rotten eggs. SO_2 is identifiable as the sharp, acrid odor of a freshly struck

EXAMPLE–
UUA /OV PANC240075 /TM 2010 /FL370/TP DC10 /WX VA /RM VOLCANIC ERUPTION 2008Z MT AUGUSTINE ASH 40S MOV SSE SO2

(b) If a pilot only detected the smell of sulfur gases (H_2S or SO_2) in the cabin and confirmed there were no volcanic ash clouds, classify the PIREP as Routine and include "VA" in Weather and "H2S NO ASH," "SO2 NO ASH," or "SULFUR SMELL NO ASH" in Remarks.

EXAMPLE–
UA /OV PANC240075 /TM 2010 /FL370/TP DC10 /WX VA /RM SULFUR SMELL NO ASH

(c) If a volcanic activity report is received from other than a pilot, enter Aircraft "UNKN," Flight Level "UNKN," and in Remarks "UNOFFICIAL."

9. The "SKYSPOTTER" program is a result of a recommendation from the Safer Skies FAA/INDUSTRY Joint Safety Analysis and

Implementation Teams. The term ”SKYSPOTTER” indicates that a pilot has received specialized training in observing and reporting inflight weather phenomenon, pilot weather reports, or PIREPs. When a PIREP from a pilot identifying themselves as a ”SKYSPOTTER” aircraft is received, the additional comment ”/AWC” must be added at the end of the remarks section of the PIREP.

EXAMPLE–
PIREP Text/RM Text/AWC

10. If ISA is reported.

EXAMPLE–
/RM ISA −10C

9–2–15. PIREP ENCODING

PIREPs must be coded to ensure the PIREP is stored and subsequently distributed with the surface observation location nearest the condition being reported. If more than one METAR location is appropriate, select the location that provides the greatest distribution and/or prominence, such as a major hub airport.

Section 3. Wind and Temperature Aloft Forecast (FB)

9–3–1. GENERAL

Wind and temperature aloft forecasts (FB) are computer-prepared and issued by the National Centers for Environmental Prediction (NCEP) at Suitland, Maryland. The forecasts are valid 6 (FB1/8), 12 (FB2/9), and 24 (FB 3/10) hours after the observation date/times of 0000Z, 0600Z, 1200Z, and 1800Z upon which they are based. See TBL 9-3-1 for wind/temperature aloft forecast schedules.

TBL 9–3–1

Wind/Temperature Aloft Forecast Schedules

Type	*Base Data Time*	*Valid for*	*For use (period)*
FB1/8	0000Z	0600Z	0200–0900Z
FB2/9	0000Z	1200Z	0900–1800Z
FB3/10	0000Z	0000Z	1800–0600Z
FB1/8	0600Z	1200Z	0800–1500Z
FB2/9	0600Z	1800Z	1500–0000Z
FB3/10	0600Z	0600Z	0000–1200Z
FB1/8	1200Z	1800Z	1400–2100Z
FB2/9	1200Z	0000Z	2100–0600Z
FB3/10	1200Z	1200Z	0600–1800Z
FB1/8	1800Z	0000Z	2000–0300Z
FB2/9	1800Z	0600Z	0300–1200Z
FB3/10	1800Z	1800Z	1200–0000Z

9–3–2. LEVELS FORECAST

Dependent upon station elevation, FB1/2/3 wind forecasts are issued for the following levels: 3, 6, 9, 12, 18, 24, 30, 34, and 39 thousand foot levels. The first level for which a wind forecast is issued is 1,500 feet or more above the station elevation. Temperature is forecast for all wind levels that are 2,500 feet or more above the station. No temperature is forecast for the 3,000 foot level. The minus signs are deleted preceding the temperatures at the 30, 34, and 39 thousand foot levels. FB8/9/10 are for the 45,000 and 53,000 foot levels. They are not normally disseminated on Service A, but are available on request/reply.

9–3–3. DISTRIBUTION

All FBs are transmitted to the WMSCR by NCEP. Distribution by the WMSCR is accomplished in accordance with established program requirements..

Section 4. Terminal Aerodrome Forecast (TAF)

9–4–1. GENERAL

NWS forecast offices prepare and forward 24- or 30-hour TAFs for selected U.S. terminals to the WMSCR for distribution. Similar forecasts for the U.S. Military, Canada, and Mexico are sent to WMSCR from the NCEP and Air Force Weather Agency (AFWA) for distribution.

9–4–2. TERMINAL AERODROME FORECAST SCHEDULES

TAFs are prepared four times a day and are issued at 2330, 0530, 1130, and 1730 UTC.

Section 5. Area Forecast (FA)

9–5–1. GENERAL

a. Area forecasts (FA) are available through the WMSCR and provide an overview of weather conditions which could impact aviation operations. FAs are issued by the Aviation Weather Center (AWC) in Kansas City, Missouri, the Alaska Aviation Weather Unit (AAWU) in Anchorage, Alaska, and the Weather Forecast Office (WFO) in Honolulu, Hawaii. The delineation of the areas is specified in the National Weather Service Instruction 10-811. Canadian and Mexican FAs are also available through WMSCR.

b. FAs consist of the following elements according to each geographical location in TBL 9-5-1.

TBL 9–5–1

	Boston and Miami	Chicago and Fort Worth	San Francisco and Salt Lake City	Gulf of Mexico	Caribbean	Hawaii	Alaska
Synopsis	X	X	X	X	X	X	X
VFR Clouds and Weather	X	X	X				
Clouds and Weather				X	X	X	X (Includes AIRMETs)
Icing and Freezing Level				X	X		X
Turbulence				X	X		X
VFR Clouds and Weather includes clouds with bases higher than or equal to 1,000 feet							

9–5–2. AREA FORECAST (FA) SCHEDULE

FAs are issued three times a day in the contiguous U.S., and the Gulf of Mexico and four times a day in Alaska, Hawaii, and the Caribbean. The issuance times are in TBL 9-5-2.

TBL 9–5–2

	Boston and Miami (UTC)	Chicago and Fort Worth (UTC)	San Francisco and Salt Lake City (UTC)	Gulf of Mexico (UTC)	Caribbean (UTC)	Hawaii (UTC)	Alaska (UTC)
1st Issuance	0845 DT 0945 ST	0945 DT 1045 ST	1045 DT 1145 ST	0130	0330	0340	0415 DT 0515 ST
2nd Issuance	1745 DT 1845 ST	1845 DT 1945 ST	1945 DT 2045 ST	1030	0930	0940	1215 DT 1315 ST
3rd Issuance	0045 DT 0145 ST	0145 DT 0245 ST	0245 DT 0345 DT	1830	1530	1540	2015 DT 2115 ST
4th Issuance					2130	2140	
Note: DT – Daylight Time, ST – Standard Time, UTC – Coordinated Universal Time							

9–5–3. DISTRIBUTION

Distribution of FAs is made by WMSCR in accordance with a predetermined list for each circuit based upon intra-circuit coordinated requirements.

Section 6. Severe Weather Forecasts

9–6–1. GENERAL

Severe weather forecasts are issued by the NWS Storm Prediction Center (SPC) in Norman, Oklahoma, in the form of weather watches, convective outlooks, and status reports and transmitted to WMSCR for distribution. An Aviation Watch Notification Message (SPC AWW) is the weather watch formatted for the aviation community to alert them of organized thunderstorms forecast to produce tornadic and/or severe weather. FSSs may obtain the public weather watch (SPC WW) from WMSCR if desired.

9–6–2. DISTRIBUTION

Upon receipt of SPC AWW alert, the WMSCR immediately transmits the report on selected Service A circuits. Severe weather status reports (WW-A) are never urgent. These are relayed unscheduled.

9–6–3. CONVECTIVE OUTLOOK NARRATIVE (AC)

The Storm Prediction Center will issue ACs numerous times each day. These forecasts describe the potential for severe and non-severe convective activity across the contiguous U.S.

Section 7. Flight Advisories (SIGMET/WS–Airmet/WA–Convective SIGMET/WST)

9–7–1. GENERAL

Flight advisories are issued by the AWC in Kansas City, Missouri, the AAWU in Anchorage, Alaska, and the WFO in Honolulu, Hawaii, for the occurrence or expected occurrence of specified en route weather phenomena which may affect the safety of aircraft operations. The report type designator WS for SIGMETs, WST for Convective SIGMETs, and WA for AIRMETs is used to effect selective distribution For the contiguous U.S., WSTs are issued hourly at 55 minutes past every hour. WAs are issued as described in TBL 9-7-1.

9–7–2. DISTRIBUTION

WSs are distributed at unscheduled times to all Service A circuits. WAs and WSTs bulletins are distributed as scheduled products. Updates or amendments issued will completely replace the previously issued advisory.

TBL 9–7–1

	1st Scheduled Issuance (UTC)	2nd Scheduled Issuance (UTC)	3rd Scheduled Issuance (UTC)	4th Scheduled Issuance (UTC)
CONUS	O255	0855	1455	2055
Alaska	0215 (DT)/ 0315 (ST)	0815 (DT)/ 0915 (ST)	1415 (DT)/ 1515 (ST)	2015 (DT)/ 2115 (ST)
Hawaii	0400	1000	1600	2200
Note: DT – Daylight Time, ST – Standard Time				

Section 8. Center Weather Advisory (CWA)

9–8–1. GENERAL

A Center Weather Advisory (CWA) is an unscheduled weather advisory for conditions meeting or approaching national in-flight advisory (WA, WS, or WST) criteria. It is primarily used by aircrews to anticipate and avoid adverse weather conditions in the en route and terminal environments.

9–8–2. CRITERIA

a. CWAs are valid for up to 2 hours and may include forecasts of conditions expected to begin within 2 hours of issuance. If conditions are expected to persist after the advisory's valid period, a statement to that effect is included in the last line of the text. Additional CWAs will subsequently be issued as appropriate. The CWSU will issue a CWA:

1. When necessary to supplement an existing WS, WST, or WA for the purpose of refining or updating the location, movement, extent, or intensity of the weather event relevant to the ARTCC's area of responsibility.

2. When an inflight advisory has not yet been issued, but the observed or expected weather conditions meet WS, WST or WA criteria based on current pilot reports and reinforced by other sources of information concerning existing meteorological conditions.

3. When observed, or developing weather conditions do not meet WS, WST or WA criteria but current pilot reports or other weather information sources indicate that an existing, or anticipated, meteorological phenomena will adversely affect the safe flow of air traffic within the ARTCC's area of responsibility.

b. The CWA will describe the location of the phenomenon using ARTCC relevant points of reference, such as VORs, and will include the height, extent, intensity, and movement of the phenomenon. Each CWA will have a phenomenon number.

c. The format of the CWA communications header is: (ARTCC designator)(phenomenon number) CWA (date/time issued in UTC)/(ARTCC designator) CWA (issuance number) VALID UNTIL (date/time in UTC)/(FROM) (affected area)/(text).

EXAMPLE–

ZOB1 CWA 032141
ZOB CWA 101 VALID UNTIL 032300
FROM 10S DET TO 40N DJB TO 40E SBN TO 80SE MKG LN SEV TSTMS WITH EXTRM PCPN MOVG FROM 2525 3/4 INCH HAIL RPRTD LAST 5 MINS 20 SW YIP. TSTMS WITH HVY TO EXTRM PCPN CONTG DTW AREA BYD 2300

ZKC1 CWA 121528
ZKC CWA 102 VALID UNTIL 121728
STL DIAM 30 NM. NMRS RPTS OF MOD TO SEV ICG 080/090.. LGT OR NEG ICG RPTD 040/120 RMNDR OF ZKC AREA AND NE OF AREA.

9–8–3. DISTRIBUTION

The CWA will be distributed to ARTCC area supervisors and traffic management coordinators and will be entered through FAA AISR and other communications media to make it available for dissemination to other FAA and NWS facilities.

Chapter 10. Airport Lighting and Visibility Aids (Alaska Only)

Section 1. General

10–1–1. AIRPORT LIGHTING

a. General Lighting. Operate airport lighting in accordance with associated tables except:

1. As requested by the pilot.

2. As required by facility directives or letters of agreement to meet local conditions or requirements.

3. As specialist deems necessary if not contrary to pilot's request or local directives.

b. Emergency Lighting. When it appears that an emergency has or will occur, provide for the operation of all appropriate airport lighting aids in accordance with local procedures and/or as required.

10–1–2. OBSTRUCTION LIGHTS

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

10–1–3. ROTATING BEACON

If controls are provided, turn on the rotating beacon:

a. Between sunset and sunrise.

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

10–1–4. APPROACH LIGHTS

Operate approach lights:

a. Between sunset and sunrise when one of the following conditions exists:

1. They serve the landing runway.

2. They serve a runway to which an approach is being made but aircraft will land on another runway.

b. Between sunrise and sunset when the ceiling is less than 1,000 feet or the prevailing visibility is 5 miles or less and approaches are being made to:

1. A landing runway served by the lights.

2. A runway served by the lights but aircraft are landing on another runway.

3. The airport, but landing will be made on a runway served by the lights.

c. As requested by the pilot.

d. As you deem necessary, if not contrary to pilot's request.

NOTE–
In the interest of energy conservation, the approach lighting system should be turned off when not needed for aircraft operations.

10–1–5. APPROACH LIGHTING SYSTEM NTENSITY SETTINGS (ALS)

Operate intensity controls in accordance with the values depicted. (See TBL 10-1-1.)

TBL 10–1–1
ALS Intensity Setting

Step	Visibility (Applicable to runway served by lights)	
	Day	Night
5	Less than 1 mile.*	When requested.
4	1 to but not including 3 miles.	When requested.
3	3 to but not including 5 miles.	Less than 1 mile.*
2	5 to but not including 7 miles.	1 to 3 miles inclusive.
1	When requested.	Greater than 3 miles.
* and/or 6,000 feet or less of RVR on the runway served by the ALS and RVR.		
Note.– Daylight steps 2 and 3 provide recommended settings applicable to conditions in ALS Intensity Settings.		

10–1–6. SEQUENCED FLASHING LIGHTS (SFL)

Operate sequenced flashing lights when the visibility is less than 3 miles and instrument approaches are being made to the runway served by the associated ALS.

NOTE–
SFLs are a component of the ALS and cannot be operated when the ALS is off.

10–1–7. RUNWAY EDGE LIGHTS

Operate the runway edge light system(s) serving the runway(s) in use as follows:

a. Between sunset and sunrise.

1. For departures when an aircraft calls for airport advisory or requests the lights be turned on until the aircraft reports departing the airport area or 15 minutes after the last contact with the aircraft.

2. For arrivals when an aircraft calls for airport advisory or when the associated approach control advises that an aircraft is on approach until the aircraft reports/is observed clear of the runway or 15 minutes after last radio contact or arrival time.

b. Between sunrise and sunset, turn the lights on when the surface visibility is less than 2 miles as described in subparagraphs 10-1-7a1 and a2.

c. The specialist considers it necessary, or it is requested by a pilot and no other known aircraft will be adversely affected.

d. Do not turn on the runway edge lights when a NOTAM closing the runway is in effect.

e. Alaska. The runway lights should remain on from the end of civil twilight to the beginning of civil twilight. If the runway lights are operated part-time in this period, broadcast a warning over the airport advisory frequency 2 minutes before turning the lights off.

10–1–8. CHANGING LIGHTED RUNWAYS

a. To switch lights:

1. Advise all known aircraft that the lights are to be changed, specifying the runway to be lighted.

2. Turn on the lights for the new runway 30 seconds before turning off the other runway lights, equipment permitting.

b. When a pilot requests that other than the favored runway be lighted and two runways cannot be lighted simultaneously, comply with the request if you have no knowledge of the lighted runway being in use. Advise all known aircraft.

10–1–9. SIMULTANEOUS APPROACH AND RUNWAY EDGE LIGHT OPERATION

Turn on the runway edge lights for the runway in use whenever the associated approach lights are on. If multiple runway light selection is not possible, you may leave the approach lights on and switch the runway lights to another runway to accommodate another aircraft.

10–1–10. MEDIUMINTENSITY APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATOR LIGHTS (MALSR)/OMNIDIRECTIONAL APPROACH LIGHTING SYSTEM (ODALS)

Operate MALSR/ODALS that have separate on-off and intensity setting controls in accordance with TBL 10-1-2 and TBL 10-1-3.

NOTE–
Application concerns use for takeoffs/landings/approaches and does not preclude turning lights on for use of unaffected portions of a runway for taxiing aircraft, surface vehicles, maintenance, repair, etc.

TBL 10–1–2
Two–Step MALS/One–Step RAIL

Setting	Visibility	
	Day	Night
MALS HI–RAIL ON	Less than 3 miles.	Less than 3 miles.*
MALS LOW	When requested.	3 miles or more.
*At locations providing part–time flight service, the MALSR must be set to low intensity during the hours of darkness when the station is unmanned.		

TBL 10–1–3
Three–Step MALS/Three–Step RAIL

Setting	Visibility	
	Day	Night
3	Less than 2 miles.	Less than 1 mile.
2	2 to 5 miles inclusive.	1 to but not including 3 miles.*
1	When requested.	3 miles or more.
*At locations providing part–time flight service, the air–to–ground radio link must be activated during the hours of darkness when the station is unmanned. If there is no radio air–to–ground control, the MALSR must be set on intensity step #2 during the hours of darkness when the station is unmanned. (Reference– FAAO JO 7210.3, Para 10–6–4, Approach Light Systems.)		

10–1–11. HIGH INTENSITY RUNWAY LIGHTS (HIRL) ASSOCIATED WITH MALSR

Operate HIRL that controls the associated MALSR in accordance with the intensity setting in TBL 10-1-4.

TBL 10–1–4
HIRL Associated with MALSR

Step	Visibility	
	Day	Night
5	Less than 1 mile.	When requested.
4	1 to but not including 2 miles.	Less than 1 mile.
3	2 to but not including 3 miles.	1 to but not including 3 miles.
2	When requested.	3 to 5 miles inclusive.
1	When requested.	More than 5 miles.

NOTE–
When switching from a given brightness step setting to a lower setting, rotation of the brightness control to a point below the intended step setting and then back to the appropriate step setting will ensure that the MALSR will operate at the appropriate brightness.

10–1–12. MEDIUM INTENSITY RUNWAY LIGHTS (MIRL)

Operate MIRL or MIRL which control the associated MALSR in accordance with the TBL 10-1-5.

TBL 10–1–5
MIRL Intensity Setting

Step	Visibility	
	Day	Night
3	Less than 2 miles.	Less than 1 mile.
2	2 to 3 miles.	1 to 3 miles.
1	When requested.	More than 3 miles.

REFERENCE–
FAAO JO 7110.10, para 10-1-11 Note.

10–1–13. HIGH INTENSITY RUNWAY, RUNWAY CENTERLINE (RCLS), AND TOUCHDOWN ZONE LIGHTS (TDZL)

Operate high intensity runway and associated runway centerline and touch-down zone lights in accordance with TBL 10-1-6.

TBL 10–1–6
HIRL, RCLS, TDZL Intensity Setting

Step	Visibility	
	Day	*Night*
5	Less than 1 mile.*	When requested.
4	1 to but not including 2 miles.	Less than 1 mile.
3	2 to but not including 3 miles.	1 to but not including 3 miles.
2	When requested.	3 to 5 miles inclusive.
1	When requested.	More than 5 miles.
* and/or appropriate RVR/RVV equivalent.		

10–1–14. HIRL CHANGES AFFECTING RVR

Keep the appropriate approach controller or Precision Approach Radar (PAR) controller informed, in advance if possible, of HIRL changes that affect RVR.

10–1–15. HIGH SPEED TURNOFF LIGHTS

Operate high speed turnoff lights whenever the associated runway lights are used for arriving aircraft. Leave them on until the aircraft has either entered a taxiway or passed the last light.

10–1–16. RUNWAY END IDENTIFIER LIGHTS (REIL)

When separate on-off controls are provided, operate runway end identifier lights when the associated runway lights are lighted. Turn the REIL off after:

a. An arriving aircraft has landed.

b. A departing aircraft has left the traffic pattern area.

c. It is determined that the lights are of no further use to the pilot.

d. Operate intensity setting in accordance with the values in TBL 10-1-7 except as prescribed in subparas b and c above.

TBL 10–1–7
REIL Intensity Setting, Two–Step System

Step	Visibility	
	Day	Night
3	Less than 2 miles.	Less than 1 mile.
2	2 to 5 miles.	1 to but not including 3 miles.
1	When requested.	3 miles or more

10–1–17. TAXIWAY LIGHTS

Operate taxiway lights serving the taxiways, or portions thereof, in use between sunset and sunrise before an aircraft taxies onto the taxiway (normally at the time taxi information is issued) and until it taxies off it. Operate taxiway lights in accordance with TBL 10-1-8, TBL 10-1-9, or TBL 10-1-10

TBL 10–1–8
Three Step Taxiway Lights

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

TBL 10–1–9
Five Step Taxiway Lights

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

TBL 10–1–10
One Step Taxiway Lights

Day	Night
Less than 1 mile.	On

10–1–18. VISUAL APPROACH SLOPE INDICATORS (VASIs)

The VASI system with remote on-off switching must be operated when it serves the runway in use and where intensities are controlled in accordance with TBL 10-1-11 and TBL 10-1-12.

TBL 10–1–11
VASI Intensity Setting, Two–Step System

Step	Period	Condition
High	Day	Sunrise to sunset
Low	Night	Sunrise to sunset

TBL 10–1–12
VASI Intensity Setting, Three–Step System

Step	Period	Condition
High	Day	Sunrise to sunset
Medium	Twilight	From sunset to 30 minutes after sunset and from 30 minutes before sunrise to sunrise, *and during twilight in Alaska.
Low	Night	Sunset to sunrise.

NOTE–
1. *During a 1-year period, twilight may vary 26 to 43 minutes between 25 and 49 degrees N latitude.*

2. *The basic FAA standard for VASI systems permits independent operation by means of photoelectric device. This system has no on-off control feature and is intended for continuous operation. Other VASI systems in use include those that are operated remotely from the control tower. These systems may consist of either a photoelectric intensity control with only an on-off switch, a two-step intensity system, or a three-step intensity system.*

REFERENCE–
FAAO JO 7210.3, Para 10-6-5, Visual Approach Slope Indicator (VASI) Systems.

10–1–19. VISIBILITY AIDS - GENERAL

a. Where RVR/ RVV equipment is operational, irrespective of subsequent operation or nonoperation of navigational or visual aids for the application of RVR/RVV as a takeoff or landing minima, furnish the values for the runway in use in accordance with para 10–1–20, RVR/RVV.

b. Issue current touchdown RVR/RVV for the runway(s) in use:

1. When prevailing visibility is 1 mile or less regardless of the value indicated.

2. When RVR/RVV indicates a reportable value regardless of the prevailing visibility.

NOTE–
Reportable values are: RVR 6,000 feet or less; RVV 1-1/2 miles or less.

3. When it is determined from a reliable source that the indicated RVR value differs by more than 400 feet from the actual conditions within the area of the transmissometer, the RVR data is not acceptable and must not be reported.

NOTE–
A reliable source is considered to be a certified weather observer, air traffic controller, or pilot.

4. When the observer has reliable reports, or has otherwise determined that the instrument values are not representative of the associated runway, the data must not be used.

10–1–20. RVR/RVV

a. Provide RVR/RVV information by stating the runway, the abbreviation RVR/RVV, and the indicated value. When issued along with other weather elements, transmit these values in the normal sequence used for weather reporting.

b. When two or more RVR systems serve the runway in use, report the indicated values for the different systems in terms of touchdown, mid, and rollout as appropriate.

c. When there is a requirement to issue an RVR/RVV value and a visibility condition greater or less than the reportable values of the equipment is indicated, state the condition as "MORE THAN" or "LESS THAN" the appropriate minimum or maximum readable value.

d. When a readout indicates a rapidly varying visibility condition (1,000 feet or more for RVR; one or more reportable values for RVV), report the current value followed by the range of visibility variance.

10–1–21. OPERATION OF LANDING DIRECTION INDICATOR

Align the landing direction indicator with the favored or designated runway.

Chapter 11. Interphone Communications

Section 1. General

11–1–1. PURPOSE

a. The procedures and phraseologies contained in this chapter apply to inter-facility and intra-facility telephone communications conducted from any position of operation.

b. Interphone use is restricted to authorized official business only.

c. Monitor interphones continuously. At facilities without ringers, keep speaker volume at a level sufficient to hear all transmissions. In the event of interphone failure, use authorized back-up procedures; for example, commercial telephone, aircraft radio relay.

d. Use the words or phrases in interphone communications as contained in the Pilot/Controller Glossary.

11–1–2. INTERPHONE TRANSMISSION PRIORITIES

Give priority to interphone transmissions as follows:

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

b. *Second priority*. Clearance and control instructions.

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

1. Progress reports.

2. Departure or arrival reports.

3. Flight plans.

d. *Fourth priority.* Movement messages on VFR aircraft.

e. *Fifth priority.* NOTAM coordination.

f. *Sixth priority.* Administrative messages; for example, outages.

11–1–3. PRIORITY INTERRUPTION

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

11–1–4. MESSAGE INITIATION

Initiate interphone messages as follows:

a. Assure line is not in use.

PHRASEOLOGY–
LINE CLEAR?

b. If line is not in use, establish contact with the desired facility and/or position.

EXAMPLE–
EXAMPLE-
Manual signaling (Ring Line):
FSS-(Calls Center via DA/IA Line).
Center- “Anchorage Center” or “Sector D-5.”
FSS- “Kenai radio. Kenai progress Apache One Two Three.”
Center- “Go ahead”
FSS- “Over Kenai...etc.” “L-H”
Center- “C-M”

Voice signaling (Shout Line):
FSS- “Fort Worth Center, Fort Worth Radio, Clearance Request.“
Center “Fort Worth Center, Go Ahead.”
FSS- “Request Clearance, Army .....etc.”

c. When calling or replying on an interphone line which connects only two facilities, you may omit the facility’s name.

EXAMPLE–
“Radio, inbound estimate.”

d. FSS.

1. Inflight position. State the name of the FSS/sector followed by the word “RADIO” and position, if appropriate.

EXAMPLE–
“Fairbanks Radio.”
“*Leesburg Radio*”

2. Flight Watch position. State the name of the associated ARTCC followed by the words “FLIGHT WATCH.”

EXAMPLE–
“Indianapolis Flight Watch.”

11–1–5. MESSAGE TERMINATION

Terminate interphone messages with your operating initials.

EXAMPLE–
“V-N”

Chapter 12. Phraseology

Section 1. General

12–1–1. PURPOSE

This chapter prescribes standardized procedures and phraseologies to be used by specialist when communicating weather and aeronautical information in broadcast, radiotelephone, and interphone communications. Where position or procedure–specific phraseology is required, reference is to be made to the relevant chapter of this order.

12–1–2. PHRASEOLOGY

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

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

12–1–3. WORDS AND PHRASES

Use the words or phrases in broadcast, radiotelephone, and interphone communications as contained in the Pilot/Controller Glossary.

12–1–4. ANNOUNCING MISSING ITEMS

With the exception of RVR, announce the word "missing" when any item or component of a weather report is not reported, or in place of unreadable or obviously incorrect items or portions of weather reports. When appropriate, instead of speaking the name of several locations with missing reports, announce: "Other scheduled reports missing."

NOTE–
On occasion, a parameter from an automated observation may be reported as missing in the body of the report but is available as a manually reported parameter in the remarks section. When the report is spoken, include the manually reported element in its proper sequence within the report.

12–1–5. ICAO PHONETICS

Use the ICAO pronunciation of numbers and, as necessary, individual letters for clarity. The ICAO radiotelephony alphabet and pronunciation guide are contained in TBL 12–1–1.

TBL 12–1–1
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	**AL**FAH
B	Bravo	**BRAH**VOH
C	Charlie	**CHAR**LEE
D	Delta	**DELL**TAH
E	Echo	**ECK**OH
F	Foxtrot	**FOKS**TROT
G	Golf	GOLF
H	Hotel	HOH**TELL**
I	India	**IN**DEEAH
J	Juliett	**JEW**LEEETT
K	Kilo	**KEY**LOH
L	Lima	**LEE**MAH
M	Mike	MIKE
N	November	NO**VEM**BER
O	Oscar	**OSS**CAR
P	Papa	PAH**PAH**
Q	Quebec	KEH**BECK**
R	Romeo	**ROW**MEOH
S	Sierra	SEE**AIR**AH
T	Tango	**TANG**GO
U	Uniform	**YOU**NEEFORM
V	Victor	**VIKT**AH
W	Whiskey	**WISS**KEY

X	X–ray	**ECKS**RAY
Y	Yankee	**YANG**KEY
Z	Zulu	**ZOO**LOO

NOTE–
Syllables to be emphasized in pronunciation are in bold face.

12–1–6. RELAY OF ATC COMMUNICATIONS

Prefix a clearance, information, or a request for information which will be relayed from a control facility to an aircraft with the appropriate phrase "A–T–C clears," "A–T–C advises," or "A–T–C requests."

12–1–7. EXPEDITIOUS COMPLIANCE

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

b. Use the word "expedite" only when prompt compliance is required to avoid the development of an imminent situation.

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

12–1–8. WEATHER PHRASEOLOGY

Use the following phraseology and procedures for stating surface weather observations and for information similarly encoded in other aviation weather products and forecasts.

a. Location.

1. Announce the geographic name (not the identifier) once.

EXAMPLE–
"Paducah."

2. When the location name is duplicated within 500 miles, follow the location name with the state name.

EXAMPLE–
"Columbus, Ohio."

3. When weather reports originate at more than one airport at the same geographical location, identify the airport.

EXAMPLE–
"Anchorage, Merrill."
"Chicago, O'Hare."

4. Where it is considered necessary and is requested by the military base commander, broadcast military observations by stating the location, the name of the airport if different, and the controlling military branch.

EXAMPLE–
"Joint Base Andrews."
"Elmendorf, Air Force Base."
"Fort Riley, Marshall Army Air Field."
"Norfolk Naval Air Station."

b. If "AUTO" appears after the date/time element and is presented as a singular report, follow the location with the word "AUTOMATED."

PHRASEOLOGY–
(Location) AUTOMATED.

c. If a special report is the most recent observation available, follow the location with the words "SPECIAL WEATHER REPORT," (last two digits of the time) "OBSERVATION." Use data from the record report to fill in the items not included in the special observation, such as temperature and dew point.

d. If the weather data is not available, state the location and the word "missing."

e. Wind Direction and Speed. Announce surface wind direction and speed by stating the word "wind" followed by the separate digits of the wind direction to the nearest 10 degrees and the separate digits of the speed. A "G" between two wind speed values is announced as "gusts." State local wind as it appears in the report. Announce the variability of wind at the end of the wind group. (See TBL 12–1–2.)

TBL 12–1–2
Wind Direction and Speed

Wind	*Phraseology*
00000KT	WIND CALM.
26012KT	WIND TWO SIX ZERO AT ONE TWO.
29012KT 260V320	WIND TWO NINER ZERO AT ONE TWO WIND VARIABLE BETWEEN TWO SIX ZERO AND THREE TWO ZERO.
30008KT	WIND THREE ZERO ZERO AT EIGHT.
36012G20KT	WIND THREE SIX ZERO AT ONE TWO GUSTS TWO ZERO.
VRB04KT	WIND VARIABLE AT FOUR.

f. Visibility.

State the word “visibility” followed by the visibility values in miles and/or fractions of miles, except announce values indicated by the figure 0 as “zero.” Announce the separate digits of whole numbers as applicable. (See TBL 12–1–3.)

TBL 12–1–3
Visibility

Contraction	*Phraseology*
0SM	Visibility zero.
$^{1}/_{16}$SM	Visibility one sixteenth.
$^{1}/_{8}$SM	Visibility one eighth.
M$^{1}/_{4}$SM	Visibility less than one quarter.
$^{3}/_{4}$SM	Visibility three quarters.
1$^{1}/_{2}$SM	Visibility one and one–half.
8SM	Visibility eight.
25SM	Visibility two five.

NOTE–
When visibility is less than 3 miles and variable, this information is reported in the remarks.

g. RVR/RVV.

1. Provide RVR/RVV information by stating the runway, the abbreviation RVR/RVV, and the indicated value. The abbreviations “R-V-R” or “R-V-V” may be spoken in lieu of “visual range” or “visibility value.” When the indicated values are separated by a V, preface the values with the words “variable,” followed by the first value, the word “to,” then the second value. (See TBL 12-1-4.)

TBL 12–1–4
RVR/RVV

RVR/RVV	*Phraseology*
R36VV11/2	“Runway three six, R–V–V one and one–half.”
R05LVV1V2	“Runway five left, R–V–V variable between one and two.”
R18/2000V3000FT	“Runway one eight, R–V–R variable between two thousand to three thousand. Or Runway one eight visual range variable between two thousand and three thousand.”
R26R/2400FT	“Runway two six right visual range two thousand four hundred.”

2. When there is a requirement to issue an RVR or RVV value and a visibility condition greater or less than the reportable values of the equipment is indicated, state the condition as “MORE THAN” or “LESS THAN” the appropriate minimum or maximum readable value. (See TBL 12-1-5.)

TBL 12–1–5
RVR/RVV

RVR/RVV	*Phraseology*
R16/M0600FT	‘‘Runway one six runway visual range less than six hundred. Or Runway one six R–V–R less than six hundred.’’
R36L/M0600V2500FT	‘‘Runway three six left, R–V–R variable between less than six hundred and two thousand five hundred. Or Runway three six left visual range variable between less than six hundred and two thousand five hundred.’’
R36/P6000FT	‘‘Runway three six R–V–R more than six thousand. Or Runway three six visual range more than six thousand.’’

h. Weather Elements. TBL 12-1-6 depicts sample phraseology for weather element contractions. Intensity refers to precipitation, not descriptors. Proximity is spoken after the phenomenon to which it refers. Descriptors are spoken ahead of weather phenomenon with the exception of ‘‘showers’’ which is spoken after the precipitation. TBL 12-1-7 contains

a complete list of weather elements and appropriate phraseology**.**

TBL 12–1–6

Examples of Combining Intensity, Descriptors and Weather Phenomenon.

Contractions	*Phraseology*
BLSN	BLOWING SNOW
–FZRAPL	LIGHT FREEZING RAIN, ICE PELLETS
FZRA	FREEZING RAIN
FZDZ	FREEZING DRIZZLE
MIFG	SHALLOW FOG
–SHRA	LIGHT RAIN SHOWERS
SHRA	RAIN SHOWERS
SHSN	SNOW SHOWERS
TSRA	THUNDERSTORM, RAIN
+TSRA	THUNDERSTORM, HEAVY RAIN (SHOWERS)[1]
+TSRAGR	THUNDERSTORM, HEAVY RAIN, HAIL
VCSH	SHOWERS IN THE VICINITY
[1]Since thunderstorms imply showery precipitation, ‘‘showers’’ may be used to describe precipitation that accompany thunderstorms.	

TBL 12–1–7

Weather Elements

INTENSITY or PROXIMITY 1		**DESCRIPTOR 2**		**PRECIPITATION 3**		**OBSCURATION 4**		**OTHER 5**	
–	Light	**MI**	Shallow	**DZ**	Drizzle	**BR**	Mist	**PO**	Well–Developed Dust/Sand Whirls
		BC	Patchy	**RA**	Rain	**FG**	Fog	**SQ**	Squalls
	Moderate (No Qualifier)	**DR**	Low Drifting	**SN**	Snow	**FU**	Smoke	**FC +FC**	Funnel Cloud, Tornado or Waterspout
		BL	Blowing	**SG**	Snow Grains	**DU**	Dust	**SS**	Sandstorm
+	Heavy	**SH**	Showers	**IC**	Ice Crystals	**SA**	Sand	**DS**	Duststorm
		TS	Thunderstorm	**PL**	Ice Pellets	**HZ**	Haze		
VC	In the Vicinity	**FZ**	Freezing	**GR**	Hail	**PY**	Spray		
		PR	Partial	**GS**	Small Hail or Snow Pellets (< 1/4”)	**VA**	Volcanic Ash		
				UP	*Unknown Precipitation				
*** Automated stations only.**									

i. Ceiling and Sky Coverage.

1. State sky coverage in the same order as reported on the weather observation. Announce ceiling as follows: (See TBL 12–1–8.)

TBL 12–1–8
Ceiling and Sky Coverage

Designator	*Phraseology*
BKN000[1]	SKY PARTIALLY OBSCURED
BKN000[2]	CEILING LESS THAN FIVE ZERO BROKEN
FEW000[1]	SKY PARTIALLY OBSCURED
FEW000[2]	FEW CLOUDS AT LESS THAN FIVE ZERO
(lowest layer aloft) BKN/OVC	(precede with) CEILING
SCT000[1]	SKY PARTIALLY OBSCURED
SCT000[2]	LESS THAN FIVE ZERO SCATTERED
VV	INDEFINITE CEILING
[1] Surface–based obscurations. Requires remarks, i.e. RMK FG SCT000, FU BKN000, etc. [2] No remark means the layer is aloft.	

2. State cloud heights in tens, hundreds and/or thousands of feet. (See TBL 12–1–9.)

TBL 12–1–9
Cloud Heights

Number	*Phraseology*
000[1]	ZERO
003	THREE HUNDRED
018	ONE THOUSAND EIGHT HUNDRED
200	TWO ZERO THOUSAND
[1] Spoken as zero only when used with VV.	

NOTE–
1. *When the ceiling is less than 3,000 feet and variable, the variable limits will be reported in the remarks.*

2. *When communicating weather information on the TIBS broadcast or telephone, specialist may announce cloud heights in either group form or in hundreds or thousands of feet, such as seventeen thousand or one seven thousand.*

3. *"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.*

3. Announce sky conditions as indicated below. (See TBL 12-1-10.)

TBL 12–1–10
Sky Conditions

Contraction	*Phraseology*
BKN	(height) BROKEN
CLR[1]	CLEAR BELOW ONE TWO THOUSAND
FEW	FEW CLOUDS AT (height)
OVC	(height) OVERCAST
SCT	(height) SCATTERED
SKC	CLEAR
[1] Automated weather reports.	

4. TBL 12-1-11 contains examples of broadcast phraseology of sky and ceiling conditions.

TBL 12–1–11
Sky and Ceiling Conditions

Condition	*Phraseology*
BKN000 BKN010 BKN050 RMK FG BKN000	SKY PARTIALLY OBSCURED, CEILING ONE THOUSAND BROKEN, FIVE THOUSAND BROKEN. FOG OBSCURING FIVE TO SEVEN EIGHTS OF THE SKY.
BKN010	CEILING ONE THOUSAND BROKEN.
SCT000 SCT020 OVC035 RMK FG SCT000	SKY PARTIALLY OBSCURED, TWO THOUSAND SCATTERED, CEILING THREE THOUSAND FIVE HUNDRED OVERCAST. FOG OBSCURING THREE TO FOUR EIGHTS OF THE SKY.
SCT020 OVC250	TWO THOUSAND SCATTERED, CEILING TWO FIVE THOUSAND OVERCAST.
VV000	INDEFINITE CEILING ZERO.
VV012	INDEFINITE CEILING ONE THOUSAND TWO HUNDRED.

j. Announce surface temperature and dew point by stating the words "temperature" or "dew point," as appropriate, followed by the temperature in degrees Celsius. Temperatures below zero are announced by prefixing the word "minus" before the values. (See TBL 12-1-12.)

TBL 12–1–12
Temperature/Dewpoint

Reading	*Phraseology*
02/M01	"Temperature two, dew point minus one."
04/02	"Temperature four, dew point two."
18/13	"Temperature one eight, dew point one three."

k. Altimeter Setting.

1. State the word “altimeter” followed by the four digits of the altimeter setting. (See TBL 12-1-13.)

TBL 12–1–13
Altimeter Setting

Altimeter Setting	*Phraseology*
A2989	“Altimeter two niner eight niner.”
A3001	“Altimeter three zero zero one.”
A3025	“Altimeter three zero two five.”

2. Identify the source of all altimeter settings when issued, if not given as part of an identified surface observation. Provide the time of the report if more than one hour old.

PHRASEOLOGY–
(airport name) (time of report if more than one hour old) ALTIMETER (setting).

3. If a request for the altimeter setting in MBs is received, announce the separate digits of the MB equivalent value, using the MB conversion chart, followed by the word “Mbs.” If the MB setting is not a whole number, always round down. (See TBL 13-1-14.)

REFERENCE–
FAAO JO 7110.10, Para 4-3-5f, Routine Radio Contacts

TBL 12–1–14
Millibar Conversion

Millibar Conversion	*Phraseology*
956.3	“Altimeter niner five six millibars.”
1002.0	“Altimeter one zero zero two millibars.”
1058.9	“Altimeter one zero five eight millibars.”

4. When altimeter is in excess of 31.00:

(a) Advise all aircraft.

PHRASEOLOGY–
ALTIMETER GREATER THAN THREE ONE ZERO ZERO. HIGH PRESSURE ALTIMETER PROCEDURES ARE IN EFFECT.

(b) Advise VFR aircraft to set altimeter to 31.00 en route.

PHRASEOLOGY–
RECOMMEND YOU SET ALTIMETER THREE ONE ZERO ZERO EN ROUTE.

12–1–9. WEATHER REMARKS

Announce pertinent remarks from surface weather observations in accordance with FAA Order JO 7340.2, Contractions, and as shown in the following tables. Do not state additive data or other information intended for NWS analysis or processing that does not contribute to the description of the conditions occurring at the station.

a. Sky and Ceiling (See TBL 12–1–15.)

TBL 12–1–15
Sky and Ceiling

Contraction	*Phraseology*
CIG 005V010	“Ceiling variable between five hundred and one thousand.”
CIG 020 RY11	“Ceiling two thousand at runway one one.”
CB N MOV E	“Cumulonimbus north moving east.”
CBMAM DSNT S	“Cumulonimbus mammatus distant south.”
CLDS TPG MT SW	“Clouds topping mountain southwest.”
CONTRAILS N FL420	“Condensation trails north at flight level four two zero.”
FRQ LTCIC VC	“Frequent lightning in cloud in the vicinity.”
LWR CLDS NE	“Lower clouds northeast.”
OCNL LTGICCG NW	“Occasional lightning in cloud and cloud to ground northwest.”
RDGS OBSCD W–N	“Ridges obscured west through north.”

b. Obscuring Phenomena. (See TBL 12–1–16.)

TBL 12–1–16
Obscuring Phenomena

Contraction	*Phraseology*
BLSN SCT000	“Blowing snow obscuring three to four–eights of the sky.”
DU BKN000	“Dust obscuring five to seven–eights of the sky.”
FG FU FEW000	“Fog and smoke obscuring one to two–eights of the sky.”
FU SCT020	“Smoke layer two thousand scattered.”
SN BKN000	“Snow obscuring five to seven–eights of the sky.”

c. Visibility. (See TBL 12−1−17.)

TBL 12−1−17
Visibility

Contraction	*Phraseology*
SFC VIS 1/2	‘‘Surface visibility one−half.’’
SFC VIS 15 TWRINC	‘‘Surface visibility one five, tower in clouds.’’
TWR VIS 3/4	‘‘Tower visibility three−quarters.’’
VIS S 1 W 1/4	‘‘Visibility south one, west one−quarter.’’
VIS 1V3	‘‘Visibility variable between one and three.’’

d. Weather and obstruction to visibility. (See TBL 12−1−18.)

TBL 12−1−18
Weather and Obstruction

Contraction	*Phraseology*
BCFG S	‘‘Patchy fog south.’’
DUST DEVILS NW	‘‘Dust devils northwest.’’
FG DSIPTG	‘‘Fog dissipating.’’
FU DRFTG OVR FLD	‘‘Smoke drifting over field.’’
FUOCTY	‘‘Smoke over city.’’
GR 2	‘‘Hailstones two inches in diameter.’’
INTMT −RA	‘‘Intermittent light rain.’’
OCNL LTG DSNT NW	‘‘Occasional lightning distant northwest.’’
OCNL SHRA	‘‘Occasional moderate rain showers.’’
−RA OCNLY +RA	‘‘Light rain occasionally heavy.’’
RAB30	‘‘Rain began at three zero.’’
SNB15E40	‘‘Snow began at one five, ended at four zero.’’
SNINCR 5/10	‘‘Snow increase five inches during past hour, ten inches on the ground.’’
TS OHD MOV E	‘‘Thunderstorm overhead, moving east.’’
FRQ LTGCG TS W MOV E	‘‘Frequent lightning cloud to ground, thunderstorm west moving east.’’
UNCONFIRMED TORNADO 15W OKC MOV NE 2015	‘‘Unconfirmed tornado one five west of Oklahoma City, moving northeast sighted at two zero one five zulu.’’
WET SN	‘‘Wet snow.’’

e. Wind. (See TBL 12−1−19.)

TBL 12−1−19
Wind

Contraction	*Phraseology*
PK WND 33048/22	‘‘Peak wind three three zero at four eight occurred at two two past the hour.’’
WSHFT 30	‘‘Wind shifted at three zero.’’

f. Pressure. (See TBL 12−1−20.)

TBL 12−1−20
Pressure

Contraction	*Phraseology*
PRESFR	‘‘Pressure falling rapidly.’’
PRESRR	‘‘Pressure rising rapidly.’’

g. Freezing Level Data. (See TBL 12−1−21.)

TBL 12−1−21
Freezing Level Data

Contraction	*Explanation*
RADAT 87045	Relative humidity 87 percent, only crossing of zero degrees Celsius isotherm was four thousand five hundred M−S−L.
RADAT 87L024105	Relative humidity 87 percent at the lowest crossing of zero degrees Celsius. Two crossings occurred at two thousand four hundred and one zero thousand five hundred M−S−L.
RADAT MISG	The sounding terminated below the first crossing of the zero degree Celsius isotherm. Temperatures were all above freezing.
RADAT ZERO	The entire sounding was below zero degrees Celsius.

h. Icing Data. (See TBL 12−1−22.)

TBL 12−1−22
Icing Data

Contraction	*Explanation*
RAICG 12 MSL	Icing at one thousand two hundred M−S−L.
RAICG 24 MSL SNW	Icing at two thousand four hundred M−S−L in snow.

i. Maintenance Data. (See TBL 12−1−23.)

TBL 12−1−23
Maintenance Data

RVR/RVV	*Phraseology*
PNO	‘‘Precipitation amount not available.’’
RVRNO	‘‘R−V−R (or runway visual range) information not available.’’
TSNO	‘‘Thunderstorm/lightning information not available.’’
VISNO	‘‘Visibility sensor information not available.’’

12−1−10. WEATHER ADVISORIES

a. When announcing weather advisories, include the complete advisory description including the product name and alphanumeric identification. Specify Eastern, Central, or Western section as applicable when stating WSTs.

PHRASEOLOGY−
AIRMET
ALERT WEATHER WATCH, ONE ZERO SEVEN FOR SEVERE THUNDERSTORMS
CONVECTIVE SIGMET TWO SEVEN EASTERN
HOUSTON CENTER WEATHER ADVISORY ONE, ISSUANCE TWO
SIGMET WHISKEY THREE

b. Do not read the OUTLOOK section of WSTs when stating the advisory. Data contained in the OUTLOOK concerning convective activity location, movement, and intensity may be extracted for compilation in forecast summarizations.

EXAMPLE−
“Convective SIGMET one seven Eastern−from five zero south of St. Petersburg to three zero south of Columbus, line of thunderstorms three five miles wide moving east at one five knots. Maximum tops four seven thousand.”

c. VNR. When VFR flight is proposed and sky conditions or visibilities are present or forecast, surface based or aloft that, in your judgment, would make visual flight doubtful, include one of the following statements:

PHRASEOLOGY−
V−F−R FLIGHT NOT RECOMMENDED (location if applicable) DUE TO (conditions).
or
V−F−R NOT RECOMMENDED.

12–1–11. RADAR

Use the following phraseology and procedures for communicating radar products:
Radar displays. When stating precipitation intensity from a radar display (such as NEXRAD), use the following four categories as appropriate:

a. Light: (Equates to radar return levels of less than 30 dBZ.)

b. Moderate: (Equates to radar return levels of 30 to 40 dBZ.)

c. Heavy: (Equates to radar return levels of greater than 40 to 50 dBZ.)

d. Extreme: (Equates to radar return levels of greater than 50 dBZ.)

12–1–12. WINDS AND TEMPERATURES ALOFT FORECAST (FB)

When announcing the FB, use the following phraseology and procedures:

a. State the altitude, then announce wind direction and speed by the separate digits of the wind direction to the 10-degree multiple, the word AT, and the separate digits of the speed.

b. When the forecast speed is less than 5 knots, the coded group is 9900 and read, “light and variable.”

c. Encoded wind speed 100 to 199 knots have 50 added to the direction code and 100 subtracted from the speed.

d. If wind speed is forecast at 200 knots or greater, the wind group is coded as 199 knots; for example, 7799 is decoded 270 degrees at 199 knots or greater.

e. A six-digit group includes forecast temperature. Provide temperatures on request only, stating the word ”temperature,” followed by the word “minus,” as appropriate, and the separate digits. (See TBL 12-1-24.)

TBL 12–1–24
Altitude

Coded	*Phraseology*
2707	‘‘(altitude), two seven zero at seven.’’
7799	‘‘(altitude), two seven zero at one niner niner or greater.’’
850552	‘‘(altitude), three five zero at one zero five, temperature minus five two.’’
9900+00	‘‘(altitude), light and variable, temperature zero.’’

12–1–13. NUMBER USAGE

State numbers as follows:

a. Serial numbers. The separate digits. (See TBL 12–1–25.)

TBL 12–1–25
Serial Numbers

Number	*Phraseology*
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. (See TBL 12-1-26.)

TBL 12–1–26
Altitudes

Altitude	*Phraseology*
5,000	‘‘Five thousand.’’
10,000	‘‘One zero thousand.’’
11,500	‘‘One one thousand five hundred.’’

2. Altitudes may be restated in group form for added clarity if the specialist chooses. (See TBL 12–1–27.)

TBL 12–1–27
Altitudes – *continued*

Altitude	*Phraseology*
10,000	‘‘Ten thousand.’’
11,500	‘‘Eleven thousand five hundred.’’

3. Flight levels. The words “flight level,” followed by the separate digits of the flight level. (See TBL 12–1–28.)

TBL 12–1–28
Flight Levels

Flight Level	*Phraseology*
180	‘‘Flight level one eight zero.’’
270	‘‘Flight level two seven zero.’’

4. MDA/DH Altitudes. The words “minimum descent altitude” or “decision height,” followed by separate digits of the MDA/DH altitude. (See TBL 12-1-29.)

TBL 12–1–29
MDA/DH Altitude

Altitude	*Phraseology*
486	‘‘Decision height, four eight six.’’
1,320	‘‘Minimum descent altitude, one three two zero.’’

c. Time.

1. General time information. The four separate digits of the hour and minutes in terms of Coordinated Universal Time (UTC). (See TBL 12–1–30.)

TBL 12–1–30
Coordinated Universal Time

Time	*Phraseology*
0115 (UTC)	‘‘Zero one one five.’’
1315 (UTC)	‘‘One three one five.’’

2. Upon request. The four separate digits of the hours and minutes in terms of UTC followed by the local time equivalent; or the local time equivalent only. Local time may be based on the 24-hour clock system. (See TBL 12-1-31.) The term “ZULU” may be used to denote UTC.

TBL 12–1–31
Coordinated Universal Time

Time	*Phraseology*
2:30 p.m. or	‘‘Two thirty P–M. local.’’
2230 (UTC), 2:30 p.m or	‘‘Two two three zero, two thirty P–M. local.’’
2230 (UTC), 1430 PST	‘‘Two two three zero, one four three zero Pacific or local.’’

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 8 seconds or more are stated as the succeeding quarter minute. (See TBL 12-1-32.)

TBL 12–1–32
Time Check

Time	*Phraseology*
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. (See TBL 12–1–33.)

TBL 12–1–33
Abbreviated Time

Time	*Phraseology*
1415	‘‘One five.’’
1420	‘‘Two zero.’’

NOTE–
Change to the next minute is made at the minute plus 30 seconds.

d. Field elevation. The words “field elevation,” followed by the separate digits of the elevation. (See TBL 12–1-34.)

TBL 12–1–34
Field Elevation

Elevation	*Phraseology*
17 feet	‘‘Field elevation, one seven.’’
187 feet	‘‘Field elevation, one eight seven.’’
2,817 feet	‘‘Field elevation, two eight one seven.’’

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

EXAMPLE–
“Field elevation one six zero.”
“Heading three zero zero.”
“One zero thousand five hundred.”
“Western five thirty.”
“Ten thousand five hundred.”
“EMAIR One Ten”

f. 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. (See TBL 12-1-35.)

TBL 12–1–35
Heading/Degrees

Heading	*Phraseology*
5 degrees	‘‘Heading, zero zero five.’’
30 degrees	‘‘Heading, zero three zero.’’
360 degrees	‘‘Heading, three six zero.’’

g. Radar beacon codes. The word squawk followed by the separate digits of the four–digit code. (See TBL 12–1–36.)

TBL 12–1–36
Radar Beacon

Code	*Phraseology*
1000	‘‘Squawk one zero zero zero.’’
2100	‘‘Squawk two one zero zero.’’

h. 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. (See TBL 12-1-37.)

TBL 12–1–37
Runway Designation

Designation	*Phraseology*
3	‘‘Runway three.’’
8L	‘‘Runway eight left.’’
27R	‘‘Runway two seven right.’’

i. Frequencies.

1. The separate digits of the frequency, inserting the word “point” where the decimal occurs. When the frequency is in the L/MF or HF band, include the word “kilohertz.” (See TBL 12-1-38.)

TBL 12–1–38
Frequencies

Frequency	*Phraseology*
302 kHz	‘‘Three zero two kilohertz.’’
5631 kHz	‘‘Five six three one kilohertz.’’
126.55 MHz	‘‘One two six point five five.’’
135.275 MHz	‘‘One three five point two seven.’’

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

EXAMPLE–
“M–L–Schannel five three zero.”
“TACAN channel niner seven.”

j. Speeds.

1. The separate digits of the speed followed by the word knots. (See TBL 12–1–39.)

TBL 12–1–39
Speed

Speed	*Phraseology*
95	‘‘Niner five knots.’’
185	‘‘One eight five knots.’’
250	‘‘Two five zero knots.’’

2. For Mach speeds, the word “mach,” followed by the separate digits of the Mach number inserting the word “point” where the decimal occurs. (See TBL 12-1-40.)

TBL 12–1–40
Speed

Mach Number	*Phraseology*
0.64	‘‘Mach point six four.’’
0.7	‘‘Mach point seven.’’
1.5	‘‘Mach one point five.’’

k. Miles. The separate digits of the mileage followed by the word mile(s). (See TBL 12–1–41.)

TBL 12–1–41
Miles

Miles	*Phraseology*
30	‘‘Three zero miles.’’

12–1–14. 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–
“Barksdale Tower.”
“Columbus Tower.”
“Navy Jacksonville Tower.”

b. Function 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.”

c. Approach control facilities, including TRACONs, 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. Air route traffic control centers. State the name of the facility followed by the word "center."

e. When calling or replying on an interphone line which connects only two facilities, you may omit the facility's name.

EXAMPLE–
"Flight Data."
"Inflight, clearance request."

f. Flight service stations.

1. Inflight position. State the name of the FSS followed by the word "radio," and position if appropriate.

EXAMPLE–
"Fairbanks Radio."
"Miami Radio, Inflight."

2. Flight Watch position. State the name of the associated ARTCC followed by the words "FLIGHT WATCH."

EXAMPLE–
"Indianapolis Flight Watch."

3. When calling or replying on interphone lines connecting more than one facility, state the name of the FSS followed by the word "radio."

EXAMPLE–
"Cleveland Radio."

4. When answering public access telephone lines, state the geographical name of the FSS and the words "Flight Service." Contract facilities must answer public access lines by stating the name of the service provider and type.

EXAMPLE–
"Juneau Flight Service."
"(Service Provider Name) Flight Service."

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–
"Chanute G–C–A."
"Corpus Christi G–C–A."
"Davison G–C–A."

12–1–15. AIRCRAFT IDENTIFICATION

a. Civil. State the aircraft type, the model, the manufacturer's name, or the prefix "November," followed by the numbers/letters of the aircraft registration.

EXAMPLE–
"Bonanza One Two Three Four Tango."
"Douglas Three Zero Five Romeo."
"Jet Commander One Four Two Four."
"November One Two Three Four Golf."

NOTE–
The prefix November denotes a U.S. aircraft registry.

1. Air carrier and other civil aircraft having FAA authorized call signs. State the call sign, in accordance with FAAO JO 7340.2, Contractions, followed by the flight number in group form.

EXAMPLE–
"American Five Twenty-One."
"United One Zero One."
"General Motors Thirty-Fifteen."
"Delta One Hundred."

2. If aircraft identification becomes a problem, the call sign must 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

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–
On initial contact.
"Tango Mooney Five Five Five Two Quebec."
or
"Tango November Five Five Five Two Quebec."
On subsequent contacts.
"Mooney Five Two Quebec."
or
"November Five Two Quebec."

b. MEDEVAC aircraft.

1. Air carrier/taxi/ambulance. State the prefix "MEDEVAC" if used by the pilot, followed by the call sign and flight number in group form.

EXAMPLE–
"MEDEVAC Delta Fifty-One."

NOTE–
Use of "MEDEVAC" call sign indicates that operational priority is requested.

2. Civilian airborne ambulance. State the word "MEDEVAC," followed by the numbers/letters of the registration number.

EXAMPLE–
"MEDEVAC Two Six Four Six X-Ray."

c. U.S. Military. State one of the following:

1. The service name followed by the word "copter," when appropriate, and the last 5 digits of the serial number.

EXAMPLE–
EXAMPLE-
"Guard Two Six Three."
"Army Copter Three Two One Seven Six."
"Coast Guard Six One Three Two Seven."
"Navy Five Six Seven One Three."

2. If aircraft identification becomes a problem when the above procedures are used, the call sign must be restated after the flight number of the aircraft involved in accordance with FAA Order JO 7210.3, Para. 2-1-13, Aircraft Identification Problems, will apply.

EXAMPLE–
"Army Copter Three Two One Seven Six Army Copter."
"Coast Guard Six One Three Two Seven Coast Guard."

3. Special military operations. State one of the following followed the last 5 digits of the serial number:

(a) Air evacuation flights. "AIR EVAC," "MARINE AIR EVAC," or "NAVY AIR EVAC."

EXAMPLE–
"AIR EVAC One Seven Six Five Two."

(b) Rescue flights. (Service name) "RESCUE."

EXAMPLE–
"Air Force Rescue Six One Five Seven Niner."

(c) Air Mobility Command. "REACH."

EXAMPLE–
"Reach Seven Eight Five Six Two."

(d) Special Air Mission. "SAM."

EXAMPLE–
"Sam Niner One Five Six Two."

(e) USAF Contract Aircraft. "LOGAIR."

EXAMPLE–
"Logair Seven Five Eight Two Six."

4. Military tactical and training.

(a) 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 4 digit number.

EXAMPLE–
"Paul Two Zero."
"Pat One Five Seven."
"Graydog Four."

NOTE–
Then the "Z" suffix described in para 6-5-3, USAF/USN Undergraduate Pilots, is added to identify aircraft piloted by USAF/USN undergraduate pilots, the call sign will be limited to a combination of six characters. Do not use this suffix, however, in ground-to-air communication.

(b) 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–
"Marine Four Charlie Two Three Six."
"Navy Golf Alpha Two One."

(c) NORAD interceptors. An assigned double-letter two-digit flight number.

EXAMPLE–
"Alpha Kilo One Five."

(d) Navy Fleet Support Missions. When handling Navy Fleet Support Mission aircraft, use the words "Special Flight Number," followed by the number as given by the pilot.

d. 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."
"Canadian Foxtrot Lima Romeo Bravo."

NOTE–
Letters may be spoken individually or phonetically.

2. Air carrier. The abbreviated name of the operating company followed by:

(a) The letters or digits of the registration or call sign.

EXAMPLE–
"Air France F-L-R-L-G."

NOTE–
Letters may be spoken individually or phonetically in accordance with the format used by the pilot.

(b) The flight number in group form, or separate digits may be used if that is the format used by the pilot.

EXAMPLE–
"Scandinavian Six Eight."
"Scandinavian Sixty-eight."

3. Foreign Military.

(a) Except for military services identified in FAA Order JO 7340.2, Contractions, state the name of the country and the military service followed by the separate digits or letters of the registration or call sign.

EXAMPLE–
"Brazilian Air Force Five Three Two Seven Six."
"Canforce Five Six Two Seven."

e. Presidential aircraft and Presidential family aircraft.

1. 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."

2. When the President is aboard a civil aircraft, state the words "Executive One."

3. 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."

f. Vice Presidential aircraft.

1. 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."

2. When the Vice President is aboard a civil aircraft, state the words "Executive Two."

3. 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."

g. DOT and FAA flights. The following alphanumeric identifiers and radio/ interphone call signs are 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:

1. Department of Transportation.

(a) Secretary:

(1) Identifier - DOT-1.

(2) Call Sign - Transport-1.

(b) Deputy Secretary:

(1) Identifier - DOT-2.

(2) Call Sign - Transport-2

2. Federal Aviation Administration.

(a) Administrator:

(1) Identifier - FAA-1.

(2) Call Sign - Safe Air-1.

(b) Deputy Administrator:

(1) Identifier - FAA-2

(2) Call Sign - Safe Air-2.

PHRASEOLOGY–
Grand Forks Radio, Transport Two, (message).
Miami Radio, Safe Air One, (message).

h. Other special flights.

1. 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."

2. Semiautomatic Flight Inspections. State the code name "SAFI," followed by the separate digits of the grid number as filed.

EXAMPLE–
"SAFI Five Two Seven."

3. 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.”

4. 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.”

5. United States governmental Departments or Agencies, with a demonstrated and approved need, have been granted special domestic/ICAO telephonies (call signs). These items are contained in FAA Order JO 7110.67, Special Aircraft Operations by Federal, State Law Enforcement, Military Organizations, and Special Activities.

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

12–1–16. DESCRIPTION OF AIRCRAFT TYPES

Except for heavy aircraft, describe aircraft as follows:

a. Military.

1. Military designator with number spoken in group form; or

2. Service and type; or

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

EXAMPLE–
“Air Force Bomber.”
“B-One.”
“Bomber.”
“F-Fifteen.”
“Fighter.”
“Navy Fighter.”

b. Air Carrier.

1. Manufacturer’s name or model.

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

EXAMPLE–
“American M-D Eighty Seven-Thirty-Seven.”
“Boeing Seven-Fifty-Seven.”
“L-Ten-Eleven.”

c. General Aviation and Air Taxi.

1. Manufacturer’s model, name, or designator.

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

EXAMPLE–
“Airliner.”
“Blue and White King Air.”
“Cessna Four-Oh-One.”
“Cessna Three Ten.”
“Green Apache.”
“P-A Twenty-Two.”
“Tri-Pacer.”

12–1–17. AIRCRAFT EQUIPMENT CODES

When communicating this information (aircraft equipment suffixes) state the aircraft type, the word “slant,” and the appropriate phonetic letter equivalent of the suffix.

EXAMPLE–
“Boeing Seven-Oh-Seven slant Romeo.”
“D-C Six slant Tango.”
“F-Eight-E slant Papa.”
“F-Four-C slant November.”

12–1–18. AIRWAYS AND ROUTES

Describe airways, routes, or jet routes as follows:

a. VOR/VORTAC/TACAN airways or jet routes. State the word “Victor” or the letter “J,” followed by the number of the airway or route in group form. For RNAV routes, add the word “Romeo.”

EXAMPLE–
“J Eight Thirty Romeo.”
“J Five Thirty-Three.”
“Offset one zero miles right of J Eight Thirty Romeo.”
“Victor Seven Ten Romeo.”
“Victor Twelve.”

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

EXAMPLE–
“Victor Twelve South.”

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

EXAMPLE–
“Blue Eighty-One.”

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

EXAMPLE–
“North American Route Fifty.”
“Bahama Route Fifty-Five Victor.”

e. Military Training Routes (MTRs). State the letters “I-R” or “V-R,” followed by the number of the route in group form.

EXAMPLE–
“I-R Five Thirty-One.”
“V-R Fifty-two.”

12–1–19. NAVAID TERMS

a. Announce NAVAIDs as follows in TBL 12-1-42:

TBL 12–1–42
NAVAID Terms

Contraction	Phraseology
DME	D-M-E
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
ILS	I-L-S
LOM	Outer compass locator
MLS	M-L-S
NDB	Nondirectional radio beacon
RNAV	Area Navigation System
TACAN	TACK-AN
VOR	**V-O-R**
VORTAC	VOR- (as in “vortex”) TACK
WAAS	Wide Area Augmentation System

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

1. VOR/VORTAC/TACAN/MLS NAVAIDs. State the name of the NAVAID followed by the separate digits of the radial/azimuth (omitting the word degrees) and the word “radial/azimuth.”

EXAMPLE–
“Appleton Zero Five Zero Radial.”
“Lindburg Runway Two Seven MLS two six zero azimuth.”

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

EXAMPLE–
“Two zero mile arc southwest of O’Hare Runway Two Seven Left M-L-S.”

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

EXAMPLE–
“Cleared to fly northeast quadrant of Philipsburg VORTAC within four zero mile radius.”

REFERENCE–
P/CG Term, QUADRANT.

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

EXAMPLE–
“Three four zero bearing from Randolph Radio Beacon.”

12–1–20. NAVAID FIXES

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

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

EXAMPLE–
“Appleton zero five zero radial three seven mile fix.”
“Reno localizer back course four mile fix.”
“Hobby Runway One Two M-L-S zero niner zero azimuth one two mile fix.”

b. When a fix is charted on a SID, STAR, en route chart, or approach plate, state the name of the fix followed by the phrase “D-M-E fix” or “waypoint,” as appropriate.

EXAMPLE–
“Shaum D-M-E Fix.”
“Shaum Waypoint.”

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

12–1–21. RUNWAY CONDITIONS

a. State factual information as reported by airport management concerning the condition of the runway surface and describing the accumulation of precipitation. Furnish quality of braking action as received from pilots or airport management to all aircraft as follows:

1. Describe the quality of braking action using the terms good, fair, poor, or nil. If the pilot or airport management reports braking action in other than the foregoing terms, ask them to categorize braking action in these terms.

2. Include the type of aircraft or vehicle (if known) from which the report is received.

EXAMPLE–
"All runways covered by packed snow six inches deep."
"Braking action poor reported by an F Twenty-Seven."

3. If the braking action report affects only a portion of a runway, obtain enough information from the pilot or airport management to describe braking action in terms easily understood by the pilot.

EXAMPLE–
"Braking action poor first half of runway, reported by a Gulfstream Two."
"Braking action poor beyond the intersection of Runway Two Seven, reported by a Boeing Seven Twenty-Seven."

NOTE–
Descriptive terms, such as first/last half of the runway, should normally be used rather than landmark descriptions; for example, opposite the fire station, south of a taxiway.

b. State runway friction measurement readings/values as received from airport management to aircraft as follows:

1. At airports with friction measuring devices, provide runway friction reports, as received from airport management, to pilots on request. State the runway number followed by the MU number for each of the three runway zones, the time of the report in UTC, and a word describing the cause of the runway friction problem.

EXAMPLE–
"Runway Two Seven, MU forty-two, forty-one, twenty-eight at one zero one eight ZULU, ice."

2. Issue the runway surface condition and/or the runway condition reading (RCR), if provided, to all USAF and ANG aircraft. Issue the RCR to other aircraft upon request.

EXAMPLE–
"Ice on runway, R-C-R Zero Five, patchy."

NOTE–
USAF has established RCR procedures for determining the average deceleration readings of runways under conditions of water, slush, ice, or snow. The use of RCR code is dependent upon a pilot's having a "stopping capability chart" specifically applicable to his/her aircraft. USAF offices furnish RCR information at airports serving USAF and ANG aircraft.

Chapter 13. Data Communication Systems

Section 1. General

13–1–1. TYPES OF DATA ACCEPTABLE ON FAA DATA COMMUNICATIONS SYSTEMS

a. Distress messages.

b. Messages concerning safety to human life.

c. Flight movement/control/safety messages.

d. Aviation meteorological observations/ forecasts/warnings.

e. Administrative messages which pertain to FAA personnel, facilities, or property.

f. NOTAM data.

13–1–2. PRIORITY MESSAGES

TBL 13–1–1
Priority Messages

Priority	Message Types	Action Required
SS	Involves safety of life or property. Restricted to emergency situations.	Transmit immediately to all addressees and deliver to all internal/external offices you are responsible for.
DD	Priority operational and circuit control data.	Same as above.
FF on local agreements	Flight movement and control data relating safe/efficient operation of aircraft. Also for administrative data of a directive nature.	Transmit immediately, make internal/external delivery during next available administrative work day if office is closed. Delivery may be required to duty officer, dependent.
GG	Meteorological, NOTAM and routine administrative data.	Transmit immediately, make internal/external delivery by 10:30AM of the next business day.

13–1–3. GROUP CODES

a. NADIN has established group codes to allow message originators to input a single address, which will result in dissemination to a selected number of facilities.

b. System-wide group codes have been established for the primary use of RWA/KRWAYAYX and the ATCSCC (KCFCZDZX). These codes are KDOMYFYX and KDOMYYYX respectively.

c. A group code has also been established for each regional office and ARTCC primarily for the issuance of regional office notices (RENOT) and all ARTCC instructions. They are as follows for Regional Offices in TBL 13–1–2 and ARTCCs in TBL 13–1–3.

TBL 13–1–2
Region Group Code

Region	ID		Region	ID
Alaska	PANCYGYX		Northwest Mountain	XST
Central	XKC		Southern	XTL
Eastern	XNY		Southwest	XFE
Great Lakes	XGC		Western-Pacific	XLA
New England	XBW			

TBL 13–1–3
ARTCC Group Code

ARTCC	ID		ARTCC	ID
Albuquerque	XXI		Kansas City	XXS
Atlanta	XXN		Los Angeles	XXF
Boston	XXU		Memphis	XXM
Chicago	XXC		Miami	XXL
Cleveland	XXD		Minneapolis	XXE
Denver	XXO		New York	XXR
Ft. Worth	XXJ		Oakland	XXG
Houston	XXH		Salt Lake City	XXP
Indianapolis	XXA		Seattle	XXT
Jacksonville	XXK		Washington	XXQ

NOTE–
Except in Alaska, All of the group codes can be converted to a full eight-character address by placing a K in front of and YFYX following the three characters listed in TBL 13–1–2and TBL 13–1–3.

d. In addition, the following six group codes were established that include multiple states:

1. KFSSYFCE (CENTRAL AREA): AR-IN-IL-KY-MO-TN

2. KFSSYFEA (EAST COAST AREA): MD-NC-NJ-VA-WV

3. KFSSYFNE (NORTHEAST AREA): CT-ME-VT

4. KFSSYFNP (NORTHERN PLAINS AREA): ID-MT-ND-NE-SD-WY

5. KFSSYFSE (SOUTHEAST AREA): AL-FL-GA

6. KFSSYFWC (WEST COAST AREA): AZ-CA-NV-OR

e. Using a group code, the operational system automatically transmits all VFR flight plans to the Drug Enforcement Administration in addition to the destination at the time of activation.

NOTE–
All filed flight plans, as well as all logged inflight, preflight, flight watch and contact briefings, are transmitted to the Air and Marine Operations Center (AMOC) using the address KRIVYYYX. These transmissions are transparent.

f. The group code KSARYCYX has been established to assist in the processing of INREQs and ALNOTs.

13–1–4. MESSAGE FORMATS

a. Specialists should follow the transmit formats defined for the operational system in use. Failure to comply can result in the message being rejected by either NADIN or WMSCR. This may result in non-delivery to the intended recipients.

b. Full keyboard punctuation is allowed on all messages destined for internal FAA, DOD, and NWS

dissemination. For international dissemination, punctuation should be limited to those characters identified in pertinent ICAO documents.

c. Contractions and abbreviations should be used to shorten data transmissions to the extent possible. In no case should one be used that is not documented in FAA Order JO 7340.2, Contractions. For international communications, be aware that the foreign correspondent may not understand all FAA contractions and may not have a full command of the English language. Care should be exercised in international communications to avoid slang phrases and non-ICAO approved abbreviations.

d. The operational system can obtain weather or aeronautical information, including WMO collectives, by request/reply for data not stored in the system. Specific examples can be found in each operational system user guide.

13–1–5. WMSCR NEGATIVE RESPONSE MESSAGES

a. WMSCR automatically generates a negative response to request/reply inputs for which it cannot deliver.

1. NO REPORT AVBL. This response means the current data has not been received by WMSCR.

2. NOT IN SYSTEM. This response means WMSCR does not receive and store the requested data.

3. INVALID FORMAT. This response means the computer cannot process the request because of an input error.

b. WMSCR will generate only one negative response message to a request/reply transmission that requests multiple reports and only when none of the data requested can be delivered.

13–1–6. Q SIGNALS

TBL 13–1–4
Q Signals

SIGNIFICATION		
Signal Question of Interrogatory Form (Signal followed by letter Q)		**Answer** Information or Advise Form (Signal only, except as noted)
QAL	Has aircraft... landed at your location (or at...)?	Aircraft... landed here at.... hours (or landed... at... hours).
QRU	Have you anything for me [or for... (location or person]?	I have nothing for you [or for... (location or person)]
QSL	Can you acknowledge receipt of transmission number... (or type message)?	I acknowledge receipt of transmission number... (or type of message).
QSM	Shall I repeat the last message (transmission or portion indicated sent to me or transmission(s) from...)?	Repeat the last message (transmission or portion indicated) sent to me (or transmission(s) from...). A--not received. B--partially received (garbled).
QTA	Shall I cancel message number... (or other identification)?	Cancel message number... (or other identification).

Appendix A. ICAO FLIGHT PLANS

1. ICAO Model Flight Plan Form.

2. Instructions for the Completion of the Flight Plan Form.

3. Instructions for the Transmission of a Filed Flight Plan (FPL) Message.

4. Instructions for the Transmission of a Supplementary Flight Plan (SPL) Message.

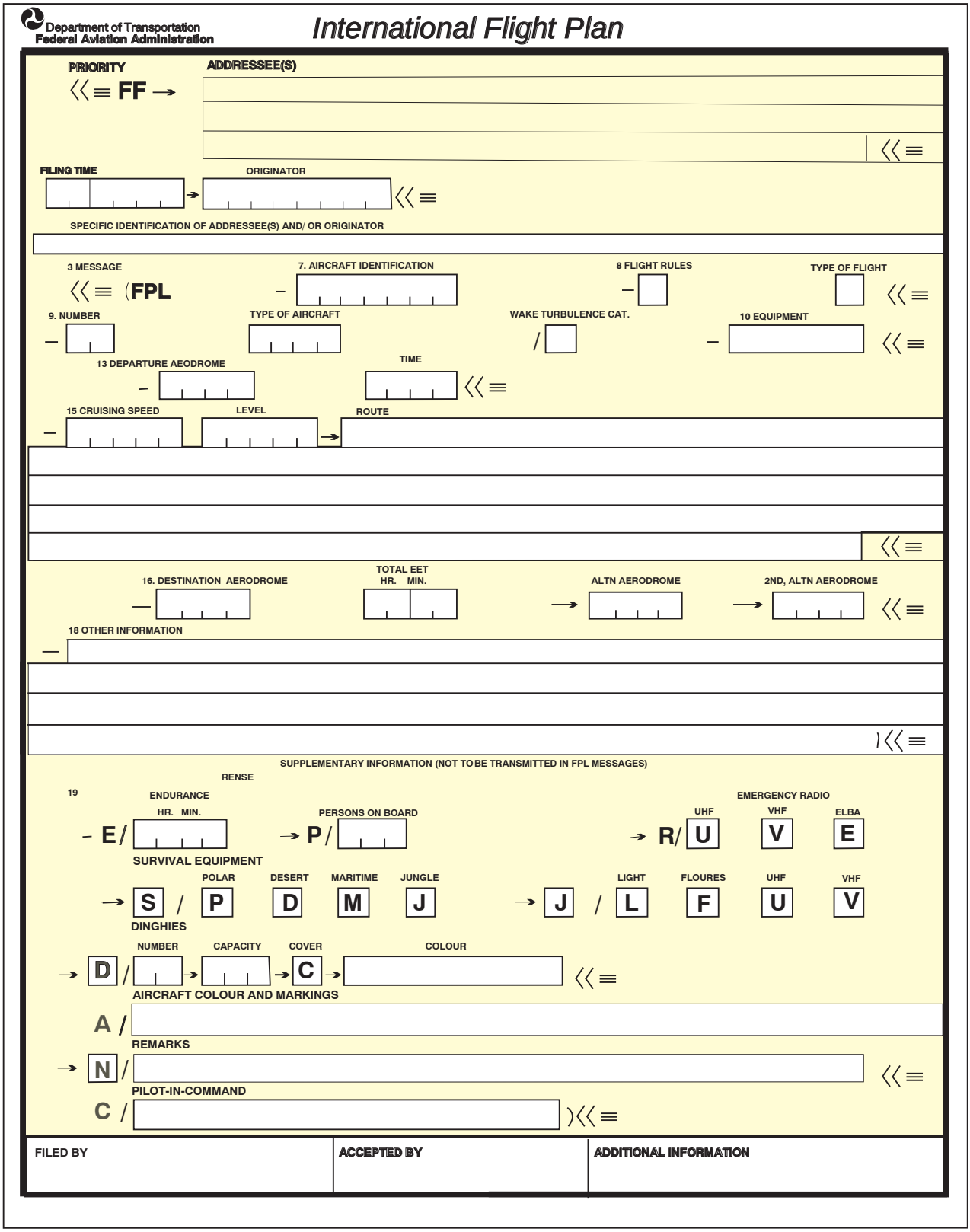
5. Example of Completed Flight Plan Form.

6. ICAO Model Flight Plan, Reverse Side.

7. ICAO Model Repetitive Flight Plan (RPL) Listing Form.

8. Example of a Completed Repetitive Flight Plan (RPL) Listing Form.

1. ICAO Model Flight Plan Form



2. Instructions for the Completion of the Flight Plan Form

2.1 General

Follow the prescribed formats and manner of specifying data.

Start entering data in the first space provided. Leave unused spaces blank.

ENTER all clock times in *4 figures* UTC.

ENTER all estimated elapsed times in 4 figures (hours and minutes).

Shaded area preceding Item 3 - to be completed by ATS and COM services, unless the responsibility for originating flight plan messages has been delegated.

NOTE-
The term "aerodrome," where used in the flight plan, also covers sites other than aerodromes which may be used by certain types of aircraft; for example, helicopters or balloons.

2.2 Instructions for entering ATS data

Complete Items 7 to 18 as indicated below.

Complete also Item 19 as indicated below, when required by the appropriate ATS authority or when otherwise deemed necessary.

NOTE-
1. Item numbers on the form are not consecutive, as they correspond to Field Type numbers in ATS messages.

2. ATS data systems may impose communications or processing constraints on information in filed flight plans. Possible constraints may, for example, be limits regarding item length, number of elements in the route item, or total flight plan length. Significant constraints are documented in the relevant Aeronautical Information Publication (AIP).

ITEM 7: AIRCRAFT IDENTIFICATION (MAXIMUM 7 CHARACTERS)

ENTER one of the following aircraft identifications, not exceeding 7 alphanumeric characters and without hyphens or symbols:

(a) The ICAO designator for the aircraft operating agency, followed by the flight identification (for example, KLM511, NGA213, JTR25). When in radiotelephony the call sign to be used by the aircraft will consist of the ICAO telephony designator for the operating agency followed by the flight identification (for example, KLM511, NIGERIA213, JESTER25);

(b) The nationality or common mark and registration marking of the aircraft (for example, EIAKO, 4XBCD, N2567GA), when:

(1) In radiotelephony, the call sign to be used by the aircraft will consist of this identification alone (for example, CGAJS) or preceded by the ICAO telephony designator for the aircraft operating agency (for example, BLIZZARD CGAJS); or

(2) The aircraft is not equipped with radio.

NOTE
1. *Standards for nationality, common and registration marks to be used are contained in Annex 7, Chapter 2.*

2. *Provisions for using radiotelephony call signs are contained in Annex 10, Volume II, Chapter 5. ICAO designators and telephony designators for aircraft operating agencies are contained in Doc 8585 — Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.*

ITEM 8: FLIGHT RULES AND TYPE OF FLIGHT (1 OR 2 CHARACTERS)

Flight Rules

ENTER one of the following letters to denote the category of flight rules with which the pilot intends to comply:

I if it is intended that the entire flight will be operated under IFR.

V if it is intended that the entire flight will be operated under VFR.

Y if the flight initially will be operated under IFR, followed by one or more changes of flight rules.

Z if the flight initially will be operated under VFR, followed by one or more changes of flight rules.

NOTE-
U.S. domestic automation systems cannot accept a flight plan that begins under VFR and subsequently changes to one or more flight rules (that is, "Z"). For this purpose, file separate flight plans for the portions of the route that the pilot intends to conduct under IFR.

Specify in Item 15 the point or points where change of flight rules is planned.

Type of flight

ENTER one of the following letters to denote the type of flight when required by the appropriate ATS authority:

S if scheduled air service

N if non-scheduled air transport operation

G if general aviation

M if military

X if other than any of the defined categories above.

Specify flight status following the indicator "STS" in Item 18, or when necessary to denote other reasons for specific handling by ATS, indicate the reason following the indicator "RMK" in Item 18.

ITEM 9: NUMBER AND TYPE OF AIRCRAFT AND WAKE TURBULENCE CATEGORY

Number of aircraft (1 or 2 characters)

ENTER the number of aircraft, if more than one.

Type of aircraft (2 to 4 characters)

ENTER the appropriate designator as specified in ICAO Doc 8643, Aircraft Type Designators,

OR if no such designator has been assigned, or in case of formation flights comprising more than one type,

ENTER ZZZZ, and *SPECIFY* in Item 18, the (numbers and) type(s) of aircraft preceded by TYP/.

Wake turbulence category (1 character)

ENTER an oblique stroke followed by one of the following letters to indicate the wake turbulence category of the aircraft:

H - HEAVY, to indicate an aircraft type with a maximum certificated take-off mass of 136 000 kg or more;

M - MEDIUM, to indicate an aircraft type with a maximum certificated take-off mass of less than 136,000 kg but more than 7,000 kg;

L - LIGHT, to indicate an aircraft type with a maximum certificated take-off mass of 7,000 kg or less.

ITEM 10: EQUIPMENT AND CAPABILITIES

Capabilities comprise the following elements:

(a) Presence of relevant serviceable equipment on board the aircraft;

(b) Equipment and capabilities commensurate with flight crew qualifications; and

(c) Where applicable, authorization from the appropriate authority.

Radio communication, navigation and approach aid equipment and capabilities

ENTER one letter as follows:

N if no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable,

OR

S if standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (see Note 1),

AND/OR

ENTER one or more of the following letters to indicate the serviceable COM/NAV/ approach aid equipment and capabilities available:

A	GBAS landing system	J6	CPDLC FANS 1/A SATCOM (MTSAT)
B	LPV (APV with SBAS)	J7	CPDLC FANS 1/A SATCOM (Iridium)
C	LORAN C	K	MLS
D	DME	L	ILS
E1	FMC WPR ACARS	M1	ATC RTF SATCOM (INMARSAT)
E2	D-FIS ACARS	M2	ATC RTF (MTSAT)
E3	PDC ACARS	M3	ATC RTF (Iridium)
F	ADF	O	VOR P1–P9 Reserved for RCP
G	GNSS (See Note 2)	R	PBN approved (See Note 4)
H	HF RTF	T	TACAN
I	Intertial Navigation	U	UHF RTF
J1	CPDLC ATN VDL Mode 2 (See Note 3)	V	VHF RTF
J2	CPDLC FANS 1/A HFDL	W	RVSM approved
J3	CPDLC FANS 1/A VDL Mode A	X	MNPS approved
J4	CPDLC FANS 1/A VDL Mode 2	Y	VHF with 8.33 kHz channel spacing capability
J5	CPDLC FANS 1/A SATCOM(INMARSAT)	Z	Other equipment carried or other capabilities (See Note 5)

Any alphanumeric characters not indicated above are reserved.

NOTE-

1. *If the letter S is used, standard equipment is considered to be VHF RTF, VOR, and ILS, unless another combination is prescribed by the appropriate ATS authority.*

2. *If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ and separated by a space.*

3. *See RTCA/EUROCAE Interoperability Requirements Standard For ATN Baseline 1 (ATN B1 INTEROP Standard – DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.*

4. *If the letter R is used, the performance based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance based navigation to a specific route segment, route or area is contained in the Performance-Based Navigation Manual (Doc 9613).*

5. *If the letter Z is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/, NAV/ and/or DAT/, as appropriate.*

6. *Information on navigation capability is provided to ATC for clearance and routing purposes.*

Surveillance equipment and capabilities

ENTER N if no surveillance equipment for the route to be flown is carried, or the equipment is unserviceable,

OR

ENTER one or more of the following descriptors, up to a maximum of 20 characters, to describe the serviceable surveillance equipment and/or capabilities on board. Enter no more than one transponder code (Modes A, C, or S)

SSR Modes A and C:

A Transponder - Mode A (4 digits - 4096 codes)

C Transponder - Mode A (4 digits - 4096 codes) and Mode C

SSR Mode S:

E Transponder - Mode S, including aircraft identification, pressure-altitude and extended squitter (ADS-B) capability

H Transponder - Mode S, including aircraft identification, pressure-altitude and enhanced surveillance capability

I Transponder - Mode S, including aircraft identification, but no pressure-altitude capability

L Transponder - Mode S, including aircraft identification, pressure-altitude, extended squitter (ADS−B) and enhanced surveillance capability

P Transponder — Mode S, including pressure-altitude, but no aircraft identification capability

S Transponder - Mode S, including both pressure-altitude and aircraft identification capability

X Transponder - Mode S with neither aircraft identification nor pressure-altitude capability

NOTE-
Enhanced surveillance capability is the ability of the aircraft to down-link aircraft derived data via a Mode S transponder.

ADS-B:

B1 ADS-B with dedicated 1090 MHz ADS-B “out” capability

B2 ADB-B with dedicated 1090 MHz ADS-B “out” and “in” capability

U1 ADS-B “out” capability using UAT

U2 ADS-B “out” and “in” capability using UAT

V1 ADS-B “out” capability using VDL Mode 4

V2 ADS-B “out” and “in” capability using VDL Mode 4

NOTE−
File no more than one code for each type of capability, e.g. file B1 or B2 and not both

ADS-C:

D1 ADS-C with FANS 1/A capabilities

G1 ADS-C with ATN capabilities

Alphanumeric characters not indicated above are reserved.

EXAMPLE-
ADE3RV/HB2U2V2G1

NOTE
Additional surveillance application should be listed in Item 18 following the indicator SUR/.

ITEM 13: DEPARTURE AERODROME AND TIME (8 CHARACTERS)

ENTER the ICAO four-letter location indicator of the departure aerodrome as specified in Doc 7910, Location Indicators,

OR if no location indicator has been assigned,

ENTER ZZZZ and *SPECIFY*, in Item 18, the name and location of the aerodrome preceded by DEP/,

OR the first point of the route or the marker radio beacon preceded by DEP/…, if the aircraft has not taken off from the aerodrome,

OR if the flight plan is received from an aircraft in flight,

ENTER AFIL, and *SPECIFY*, in Item 18, the ICAO four-letter location indicator of the location of the ATS unit from which supplementary flight plan data can be obtained, preceded by DEP/.

THEN, WITHOUT A SPACE,

ENTER for a flight plan submitted before departure, the estimated off-block time (EOBT),

OR for a flight plan received from an aircraft in flight, the actual or estimated time over the first point of the route to which the flight plan applies.

ITEM 15: ROUTE

ENTER the first cruising speed as in (a) and the first cruising level as in (b), without a space between them.

THEN following the arrow, *ENTER* the route description as in (c).

(a) Cruising speed (maximum 5 characters)

ENTER the *True Air Speed* for the first or the whole cruising portion of the flight, in terms of:

Kilometers per hour, expressed as K followed by 4 figures (for example, K0830), *or*

Knots, expressed as N followed by 4 figures (for example, N0485), *or*

True Mach number, when so prescribed by the appropriate ATS authority, to the nearest hundredth of unit Mach, expressed as M followed by 3 figures (for example, M082).

(b) Cruising level (maximum 5 characters)

ENTER the planned cruising level for the first or the whole portion of the route to be flown, in terms of:

Flight level, expressed as F followed by 3 figures (for example, F085; F330), or

**Standard Metric Level in tens of meters*, expressed as S followed by 4 figures (for example, S1130), or

Altitude in hundreds of feet, expressed as A followed by 3 figures (for example, A045; A100), or

Altitude in tens of meters, expressed as M followed by 4 figures (for example, M0840), or

for uncontrolled VFR flights, the letters VFR.

*When so prescribed by the appropriate ATS authorities.

(c) Route (including changes of speed, level and/or flight rules)

Flights along designated ATS routes

ENTER if the departure aerodrome is located on or connected to the ATS route, the designator of the first ATS route,

OR if the departure aerodrome is not located on or connected to the ATS route, the letters DCT followed by the point of joining the first ATS route, followed by the designator of the ATS route.

THEN

ENTER each point at which either a change of speed and/or level is planned to start, or a change of ATS route, and/or a change of flight rules is planned,

NOTE-
When a transition is planned between a lower and upper ATS route and the routes are oriented in the same direction, the point of transition does not need to be entered.

FOLLOWED IN EACH CASE

by the designator of the next ATS route segment, even if the same as the previous one,

OR by DCT, if the flight to the next point will be outside a designated route, unless both points are defined by geographical coordinates.

Flights outside designated ATS routes

ENTER points normally not more than 30 minutes flying time or 370 km (200 NM) apart, including each point at which a change of speed or level, a change of track, or a change of flight rules is planned,

OR when required by appropriate ATS authority(ies),

DEFINE the track of flights operating predominantly in an east-west direction between 70°N and 70°S by reference to significant points formed by the intersections of half or whole degrees of latitude with meridians spaced at intervals of 10 degrees of longitude. For flights operating in areas outside those latitudes the tracks must be defined by significant points formed by the intersection of parallels of latitude with meridians normally spaced at 20 degrees of longitude. The distance between significant points must, as far as possible, not exceed one hour's flight time. Additional significant points must be established as deemed necessary.

For flights operating predominantly in a north-south direction, define tracks by reference to significant points formed by the intersection of whole degrees of longitude with specified parallels of latitude which are spaced at 5 degrees.

ENTER DCT between successive points unless both points are defined by geographical coordinates or by bearing and distance.

USE ONLY the conventions in (1) to (5) below and *SEPARATE* each sub-item by a space.

(1) ATS route (2 to 7 characters)

The coded designator assigned to the route or route segment including, where appropriate, the coded designator assigned to the standard departure or arrival route (for example, V218, J3, Q108, T111, BCN1, ANC4, AR3, Bl, R14, UB10, UJ5, UQ104, KODAP2A, RIIVR2).

NOTE-
Provisions for the application of route designators are contained in Annex 11, Appendix 1.

(2) Significant point (2 to 11 characters)

The coded designator (2 to 5 characters) assigned to the point (for example, LN, MAY, HADDY), or, if no coded designator has been assigned, one of the following ways:

Degrees only (7 characters):

2 figures describing latitude in degrees, followed by "N" (North) or "S" (South), followed by 3 figures describing longitude in degrees, followed by "E" (East) or "W" (West). Make up the correct number of figures, where necessary, by insertion of zeros, for example, 46N078W.

Degrees and minutes (11 characters):

4 figures describing latitude in degrees and tens and units of minutes followed by "N" (North) or "S" (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by "E" (East) or "W" (West). Make up the correct number of figures, where necessary, by entering zeros; for example, 4620N07805W.

Bearing and distance from a significant point:

The identification of the significant point, followed by the bearing from the point in the form of 3 figures giving degrees magnetic, followed by the distance from the point in the form of 3 figures expressing nautical miles. In areas of high latitude where it is determined by the appropriate authority that reference to degrees magnetic is impractical, degrees true may be used. Make up the correct number of figures, where necessary, by insertion of zeros; for example, a point 180°magnetic at a distance of 40 nautical miles from VOR "DUB" should be expressed as DUB180040.

(3) Change of speed or level (maximum 21 characters)

The point at which a change of speed (5% TAS or 0.01 Mach or more) or a change of level is planned to start, expressed exactly as in (2) above, followed by an *oblique stroke and both the cruising speed and the cruising level*,

expressed exactly as in (a) and (b) above, without a space between them, *even when only one of these quantities will be changed*.

EXAMPLES-
LN/N0284A045
MAY/N0305Fl80
HADDY/N0420F330
4602N07805W/N0500F350
46N078W/M082F330
DUB180040/N0350M0840

(4) Change of flight rules (maximum 3 characters)

The point at which the change of flight rules is planned, expressed exactly as in (2) or (3) above as appropriate, *followed by a space and one of the following*:

VFR if from IFR to VFR

IFR if from VFR to IFR

EXAMPLES-
LN VFR
LN/N0284A050 IFR

NOTE-
U.S. domestic automation systems cannot accept flight plans that begin VFR and change to IFR. For this purpose, file a separate flight plan for the IFR portion of the flight.

(5) Cruise climb (maximum 28 characters)

NOTE-
Flight plans containing a cruise climb cannot be accepted by domestic U.S. automation systems.

The letter C followed by an *oblique stroke*; *THEN the point at which cruise climb is planned to start*, expressed exactly as in (2) above, followed by an oblique stroke; *THEN*

the speed to be maintained during cruise climb, expressed exactly as in (a) above, followed by *the two levels defining the layer to be occupied during cruise climb,* each level expressed exactly as in (b) above, *or the level above which cruise climb is planned followed by the letters PLUS*, without a space between them.

EXAMPLES-
C/48N050W/M082F290F350
C/48N050W/M082F290PLUS
C/52N050W/M220F580F620

ITEM 16: DESTINATION AERODROME AND TOTAL ESTIMATED ELAPSED TIME, DESTINATION ALTERNATE AERODROME(S)

Destination aerodrome and total estimated elapsed time (8 characters)

ENTER the ICAO four-letter location indicator of the destination aerodrome as specified in Doc 7910, Location Indicators,

OR if no location indicator has been assigned,

ENTER ZZZZ followed, without a space, by the total estimated elapsed time, and *SPECIFY* in Item 18 the name and location of the aerodrome, preceded by DEST/.

THEN, WITHOUT A SPACE,

ENTER the total estimated elapsed time.

NOTE-
For a flight plan received from an aircraft in flight, the total estimated elapsed time is the estimated time from the first point of the route to which the flight plan applies to the termination point of the flight plan.

Destination alternate aerodrome(s)

ENTER the ICAO four-letter location indicator(s) of not more than two destination alternate aerodromes, as specified in Doc 7910, Location Indicators, separated by a space,

OR if no location indicator has been assigned to the destination alternate aerodrome(s),

ENTER ZZZZ and SPECIFY in Item 18 the name and location of the destination alternate aerodrome(s), preceded by ALTN/.

ITEM 18: OTHER INFORMATION

NOTE-
Use of indicators not included under this item may result in data being rejected, processed incorrectly or lost.

Hyphens or oblique strokes should only be used as prescribed below.

ENTER 0 (zero) if no other information,

OR any other necessary information in the sequence shown hereunder, in the form of the appropriate indicator selected from those defined hereunder followed by an oblique stroke and the information to be recorded:

STS/ Reason for special handling by ATS (for example, a search and rescue mission), as follows:

NOTE-
Additional information, if needed to clarify a reason for special handling, must follow RMK/.

ALTRV: for a flight operated in accordance with an altitude reservation

EXAMPLE-
STS/ALTRV RMK/ALTRV AT CN718 FL250B270

ATFMX: for a flight approved for exemption from ATFM measures by the appropriate ATS authority;

FFR: fire-fighting;

FLTCK: flight check for calibration of NAVAIDs;

EXAMPLE-
STS/FLTCHK RMK/FLIGHT CHECK ILS RY23 AT YIP

HAZMAT: for a flight carrying hazardous material;

HEAD: a flight with Head of State status;

HOSP: for a medical flight declared by medical authorities;

HUM: for a flight operating on a humanitarian mission;

MARSA: for a flight for which a military entity assumes responsibility for separation of military aircraft;

EXAMPLE-
STS/MARSA RMK/IR101 E1802X1817 MARSA BAKER23 AND TOGA17

MEDEVAC: for a life critical medical emergency evacuation;

NONRVSM: for a non-RVSM capable flight intending to operate in RVSM airspace;

SAR: for a flight engaged in a search and rescue mission; and

STATE: for a flight engaged in military, customs or police services.

Other reasons for special handling by ATS must be denoted under the designator RMK/.

PBN/ Indication of RNAV and/or RNP capabilities. Include as many of the applicable descriptors, up to a maximum of 8 entries (not more than 16 characters).

RNAV SPECIFICATIONS

A1	RNAV 10 (RNP 10)
B1	RNAV 5 all permitted sensors
B2	RNAV 5 GNSS
B3	RNAV 5 DME/DME
C4	RNAV 2 DME/DME/IRU
D	RNAV 1 all permitted sensors
D2	RNAV 1 GNSS
D3	RNAV 1 DME/DME
D4	RNAV 1 DME/DME/IRU
B4	RNAV 5 VOR/DME
B5	RNAV 5 INS or IRS
B6	RNAV 5 LORAN C
C1	RNAV 2 all permitted sensors
C2	RNAV 2 GNSS
C3	RNAV 2 DME/DME

RNP SPECIFICATIONS

L1	RNP 4
O1	Basic RNP 1 all permitted sensors
O2	Basic RNP 1 GNSS
O3	Basic RNP 1 DME/DME
O4	Basic RNP 1 DME/DME/IRU
S1	RNP APCH
S2	RNP APCH with BARO-VNAV
T1	RNP AR APCH with RF (special authorization required)
T2	RNP AR APCH without RF (special authorization required)

Combinations of alphanumeric characters not indicated above are reserved.

NAV/ Significant data related to navigation equipment, other than specified in PBN/, as required by the appropriate ATS authority. Indicate GNSS augmentation under this indicator, with a space between two or more methods of augmentation, for example, NAV/GBAS SBAS.

NOTE-
See paragraph 6-2-3 to file NAV/ for flight with Area Navigation (RNAV) Routes in Domestic U.S. airspace.

COM/ Indicate communications applications or capabilities not specified in Item 10(a).

DAT/ Indicate data applications or capabilities not specified in 10(a).

SUR/ Include surveillance applications or capabilities not specified in Item 10(b). If ADS-B capability filed in Item 10 is compliant with RTCA DO-260B, include the item “260B” in SUR/. If ADS-B capability filed in Item 10 is compliant with RTCA DO-282B, include the item “282B” in SUR/.

EXAMPLE -

1. SUR/260B

2. SUR/260B 282B

DEP/ Insert the non-ICAO identifier of departure aerodrome, if ZZZZ is inserted in Item 13, or the ATS unit from which supplementary flight plan data can be obtained, if AFIL is inserted in Item 13. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location as follows:

With 4 figures describing latitude in degrees and tens and units of minutes followed by “N” (North) or “S” (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by “E” (East) or “W” (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 4620N07805W (11 characters).

OR Bearing and distance from the nearest significant point, as follows:

The identification of the significant point followed by the bearing from the point in the form of 3 figures giving degrees magnetic, followed by the distance from the point in the form of 3 figures expressing nautical miles. In areas of high latitude where it is determined by the appropriate authority that reference to degrees magnetic is impractical,

degrees true may be used. Make up the correct number of figures, where necessary, by insertion of zeros, e.g., a point of 180°magnetic at a distance of 40 nautical miles from VOR “DUB” should be expressed as DUB180040.

OR The first point of the route (name or LAT/LONG) or the marker radio beacon, if the aircraft has not taken off from an aerodrome.

DEST/ Insert the non¿ICAO identifier of destination aerodrome, if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described under DEP/ above.

DOF/ The date of flight departure in a six figure format (YYMMDD, where YY equals the year, MM equals the month and DD equals the day). The FAA will not accept flight plans filed with Date of Flight resulting in more than 24 hours in advance.

REG/ The nationality or common mark and registration mark of the aircraft, if different from the aircraft identification in Item 7.

EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times from take-off to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by the appropriate ATS authority.

EXAMPLES-
EET/CAP0745 XYZ0830
EET/EINN0204

SEL/ SELCAL Code, for aircraft so equipped.

TYP/ Type(s) of aircraft, preceded if necessary without a space by number(s) of aircraft and separated by one space, if ZZZZ is inserted in Item 9.

EXAMPLE-
TYP/2F15 5F5 3B2

CODE/ Aircraft address (expressed in the form of an alphanumerical code of six hexadecimal characters) when required by the appropriate ATS authority. Example: “F00001” is the lowest aircraft address contained in the specific block administered by ICAO.

DLE/ En route delay or holding, insert the significant point(s) on the route where a delay is planned to occur, followed by the length of delay using four figure time in hours and minutes (hhmm).

EXAMPLE-
DLE/MDG0030

OPR/ ICAO designator or name of the aircraft operating agency, if different from the aircraft identification in item 7.

ORGN/ The originator¿s 8 letter AFTN address or other appropriate contact details, in cases where the originator of the flight plan may not be readily identified, as required by the appropriate ATS authority.

NOTE-
In some areas, flight plan reception centers may insert the ORGN/ identifier and originator’s AFTN address automatically.

PER/ Aircraft performance data, indicated by a single letter as specified in the Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volume I — Flight Procedures, if so prescribed by the appropriate ATS authority.

ALTN/ Name of destination alternate aerodrome(s), if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

RALT/ ICAO four letter indicator(s) for en-route alternate(s), as specified in Doc 7910, Location Indicators, or name(s) of en-route alternate aerodrome(s), if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

TALT/ ICAO four letter indicator(s) for take-off alternate, as specified in Doc 7910, Location Indicators, or name of take-off alternate aerodrome, if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical

Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

RIF/ The route details to the revised destination aerodrome, following by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to reclearance in flight.

EXAMPLES-
RIF/DTA HEC KLAX
RIF/ESP G94 CLA YPPH

RMK/Any other plain language remarks when required by the appropriate ATS authority or deemed necessary.

ITEM 19: SUPPLEMENTARY INFORMATION

Endurance

After E/ *ENTER* a 4-figure group giving the fuel endurance in hours and minutes.

Persons on board

After P/ *ENTER* the total number of persons (passengers and crew) on board, when required by the appropriate ATS authority. *ENTER* TBN (to be notified) if the total number of persons is not known at the time of filing.

Emergency and survival equipment

R/ (RADIO) *CROSS OUT* U if UHF on frequency 243.0 MHz is not available. *CROSS OUT* V if VHF on frequency 121.5 MHz is not available. *CROSS OUT* E if emergency locator transmitter (ELT) is not available.

S/ (SURVIVAL EQUIPMENT)

CROSS OUT all indicators if survival equipment is not carried. *CROSS OUT* P if polar survival equipment is not carried. *CROSS OUT* D if desert survival equipment is not carried. *CROSS OUT* M if maritime survival equipment is not carried. *CROSS OUT* J if jungle survival equipment is not carried.

J/ (JACKETS) *CROSS OUT* all indicators if life jackets are not carried. *CROSS OUT* L if life jackets are not equipped with lights. *CROSS OUT* F if life jackets are not equipped with fluorescein. *CROSS OUT* U or V or both as in R/ above to indicate radio capability of jackets, if any.

D/ (DINGHIES)

(NUMBER) *CROSS OUT* indicators D and C if no dinghies are carried, or *ENTER* number of dinghies carried; and

(CAPACITY) *ENTER* total capacity, in persons, of all dinghies carried; and

(COVER) CROSS OUT indicator C if dinghies are not covered; and

(COLOR) *ENTER* color of dinghies if carried.

A/ (AIRCRAFT COLOR AND MARKINGS)

ENTER color of aircraft and significant markings.

N/ (REMARKS) *CROSS OUT* indicator N if no remarks, or *INDICATE* any other survival equipment carried and any other remarks regarding survival equipment.

C/ (PILOT) *ENTER* name of pilot-in-command.

2.3 Filed by

ENTER the name of the unit, agency or person filing the flight plan.

2.4 Acceptance of the flight plan

Indicate acceptance of the flight plan in the manner prescribed by the appropriate ATS authority.

2.5 Instructions for entering COM data

Items to be completed

COMPLETE the top two shaded lines of the form, and *COMPLETE* the third shaded line only when necessary, following the provisions in PANS-ATM, Chapter 11, 11.2.1.2, unless ATS prescribes otherwise.

3. Instructions for the Transmission of a Filed Flight Plan (FPL) Message

3.1 Correction of obvious errors

Unless otherwise prescribed, CORRECT obvious format errors and/or omissions (i.e. oblique stokes) to ensure adherence as specified in Section 2.

3.2 Items to be transmitted

TRANSMIT items as indicated below, unless otherwise prescribed:

a. the items in the shaded lines, above Item 3;

b. Starting with <<≡ (FPL of Item 3:

All symbols and data in the unshaded boxes to the) <<≡ at the end of Item 18, additional alignment functions as necessary to prevent the inclusion of more than 69 characters in any line of Items 15 and 18. The alignment function is to be inserted only in lieu of a space so as not to break up a group of data, letter shifts and figure shifts (not preprinted on the form) as necessary;

c. the AFTN Ending, as described below:

End–of–Text Signal

(1) one LETTER SHIFT

(2) two CARRIAGE RETURNS, one LINE FEED

Page–feed Sequence

Seven LINE FEEDS

End–of–Message Signal

Four of the letter N.

4. Instructions for the Transmission of a Supplementary Flight Plan (SPL) Message

4.1 Items to be transmitted

Transmit items as indicated hereunder, unless otherwise prescribed:

a. AFTN Priority Indicator, Addressee Indicators <<≡, Filing Time, Originator Indicator <<≡ and, if necessary, specific identification of addressees and/or originator;

b. Starting with <<b (SPL: all symbols and data in the unshaded areas of boxes 7, 13, 16, and 18, except that the ‘)’ at the end of box 18 is not to be transmitted, and then the symbols in the unshaded area of box 19 down to and including the) <<b of box 19, additional alignment functions as necessary to prevent the inclusion of more than 69 characters in any line of Items 18 and 19. The alignment function is to be inserted only in lieu of a space, so as not to break up a group of data, letter shifts and figure shifts (not pre-printed on the form) as necessary;

(c) the AFTN Ending, as described below:

End-of-Text Signal

(1) one LETTER SHIFT

(2) two CARRIAGE RETURNS, one LINE FEED

Page-feed Sequence

Seven LINE FEEDS

End-of-Message Signal

Four of the letter N.

5. Example of Completed Flight Plan Form

Department of Transportation
Federal Aviation Administration

International Flight Plan

PRIORITY: ‹‹≡ FF →

ADDRESSEE(S): EHAAZQEX EBURZQZX EDDYZQZX LFFFZQZX
LFRRZQZX LFBBZQZX LECMZQZX LPPCZQZX

FILING TIME: 1 9 0 8 3 6 → ORIGINATOR: E H A M Z P Z X ‹‹≡

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/ OR ORIGINATOR:

3 MESSAGE: ‹‹≡ (FPL

7. AIRCRAFT IDENTIFICATION: – A C F 4 0 2

8 FLIGHT RULES: – I

TYPE OF FLIGHT: N ‹‹≡

9. NUMBER: –

TYPE OF AIRCRAFT: E A 3 0

WAKE TURBULENCE CAT.: / H

10 EQUIPMENT: – S / C ‹‹≡

13 DEPARTURE AERODROME: – E H A M

TIME: 0 9 4 0 ‹‹≡

15 CRUISING SPEED: – 0 8 3 0

LEVEL: F 2 9 0

ROUTE: → LEK 2B LEK UA6 XMM/M078F330
UA6 PON UR10N CHW UA5 NTS DCT 4611N00412W
DCT STG UA5 FTM FATIM1A

‹‹≡

16. DESTINATION AERODROME: — L P P T

TOTAL EET HR. MIN.: 0 2 3 0

ALTN AERODROME: → L P P R

2ND, ALTN AERODROME: →

‹‹≡

18 OTHER INFORMATION: — REG / FBVGA SEL / EJFL
EET / LPPC0158

)‹‹≡

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)

19

ENDURANCE HR. MIN.: - E/ 0 3 4 5

PERSONS ON BOARD: → P/ 3 0 0

EMERGENCY RADIO: → R/ UHF: U VHF: V ELBA: E

SURVIVAL EQUIPMENT: → S / POLAR: X DESERT: X MARITIME: M JUNGLE: X

LIGHT: J / LIGHT: L FLOURES: F UHF: X VHF: X

DINGHIES: → D / NUMBER: 1 1 CAPACITY: → 3 3 0 COVER: → C COLOUR: → YELLOW ‹‹≡

AIRCRAFT COLOUR AND MARKINGS: A / WHITE

REMARKS: → X /

‹‹≡

PILOT-IN-COMMAND: C / DENKE)‹‹≡

FILED BY	ACCEPTED BY	ADDITIONAL INFORMATION
AIR CHARTER INT.		

FAA Form 7233-4 (5-93) Supersedes Previous Edition

6. ICAO Model Flight Plan, Reverse Side

Pre-Flight Pilot Checklist

Aircraft Identification		Time of Briefing				
WEATHER (Destination) (Alternate)	☐ Present	Remarks	Report Weather Conditions Aloft			
	☐ Forcast		*Report immediately weather conditions encountered - particularly cloud tops, upper cloud layers, thunderstorms, ice, turbulence, winds and temperature.*			
			Position	Altitude	Time	Weather Conditions
WEATHER (En Route)	☐ Present					
	☐ Forcast					
	☐ PIREPS					
WINDS ALOFT	☐ Best Crzg Alt.					
NAV AID & COMM STATUS	☐ Designator					
	☐ En Route					
AIRPORT CONDITIONS	☐ Destination					
	☐ Alternate					
ADIZ	☐ Airspace Restrictions					

Civil Aircraft Pilots

FAR Part 91 states that each person operating a civil aircraft of U.S. registry over the high seas shall comply with annex 2 to the Convention of International Civil Aviation, International Standards - Rules of the Air. Annex 2 requires the submission of a flight plan containing items 1-19 prior to operating any flight across international waters. Failure to file could result in a civil penalty not to exceed $1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended).

Check data as soon as practicable after entering foreign airspace, as our international data may be inaccurate or incomplete.

Agency Display Of Estimated Burden For International Flight Plan

This public report burden for this collection of information is estimated to average 2.5 minutes per response.

If you wish to comment on the accuracy of the estimate or make suggestions for reducing this burden, please direct your comments to OMB and the FAA at the following addresses.

Office of Management and Budget
Paperwork Reduction Project 2120-0026
Washington, DC 20503

- and -

U.S. Department of Transportation
Federal Aviation Administration
Terminal and Flight Services
Operations and Procedures, ATO-120
800 Independence Avenue, SW
Washington DC 20591

Please DO NOT RETURN your form to either of these addresses

7. ICAO Model Repetitive Flight Plan (RPL) Listing Form

REPETITIVE FLIGHT PLAN LISTING

A OPERATOR	B ADDRESSEE(S)	C DEPARTURE AERODROME(S)	D DATE ---------- yymmdd	E SERIAL NO. ----------	F PAGE OF __ / __
			G SUPPLEMENTARY DATA (Item 19) AT:		

H + -	I VALID FROM yymmdd	J VALID UNTIL yymmdd	K DAYS OF OPERATION 1	2	3	4	5	6	7	L AIRCRAFT IDENTIFI-CATION (Item 7)	M TYPE OF AIRCRAFT & TURBULENCE CATEGORY (Item 9)		N DEPARTURE AERODROME AND TIME (Item 13)		O ROUTE (Item 15) CRUISING SPEED	LEVEL	ROUTE	P DESTINATION AERODROME AND TOTAL ELAPSED TIME (Item 16)		Q REMARKS

7.1 Instructions for the completion of the repetitive flight plan (RPL) listings form

7.2 General

List only flight plans that will operate in accordance with IFR. (Flight rules I in FPL format).

It is assumed that all aircraft are operating as scheduled flights (Type of flight S in FPL format), otherwise notify in Q (Remarks).

It is assumed that all aircraft operating on RPL's are equipped with 4096–code transplanters with modes A and C. Otherwise, notify Q (Remarks).

List flight plans in alphabetical order of the location indicator of the departure aerodrome.

List flight plans for each departure – aerodrome in chronological order of estimated off–block times.

Adhere closely to the data conventions as indicated for the Flight Plan Form unless otherwise specifically indicated in 7.5.

Insert all clock times in 4 figures UTC.

Insert all estimated elapsed times in 4 figures (hours and minutes).

Insert data on a separate line for each segment of operations with one or more stops; i.e., from any departure aerodrome to the next destination aerodrome even through call sign or flight number is the same for multiple segments.

Clearly identify additions and deletions in accordance with Item H at 7.4. Subsequent listings must list the corrected and added data, and deleted flight plans must be omitted.

Number pages by indicating number of pages and total number of pages in submission.

Utilize more than one line for any RPL where the space provided for items O and Q on one line is not sufficient.

7.3 A flight must be cancelled as follows:

a. indicate a minus sign in item H followed by all other items of the cancelled flight;

b. insert a subsequent entry denoted by a plus sign in item H and the date of the last flight in item J, with all other items of the cancelled flight unchanged.

7.4 Modification to a flight must be made as follows:

a. carry out the cancellation as indicated in 7.2; and

b. insert a third entry giving the new flight plan(s) with the appropriate items modified as necessary, including the new validity dates in items I and J.

Note.– All entries related to the same flight will be inserted in succession in the order specified above.

7.5 Instructions for insertion of RPL data

Complete Items A to Q as indicated hereunder.

ITEM A: OPERATOR

INSERT Name of operator.

ITEM B: ADDRESSEE(S)

INSERT Name of agency(ies) designated by States to administer RPL's for FIR's or areas of responsibility concerned with the route of flight.

ITEM C: DEPARTURE AERODROME(S)

INSERT Location indicator(s) of departure aerodrome(s).

ITEM D: DATE

INSERT On each page of submission the date (year, month, day) in a 6–figure group that the listing was submitted.

ITEM E: SERIAL NUMBER

INSERT Serial number of submission (2 numerics) indicating last two digits of year, a dash, and the sequential number of the submission for the year indicated (start with numeral 1 each new year).

ITEM F: PAGE OF

INSERT Page number and total number of pages submitted.

ITEM G: SUPPLEMENTARY DATA AT

INSERT Name of contact where information normally provided under Item 19 of the FPL is kept readily available and can be supplied without delay.

ITEM H: ENTRY TYPE

INSERT A minus sign (–) for each flight plan that is to be deleted from the listing.

INSERT A plus sign (+) for each initial listing and, in the case of subsequent submissions, for each flight plan not listed in the previous submission.

Note – No information is required under this item for any flight plan which is unchanged from the previous submission.

ITEM I: VALID FROM

INSERT First date (year, month, day) upon which the flight is scheduled to operate.

ITEM J: VALID UNTIL

INSERT Last date (year, month, day) upon which the flight is scheduled to operate as listed, or UFN if the duration is unknown

ITEM K: DAYS OF OPERATION

INSERT Number corresponding to the day of the week in the appropriate column; Monday = 1 through Sunday = 7.

INSERT 0 for each day of non−operation in the appropriate column.

ITEM L: AIRCRAFT IDENTIFICATION (Item 7 of the ICAO flight plan)

INSERT Aircraft identification to be used for the flight.

ITEM M: TYPE OF AIRCRAFT AND WAKE TURBULENCE CATEGORY (Item 9 of the ICAO flight plan)

INSERT Appropriate ICAO designator as specified in ICAO Doc 8643 − Aircraft Type Designators.

INSERT H, M or L indicator as appropriate:

H − HEAVY to indicate an aircraft type with a maximum certificated take−off mass of 136,000 kg or more,

M − MEDIUM to indicate an aircraft type with a maximum certificated take−off mass of less than 136,000 kg but more than 7,000 kg,

L − LIGHT to indicate an aircraft type with a maximum certificated take−off mass of 7,000 kg or less.

ITEM N: DEPARTURE AERODROME AND TIME (Item 13 of the ICAO flight plan)

INSERT Location indicator of the departure aerodrome.

INSERT The off−block time, i.e., the estimated time that the aircraft will commence movement associated with departure.

ITEM O: ROUTE (Item 15 of the ICAO flight plan)

a. Cruising Speed

INSERT The true airspeed for the first or whole cruising portion of the flight in accordance with Item 15(a) of the ICAO flight plan.

b. Cruising level

INSERT The planned cruising level for the first or whole portion of the route in accordance with Item 15(b) of the ICAO flight plan.

c. Route

INSERT The entire route in accordance with Item 15(c) of the ICAO flight plan.

ITEM P: DESTINATION AERODROME AND TOTAL ESTIMATED ELAPSED TIME (Item 16 of the ICAO flight plan)

INSERT Location indicator of the destination aerodrome.

INSERT The total estimated elapsed time.

ITEM Q: REMARKS

INSERT Items of information as required by the appropriate ATS authority, items normally notified in Item 18 of the ICAO flight plan and any other information pertinent to the flight of concern to ATS.

8. Example of a Completed Repetitive Flight Plan (RPL) Listing Form

REPETITIVE FLIGHT PLAN LISTING

A OPERATOR	B ADDRESSEE(S)	C DEPARTURE AERODROME(S)	D DATE	E SERIAL NO.	F PAGE OF
BRITISH AIRWAYS	UK STORED FLIGHT PLAN OFFICE EGTXZBZX Chef de la Subdivision informatique 9 rue de Champagne 91205 Athismons France	EGLL	800305 yymmdd	80-12	3 / 3
			G SUPPLEMENTARY DATA (Item 19) AT: BAW Briefing Office		

H	I	J	K							L	M		N		O			P		Q
+	VALID FROM	VALID UNTIL	DAYS OF OPERATION							AIRCRAFT IDENTIFICATION	TYPE OF AIRCRAFT & TURBULENCE CATEGORY		DEPARTURE AERODROME AND TIME		ROUTE (Item 15) CRUISING SPEED	LEVEL	ROUTE	DESTINATION AERODROME AND TOTAL ELAPSED TIME		REMARKS
-	yymmdd	yymmdd	1	2	3	4	5	6	7	(Item 7)	(Item 9)		(Item 13)					(Item 16)		
+	800401	811031	1	2	3	4	5	6	7	BAW004	HS21	M	EGLL	0700	NO440	F210	A1E UA1E DPE UA16 MAN	LFPG	0045	
+	800401	800731	1	2	3	4	5	6	7	BAW032	HS21	M	EGLL	1800	NO440	F210	AIE UA1E DPE UA18 MAN	LFPG	0045	
+	800801	811031	1	0	3	0	5	0	7	BAW032	HS21	M	EGLL	1800	N0440	F210	A1E UA1E DPE UA18 MAN	LFPG	0045	
+	800601	800930	0	0	0	0	0	0	7	BAW082	HS21	M	EGLL	1805	NO450	F270	A1S UA1S RBT UA3 MTL			
																	UA3W STP DCT GL	LFMN	0130	
-	800103	800930	0	0	0	0	0	6	7	BAW092	B737	M	EGLL	1810	NO430	F190	A1E UA1E DPE UA16 MAN	LFPG	0400	CHARTERED ACFT
+	800103	800315	0	0	0	0	0	6	7	BAW092	B737	M	EGLL	1810	NO430	F190	A1E UA1E DPE UA16 MAN	LFPG	0400	CHARTERED ACFT

Appendix B. FSS Forms

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FLIGHT PLAN

(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR ☐ STOPOVER

TIME STARTED

SPECIALIST INITIALS

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE / SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
☐ VFR ☐ IFR ☐ DVFR			KTS		PROPOSED (Z)	ACTUAL (Z)	

8. ROUTE OF FLIGHT

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE		11. REMARKS
	HOURS	MINUTES	

12. FUEL ON BOARD		13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE	15. NUMBER ABOARD
HOURS	MINUTES		17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	
16. COLOR OF AIRCRAFT		CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed $1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.		

FAA Form 7233-1 (8-82)
Electronic Version (Adobe)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

MILITARY STOPOVER (FAA USE ONLY)

TYPE	AIRCRAFT IDENTIFICATION	AIRCRAFT TYPE/SPECIAL EQUIPMENT	REMARKS
☐ IFR ☐ VFR			

DEPARTURE POINT	DESTINATION	ETA

TAS	DEP. PT	ETD	ALTITUDE	ROUTE OF FLIGHT	DESTINATION	ETE	REMARKS
KTS							
KTS							
KTS							
KTS							

REMARKS INITIALS

Paperwork Reduction Act Statement: Flight Plan information is collected for the protection and identification of aircraft and property and persons on the ground. Air Traffic uses the information to provide control services and search and rescue services. An individual respondent would require about 2.5 minutes to provide the information. FAR Part 91 requires an Instrument Flight Rules (IFR) flight plan to operate under IFR in controlled airspace. Filing a Visual Flight Rules flight plan is recommended but not mandatory. It is FAA policy to make factual information available to persons properly and directly concerned except information held confidential for good cause, i.e., pilot's address/telephone number. All flight plan data is destroyed when 15 days old except for data retained due to an accident/incident investigation. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number associated with this collection is 2120-0026. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, ABA-20

Form Approved OMB No. 2120-0026
09/30/2006

U.S Department of Transportation
Federal Aviation Administration

International Flight Plan

PRIORITY
<=FF

ADDRESSEE(S)

FILING TIME

ORIGINATOR

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND / OR ORIGINATOR

3 MESSAGE TYPE
<=(FPL

7 AIRCRAFT IDENTIFICATION

8 FLIGHT RULES

TYPE OF FLIGHT

9 NUMBER

TYPE OF AIRCRAFT

WAKE TURBULENCE CAT.

10 EQUIPMENT

13 DEPARTURE AERODROME

TIME

15 CRUISING SPEED

LEVEL

ROUTE

TOTAL EET

16 DESTINATION AERODROME

HR MIN

ALTN AERODROME

2ND ALTN AERODROME

18 OTHER INFORMATION

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)

19 ENDURANCE
HR MIN

PERSONS ON BOARD

EMERGENCY RADIO
UHF VHF ELBA

SURVIVAL EQUIPMENT
POLAR DESERT MARITIME JUNGLE

JACKETS
LIGHT FLUORES UHF VHF

DINGHIES
NUMBER CAPACITY COVER COLOR

AIRCRAFT COLOR AND MARKINGS

REMARKS

PILOT-IN-COMMAND

FILED BY ACCEPTED BY ADDITIONAL INFORMATION

FAA Form 7233-4 (7-93)

Pre-Flight Pilot Checklist

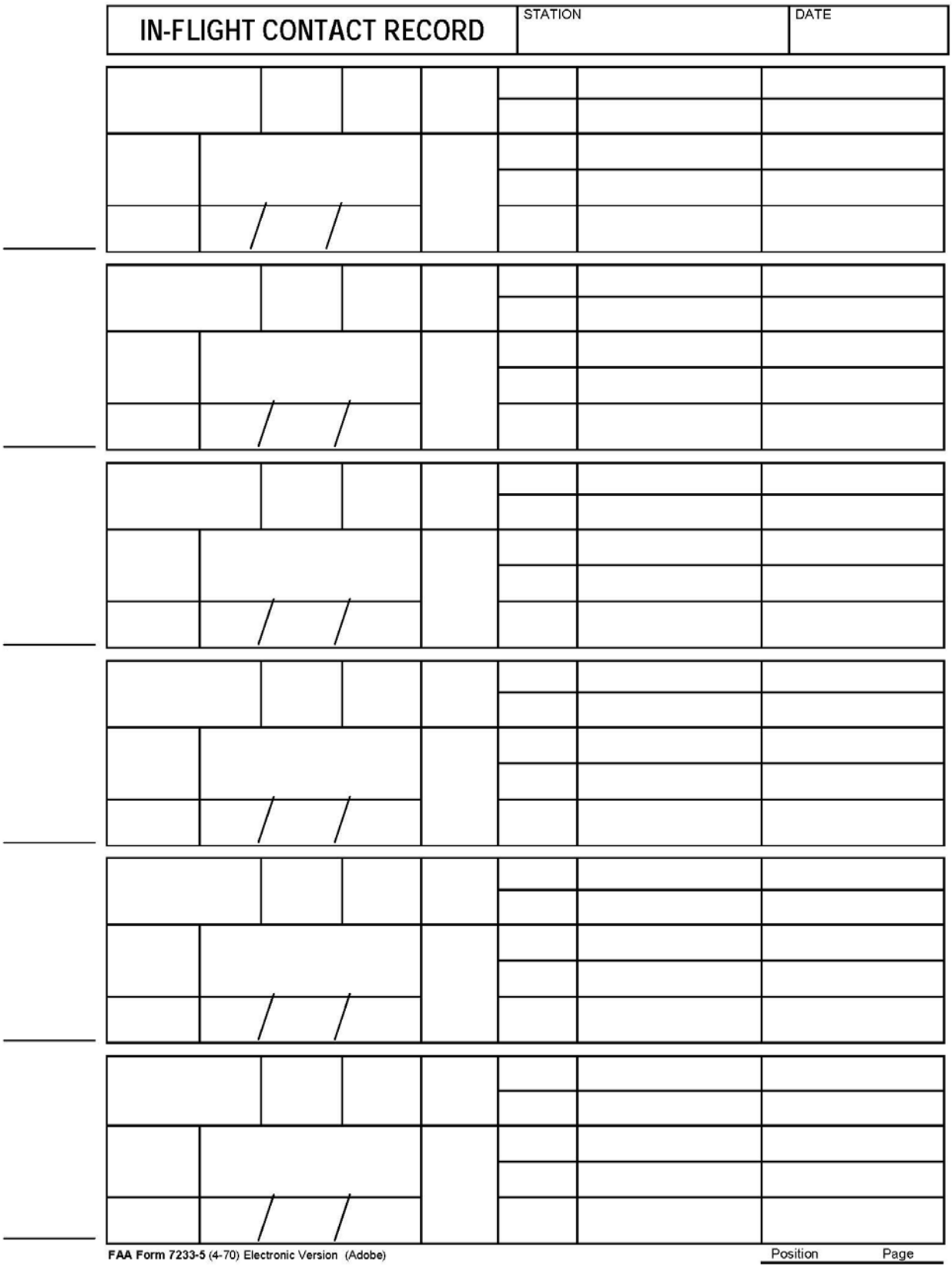
Aircraft Identification			Time of Briefing			
Weather (Destination) (Alternate)	☐ Present	Remarks	**Report Weather Conditions Aloft**			
	☐ Forecast		*Report immediately weather conditions encountered---particularly cloud tops, upper cloud layers, thunderstorms, ice, turbulence, winds and temperature*			
			Position	Altitude	Time	Weather Conditions
Weather (En Route)	☐ Present					
	☐ Forecast					
	☐ Pireps					
Winds Aloft	Best Crzg. Alt.					
Nav. Aid & Comm. Status.	☐ Destination					
	☐ En Route					
Airport Conditions	☐ Destination					
	☐ Alternate					
ADIZ	☐ Airspace Restrictions					

Civil Aircraft Pilots

FAR Part 91 states that each person operating a civil aircraft of U S. registry over the high seas shall comply with Annex 2 to the Convention of International Civil Aviation, International Standards - Rules of the Air. Annex 2 requires the submission of a flight plan containing items 1-1 9 prior to operating any flight across international waters. Failure to file could result in a civil penalty not to exceed $1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended).

International briefing information may not be current or complete. Data should be secured, at the first opportunity, from the country in whose airspace the flight will be conducted.

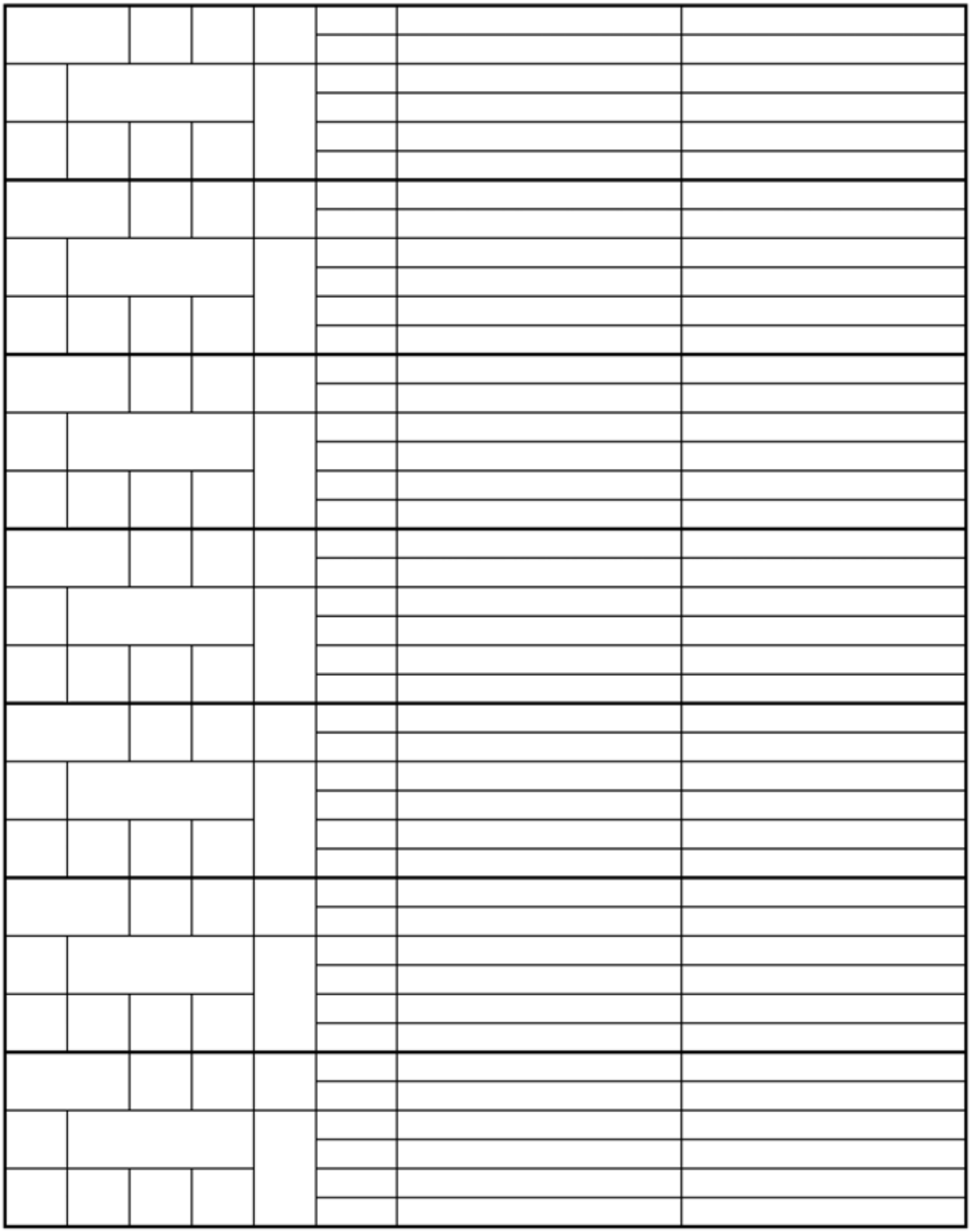
Paperwork Reduction Act Statement: Flight Plan information is collected for the protection and identification of aircraft and property and persons on the ground. Air Traffic uses the information to provide control services and search and rescue services. An individual respondent would require about 2.5 minutes to provide the information. FAR Part 91 requires an Instrument Flight Rules (IFR) flight plan to operate under IFR in controlled airspace. Filing a Visual Flight Rules flight plan is recommended but not mandatory. It is FAA policy to make factual information available to persons properly and directly concerned except information held confidential for good cause, i.e., pilot's address/telephone number. All flight plan data is destroyed when 15 days old except for data retained due to an accident/incident investigation. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number associated with this collection is 2120-0026. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, ABA-20


IN-FLIGHT CONTACT RECORD
STATION
DATE
FAA Form 7233-5 (4-70) Electronic Version (Adobe)
Position
Page

FAA FORM 7230-21 FLIGHT PROGRESS STRIPS - FSS

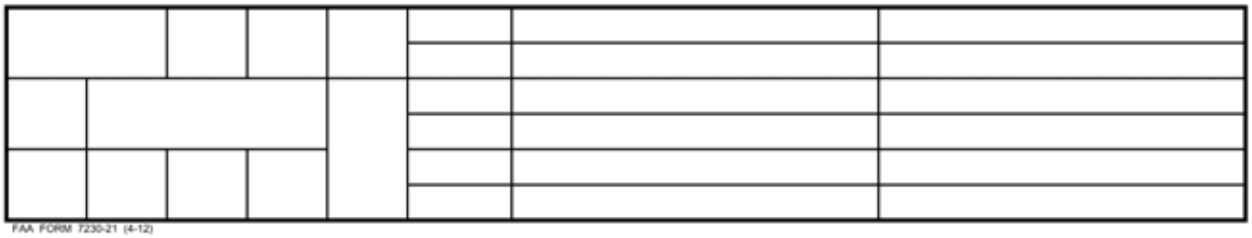
Revised 04-2012

Designed to be printed on card stock or 24 lb. copy paper and cut into individual strips for use in Strip Holders.



FAA FORM 7230-21 FLIGHT PROGRESS STRIP - FSS

Revised 04-2012



FAA FORM 7230-21 (4-12)

PREFLIGHT BRIEFING LOG

1. STATION	2. DATE	3. POSITION

4. TIME (z) STARTED	5. AIRCRAFT IDENTIFICATION	6. DEPARTURE POINT	7. DESTINATION	8. REMARKS	9. BRIEFER

FAA Form 7233-2 (6-91) Supersedes Previous Edition Electronic Version (Adobe)

PILOT/CONTROLLER GLOSSARY

PURPOSE

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

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

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

EXPLANATION OF CHANGES

d. Terms Added:
BOTTOM ALTITUDE
CLIMB VIA
DEFENSE AREA
DESCEND VIA
FUSED TARGET
FUSION
GROSS NAVIGATION ERROR
ISR
INSTRUMENT APPROACH OPERATIONS [ICAO]
LIGHT–SPORT AIRCRAFT
TAKEOFF ROLL
TOP ALTITUDE

e. Terms Modified:
INSTRUMENT APPROACH PROCEDURE
LANDING MINIMUMS
RESUME NORMAL SPEED
TARGET
ULTRALIGHT VEHICLE
WHEN ABLE

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

A

AAI–
(See ARRIVAL AIRCRAFT INTERVAL.)

AAR–
(See AIRPORT ARRIVAL RATE.)

ABBREVIATED IFR FLIGHT PLANS– An authorization by ATC requiring pilots to submit only that information needed for the purpose of ATC. It includes only a small portion of the usual IFR flight plan information. In certain instances, this may be only aircraft identification, location, and pilot request. Other information may be requested if needed by ATC for separation/control purposes. It is frequently used by aircraft which are airborne and desire an instrument approach or by aircraft which are on the ground and desire a climb to VFR-on-top.
(See VFR-ON-TOP.)
(Refer to AIM.)

ABEAM– An aircraft is "abeam" a fix, point, or object when that fix, point, or object is approximately 90 degrees to the right or left of the aircraft track. Abeam indicates a general position rather than a precise point.

ABORT– To terminate a preplanned aircraft maneuver; e.g., an aborted takeoff.

ACC [ICAO]–
(See ICAO term AREA CONTROL CENTER.)

ACCELERATE-STOP DISTANCE AVAILABLE– The runway plus stopway length declared available and suitable for the acceleration and deceleration of an airplane aborting a takeoff.

ACCELERATE-STOP DISTANCE AVAILABLE [ICAO]– The length of the take-off run available plus the length of the stopway if provided.

ACDO–
(See AIR CARRIER DISTRICT OFFICE.)

ACKNOWLEDGE– Let me know that you have received and understood this message.

ACL–
(See AIRCRAFT LIST.)

ACLS–
(See AUTOMATIC CARRIER LANDING SYSTEM.)

ACLT–
(See ACTUAL CALCULATED LANDING TIME.)

ACROBATIC FLIGHT– An intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration not necessary for normal flight.
(See ICAO term ACROBATIC FLIGHT.)
(Refer to 14 CFR Part 91.)

ACROBATIC FLIGHT [ICAO]– Maneuvers intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude, or an abnormal variation in speed.

ACTIVE RUNWAY–
(See RUNWAY IN USE/ACTIVE RUNWAY/DUTY RUNWAY.)

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

ACTUAL NAVIGATION PERFORMANCE (ANP)–
(See REQUIRED NAVIGATION PERFORMANCE.)

ADDITIONAL SERVICES– Advisory information provided by ATC which includes but is not limited to the following:

a. Traffic advisories.

b. Vectors, when requested by the pilot, to assist aircraft receiving traffic advisories to avoid observed traffic.

c. Altitude deviation information of 300 feet or more from an assigned altitude as observed on a verified (reading correctly) automatic altitude readout (Mode C).

d. Advisories that traffic is no longer a factor.

e. Weather and chaff information.

f. Weather assistance.

g. Bird activity information.

h. Holding pattern surveillance. Additional services are provided to the extent possible contingent only upon the controller's capability to fit them into the performance of higher priority duties and on the basis of limitations of the radar, volume of traffic, frequency congestion, and controller workload. The controller has complete discretion for determining if he/she is able to provide or continue to provide a service in a particular case. The controller's reason not to provide or continue to provide a service in a particular case is not subject to question by the pilot and need not be made known to him/her.

(See TRAFFIC ADVISORIES.)

(Refer to AIM.)

ADF–

(See AUTOMATIC DIRECTION FINDER.)

ADIZ–

(See AIR DEFENSE IDENTIFICATION ZONE.)

ADLY–

(See ARRIVAL DELAY.)

ADMINISTRATOR– The Federal Aviation Administrator or any person to whom he/she has delegated his/her authority in the matter concerned.

ADR–

(See AIRPORT DEPARTURE RATE.)

ADS [ICAO]–

(See ICAO term AUTOMATIC DEPENDENT SURVEILLANCE.)

ADS–B–

(See AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST.)

ADS–C–

(See AUTOMATIC DEPENDENT SURVEILLANCE–CONTRACT.)

ADVISE INTENTIONS– Tell me what you plan to do.

ADVISORY– Advice and information provided to assist pilots in the safe conduct of flight and aircraft movement.

(See ADVISORY SERVICE.)

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

(See LOCAL AIRPORT ADVISORY.)

(See UNICOM.)

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

(Refer to AIM.)

ADVISORY SERVICE– Advice and information provided by a facility to assist pilots in the safe conduct of flight and aircraft movement.

(See ADDITIONAL SERVICES.)

(See EN ROUTE FLIGHT ADVISORY SERVICE.)

(See LOCAL AIRPORT ADVISORY.)

(See RADAR ADVISORY.)

(See SAFETY ALERT.)

(See TRAFFIC ADVISORIES.)

(Refer to AIM.)

AERIAL REFUELING– A procedure used by the military to transfer fuel from one aircraft to another during flight.

(Refer to VFR/IFR Wall Planning Charts.)

AERODROME– A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure, and movement of aircraft.

AERODROME BEACON [ICAO]– Aeronautical beacon used to indicate the location of an aerodrome from the air.

AERODROME CONTROL SERVICE [ICAO]– Air traffic control service for aerodrome traffic.

AERODROME CONTROL TOWER [ICAO]– A unit established to provide air traffic control service to aerodrome traffic.

AERODROME ELEVATION [ICAO]– The elevation of the highest point of the landing area.

AERODROME TRAFFIC CIRCUIT [ICAO]– The specified path to be flown by aircraft operating in the vicinity of an aerodrome.

AERONAUTICAL BEACON– A visual NAVAID displaying flashes of white and/or colored light to indicate the location of an airport, a heliport, a landmark, a certain point of a Federal airway in mountainous terrain, or an obstruction.

(See AIRPORT ROTATING BEACON.)

(Refer to AIM.)

AERONAUTICAL CHART– A map used in air navigation containing all or part of the following:

topographic features, hazards and obstructions, navigation aids, navigation routes, designated airspace, and airports. Commonly used aeronautical charts are:

a. Sectional Aeronautical Charts (1:500,000)– Designed for visual navigation of slow or medium speed aircraft. Topographic information on these charts features the portrayal of relief and a judicious selection of visual check points for VFR flight. Aeronautical information includes visual and radio aids to navigation, airports, controlled airspace, restricted areas, obstructions, and related data.

b. VFR Terminal Area Charts (1:250,000)– Depict Class B airspace which provides for the control or segregation of all the aircraft within Class B airspace. The chart depicts topographic information and aeronautical information which includes visual and radio aids to navigation, airports, controlled airspace, restricted areas, obstructions, and related data.

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

d. En Route Low Altitude Charts– Provide aeronautical information for en route instrument navigation (IFR) in the low altitude stratum. Information includes the portrayal of airways, limits of controlled airspace, position identification and frequencies of radio aids, selected airports, minimum en route and minimum obstruction clearance altitudes, airway distances, reporting points, restricted areas, and related data. Area charts, which are a part of this series, furnish terminal data at a larger scale in congested areas.

e. En Route High Altitude Charts– Provide aeronautical information for en route instrument navigation (IFR) in the high altitude stratum. Information includes the portrayal of jet routes, identification and frequencies of radio aids, selected airports, distances, time zones, special use airspace, and related information.

f. Instrument Approach Procedures (IAP) Charts– Portray the aeronautical data which is required to execute an instrument approach to an airport. These charts depict the procedures, including all related data, and the airport diagram. Each procedure is designated for use with a specific type of electronic navigation system including NDB, TACAN, VOR, ILS/MLS, and RNAV. These charts are identified by the type of navigational aid(s) which provide final approach guidance.

g. Instrument Departure Procedure (DP) Charts– Designed to expedite clearance delivery and to facilitate transition between takeoff and en route operations. Each DP is presented as a separate chart and may serve a single airport or more than one airport in a given geographical location.

h. Standard Terminal Arrival (STAR) Charts– Designed to expedite air traffic control arrival procedures and to facilitate transition between en route and instrument approach operations. Each STAR procedure is presented as a separate chart and may serve a single airport or more than one airport in a given geographical location.

i. Airport Taxi Charts– Designed to expedite the efficient and safe flow of ground traffic at an airport. These charts are identified by the official airport name; e.g., Ronald Reagan Washington National Airport.

(See ICAO term AERONAUTICAL CHART.)

AERONAUTICAL CHART [ICAO]– A representation of a portion of the earth, its culture and relief, specifically designated to meet the requirements of air navigation.

AERONAUTICAL INFORMATION MANUAL (AIM)– A primary FAA publication whose purpose is to instruct airmen about operating in the National Airspace System of the U.S. It provides basic flight information, ATC Procedures and general instructional information concerning health, medical facts, factors affecting flight safety, accident and hazard reporting, and types of aeronautical charts and their use.

AERONAUTICAL INFORMATION PUBLICATION (AIP) [ICAO]– A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

A/FD–
(See AIRPORT/FACILITY DIRECTORY.)

AFFIRMATIVE– Yes.

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

AFP–
(See AIRSPACE FLOW PROGRAM.)

AIM–
(See AERONAUTICAL INFORMATION MANUAL.)

AIP [ICAO]–
(See ICAO term AERONAUTICAL INFORMATION PUBLICATION.)

AIR CARRIER DISTRICT OFFICE– An FAA field office serving an assigned geographical area, staffed with Flight Standards personnel serving the aviation industry and the general public on matters related to the certification and operation of scheduled air carriers and other large aircraft operations.

AIR DEFENSE EMERGENCY– A military emergency condition declared by a designated authority. This condition exists when an attack upon the continental U.S., Alaska, Canada, or U.S. installations in Greenland by hostile aircraft or missiles is considered probable, is imminent, or is taking place.
(Refer to AIM.)

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

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

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

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

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

Note: ADIZ locations and operating and flight plan requirements for civil aircraft operations are specified in 14 CFR Part 99.

(Refer to AIM.)

AIR NAVIGATION FACILITY– Any facility used in, available for use in, or designed for use in, aid of air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio-directional finding, or for radio or other electrical communication, and any other structure or mechanism having a similar purpose for guiding or controlling flight in the air or the landing and takeoff of aircraft.
(See NAVIGATIONAL AID.)

AIR ROUTE SURVEILLANCE RADAR– Air route traffic control center (ARTCC) radar used primarily to detect and display an aircraft's position while en route between terminal areas. The ARSR enables controllers to provide radar air traffic control service when aircraft are within the ARSR coverage. In some instances, ARSR may enable an ARTCC to provide terminal radar services similar to but usually more limited than those provided by a radar approach control.

AIR ROUTE TRAFFIC CONTROL CENTER– A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace and principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.
(See EN ROUTE AIR TRAFFIC CONTROL SERVICES.)
(Refer to AIM.)

AIR TAXI– Used to describe a helicopter/VTOL aircraft movement conducted above the surface but normally not above 100 feet AGL. The aircraft may proceed either via hover taxi or flight at speeds more than 20 knots. The pilot is solely responsible for selecting a safe airspeed/altitude for the operation being conducted.
(See HOVER TAXI.)
(Refer to AIM.)

AIR TRAFFIC– Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

(See ICAO term AIR TRAFFIC.)

AIR TRAFFIC [ICAO]– All aircraft in flight or operating on the maneuvering area of an aerodrome.

AIR TRAFFIC CLEARANCE– An authorization by air traffic control for the purpose of preventing collision between known aircraft, for an aircraft to proceed under specified traffic conditions within controlled airspace. The pilot-in-command of an aircraft may not deviate from the provisions of a visual flight rules (VFR) or instrument flight rules (IFR) air traffic clearance except in an emergency or unless an amended clearance has been obtained. Additionally, the pilot may request a different clearance from that which has been issued by air traffic control (ATC) if information available to the pilot makes another course of action more practicable or if aircraft equipment limitations or company procedures forbid compliance with the clearance issued. Pilots may also request clarification or amendment, as appropriate, any time a clearance is not fully understood, or considered unacceptable because of safety of flight. Controllers should, in such instances and to the extent of operational practicality and safety, honor the pilot's request. 14 CFR Part 91.3(a) states: "The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft." THE PILOT IS RESPONSIBLE TO REQUEST AN AMENDED CLEARANCE if ATC issues a clearance that would cause a pilot to deviate from a rule or regulation, or in the pilot's opinion, would place the aircraft in jeopardy.

(See ATC INSTRUCTIONS.)

(See ICAO term AIR TRAFFIC CONTROL CLEARANCE.)

AIR TRAFFIC CONTROL– A service operated by appropriate authority to promote the safe, orderly and expeditious flow of air traffic.

(See ICAO term AIR TRAFFIC CONTROL SERVICE.)

AIR TRAFFIC CONTROL CLEARANCE [ICAO]– Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

Note 1: For convenience, the term air traffic control clearance is frequently abbreviated to clearance when used in appropriate contexts.

Note 2: The abbreviated term clearance may be prefixed by the words taxi, takeoff, departure, en route, approach or landing to indicate the particular portion of flight to which the air traffic control clearance relates.

AIR TRAFFIC CONTROL SERVICE–

(See AIR TRAFFIC CONTROL.)

AIR TRAFFIC CONTROL SERVICE [ICAO]– A service provided for the purpose of:

a. Preventing collisions:

1. Between aircraft; and

2. On the maneuvering area between aircraft and obstructions.

b. Expediting and maintaining an orderly flow of air traffic.

AIR TRAFFIC CONTROL SPECIALIST– A person authorized to provide air traffic control service.

(See AIR TRAFFIC CONTROL.)

(See FLIGHT SERVICE STATION.)

(See ICAO term CONTROLLER.)

AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER (ATCSCC) – An Air Traffic Tactical Operations facility responsible for monitoring and managing the flow of air traffic throughout the NAS, producing a safe, orderly, and expeditious flow of traffic while minimizing delays. The following functions are located at the ATCSCC:

a. Central Altitude Reservation Function (CARF). Responsible for coordinating, planning, and approving special user requirements under the Altitude Reservation (ALTRV) concept.

(See ALTITUDE RESERVATION.)

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

(Refer to 14 CFR Part 93.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

c. U.S. Notice to Airmen (NOTAM) Office. Responsible for collecting, maintaining, and distributing NOTAMs for the U.S. civilian and military, as well as international aviation communities.

(See NOTICE TO AIRMEN.)

d. Weather Unit. Monitor all aspects of weather for the U.S. that might affect aviation including cloud cover, visibility, winds, precipitation, thunderstorms, icing, turbulence, and more. Provide forecasts based on observations and on discussions with meteorologists from various National Weather Service offices, FAA facilities, airlines, and private weather services.

AIR TRAFFIC SERVICE– A generic term meaning:

a. Flight Information Service.

b. Alerting Service.

c. Air Traffic Advisory Service.

d. Air Traffic Control Service:

1. Area Control Service,

2. Approach Control Service, or

3. Airport Control Service.

AIR TRAFFIC SERVICE (ATS) ROUTES – The term "ATS Route" is a generic term that includes "VOR Federal airways," "colored Federal airways," "jet routes," and "RNAV routes." The term "ATS route" does not replace these more familiar route names, but serves only as an overall title when listing the types of routes that comprise the United States route structure.

AIRBORNE– An aircraft is considered airborne when all parts of the aircraft are off the ground.

AIRBORNE DELAY– Amount of delay to be encountered in airborne holding.

AIRCRAFT– Device(s) that are used or intended to be used for flight in the air, and when used in air traffic control terminology, may include the flight crew.

(See ICAO term AIRCRAFT.)

AIRCRAFT [ICAO]– Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

AIRCRAFT APPROACH CATEGORY– A grouping of aircraft based on a speed of 1.3 times the stall speed in the landing configuration at maximum gross landing weight. An aircraft must fit in only one category. If it is necessary to maneuver at speeds in excess of the upper limit of a speed range for a category, the minimums for the category for that speed must be used. For example, an aircraft which falls in Category A, but is circling to land at a speed in excess of 91 knots, must use the approach Category B minimums when circling to land. The categories are as follows:

a. Category A– Speed less than 91 knots.

b. Category B– Speed 91 knots or more but less than 121 knots.

c. Category C– Speed 121 knots or more but less than 141 knots.

d. Category D– Speed 141 knots or more but less than 166 knots.

e. Category E– Speed 166 knots or more.

(Refer to 14 CFR Part 97.)

AIRCRAFT CLASSES– For the purposes of Wake Turbulence Separation Minima, ATC classifies aircraft as Heavy, Large, and Small as follows:

a. Heavy– Aircraft capable of takeoff weights of 300,000 pounds or more whether or not they are operating at this weight during a particular phase of flight.

b. Large– Aircraft of more than 41,000 pounds, maximum certificated takeoff weight, up to but not including 300,000 pounds.

c. Small– Aircraft of 41,000 pounds or less maximum certificated takeoff weight.

(Refer to AIM.)

AIRCRAFT CONFLICT– Predicted conflict, within URET, of two aircraft, or between aircraft and airspace. A Red alert is used for conflicts when the predicted minimum separation is 5 nautical miles or less. A Yellow alert is used when the predicted minimum separation is between 5 and approximately 12 nautical miles. A Blue alert is used for conflicts between an aircraft and predefined airspace.

(See USER REQUEST EVALUATION TOOL.)

AIRCRAFT LIST (ACL)– A view available with URET that lists aircraft currently in or predicted to be in a particular sector's airspace. The view contains textual flight data information in line format and may be sorted into various orders based on the specific needs of the sector team.

(See USER REQUEST EVALUATION TOOL.)

AIRCRAFT SURGE LAUNCH AND RECOVERY– Procedures used at USAF bases to provide increased launch and recovery rates in instrument flight rules conditions. ASLAR is based on:

a. Reduced separation between aircraft which is based on time or distance. Standard arrival separation applies between participants including multiple flights until the DRAG point. The DRAG point is a published location on an ASLAR approach where aircraft landing second in a formation slows to a predetermined airspeed. The DRAG point is the reference point at which MARSA applies as expanding elements effect separation within a flight or between subsequent participating flights.

b. ASLAR procedures shall be covered in a Letter of Agreement between the responsible USAF military ATC facility and the concerned Federal Aviation Administration facility. Initial Approach Fix spacing requirements are normally addressed as a minimum.

AIRMEN'S METEOROLOGICAL INFORMATION–
(See AIRMET.)

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

AIRPORT– An area on land or water that is used or intended to be used for the landing and takeoff of aircraft and includes its buildings and facilities, if any.

AIRPORT ADVISORY AREA– The area within ten miles of an airport without a control tower or where the tower is not in operation, and on which a Flight Service Station is located.
(See LOCAL AIRPORT ADVISORY.)
(Refer to AIM.)

AIRPORT ARRIVAL RATE (AAR)– A dynamic input parameter specifying the number of arriving aircraft which an airport or airspace can accept from the ARTCC per hour. The AAR is used to calculate the desired interval between successive arrival aircraft.

AIRPORT DEPARTURE RATE (ADR)– A dynamic parameter specifying the number of aircraft which can depart an airport and the airspace can accept per hour.

AIRPORT ELEVATION– The highest point of an airport's usable runways measured in feet from mean sea level.
(See TOUCHDOWN ZONE ELEVATION.)
(See ICAO term AERODROME ELEVATION.)

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

AIRPORT LIGHTING– Various lighting aids that may be installed on an airport. Types of airport lighting include:

a. Approach Light System (ALS)– An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended centerline of the runway on his/her final approach for landing. Condenser-Discharge Sequential Flashing Lights/Sequenced Flashing Lights may be installed in conjunction with the ALS at some airports. Types of Approach Light Systems are:

1. ALSF-1– Approach Light System with Sequenced Flashing Lights in ILS Cat-I configuration.

2. ALSF-2– Approach Light System with Sequenced Flashing Lights in ILS Cat-II configuration. The ALSF-2 may operate as an SSALR when weather conditions permit.

3. SSALF– Simplified Short Approach Light System with Sequenced Flashing Lights.

4. SSALR– Simplified Short Approach Light System with Runway Alignment Indicator Lights.

5. MALSF– Medium Intensity Approach Light System with Sequenced Flashing Lights.

6. MALSR– Medium Intensity Approach Light System with Runway Alignment Indicator Lights.

7. RLLS– Runway Lead-in Light System Consists of one or more series of flashing lights installed at or near ground level that provides positive visual guidance along an approach path, either curving or straight, where special problems exist with hazardous terrain, obstructions, or noise abatement procedures.

8. RAIL– Runway Alignment Indicator Lights– Sequenced Flashing Lights which are installed only in combination with other light systems.

9. ODALS– Omnidirectional Approach Lighting System consists of seven omnidirectional flashing lights located in the approach area of a nonprecision runway. Five lights are located on the runway centerline extended with the first light located 300 feet from the threshold and extending at equal intervals up to 1,500 feet from the threshold. The other two lights are located, one on each side of the runway threshold, at a lateral distance of 40 feet from the runway edge, or 75 feet from the runway edge when installed on a runway equipped with a VASI.

(Refer to FAAO JO 6850.2, VISUAL GUIDANCE LIGHTING SYSTEMS.)

b. Runway Lights/Runway Edge Lights– Lights having a prescribed angle of emission used to define the lateral limits of a runway. Runway lights are uniformly spaced at intervals of approximately 200 feet, and the intensity may be controlled or preset.

c. Touchdown Zone Lighting– Two rows of transverse light bars located symmetrically about the runway centerline normally at 100 foot intervals. The basic system extends 3,000 feet along the runway.

d. Runway Centerline Lighting– Flush centerline lights spaced at 50-foot intervals beginning 75 feet from the landing threshold and extending to within 75 feet of the opposite end of the runway.

e. Threshold Lights– Fixed green lights arranged symmetrically left and right of the runway centerline, identifying the runway threshold.

f. Runway End Identifier Lights (REIL)– Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.

g. Visual Approach Slope Indicator (VASI)– An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he/she is “on path” if he/she sees red/white, “above path” if white/white, and “below path” if red/red. Some airports serving large aircraft have three-bar VASIs which provide two visual glide paths to the same runway.

h. Precision Approach Path Indicator (PAPI)– An airport lighting facility, similar to VASI, providing vertical approach slope guidance to aircraft during approach to landing. PAPIs consist of a single row of either two or four lights, normally installed on the left side of the runway, and have an effective visual range of about 5 miles during the day and up to 20 miles at night. PAPIs radiate a directional pattern of high intensity red and white focused light beams which indicate that the pilot is “on path” if the pilot sees an equal number of white lights and red lights, with white to the left of the red; “above path” if the pilot sees more white than red lights; and “below path” if the pilot sees more red than white lights.

i. Boundary Lights– Lights defining the perimeter of an airport or landing area.

(Refer to AIM.)

AIRPORT MARKING AIDS– Markings used on runway and taxiway surfaces to identify a specific runway, a runway threshold, a centerline, a hold line, etc. A runway should be marked in accordance with its present usage such as:

a. Visual.

b. Nonprecision instrument.

c. Precision instrument.

(Refer to AIM.)

AIRPORT REFERENCE POINT (ARP)– The approximate geometric center of all usable runway surfaces.

AIRPORT RESERVATION OFFICE– Office responsible for monitoring the operation of slot controlled airports. It receives and processes requests for unscheduled operations at slot controlled airports.

AIRPORT ROTATING BEACON– A visual NAVAID operated at many airports. At civil airports,

alternating white and green flashes indicate the location of the airport. At military airports, the beacons flash alternately white and green, but are differentiated from civil beacons by dualpeaked (two quick) white flashes between the green flashes.
(See INSTRUMENT FLIGHT RULES.)
(See SPECIAL VFR OPERATIONS.)
(See ICAO term AERODROME BEACON.)
(Refer to AIM.)

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

AIRPORT SURFACE DETECTION EQUIPMENT (ASDE)– Surveillance equipment specifically designed to detect aircraft, vehicular traffic, and other objects, on the surface of an airport, and to present the image on a tower display. Used to augment visual observation by tower personnel of aircraft and/or vehicular movements on runways and taxiways. There are three ASDE systems deployed in the NAS:

a. ASDE–3– a Surface Movement Radar.

b. ASDE–X– a system that uses a X–band Surface Movement Radar and multilateration. Data from these two sources are fused and presented on a digital display.

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

AIRPORT SURVEILLANCE RADAR– Approach control radar used to detect and display an aircraft's position in the terminal area. ASR provides range and azimuth information but does not provide elevation data. Coverage of the ASR can extend up to 60 miles.

AIRPORT TAXI CHARTS–
(See AERONAUTICAL CHART.)

AIRPORT TRAFFIC CONTROL SERVICE– A service provided by a control tower for aircraft operating on the movement area and in the vicinity of an airport.
(See MOVEMENT AREA.)
(See TOWER.)
(See ICAO term AERODROME CONTROL SERVICE.)

AIRPORT TRAFFIC CONTROL TOWER–
(See TOWER.)

AIRSPACE CONFLICT– Predicted conflict of an aircraft and active Special Activity Airspace (SAA).

AIRSPACE FLOW PROGRAM (AFP)– AFP is a Traffic Management (TM) process administered by the Air Traffic Control System Command Center (ATCSCC) where aircraft are assigned an Expect Departure Clearance Time (EDCT) in order to manage capacity and demand for a specific area of the National Airspace System (NAS). The purpose of the program is to mitigate the effects of en route constraints. It is a flexible program and may be implemented in various forms depending upon the needs of the air traffic system.

AIRSPACE HIERARCHY– Within the airspace classes, there is a hierarchy and, in the event of an overlap of airspace: Class A preempts Class B, Class B preempts Class C, Class C preempts Class D, Class D preempts Class E, and Class E preempts Class G.

AIRSPEED– The speed of an aircraft relative to its surrounding air mass. The unqualified term "airspeed" means one of the following:

a. Indicated Airspeed– The speed shown on the aircraft airspeed indicator. This is the speed used in pilot/controller communications under the general term "airspeed."
(Refer to 14 CFR Part 1.)

b. True Airspeed– The airspeed of an aircraft relative to undisturbed air. Used primarily in flight planning and en route portion of flight. When used in pilot/controller communications, it is referred to as "true airspeed" and not shortened to "airspeed."

AIRSTART– The starting of an aircraft engine while the aircraft is airborne, preceded by engine shutdown during training flights or by actual engine failure.

AIRWAY– A Class E airspace area established in the form of a corridor, the centerline of which is defined by radio navigational aids.
(See FEDERAL AIRWAYS.)
(See ICAO term AIRWAY.)
(Refer to 14 CFR Part 71.)
(Refer to AIM.)

AIRWAY [ICAO]– A control area or portion thereof established in the form of corridor equipped with radio navigational aids.

AIRWAY BEACON– Used to mark airway segments in remote mountain areas. The light flashes Morse Code to identify the beacon site.
(Refer to AIM.)

AIT–
(See AUTOMATED INFORMATION TRANSFER.)

ALERFA (Alert Phase) [ICAO]– A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

ALERT– A notification to a position that there is an aircraft-to-aircraft or aircraft-to-airspace conflict, as detected by Automated Problem Detection (APD).

ALERT AREA–
(See SPECIAL USE AIRSPACE.)

ALERT NOTICE– A request originated by a flight service station (FSS) or an air route traffic control center (ARTCC) for an extensive communication search for overdue, unreported, or missing aircraft.

ALERTING SERVICE– A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and assist such organizations as required.

ALNOT–
(See ALERT NOTICE.)

ALONG–TRACK DISTANCE (ATD)– The distance measured from a point-in-space by systems using area navigation reference capabilities that are not subject to slant range errors.

ALPHANUMERIC DISPLAY– Letters and numerals used to show identification, altitude, beacon code, and other information concerning a target on a radar display.
(See AUTOMATED RADAR TERMINAL SYSTEMS.)

ALTERNATE AERODROME [ICAO]– An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing.
Note: The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for the flight.

ALTERNATE AIRPORT– An airport at which an aircraft may land if a landing at the intended airport becomes inadvisable.
(See ICAO term ALTERNATE AERODROME.)

ALTIMETER SETTING– The barometric pressure reading used to adjust a pressure altimeter for variations in existing atmospheric pressure or to the standard altimeter setting (29.92).
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

ALTITUDE– The height of a level, point, or object measured in feet Above Ground Level (AGL) or from Mean Sea Level (MSL).
(See FLIGHT LEVEL.)

a. MSL Altitude– Altitude expressed in feet measured from mean sea level.

b. AGL Altitude– Altitude expressed in feet measured above ground level.

c. Indicated Altitude– The altitude as shown by an altimeter. On a pressure or barometric altimeter it is altitude as shown uncorrected for instrument error and uncompensated for variation from standard atmospheric conditions.
(See ICAO term ALTITUDE.)

ALTITUDE [ICAO]– The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

ALTITUDE READOUT– An aircraft's altitude, transmitted via the Mode C transponder feature, that is visually displayed in 100-foot increments on a radar scope having readout capability.
(See ALPHANUMERIC DISPLAY.)
(See AUTOMATED RADAR TERMINAL SYSTEMS.)
(Refer to AIM.)

ALTITUDE RESERVATION– Airspace utilization under prescribed conditions normally employed for the mass movement of aircraft or other special user requirements which cannot otherwise be accomplished. ALTRVs are approved by the appropriate FAA facility.
(See AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER.)

ALTITUDE RESTRICTION– An altitude or altitudes, stated in the order flown, which are to be maintained until reaching a specific point or time. Altitude restrictions may be issued by ATC due to traffic, terrain, or other airspace considerations.

ALTITUDE RESTRICTIONS ARE CANCELED– Adherence to previously imposed altitude restrictions is no longer required during a climb or descent.

ALTRV–
(See ALTITUDE RESERVATION.)

AMVER–
(See AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM.)

APB–
(See AUTOMATED PROBLEM DETECTION BOUNDARY.)

APD–
(See AUTOMATED PROBLEM DETECTION.)

APDIA–
(See AUTOMATED PROBLEM DETECTION INHIBITED AREA.)

APPROACH CLEARANCE– Authorization by ATC for a pilot to conduct an instrument approach. The type of instrument approach for which a clearance and other pertinent information is provided in the approach clearance when required.
(See CLEARED APPROACH.)
(See INSTRUMENT APPROACH PROCEDURE.)
(Refer to AIM.)
(Refer to 14 CFR Part 91.)

APPROACH CONTROL FACILITY– A terminal ATC facility that provides approach control service in a terminal area.
(See APPROACH CONTROL SERVICE.)
(See RADAR APPROACH CONTROL FACILITY.)

APPROACH CONTROL SERVICE– Air traffic control service provided by an approach control facility for arriving and departing VFR/IFR aircraft and, on occasion, en route aircraft. At some airports not served by an approach control facility, the ARTCC provides limited approach control service.
(See ICAO term APPROACH CONTROL SERVICE.)
(Refer to AIM.)

APPROACH CONTROL SERVICE [ICAO]– Air traffic control service for arriving or departing controlled flights.

APPROACH GATE– An imaginary point used within ATC as a basis for vectoring aircraft to the final approach course. The gate will be established along the final approach course 1 mile from the final approach fix on the side away from the airport and will be no closer than 5 miles from the landing threshold.

APPROACH LIGHT SYSTEM–
(See AIRPORT LIGHTING.)

APPROACH SEQUENCE– The order in which aircraft are positioned while on approach or awaiting approach clearance.
(See LANDING SEQUENCE.)
(See ICAO term APPROACH SEQUENCE.)

APPROACH SEQUENCE [ICAO]– The order in which two or more aircraft are cleared to approach to land at the aerodrome.

APPROACH SPEED– The recommended speed contained in aircraft manuals used by pilots when making an approach to landing. This speed will vary for different segments of an approach as well as for aircraft weight and configuration.

APPROPRIATE ATS AUTHORITY [ICAO]– The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned. In the United States, the "appropriate ATS authority" is the Program Director for Air Traffic Planning and Procedures, ATP-1.

APPROPRIATE AUTHORITY–

a. Regarding flight over the high seas: the relevant authority is the State of Registry.

b. Regarding flight over other than the high seas: the relevant authority is the State having sovereignty over the territory being overflown.

APPROPRIATE OBSTACLE CLEARANCE MINIMUM ALTITUDE– Any of the following:
(See MINIMUM EN ROUTE IFR ALTITUDE.)
(See MINIMUM IFR ALTITUDE.)
(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)
(See MINIMUM VECTORING ALTITUDE.)

APPROPRIATE TERRAIN CLEARANCE MINIMUM ALTITUDE– Any of the following:
(See MINIMUM EN ROUTE IFR ALTITUDE.)
(See MINIMUM IFR ALTITUDE.)
(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)
(See MINIMUM VECTORING ALTITUDE.)

APRON– A defined area on an airport or heliport intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance. With regard to seaplanes, a ramp is used for access to the apron from the water.
(See ICAO term APRON.)

APRON [ICAO]– A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, refueling, parking or maintenance.

ARC– The track over the ground of an aircraft flying at a constant distance from a navigational aid by reference to distance measuring equipment (DME).

AREA CONTROL CENTER [ICAO]– An air traffic control facility primarily responsible for ATC services being provided IFR aircraft during the en route phase of flight. The U.S. equivalent facility is an air route traffic control center (ARTCC).

AREA NAVIGATION (RNAV)– A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground– or space–based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: Area navigation includes performance–based navigation as well as other operations that do not meet the definition of performance–based navigation.

AREA NAVIGATION (RNAV) APPROACH CONFIGURATION:

a. STANDARD T– An RNAV approach whose design allows direct flight to any one of three initial approach fixes (IAF) and eliminates the need for procedure turns. The standard design is to align the procedure on the extended centerline with the missed approach point (MAP) at the runway threshold, the final approach fix (FAF), and the initial approach/intermediate fix (IAF/IF). The other two IAFs will be established perpendicular to the IF.

b. MODIFIED T– An RNAV approach design for single or multiple runways where terrain or operational constraints do not allow for the standard T. The "T" may be modified by increasing or decreasing the angle from the corner IAF(s) to the IF or by eliminating one or both corner IAFs.

c. STANDARD I– An RNAV approach design for a single runway with both corner IAFs eliminated. Course reversal or radar vectoring may be required at busy terminals with multiple runways.

d. TERMINAL ARRIVAL AREA (TAA)– The TAA is controlled airspace established in conjunction with the Standard or Modified T and I RNAV approach configurations. In the standard TAA, there are three areas: straight-in, left base, and right base. The arc boundaries of the three areas of the TAA are published portions of the approach and allow aircraft to transition from the en route structure direct to the nearest IAF. TAAs will also eliminate or reduce feeder routes, departure extensions, and procedure turns or course reversal.

1. STRAIGHT-IN AREA– A 30NM arc centered on the IF bounded by a straight line extending through the IF perpendicular to the intermediate course.

2. LEFT BASE AREA– A 30NM arc centered on the right corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30NM from the IAF and is bounded on the other side by a line extending from the IF through the FAF to the arc.

3. RIGHT BASE AREA– A 30NM arc centered on the left corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30NM from the IAF and is bounded on the other side by a line extending from the IF through the FAF to the arc.

AREA NAVIGATION (RNAV) GLOBAL POSITIONING SYSTEM (GPS) PRECISION RUNWAY MONITORING (PRM) APPROACH – A GPS approach, which requires vertical guidance, used in lieu of an ILS PRM approach to conduct approaches to parallel runways whose extended centerlines are separated by less than 4,300 feet and at least 3,000 feet, where closely spaced independent approaches are permitted. Also used in lieu of an ILS PRM and/or LDA PRM approach to conduct Simultaneous Offset Instrument Approach (SOIA) operations.

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

ARMY AVIATION FLIGHT INFORMATION BULLETIN– A bulletin that provides air operation data covering Army, National Guard, and Army Reserve aviation activities.

ARO–

(See AIRPORT RESERVATION OFFICE.)

ARRESTING SYSTEM– A safety device consisting of two major components, namely, engaging or catching devices and energy absorption devices for the purpose of arresting both tailhook and/or nontailhook-equipped aircraft. It is used to prevent aircraft from overrunning runways when the aircraft cannot be stopped after landing or during aborted

takeoff. Arresting systems have various names; e.g., arresting gear, hook device, wire barrier cable.
(See ABORT.)
(Refer to AIM.)

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

ARRIVAL CENTER– The ARTCC having jurisdiction for the impacted airport.

ARRIVAL DELAY– A parameter which specifies a period of time in which no aircraft will be metered for arrival at the specified airport.

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

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

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

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

ARSR–
(See AIR ROUTE SURVEILLANCE RADAR.)

ARTCC–
(See AIR ROUTE TRAFFIC CONTROL CENTER.)

ARTS–
(See AUTOMATED RADAR TERMINAL SYSTEMS.)

ASDA–
(See ACCELERATE-STOP DISTANCE AVAILABLE.)

ASDA [ICAO]–
(See ICAO Term ACCELERATE-STOP DISTANCE AVAILABLE.)

ASDE–
(See AIRPORT SURFACE DETECTION EQUIPMENT.)

ASF–
(See AIRPORT STREAM FILTER.)

ASLAR–
(See AIRCRAFT SURGE LAUNCH AND RECOVERY.)

ASP–
(See ARRIVAL SEQUENCING PROGRAM.)

ASR–
(See AIRPORT SURVEILLANCE RADAR.)

ASR APPROACH–
(See SURVEILLANCE APPROACH.)

ASSOCIATED– A radar target displaying a data block with flight identification and altitude information.
(See UNASSOCIATED.)

ATC–
(See AIR TRAFFIC CONTROL.)

ATC ADVISES– Used to prefix a message of noncontrol information when it is relayed to an aircraft by other than an air traffic controller.
(See ADVISORY.)

ATC ASSIGNED AIRSPACE– Airspace of defined vertical/lateral limits, assigned by ATC, for the purpose of providing air traffic segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic.
(See SPECIAL USE AIRSPACE.)

ATC CLEARANCE–
(See AIR TRAFFIC CLEARANCE.)

ATC CLEARS– Used to prefix an ATC clearance when it is relayed to an aircraft by other than an air traffic controller.

ATC INSTRUCTIONS– Directives issued by air traffic control for the purpose of requiring a pilot to take specific actions; e.g., “Turn left heading two five zero,” “Go around,” “Clear the runway.”
(Refer to 14 CFR Part 91.)

ATC PREFERRED ROUTE NOTIFICATION– URET notification to the appropriate controller of the need to determine if an ATC preferred route needs to be applied, based on destination airport.
(See ROUTE ACTION NOTIFICATION.)
(See USER REQUEST EVALUATION TOOL.)

ATC PREFERRED ROUTES– Preferred routes that are not automatically applied by Host.

ATC REQUESTS– Used to prefix an ATC request when it is relayed to an aircraft by other than an air traffic controller.

ATC SECURITY SERVICES – Communications and security tracking provided by an ATC facility in support of the DHS, the DOD, or other Federal security elements in the interest of national security. Such security services are only applicable within designated areas. ATC security services do not include ATC basic radar services or flight following.

ATC SECURITY SERVICES POSITION – The position responsible for providing ATC security services as defined. This position does not provide ATC, IFR separation, or VFR flight following services, but is responsible for providing security services in an area comprising airspace assigned to one or more ATC operating sectors. This position may be combined with control positions.

ATC SECURITY TRACKING – The continuous tracking of aircraft movement by an ATC facility in support of the DHS, the DOD, or other security elements for national security using radar (i.e., radar tracking) or other means (e.g., manual tracking) without providing basic radar services (including traffic advisories) or other ATC services not defined in this section.

ATCAA–
(See ATC ASSIGNED AIRSPACE.)

ATCRBS–
(See RADAR.)

ATCSCC–
(See AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER.)

ATCT–
(See TOWER.)

ATD–
(See ALONG–TRACK DISTANCE.)

ATIS–
(See AUTOMATIC TERMINAL INFORMATION SERVICE.)

ATIS [ICAO]–
(See ICAO Term AUTOMATIC TERMINAL INFORMATION SERVICE.)

ATS ROUTE [ICAO]– A specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services.

Note: The term “ATS Route” is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure, etc.

AUTOLAND APPROACH– An autoland approach is a precision instrument approach to touchdown and, in some cases, through the landing rollout. An autoland approach is performed by the aircraft autopilot which is receiving position information and/or steering commands from onboard navigation equipment.

Note: Autoland and coupled approaches are flown in VFR and IFR. It is common for carriers to require their crews to fly coupled approaches and autoland approaches (if certified) when the weather conditions are less than approximately 4,000 RVR.

(See COUPLED APPROACH.)

AUTOMATED INFORMATION TRANSFER– A precoordinated process, specifically defined in facility directives, during which a transfer of altitude control and/or radar identification is accomplished without verbal coordination between controllers using information communicated in a full data block.

AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM– A facility which can deliver, in a matter of minutes, a surface picture (SURPIC) of vessels in the area of a potential or actual search and rescue incident, including their predicted positions and their characteristics.

(See FAAO JO 7110.65, Para 10–6–4, INFLIGHT CONTINGENCIES.)

AUTOMATED PROBLEM DETECTION (APD)– An Automation Processing capability that compares trajectories in order to predict conflicts.

AUTOMATED PROBLEM DETECTION BOUNDARY (APB)– The adapted distance beyond a facilities boundary defining the airspace within which URET performs conflict detection.

(See USER REQUEST EVALUATION TOOL.)

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

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

a. ARTS IIIA. The Radar Tracking and Beacon Tracking Level (RT&BTL) of the modular, programmable automated radar terminal system. ARTS IIIA detects, tracks, and predicts primary as well as secondary radar-derived aircraft targets. This

more sophisticated computer-driven system upgrades the existing ARTS III system by providing improved tracking, continuous data recording, and fail-soft capabilities.

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

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

AUTOMATED WEATHER SYSTEM– Any of the automated weather sensor platforms that collect weather data at airports and disseminate the weather information via radio and/or landline. The systems currently consist of the Automated Surface Observing System (ASOS), Automated Weather Sensor System (AWSS) and Automated Weather Observation System (AWOS).

AUTOMATED UNICOM– Provides completely automated weather, radio check capability and airport advisory information on an Automated UNICOM system. These systems offer a variety of features, typically selectable by microphone clicks, on the UNICOM frequency. Availability will be published in the Airport/Facility Directory and approach charts.

AUTOMATIC ALTITUDE REPORT–
(See ALTITUDE READOUT.)

AUTOMATIC ALTITUDE REPORTING– That function of a transponder which responds to Mode C interrogations by transmitting the aircraft's altitude in 100-foot increments.

AUTOMATIC CARRIER LANDING SYSTEM– U.S. Navy final approach equipment consisting of precision tracking radar coupled to a computer data link to provide continuous information to the aircraft, monitoring capability to the pilot, and a backup approach system.

AUTOMATIC DEPENDENT SURVEILLANCE (ADS) [ICAO]– A surveillance technique in which aircraft automatically provide, via a data link, data derived from on–board navigation and position fixing systems, including aircraft identification, four dimensional position and additional data as appropriate.

AUTOMATIC DEPENDENT SURVEILLANCE–BROADCAST (ADS-B)– A surveillance system in which an aircraft or vehicle to be detected is fitted with cooperative equipment in the form of a data link transmitter. The aircraft or vehicle periodically broadcasts its GPS–derived position and other information such as velocity over the data link, which is received by a ground–based transmitter/receiver (transceiver) for processing and display at an air traffic control facility.
(See GLOBAL POSITIONING SYSTEM.)
(See GROUND–BASED TRANSCEIVER.)

AUTOMATIC DEPENDENT SURVEILLANCE–CONTRACT (ADS–C)– A data link position reporting system, controlled by a ground station, that establishes contracts with an aircraft's avionics that occur automatically whenever specific events occur, or specific time intervals are reached.

AUTOMATIC DIRECTION FINDER– An aircraft radio navigation system which senses and indicates the direction to a L/MF nondirectional radio beacon (NDB) ground transmitter. Direction is indicated to the pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft depending on the type of indicator installed in the aircraft. In certain applications, such as military, ADF operations may be based on airborne and ground transmitters in the VHF/UHF frequency spectrum.
(See BEARING.)
(See NONDIRECTIONAL BEACON.)

AUTOMATIC FLIGHT INFORMATION SERVICE (AFIS) – ALASKA FSSs ONLY– The continuous broadcast of recorded non–control information at airports in Alaska where a FSS provides local airport advisory service. The AFIS broadcast automates the repetitive transmission of essential but routine information such as weather, wind, altimeter, favored runway, breaking action, airport NOTAMs, and other applicable information. The information is continuously broadcast over a discrete VHF radio frequency (usually the ASOS/AWSS/AWOS frequency.)

AUTOMATIC TERMINAL INFORMATION SERVICE– The continuous broadcast of recorded noncontrol information in selected terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information; e.g., "Los Angeles information Alfa. One three zero zero Coordinated Universal Time. Weather, measured ceiling two thousand overcast, visibility three, haze, smoke, temperature seven one, dew point five seven, wind two five zero at five, altimeter two niner niner six. I-L-S Runway Two Five Left approach in use, Runway Two Five Right closed, advise you have Alfa."

(See ICAO term AUTOMATIC TERMINAL INFORMATION SERVICE.)

(Refer to AIM.)

AUTOMATIC TERMINAL INFORMATION SERVICE [ICAO]– The provision of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts throughout the day or a specified portion of the day.

AUTOROTATION– A rotorcraft flight condition in which the lifting rotor is driven entirely by action of the air when the rotorcraft is in motion.

a. Autorotative Landing/Touchdown Autorotation. Used by a pilot to indicate that the landing will be made without applying power to the rotor.

b. Low Level Autorotation. Commences at an altitude well below the traffic pattern, usually below 100 feet AGL and is used primarily for tactical military training.

c. 180 degrees Autorotation. Initiated from a downwind heading and is commenced well inside the normal traffic pattern. "Go around" may not be possible during the latter part of this maneuver.

AVAILABLE LANDING DISTANCE (ALD)– The portion of a runway available for landing and roll-out for aircraft cleared for LAHSO. This distance is measured from the landing threshold to the hold-short point.

AVIATION WEATHER SERVICE– A service provided by the National Weather Service (NWS) and FAA which collects and disseminates pertinent weather information for pilots, aircraft operators, and ATC. Available aviation weather reports and forecasts are displayed at each NWS office and FAA FSS.

(See EN ROUTE FLIGHT ADVISORY SERVICE.)

(See TRANSCRIBED WEATHER BROADCAST.)

(See WEATHER ADVISORY.)

(Refer to AIM.)

AWW–

(See SEVERE WEATHER FORECAST ALERTS.)

AZIMUTH (MLS)– A magnetic bearing extending from an MLS navigation facility.

Note: Azimuth bearings are described as magnetic and are referred to as "azimuth" in radio telephone communications.

B

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

BASE LEG–
(See TRAFFIC PATTERN.)

BEACON–
(See AERONAUTICAL BEACON.)
(See AIRPORT ROTATING BEACON.)
(See AIRWAY BEACON.)
(See MARKER BEACON.)
(See NONDIRECTIONAL BEACON.)
(See RADAR.)

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

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

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

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

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

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

BLIND TRANSMISSION–
(See TRANSMITTING IN THE BLIND.)

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

BLIND ZONE–
(See BLIND SPOT.)

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

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

BOUNDARY LIGHTS–
(See AIRPORT LIGHTING.)

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

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

BREAKOUT– A technique to direct aircraft out of the approach stream. In the context of 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.

C

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

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

CALL UP– Initial voice contact between a facility and an aircraft, using the identification of the unit being called and the unit initiating the call.
(Refer to AIM.)

CANADIAN MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE– That portion of Canadian domestic airspace within which MNPS separation may be applied.

CARDINAL ALTITUDES– "Odd" or "Even" thousand-foot altitudes or flight levels; e.g., 5,000, 6,000, 7,000, FL 250, FL 260, FL 270.
(See ALTITUDE.)
(See FLIGHT LEVEL.)

CARDINAL FLIGHT LEVELS–
(See CARDINAL ALTITUDES.)

CAT–
(See CLEAR-AIR TURBULENCE.)

CATCH POINT– A fix/waypoint that serves as a transition point from the high altitude waypoint navigation structure to an arrival procedure (STAR) or the low altitude ground–based navigation structure.

CEILING– The heights above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken," "overcast," or "obscuration," and not classified as "thin" or "partial."
(See ICAO term CEILING.)

CEILING [ICAO]– The height above the ground or water of the base of the lowest layer of cloud below 6,000 meters (20,000 feet) covering more than half the sky.

CENRAP–
(See CENTER RADAR ARTS PRESENTATION/PROCESSING.)

CENRAP-PLUS–
(See CENTER RADAR ARTS PRESENTATION/PROCESSING-PLUS.)

CENTER–
(See AIR ROUTE TRAFFIC CONTROL CENTER.)

CENTER'S AREA– The specified airspace within which an air route traffic control center (ARTCC) provides air traffic control and advisory service.
(See AIR ROUTE TRAFFIC CONTROL CENTER.)
(Refer to AIM.)

CENTER RADAR ARTS PRESENTATION/PROCESSING– A computer program developed to provide a back-up system for airport surveillance radar in the event of a failure or malfunction. The program uses air route traffic control center radar for the processing and presentation of data on the ARTS IIA or IIIA displays.

CENTER RADAR ARTS PRESENTATION/PROCESSING-PLUS– A computer program developed to provide a back-up system for airport surveillance radar in the event of a terminal secondary radar system failure. The program uses a combination of Air Route Traffic Control Center Radar and terminal airport surveillance radar primary targets displayed simultaneously for the processing and presentation of data on the ARTS IIA or IIIA displays.

CENTER TRACON AUTOMATION SYSTEM (CTAS)– A computerized set of programs designed to aid Air Route Traffic Control Centers and TRACONs in the management and control of air traffic.

CENTER WEATHER ADVISORY– An unscheduled weather advisory issued by Center Weather Service Unit meteorologists for ATC use to alert pilots of existing or anticipated adverse weather conditions within the next 2 hours. A CWA may modify or redefine a SIGMET.
(See AWW.)
(See AIRMET.)
(See CONVECTIVE SIGMET.)
(See SIGMET.)
(Refer to AIM.)

CENTRAL EAST PACIFIC– An organized route system between the U.S. West Coast and Hawaii.

CEP–
(See CENTRAL EAST PACIFIC.)

CERAP–
(See COMBINED CENTER-RAPCON.)

CERTIFIED TOWER RADAR DISPLAY (CTRD)– A FAA radar display certified for use in the NAS.

CFR–
(See CALL FOR RELEASE.)

CHAFF– Thin, narrow metallic reflectors of various lengths and frequency responses, used to reflect radar energy. These reflectors when dropped from aircraft and allowed to drift downward result in large targets on the radar display.

CHARTED VFR FLYWAYS– Charted VFR Flyways are flight paths recommended for use to bypass areas heavily traversed by large turbine-powered aircraft. Pilot compliance with recommended flyways and associated altitudes is strictly voluntary. VFR Flyway Planning charts are published on the back of existing VFR Terminal Area charts.

CHARTED VISUAL FLIGHT PROCEDURE APPROACH– An approach conducted while operating on an instrument flight rules (IFR) flight plan which authorizes the pilot of an aircraft to proceed visually and clear of clouds to the airport via visual landmarks and other information depicted on a charted visual flight procedure. This approach must be authorized and under the control of the appropriate air traffic control facility. Weather minimums required are depicted on the chart.

CHASE– An aircraft flown in proximity to another aircraft normally to observe its performance during training or testing.

CHASE AIRCRAFT–
(See CHASE.)

CIRCLE-TO-LAND MANEUVER– A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or is not desirable. At tower controlled airports, this maneuver is made only after ATC authorization has been obtained and the pilot has established required visual reference to the airport.
(See CIRCLE TO RUNWAY.)
(See LANDING MINIMUMS.)
(Refer to AIM.)

CIRCLE TO RUNWAY (RUNWAY NUMBER)– Used by ATC to inform the pilot that he/she must circle to land because the runway in use is other than the runway aligned with the instrument approach procedure. When the direction of the circling maneuver in relation to the airport/runway is required, the controller will state the direction (eight cardinal compass points) and specify a left or right downwind or base leg as appropriate; e.g., "Cleared VOR Runway Three Six Approach circle to Runway Two Two," or "Circle northwest of the airport for a right downwind to Runway Two Two."
(See CIRCLE-TO-LAND MANEUVER.)
(See LANDING MINIMUMS.)
(Refer to AIM.)

CIRCLING APPROACH–
(See CIRCLE-TO-LAND MANEUVER.)

CIRCLING MANEUVER–
(See CIRCLE-TO-LAND MANEUVER.)

CIRCLING MINIMA–
(See LANDING MINIMUMS.)

CLASS A AIRSPACE–
(See CONTROLLED AIRSPACE.)

CLASS B AIRSPACE–
(See CONTROLLED AIRSPACE.)

CLASS C AIRSPACE–
(See CONTROLLED AIRSPACE.)

CLASS D AIRSPACE–
(See CONTROLLED AIRSPACE.)

CLASS E AIRSPACE–
(See CONTROLLED AIRSPACE.)

CLASS G AIRSPACE– That airspace not designated as Class A, B, C, D or E.

CLEAR AIR TURBULENCE (CAT)– Turbulence encountered in air where no clouds are present. This term is commonly applied to high-level turbulence associated with wind shear. CAT is often encountered in the vicinity of the jet stream.
(See WIND SHEAR.)
(See JET STREAM.)

CLEAR OF THE RUNWAY–

a. Taxiing aircraft, which is approaching a runway, is clear of the runway when all parts of the

aircraft are held short of the applicable runway holding position marking.

b. A pilot or controller may consider an aircraft, which is exiting or crossing a runway, to be clear of the runway when all parts of the aircraft are beyond the runway edge and there are no restrictions to its continued movement beyond the applicable runway holding position marking.

c. Pilots and controllers shall exercise good judgement to ensure that adequate separation exists between all aircraft on runways and taxiways at airports with inadequate runway edge lines or holding position markings.

CLEARANCE–
(See AIR TRAFFIC CLEARANCE.)

CLEARANCE LIMIT– The fix, point, or location to which an aircraft is cleared when issued an air traffic clearance.
(See ICAO term CLEARANCE LIMIT.)

CLEARANCE LIMIT [ICAO]– The point to which an aircraft is granted an air traffic control clearance.

CLEARANCE VOID IF NOT OFF BY (TIME)– Used by ATC to advise an aircraft that the departure clearance is automatically canceled if takeoff is not made prior to a specified time. The pilot must obtain a new clearance or cancel his/her IFR flight plan if not off by the specified time.
(See ICAO term CLEARANCE VOID TIME.)

CLEARANCE VOID TIME [ICAO]– A time specified by an air traffic control unit at which a clearance ceases to be valid unless the aircraft concerned has already taken action to comply therewith.

CLEARED APPROACH– ATC authorization for an aircraft to execute any standard or special instrument approach procedure for that airport. Normally, an aircraft will be cleared for a specific instrument approach procedure.
(See CLEARED (Type of) APPROACH.)
(See INSTRUMENT APPROACH PROCEDURE.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

CLEARED (Type of) APPROACH– ATC authorization for an aircraft to execute a specific instrument approach procedure to an airport; e.g., "Cleared ILS Runway Three Six Approach."
(See APPROACH CLEARANCE.)
(See INSTRUMENT APPROACH PROCEDURE.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

CLEARED AS FILED– Means the aircraft is cleared to proceed in accordance with the route of flight filed in the flight plan. This clearance does not include the altitude, DP, or DP Transition.
(See REQUEST FULL ROUTE CLEARANCE.)
(Refer to AIM.)

CLEARED FOR TAKEOFF– ATC authorization for an aircraft to depart. It is predicated on known traffic and known physical airport conditions.

CLEARED FOR THE OPTION– ATC authorization for an aircraft to make a touch-and-go, low approach, missed approach, stop and go, or full stop landing at the discretion of the pilot. It is normally used in training so that an instructor can evaluate a student's performance under changing situations.
(See OPTION APPROACH.)
(Refer to AIM.)

CLEARED THROUGH– ATC authorization for an aircraft to make intermediate stops at specified airports without refiling a flight plan while en route to the clearance limit.

CLEARED TO LAND– ATC authorization for an aircraft to land. It is predicated on known traffic and known physical airport conditions.

CLEARWAY– An area beyond the takeoff runway under the control of airport authorities within which terrain or fixed obstacles may not extend above specified limits. These areas may be required for certain turbine-powered operations and the size and upward slope of the clearway will differ depending on when the aircraft was certificated.
(Refer to 14 CFR Part 1.)

CLIMB TO VFR– ATC authorization for an aircraft to climb to VFR conditions within Class B, C, D, and E surface areas when the only weather limitation is restricted visibility. The aircraft must remain clear of clouds while climbing to VFR.
(See SPECIAL VFR CONDITIONS.)
(Refer to AIM.)

CLIMBOUT– That portion of flight operation between takeoff and the initial cruising altitude.

CLIMB VIA– An abbreviated ATC clearance that requires compliance with the procedure lateral path, associated speed restrictions, and altitude restrictions along the cleared route or procedure.

CLOSE PARALLEL RUNWAYS– Two parallel runways whose extended centerlines are separated by less than 4,300 feet, having a Precision Runway Monitoring (PRM) system that permits simultaneous independent ILS approaches.

CLOSED RUNWAY– A runway that is unusable for aircraft operations. Only the airport management/ military operations office can close a runway.

CLOSED TRAFFIC– Successive operations involving takeoffs and landings or low approaches where the aircraft does not exit the traffic pattern.

CLOUD– A cloud is a visible accumulation of minute water droplets and/or ice particles in the atmosphere above the Earth's surface. Cloud differs from ground fog, fog, or ice fog only in that the latter are, by definition, in contact with the Earth's surface.

CLT–

(See CALCULATED LANDING TIME.)

CLUTTER– In radar operations, clutter refers to the reception and visual display of radar returns caused by precipitation, chaff, terrain, numerous aircraft targets, or other phenomena. Such returns may limit or preclude ATC from providing services based on radar.

(See CHAFF.)

(See GROUND CLUTTER.)

(See PRECIPITATION.)

(See TARGET.)

(See ICAO term RADAR CLUTTER.)

CMNPS–

(See CANADIAN MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE.)

COASTAL FIX– A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

CODES– The number assigned to a particular multiple pulse reply signal transmitted by a transponder.

(See DISCRETE CODE.)

COMBINED CENTER-RAPCON– An air traffic facility which combines the functions of an ARTCC and a radar approach control facility.

(See AIR ROUTE TRAFFIC CONTROL CENTER.)

(See RADAR APPROACH CONTROL FACILITY.)

COMMON POINT– A significant point over which two or more aircraft will report passing or have reported passing before proceeding on the same or diverging tracks. To establish/maintain longitudinal separation, a controller may determine a common point not originally in the aircraft's flight plan and then clear the aircraft to fly over the point.

(See SIGNIFICANT POINT.)

COMMON PORTION–

(See COMMON ROUTE.)

COMMON ROUTE– That segment of a North American Route between the inland navigation facility and the coastal fix.

OR

COMMON ROUTE– Typically the portion of a RNAV STAR between the en route transition end point and the runway transition start point; however, the common route may only consist of a single point that joins the en route and runway transitions.

COMMON TRAFFIC ADVISORY FREQUENCY (CTAF)– A frequency designed for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a UNICOM, Multicom, FSS, or tower frequency and is identified in appropriate aeronautical publications.

(Refer to AC 90-42, Traffic Advisory Practices at Airports Without Operating Control Towers.)

COMPASS LOCATOR– A low power, low or medium frequency (L/MF) radio beacon installed at the site of the outer or middle marker of an instrument landing system (ILS). It can be used for navigation at distances of approximately 15 miles or as authorized in the approach procedure.

a. Outer Compass Locator (LOM)– A compass locator installed at the site of the outer marker of an instrument landing system.

(See OUTER MARKER.)

b. Middle Compass Locator (LMM)– A compass locator installed at the site of the middle marker of an instrument landing system.

(See MIDDLE MARKER.)

(See ICAO term LOCATOR.)

COMPASS ROSE– A circle, graduated in degrees, printed on some charts or marked on the ground at an airport. It is used as a reference to either true or magnetic direction.

COMPLY WITH RESTRICTIONS– An ATC instruction that requires an aircraft being vectored back onto an arrival or departure procedure to comply with all altitude and/or speed restrictions depicted on the procedure. This term may be used in lieu of repeating each remaining restriction that appears on the procedure.

COMPOSITE FLIGHT PLAN– A flight plan which specifies VFR operation for one portion of flight and IFR for another portion. It is used primarily in military operations.

(Refer to AIM.)

COMPOSITE ROUTE SYSTEM– An organized oceanic route structure, incorporating reduced lateral spacing between routes, in which composite separation is authorized.

COMPOSITE SEPARATION– A method of separating aircraft in a composite route system where, by management of route and altitude assignments, a combination of half the lateral minimum specified for the area concerned and half the vertical minimum is applied.

COMPULSORY REPORTING POINTS– Reporting points which must be reported to ATC. They are designated on aeronautical charts by solid triangles or filed in a flight plan as fixes selected to define direct routes. These points are geographical locations which are defined by navigation aids/fixes. Pilots should discontinue position reporting over compulsory reporting points when informed by ATC that their aircraft is in "radar contact."

CONFIDENCE MANEUVER– A confidence maneuver consists of one or more turns, a climb or descent, or other maneuver to determine if the pilot in command (PIC) is able to receive and comply with ATC instructions.

CONFLICT ALERT– A function of certain air traffic control automated systems designed to alert radar controllers to existing or pending situations between tracked targets (known IFR or VFR aircraft) that require his/her immediate attention/action.

(See MODE C INTRUDER ALERT.)

CONFLICT RESOLUTION– The resolution of potential conflictions between aircraft that are radar identified and in communication with ATC by ensuring that radar targets do not touch. Pertinent traffic advisories shall be issued when this procedure is applied.

Note: This procedure shall not be provided utilizing mosaic radar systems.

CONFORMANCE– The condition established when an aircraft's actual position is within the conformance region constructed around that aircraft at its position, according to the trajectory associated with the aircraft's Current Plan.

CONFORMANCE REGION– A volume, bounded laterally, vertically, and longitudinally, within which an aircraft must be at a given time in order to be in conformance with the Current Plan Trajectory for that aircraft. At a given time, the conformance region is determined by the simultaneous application of the lateral, vertical, and longitudinal conformance bounds for the aircraft at the position defined by time and aircraft's trajectory.

CONSOLAN– A low frequency, long-distance NAVAID used principally for transoceanic navigations.

CONTACT–

a. Establish communication with (followed by the name of the facility and, if appropriate, the frequency to be used).

b. A flight condition wherein the pilot ascertains the attitude of his/her aircraft and navigates by visual reference to the surface.

(See CONTACT APPROACH.)

(See RADAR CONTACT.)

CONTACT APPROACH– An approach wherein an aircraft on an IFR flight plan, having an air traffic control authorization, operating clear of clouds with at least 1 mile flight visibility and a reasonable expectation of continuing to the destination airport in those conditions, may deviate from the instrument approach procedure and proceed to the destination airport by visual reference to the surface. This approach will only be authorized when requested by

the pilot and the reported ground visibility at the destination airport is at least 1 statute mile.

(Refer to AIM.)

CONTAMINATED RUNWAY– A runway is considered contaminated whenever standing water, ice, snow, slush, frost in any form, heavy rubber, or other substances are present. A runway is contaminated with respect to rubber deposits or other friction-degrading substances when the average friction value for any 500-foot segment of the runway within the ALD fails below the recommended minimum friction level and the average friction value in the adjacent 500-foot segments falls below the maintenance planning friction level.

CONTERMINOUS U.S.– The 48 adjoining States and the District of Columbia.

CONTINENTAL UNITED STATES– The 49 States located on the continent of North America and the District of Columbia.

CONTINUE– When used as a control instruction should be followed by another word or words clarifying what is expected of the pilot. Example: "continue taxi," "continue descent," "continue inbound," etc.

CONTROL AREA [ICAO]– A controlled airspace extending upwards from a specified limit above the earth.

CONTROL SECTOR– An airspace area of defined horizontal and vertical dimensions for which a controller or group of controllers has air traffic control responsibility, normally within an air route traffic control center or an approach control facility. Sectors are established based on predominant traffic flows, altitude strata, and controller workload. Pilot-communications during operations within a sector are normally maintained on discrete frequencies assigned to the sector.

(See DISCRETE FREQUENCY.)

CONTROL SLASH– A radar beacon slash representing the actual position of the associated aircraft. Normally, the control slash is the one closest to the interrogating radar beacon site. When ARTCC radar is operating in narrowband (digitized) mode, the control slash is converted to a target symbol.

CONTROLLED AIRSPACE– An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

a. Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace.

b. Controlled airspace is also that airspace within which all aircraft operators are subject to certain pilot qualifications, operating rules, and equipment requirements in 14 CFR Part 91 (for specific operating requirements, please refer to 14 CFR Part 91). For IFR operations in any class of controlled airspace, a pilot must file an IFR flight plan and receive an appropriate ATC clearance. Each Class B, Class C, and Class D airspace area designated for an airport contains at least one primary airport around which the airspace is designated (for specific designations and descriptions of the airspace classes, please refer to 14 CFR Part 71).

c. Controlled airspace in the United States is designated as follows:

1. CLASS A– Generally, that airspace from 18,000 feet MSL up to and including FL 600, including the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Unless otherwise authorized, all persons must operate their aircraft under IFR.

2. CLASS B– Generally, that airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspaces areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds."

3. CLASS C– Generally, that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C area is individually tailored, the airspace usually consists of a surface area with a 5 nautical mile (NM) radius, a circle with a 10NM radius that extends no

lower than 1,200 feet up to 4,000 feet above the airport elevation and an outer area that is not charted. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace. VFR aircraft are only separated from IFR aircraft within the airspace.

(See OUTER AREA.)

4. CLASS D– Generally, that airspace from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be Class D or Class E airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace. No separation services are provided to VFR aircraft.

5. CLASS E– Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Also in this class are Federal airways, airspace beginning at either 700 or 1,200 feet AGL used to transition to/from the terminal or en route environment, en route domestic, and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska, up to, but not including 18,000 feet MSL, and the airspace above FL 600.

CONTROLLED AIRSPACE [ICAO]– An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

Note: Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D, and E.

CONTROLLED TIME OF ARRIVAL– Arrival time assigned during a Traffic Management Program. This time may be modified due to adjustments or user options.

CONTROLLER–

(See AIR TRAFFIC CONTROL SPECIALIST.)

CONTROLLER [ICAO]– A person authorized to provide air traffic control services.

CONTROLLER PILOT DATA LINK COMMUNICATIONS (CPDLC)– A two–way digital communications system that conveys textual air traffic control messages between controllers and pilots using ground or satellite-based radio relay stations.

CONVECTIVE SIGMET– A weather advisory concerning convective weather significant to the safety of all aircraft. Convective SIGMETs are issued for tornadoes, lines of thunderstorms, embedded thunderstorms of any intensity level, areas of thunderstorms greater than or equal to VIP level 4 with an area coverage of $^{4}/_{10}$ (40%) or more, and hail $^{3}/_{4}$ inch or greater.

(See AIRMET.)
(See AWW.)
(See CWA.)
(See SIGMET.)
(Refer to AIM.)

CONVECTIVE SIGNIFICANT METEOROLOGICAL INFORMATION–

(See CONVECTIVE SIGMET.)

COORDINATES– The intersection of lines of reference, usually expressed in degrees/minutes/seconds of latitude and longitude, used to determine position or location.

COORDINATION FIX– The fix in relation to which facilities will handoff, transfer control of an aircraft, or coordinate flight progress data. For terminal facilities, it may also serve as a clearance for arriving aircraft.

COPTER–

(See HELICOPTER.)

CORRECTION– An error has been made in the transmission and the correct version follows.

COUPLED APPROACH– A coupled approach is an instrument approach performed by the aircraft autopilot which is receiving position information and/or steering commands from onboard navigation

equipment. In general, coupled nonprecision approaches must be discontinued and flown manually at altitudes lower than 50 feet below the minimum descent altitude, and coupled precision approaches must be flown manually below 50 feet AGL.

Note: Coupled and autoland approaches are flown in VFR and IFR. It is common for carriers to require their crews to fly coupled approaches and autoland approaches (if certified) when the weather conditions are less than approximately 4,000 RVR.

(See AUTOLAND APPROACH.)

COURSE–

a. The intended direction of flight in the horizontal plane measured in degrees from north.

b. The ILS localizer signal pattern usually specified as the front course or the back course.

c. The intended track along a straight, curved, or segmented MLS path.

(See BEARING.)
(See INSTRUMENT LANDING SYSTEM.)
(See MICROWAVE LANDING SYSTEM.)
(See RADIAL.)

CPDLC–

(See CONTROLLER PILOT DATA LINK COMMUNICATIONS.)

CPL [ICAO]–

(See ICAO term CURRENT FLIGHT PLAN.)

CRITICAL ENGINE– The engine which, upon failure, would most adversely affect the performance or handling qualities of an aircraft.

CROSS (FIX) AT (ALTITUDE)– Used by ATC when a specific altitude restriction at a specified fix is required.

CROSS (FIX) AT OR ABOVE (ALTITUDE)– Used by ATC when an altitude restriction at a specified fix is required. It does not prohibit the aircraft from crossing the fix at a higher altitude than specified; however, the higher altitude may not be one that will violate a succeeding altitude restriction or altitude assignment.

(See ALTITUDE RESTRICTION.)
(Refer to AIM.)

CROSS (FIX) AT OR BELOW (ALTITUDE)– Used by ATC when a maximum crossing altitude at a specific fix is required. It does not prohibit the aircraft from crossing the fix at a lower altitude; however, it must be at or above the minimum IFR altitude.

(See ALTITUDE RESTRICTION.)
(See MINIMUM IFR ALTITUDES.)
(Refer to 14 CFR Part 91.)

CROSSWIND–

a. When used concerning the traffic pattern, the word means "crosswind leg."

(See TRAFFIC PATTERN.)

b. When used concerning wind conditions, the word means a wind not parallel to the runway or the path of an aircraft.

(See CROSSWIND COMPONENT.)

CROSSWIND COMPONENT– The wind component measured in knots at 90 degrees to the longitudinal axis of the runway.

CRUISE– Used in an ATC clearance to authorize a pilot to conduct flight at any altitude from the minimum IFR altitude up to and including the altitude specified in the clearance. The pilot may level off at any intermediate altitude within this block of airspace. Climb/descent within the block is to be made at the discretion of the pilot. However, once the pilot starts descent and verbally reports leaving an altitude in the block, he/she may not return to that altitude without additional ATC clearance. Further, it is approval for the pilot to proceed to and make an approach at destination airport and can be used in conjunction with:

a. An airport clearance limit at locations with a standard/special instrument approach procedure. The CFRs require that if an instrument letdown to an airport is necessary, the pilot shall make the letdown in accordance with a standard/special instrument approach procedure for that airport, or

b. An airport clearance limit at locations that are within/below/outside controlled airspace and without a standard/special instrument approach procedure. Such a clearance is NOT AUTHORIZATION for the pilot to descend under IFR conditions below the applicable minimum IFR altitude nor does it imply that ATC is exercising control over aircraft in Class G airspace; however, it provides a means for the aircraft to proceed to destination airport, descend, and land in accordance with applicable CFRs governing VFR flight operations. Also, this provides search and rescue protection until such time as the IFR flight plan is closed.

(See INSTRUMENT APPROACH PROCEDURE.)

CRUISE CLIMB– A climb technique employed by aircraft, usually at a constant power setting, resulting in an increase of altitude as the aircraft weight decreases.

CRUISING ALTITUDE– An altitude or flight level maintained during en route level flight. This is a constant altitude and should not be confused with a cruise clearance.

(See ALTITUDE.)

(See ICAO term CRUISING LEVEL.)

CRUISING LEVEL–

(See CRUISING ALTITUDE.)

CRUISING LEVEL [ICAO]– A level maintained during a significant portion of a flight.

CT MESSAGE– An EDCT time generated by the ATCSCC to regulate traffic at arrival airports. Normally, a CT message is automatically transferred from the traffic management system computer to the NAS en route computer and appears as an EDCT. In the event of a communication failure between the traffic management system computer and the NAS, the CT message can be manually entered by the TMC at the en route facility.

CTA–

(See CONTROLLED TIME OF ARRIVAL.)

(See ICAO term CONTROL AREA.)

CTAF–

(See COMMON TRAFFIC ADVISORY FREQUENCY.)

CTAS–

(See CENTER TRACON AUTOMATION SYSTEM.)

CTRD–

(See CERTIFIED TOWER RADAR DISPLAY.)

CURRENT FLIGHT PLAN [ICAO]– The flight plan, including changes, if any, brought about by subsequent clearances.

CURRENT PLAN– The ATC clearance the aircraft has received and is expected to fly.

CVFP APPROACH–

(See CHARTED VISUAL FLIGHT PROCEDURE APPROACH.)

CWA–

(See CENTER WEATHER ADVISORY and WEATHER ADVISORY.)

D

D-ATIS–

(See DIGITAL-AUTOMATIC TERMINAL INFORMATION SERVICE.)

DA [ICAO]–

(See ICAO Term DECISION ALTITUDE/DECISION HEIGHT.)

DAIR–

(See DIRECT ALTITUDE AND IDENTITY READOUT.)

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

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

DAS–

(See DELAY ASSIGNMENT.)

DATA BLOCK–

(See ALPHANUMERIC DISPLAY.)

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

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

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

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

DECISION HEIGHT– With respect to the operation of aircraft, means the height at which a decision must be made during an ILS, MLS, or PAR instrument approach to either continue the approach or to execute a missed approach.

(See ICAO term DECISION ALTITUDE/DECISION HEIGHT.)

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

(See CODES.)

(See RADAR.)

DEFENSE AREA- Any airspace of the contiguous United States that is not an ADIZ in which the control of aircraft is required for reasons of national security.

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

(See AIR DEFENSE IDENTIFICATION ZONE.)

(Refer to 14 CFR Part 91.)

(Refer to 14 CFR Part 99.)

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

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

(See EXPECT FURTHER CLEARANCE (TIME).)

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

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

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

(See APPROACH CONTROL FACILITY.)

(Refer to AIM.)

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

DEPARTURE TIME– The time an aircraft becomes airborne.

DESCEND VIA– An abbreviated ATC clearance that requires compliance with a published procedure lateral path and associated speed restrictions and provides a pilot-discretion descent to comply with published altitude restrictions.

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

DESIRED COURSE–

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

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

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

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

DEVIATIONS–

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

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

DH–

(See DECISION HEIGHT.)

DH [ICAO]–

(See ICAO Term DECISION ALTITUDE/ DECISION HEIGHT.)

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

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

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

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

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

DIRECT ALTITUDE AND IDENTITY READOUT– The DAIR System is a modification to the AN/TPX-42 Interrogator System. The Navy has two adaptations of the DAIR System-Carrier Air Traffic Control Direct Altitude and Identification Readout System for Aircraft Carriers and Radar Air Traffic Control Facility Direct Altitude and Identity Readout System for land-based terminal operations. The DAIR detects, tracks, and predicts secondary radar aircraft targets. Targets are displayed by means of computer-generated symbols and alphanumeric characters depicting flight identification, altitude, ground speed, and flight plan data. The DAIR System is capable of interfacing with ARTCCs.

DIRECTLY BEHIND– An aircraft is considered to be operating directly behind when it is following the actual flight path of the lead aircraft over the surface

of the earth except when applying wake turbulence separation criteria.

DISCRETE BEACON CODE–
(See DISCRETE CODE.)

DISCRETE CODE– As used in the Air Traffic Control Radar Beacon System (ATCRBS), any one of the 4096 selectable Mode 3/A aircraft transponder codes except those ending in zero zero; e.g., discrete codes: 0010, 1201, 2317, 7777; nondiscrete codes: 0100, 1200, 7700. Nondiscrete codes are normally reserved for radar facilities that are not equipped with discrete decoding capability and for other purposes such as emergencies (7700), VFR aircraft (1200), etc.
(See RADAR.)
(Refer to AIM.)

DISCRETE FREQUENCY– A separate radio frequency for use in direct pilot-controller communications in air traffic control which reduces frequency congestion by controlling the number of aircraft operating on a particular frequency at one time. Discrete frequencies are normally designated for each control sector in en route/terminal ATC facilities. Discrete frequencies are listed in the Airport/Facility Directory and the DOD FLIP IFR En Route Supplement.
(See CONTROL SECTOR.)

DISPLACED THRESHOLD– A threshold that is located at a point on the runway other than the designated beginning of the runway.
(See THRESHOLD.)
(Refer to AIM.)

DISTANCE MEASURING EQUIPMENT– Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.
(See MICROWAVE LANDING SYSTEM.)
(See TACAN.)
(See VORTAC.)

DISTRESS– A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.

DIVE BRAKES–
(See SPEED BRAKES.)

DIVERSE VECTOR AREA– In a radar environment, that area in which a prescribed departure route is not required as the only suitable route to avoid obstacles. The area in which random radar vectors below the MVA/MIA, established in accordance with the TERPS criteria for diverse departures, obstacles and terrain avoidance, may be issued to departing aircraft.

DIVERSION (DVRSN)– Flights that are required to land at other than their original destination for reasons beyond the control of the pilot/company, e.g. periods of significant weather.

DME–
(See DISTANCE MEASURING EQUIPMENT.)

DME FIX– A geographical position determined by reference to a navigational aid which provides distance and azimuth information. It is defined by a specific distance in nautical miles and a radial, azimuth, or course (i.e., localizer) in degrees magnetic from that aid.
(See DISTANCE MEASURING EQUIPMENT.)
(See FIX.)
(See MICROWAVE LANDING SYSTEM.)

DME SEPARATION– Spacing of aircraft in terms of distances (nautical miles) determined by reference to distance measuring equipment (DME).
(See DISTANCE MEASURING EQUIPMENT.)

DOD FLIP– Department of Defense Flight Information Publications used for flight planning, en route, and terminal operations. FLIP is produced by the National Geospatial–Intelligence Agency (NGA) for world-wide use. United States Government Flight Information Publications (en route charts and instrument approach procedure charts) are incorporated in DOD FLIP for use in the National Airspace System (NAS).

DOMESTIC AIRSPACE– Airspace which overlies the continental land mass of the United States plus Hawaii and U.S. possessions. Domestic airspace extends to 12 miles offshore.

DOWNBURST– A strong downdraft which induces an outburst of damaging winds on or near the ground. Damaging winds, either straight or curved, are highly divergent. The sizes of downbursts vary from 1/2 mile or less to more than 10 miles. An intense downburst often causes widespread damage. Damaging winds, lasting 5 to 30 minutes, could reach speeds as high as 120 knots.

DOWNWIND LEG–
(See TRAFFIC PATTERN.)

DP–
(See INSTRUMENT DEPARTURE PROCEDURE.)

DRAG CHUTE– A parachute device installed on certain aircraft which is deployed on landing roll to assist in deceleration of the aircraft.

DSP–
(See DEPARTURE SEQUENCING PROGRAM.)

DT–
(See DELAY TIME.)

DTAS–
(See DIGITAL TERMINAL AUTOMATION SYSTEM.)

DUE REGARD– A phase of flight wherein an aircraft commander of a State-operated aircraft assumes responsibility to separate his/her aircraft from all other aircraft.
(See also FAAO JO 7110.65, Para 1–2–1, WORD MEANINGS.)

DUTY RUNWAY–
(See RUNWAY IN USE/ACTIVE RUNWAY/DUTY RUNWAY.)

DVA–
(See DIVERSE VECTOR AREA.)

DVFR–
(See DEFENSE VISUAL FLIGHT RULES.)

DVFR FLIGHT PLAN– A flight plan filed for a VFR aircraft which intends to operate in airspace within which the ready identification, location, and control of aircraft are required in the interest of national security.

DVRSN–
(See DIVERSION.)

DYNAMIC– Continuous review, evaluation, and change to meet demands.

DYNAMIC RESTRICTIONS– Those restrictions imposed by the local facility on an “as needed” basis to manage unpredictable fluctuations in traffic demands.

E

EAS–
(See EN ROUTE AUTOMATION SYSTEM.)

EDCT–
(See EXPECT DEPARTURE CLEARANCE TIME.)

EFC–
(See EXPECT FURTHER CLEARANCE (TIME).)

ELT–
(See EMERGENCY LOCATOR TRANSMITTER.)

EMERGENCY– A distress or an urgency condition.

EMERGENCY LOCATOR TRANSMITTER– A radio transmitter attached to the aircraft structure which operates from its own power source on 121.5 MHz and 243.0 MHz. It aids in locating downed aircraft by radiating a downward sweeping audio tone, 2-4 times per second. It is designed to function without human action after an accident.
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

E-MSAW–
(See EN ROUTE MINIMUM SAFE ALTITUDE WARNING.)

EN ROUTE AIR TRAFFIC CONTROL SERVICES– Air traffic control service provided aircraft on IFR flight plans, generally by centers, when these aircraft are operating between departure and destination terminal areas. When equipment, capabilities, and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.
(See AIR ROUTE TRAFFIC CONTROL CENTER.)
(Refer to AIM.)

EN ROUTE AUTOMATION SYSTEM (EAS)– The complex integrated environment consisting of situation display systems, surveillance systems and flight data processing, remote devices, decision support tools, and the related communications equipment that form the heart of the automated IFR air traffic control system. It interfaces with automated terminal systems and is used in the control of en route IFR aircraft.
(Refer to AIM.)

EN ROUTE CHARTS–
(See AERONAUTICAL CHART.)

EN ROUTE DESCENT– Descent from the en route cruising altitude which takes place along the route of flight.

EN ROUTE FLIGHT ADVISORY SERVICE– A service specifically designed to provide, upon pilot request, timely weather information pertinent to his/her type of flight, intended route of flight, and altitude. The FSSs providing this service are listed in the Airport/Facility Directory.
(See FLIGHT WATCH.)
(Refer to AIM.)

EN ROUTE HIGH ALTITUDE CHARTS–
(See AERONAUTICAL CHART.)

EN ROUTE LOW ALTITUDE CHARTS–
(See AERONAUTICAL CHART.)

EN ROUTE MINIMUM SAFE ALTITUDE WARNING– A function of the EAS that aids the controller by providing an alert when a tracked aircraft is below or predicted by the computer to go below a predetermined minimum IFR altitude (MIA).

EN ROUTE SPACING PROGRAM (ESP)– A program designed to assist the exit sector in achieving the required in-trail spacing.

EN ROUTE TRANSITION–

a. Conventional STARs/SIDs. The portion of a SID/STAR that connects to one or more en route airway/jet route.

b. RNAV STARs/SIDs. The portion of a STAR preceding the common route or point, or for a SID the portion following, that is coded for a specific en route fix, airway or jet route.

ESP–
(See EN ROUTE SPACING PROGRAM.)

ESTABLISHED–To be stable or fixed on a route, route segment, altitude, heading, etc.

ESTIMATED ELAPSED TIME [ICAO]– The estimated time required to proceed from one significant point to another.
(See ICAO Term TOTAL ESTIMATED ELAPSED TIME.)

ESTIMATED OFF-BLOCK TIME [ICAO]– The estimated time at which the aircraft will commence movement associated with departure.

ESTIMATED POSITION ERROR (EPE)–
(See Required Navigation Performance)

ESTIMATED TIME OF ARRIVAL– The time the flight is estimated to arrive at the gate (scheduled operators) or the actual runway on times for nonscheduled operators.

ESTIMATED TIME EN ROUTE– The estimated flying time from departure point to destination (lift-off to touchdown).

ETA–
(See ESTIMATED TIME OF ARRIVAL.)

ETE–
(See ESTIMATED TIME EN ROUTE.)

EXECUTE MISSED APPROACH– Instructions issued to a pilot making an instrument approach which means continue inbound to the missed approach point and execute the missed approach procedure as described on the Instrument Approach Procedure Chart or as previously assigned by ATC. The pilot may climb immediately to the altitude specified in the missed approach procedure upon making a missed approach. No turns should be initiated prior to reaching the missed approach point. When conducting an ASR or PAR approach, execute the assigned missed approach procedure immediately upon receiving instructions to "execute missed approach."
(Refer to AIM.)

EXPECT (ALTITUDE) AT (TIME) or (FIX)– Used under certain conditions to provide a pilot with an altitude to be used in the event of two-way communications failure. It also provides altitude information to assist the pilot in planning.
(Refer to AIM.)

EXPECT DEPARTURE CLEARANCE TIME (EDCT)– The runway release time assigned to an aircraft in a traffic management program and shown on the flight progress strip as an EDCT.
(See GROUND DELAY PROGRAM.)

EXPECT FURTHER CLEARANCE (TIME)– The time a pilot can expect to receive clearance beyond a clearance limit.

EXPECT FURTHER CLEARANCE VIA (AIRWAYS, ROUTES OR FIXES)– Used to inform a pilot of the routing he/she can expect if any part of the route beyond a short range clearance limit differs from that filed.

EXPEDITE– Used by ATC when prompt compliance is required to avoid the development of an imminent situation. Expedite climb/descent normally indicates to a pilot that the approximate best rate of climb/descent should be used without requiring an exceptional change in aircraft handling characteristics.

F

FAF–
(See FINAL APPROACH FIX.)

FAST FILE– An FSS system whereby a pilot files a flight plan via telephone that is recorded and later transcribed for transmission to the appropriate air traffic facility. (Alaska only.)

FAWP– Final Approach Waypoint

FCLT–
(See FREEZE CALCULATED LANDING TIME.)

FEATHERED PROPELLER– A propeller whose blades have been rotated so that the leading and trailing edges are nearly parallel with the aircraft flight path to stop or minimize drag and engine rotation. Normally used to indicate shutdown of a reciprocating or turboprop engine due to malfunction.

FEDERAL AIRWAYS–
(See LOW ALTITUDE AIRWAY STRUCTURE.)

FEEDER FIX– The fix depicted on Instrument Approach Procedure Charts which establishes the starting point of the feeder route.

FEEDER ROUTE– A route depicted on instrument approach procedure charts to designate routes for aircraft to proceed from the en route structure to the initial approach fix (IAF).
(See INSTRUMENT APPROACH PROCEDURE.)

FERRY FLIGHT– A flight for the purpose of:

a. Returning an aircraft to base.

b. Delivering an aircraft from one location to another.

c. Moving an aircraft to and from a maintenance base.– Ferry flights, under certain conditions, may be conducted under terms of a special flight permit.

FIELD ELEVATION–
(See AIRPORT ELEVATION.)

FILED– Normally used in conjunction with flight plans, meaning a flight plan has been submitted to ATC.

FILED EN ROUTE DELAY– Any of the following preplanned delays at points/areas along the route of flight which require special flight plan filing and handling techniques.

a. Terminal Area Delay. A delay within a terminal area for touch-and-go, low approach, or other terminal area activity.

b. Special Use Airspace Delay. A delay within a Military Operations Area, Restricted Area, Warning Area, or ATC Assigned Airspace.

c. Aerial Refueling Delay. A delay within an Aerial Refueling Track or Anchor.

FILED FLIGHT PLAN– The flight plan as filed with an ATS unit by the pilot or his/her designated representative without any subsequent changes or clearances.

FINAL– Commonly used to mean that an aircraft is on the final approach course or is aligned with a landing area.
(See FINAL APPROACH COURSE.)
(See FINAL APPROACH-IFR.)
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH [ICAO]– That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified.

a. At the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or

b. At the point of interception of the last track specified in the approach procedure; and ends at a point in the vicinity of an aerodrome from which:

1. A landing can be made; or

2. A missed approach procedure is initiated.

FINAL APPROACH COURSE– A bearing/radial/track of an instrument approach leading to a runway or an extended runway centerline all without regard to distance.

FINAL APPROACH FIX– The fix from which the final approach (IFR) to an airport is executed and which identifies the beginning of the final approach segment. It is designated on Government charts by the Maltese Cross symbol for nonprecision approaches and the lightning bolt symbol for precision approaches; or when ATC directs a

lower-than-published glideslope/path intercept altitude, it is the resultant actual point of the glideslope/path intercept.

(See FINAL APPROACH POINT.)

(See GLIDESLOPE INTERCEPT ALTITUDE.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH-IFR– The flight path of an aircraft which is inbound to an airport on a final instrument approach course, beginning at the final approach fix or point and extending to the airport or the point where a circle-to-land maneuver or a missed approach is executed.

(See FINAL APPROACH COURSE.)

(See FINAL APPROACH FIX.)

(See FINAL APPROACH POINT.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

(See ICAO term FINAL APPROACH.)

FINAL APPROACH POINT– The point, applicable only to a nonprecision approach with no depicted FAF (such as an on airport VOR), where the aircraft is established inbound on the final approach course from the procedure turn and where the final approach descent may be commenced. The FAP serves as the FAF and identifies the beginning of the final approach segment.

(See FINAL APPROACH FIX.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH SEGMENT–

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH SEGMENT [ICAO]– That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.

FINAL CONTROLLER– The controller providing information and final approach guidance during PAR and ASR approaches utilizing radar equipment.

(See RADAR APPROACH.)

FINAL GUARD SERVICE– A value added service provided in conjunction with LAA/RAA only during periods of significant and fast changing weather conditions that may affect landing and takeoff operations.

FINAL MONITOR AID– A high resolution color display that is equipped with the controller alert system hardware/software which is used in the precision runway monitor (PRM) system. The display includes alert algorithms providing the target predictors, a color change alert when a target penetrates or is predicted to penetrate the no transgression zone (NTZ), a color change alert if the aircraft transponder becomes inoperative, synthesized voice alerts, digital mapping, and like features contained in the PRM system.

(See RADAR APPROACH.)

FINAL MONITOR CONTROLLER– Air Traffic Control Specialist assigned to radar monitor the flight path of aircraft during simultaneous parallel and simultaneous close parallel ILS approach operations. Each runway is assigned a final monitor controller during simultaneous parallel and simultaneous close parallel ILS approaches. Final monitor controllers shall utilize the Precision Runway Monitor (PRM) system during simultaneous close parallel ILS approaches.

FIR–

(See FLIGHT INFORMATION REGION.)

FIRST TIER CENTER– The ARTCC immediately adjacent to the impacted center.

FIS–B–

(See FLIGHT INFORMATION SERVICE–BROADCAST.)

FIX– A geographical position determined by visual reference to the surface, by reference to one or more radio NAVAIDs, by celestial plotting, or by another navigational device.

FIX BALANCING– A process whereby aircraft are evenly distributed over several available arrival fixes reducing delays and controller workload.

FLAG– A warning device incorporated in certain airborne navigation and flight instruments indicating that:

a. Instruments are inoperative or otherwise not operating satisfactorily, or

b. Signal strength or quality of the received signal falls below acceptable values.

FLAG ALARM–

(See FLAG.)

FLAMEOUT– An emergency condition caused by a loss of engine power.

FLAMEOUT PATTERN– An approach normally conducted by a single-engine military aircraft experiencing loss or anticipating loss of engine power or control. The standard overhead approach starts at a relatively high altitude over a runway ("high key") followed by a continuous 180 degree turn to a high, wide position ("low key") followed by a continuous 180 degree turn final. The standard straight-in pattern starts at a point that results in a straight-in approach with a high rate of descent to the runway. Flameout approaches terminate in the type approach requested by the pilot (normally fullstop).

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

(See FLIGHT INSPECTION.)

(Refer to AIM.)

FLIGHT FOLLOWING–

(See TRAFFIC ADVISORIES.)

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

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

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

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

FLIGHT INFORMATION SERVICE–BROADCAST (FIS–B)– A ground broadcast service provided through the ADS–B Broadcast Services network over the UAT data link that operates on 978 MHz. The FIS–B system provides pilots and flight crews of properly equipped aircraft with a cockpit display of certain aviation weather and aeronautical information.

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

(See FLIGHT CHECK.)

(See NAVIGATIONAL AID.)

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

(See ICAO term FLIGHT LEVEL.)

FLIGHT LEVEL [ICAO]– A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hPa (1013.2 mb), and is separated from other such surfaces by specific pressure intervals.

Note 1: A pressure type altimeter calibrated in accordance with the standard atmosphere:
a. When set to a QNH altimeter setting, will indicate altitude;
b. When set to a QFE altimeter setting, will indicate height above the QFE reference datum; and
c. When set to a pressure of 1013.2 hPa (1013.2 mb), may be used to indicate flight levels.

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

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

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

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

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

(See COURSE.)

(See TRACK.)

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

(See FAST FILE.)

(See FILED.)

(Refer to AIM.)

FLIGHT PLAN AREA (FPA)– The geographical area assigned to a flight service station (FSS) for the purpose of establishing primary responsibility for services that may include search and rescue for VFR aircraft, issuance of NOTAMs, pilot briefings, inflight services, broadcast services, emergency services, flight data processing, international operations, and aviation weather services. Large consolidated FSS facilities may combine FPAs into larger areas of responsibility (AOR).

(See FLIGHT SERVICE STATION.)

(See TIE-IN FACILITY.)

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

(See ICAO term FLIGHT RECORDER.)

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

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

FLIGHT SERVICE STATION (FSS) – An air traffic facility which provides pilot briefings, flight plan processing, en route radio communications, search and rescue services, and assistance to lost aircraft and aircraft in emergency situations. FSS also relays ATC clearances, processes Notices to Airmen, and broadcasts aviation weather and aeronautical information. In addition, at selected locations, FSS provides En Route Flight Advisory Service (Flight Watch) and Airport Advisory Service (AAS) and takes airport weather observations.

(See FLIGHT PLAN AREA.)

(See TIE-IN FACILITY.)

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

FLIGHT TEST– A flight for the purpose of:

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

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

FLIGHT VISIBILITY–

(See VISIBILITY.)

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

(See EN ROUTE FLIGHT ADVISORY SERVICE.)

FLIP–

(See DOD FLIP.)

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

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

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

FLY VISUAL TO AIRPORT–

(See PUBLISHED INSTRUMENT APPROACH PROCEDURE VISUAL SEGMENT.)

FMA–

(See FINAL MONITOR AID.)

FMS–
(See FLIGHT MANAGEMENT SYSTEM.)

FMSP–
(See FLIGHT MANAGEMENT SYSTEM PROCEDURE.)

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

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

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

1. When the flight leader has requested and ATC has approved other than standard formation dimensions.

2. When operating within an authorized altitude reservation (ALTRV) or under the provisions of a letter of agreement.

3. When the operations are conducted in airspace specifically designed for a special activity.
(See ALTITUDE RESERVATION.)
(Refer to 14 CFR Part 91.)

FRC–
(See REQUEST FULL ROUTE CLEARANCE.)

FREEZE/FROZEN– Terms used in referring to arrivals which have been assigned ACLTs and to the lists in which they are displayed.

FREEZE CALCULATED LANDING TIME– A dynamic parameter number of minutes prior to the meter fix calculated time of arrival for each aircraft when the TCLT is frozen and becomes an ACLT (i.e., the VTA is updated and consequently the TCLT is modified as appropriate until FCLT minutes prior to meter fix calculated time of arrival, at which time updating is suspended and an ACLT and a frozen meter fix crossing time (MFT) is assigned).

FREEZE HORIZON– The time or point at which an aircraft's STA becomes fixed and no longer fluctuates with each radar update. This setting ensures a constant time for each aircraft, necessary for the metering controller to plan his/her delay technique. This setting can be either in distance from the meter fix or a prescribed flying time to the meter fix.

FREEZE SPEED PARAMETER– A speed adapted for each aircraft to determine fast and slow aircraft. Fast aircraft freeze on parameter FCLT and slow aircraft freeze on parameter MLDI.

FRICTION MEASUREMENT– A measurement of the friction characteristics of the runway pavement surface using continuous self-watering friction measurement equipment in accordance with the specifications, procedures and schedules contained in AC 150/5320–12, Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces.

FSDO–
(See FLIGHT STANDARDS DISTRICT OFFICE.)

FSPD–
(See FREEZE SPEED PARAMETER.)

FSS–
(See FLIGHT SERVICE STATION.)

FUEL DUMPING– Airborne release of usable fuel. This does not include the dropping of fuel tanks.
(See JETTISONING OF EXTERNAL STORES.)

FUEL REMAINING– A phrase used by either pilots or controllers when relating to the fuel remaining on board until actual fuel exhaustion. When transmitting such information in response to either a controller question or pilot initiated cautionary advisory to air traffic control, pilots will state the APPROXIMATE NUMBER OF MINUTES the flight can continue with the fuel remaining. All reserve fuel SHOULD BE INCLUDED in the time stated, as should an allowance for established fuel gauge system error.

FUEL SIPHONING– Unintentional release of fuel caused by overflow, puncture, loose cap, etc.

FUEL VENTING–
(See FUEL SIPHONING.)

FUSED TARGET-
(See DIGITAL TARGET)

FUSION [STARS/CARTS]- the combination of all available surveillance sources (airport surveillance radar [ASR], air route surveillance radar [ARSR], ADS-B, etc.) into the display of a single tracked

target for air traffic control separation services. FUSION is the equivalent of the current single-sensor radar display. FUSION performance is characteristic of a single-sensor radar display system. Terminal areas use mono-pulse secondary surveillance radar (ASR 9, Mode S or ASR 11, MSSR).

G

GATE HOLD PROCEDURES– Procedures at selected airports to hold aircraft at the gate or other ground location whenever departure delays exceed or are anticipated to exceed 15 minutes. The sequence for departure will be maintained in accordance with initial call-up unless modified by flow control restrictions. Pilots should monitor the ground control/clearance delivery frequency for engine start/taxi advisories or new proposed start/taxi time if the delay changes.

GBT–
(See GROUND–BASED TRANSCEIVER.)

GCA–
(See GROUND CONTROLLED APPROACH.)

GDP–
(See GROUND DELAY PROGRAM.)

GENERAL AVIATION– That portion of civil aviation which encompasses all facets of aviation except air carriers holding a certificate of public convenience and necessity from the Civil Aeronautics Board and large aircraft commercial operators.
(See ICAO term GENERAL AVIATION.)

GENERAL AVIATION [ICAO]– All civil aviation operations other than scheduled air services and nonscheduled air transport operations for remuneration or hire.

GEO MAP– The digitized map markings associated with the ASR-9 Radar System.

GLIDEPATH–
(See GLIDESLOPE.)

GLIDEPATH [ICAO]– A descent profile determined for vertical guidance during a final approach.

GLIDEPATH INTERCEPT ALTITUDE–
(See GLIDESLOPE INTERCEPT ALTITUDE.)

GLIDESLOPE– Provides vertical guidance for aircraft during approach and landing. The glideslope/glidepath is based on the following:

a. Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS/MLS, or

b. Visual ground aids, such as VASI, which provide vertical guidance for a VFR approach or for the visual portion of an instrument approach and landing.

c. PAR. Used by ATC to inform an aircraft making a PAR approach of its vertical position (elevation) relative to the descent profile.

(See ICAO term GLIDEPATH.)

GLIDESLOPE INTERCEPT ALTITUDE– The minimum altitude to intercept the glideslope/path on a precision approach. The intersection of the published intercept altitude with the glideslope/path, designated on Government charts by the lightning bolt symbol, is the precision FAF; however, when the approach chart shows an alternative lower glideslope intercept altitude, and ATC directs a lower altitude, the resultant lower intercept position is then the FAF.
(See FINAL APPROACH FIX.)
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) [ICAO]– GNSS refers collectively to the worldwide positioning, navigation, and timing determination capability available from one or more satellite constellation in conjunction with a network of ground stations.

GLOBAL NAVIGATION SATELLITE SYSTEM MINIMUM EN ROUTE IFR ALTITUDE (GNSS MEA)– The minimum en route IFR altitude on a published ATS route or route segment which assures acceptable Global Navigation Satellite System reception and meets obstacle clearance requirements.
(Refer to 14 CFR Part 91.)
(Refer to 14 CFR Part 95.)

GLOBAL POSITIONING SYSTEM (GPS)– GPS refers to the worldwide positioning, navigation and timing determination capability available from the U.S. satellite constellation. The service provided by GPS for civil use is defined in the GPS Standard Positioning System Performance Standard. GPS is composed of space, control, and user elements.

GNSS [ICAO]–
(See GLOBAL NAVIGATION SATELLITE SYSTEM.)

GNSS MEA–

(See GLOBAL NAVIGATION SATELLITE SYSTEM MINIMUM EN ROUTE IFR ALTITUDE.)

GO AHEAD– Proceed with your message. Not to be used for any other purpose.

GO AROUND– Instructions for a pilot to abandon his/her approach to landing. Additional instructions may follow. Unless otherwise advised by ATC, a VFR aircraft or an aircraft conducting visual approach should overfly the runway while climbing to traffic pattern altitude and enter the traffic pattern via the crosswind leg. A pilot on an IFR flight plan making an instrument approach should execute the published missed approach procedure or proceed as instructed by ATC; e.g., "Go around" (additional instructions if required).

(See LOW APPROACH.)

(See MISSED APPROACH.)

GPD–

(See GRAPHIC PLAN DISPLAY.)

GPS–

(See GLOBAL POSITIONING SYSTEM.)

GRAPHIC PLAN DISPLAY (GPD)– A view available with URET that provides a graphic display of aircraft, traffic, and notification of predicted conflicts. Graphic routes for Current Plans and Trial Plans are displayed upon controller request.

(See USER REQUEST EVALUATION TOOL.)

GROSS NAVIGATION ERROR (GNE) – A lateral deviation from a cleared track, normally in excess of 25 Nautical Miles (NM). More stringent standards (for example, 10NM in some parts of the North Atlantic region) may be used in certain regions to support reductions in lateral separation.

GROUND–BASED TRANSCEIVER (GBT)– The ground–based transmitter/receiver (transceiver) receives automatic dependent surveillance–broadcast messages, which are forwarded to an air traffic control facility for processing and display with other radar targets on the plan position indicator (radar display).

(See AUTOMATIC DEPENDENT SURVEILLANCE-BROADCAST.)

GROUND CLUTTER– A pattern produced on the radar scope by ground returns which may degrade other radar returns in the affected area. The effect of ground clutter is minimized by the use of moving target indicator (MTI) circuits in the radar equipment resulting in a radar presentation which displays only targets which are in motion.

(See CLUTTER.)

GROUND COMMUNICATION OUTLET (GCO)– An unstaffed, remotely controlled, ground/ground communications facility. Pilots at uncontrolled airports may contact ATC and FSS via VHF to a telephone connection to obtain an instrument clearance or close a VFR or IFR flight plan. They may also get an updated weather briefing prior to takeoff. Pilots will use four "key clicks" on the VHF radio to contact the appropriate ATC facility or six "key clicks" to contact the FSS. The GCO system is intended to be used only on the ground.

GROUND CONTROLLED APPROACH– A radar approach system operated from the ground by air traffic control personnel transmitting instructions to the pilot by radio. The approach may be conducted with surveillance radar (ASR) only or with both surveillance and precision approach radar (PAR). Usage of the term "GCA" by pilots is discouraged except when referring to a GCA facility. Pilots should specifically request a "PAR" approach when a precision radar approach is desired or request an "ASR" or "surveillance" approach when a nonprecision radar approach is desired.

(See RADAR APPROACH.)

GROUND DELAY PROGRAM (GDP)– A traffic management process administered by the ATCSCC; when aircraft are held on the ground. The purpose of the program is to support the TM mission and limit airborne holding. It is a flexible program and may be implemented in various forms depending upon the needs of the AT system. Ground delay programs provide for equitable assignment of delays to all system users.

GROUND SPEED– The speed of an aircraft relative to the surface of the earth.

GROUND STOP (GS)– The GS is a process that requires aircraft that meet a specific criteria to remain on the ground. The criteria may be airport specific, airspace specific, or equipment specific; for example, all departures to San Francisco, or all departures entering Yorktown sector, or all Category I and II aircraft going to Charlotte. GSs normally occur with little or no warning.

GROUND VISIBILITY–
(See VISIBILITY.)

GS–
(See GROUND STOP.)

H

HAA–
(See HEIGHT ABOVE AIRPORT.)

HAL–
(See HEIGHT ABOVE LANDING.)

HANDOFF– An action taken to transfer the radar identification of an aircraft from one controller to another if the aircraft will enter the receiving controller's airspace and radio communications with the aircraft will be transferred.

HAR–
(See HIGH ALTITUDE REDESIGN.)

HAT–
(See HEIGHT ABOVE TOUCHDOWN.)

HAVE NUMBERS– Used by pilots to inform ATC that they have received runway, wind, and altimeter information only.

HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE– Continuous recorded hazardous inflight weather forecasts broadcasted to airborne pilots over selected VOR outlets defined as an HIWAS BROADCAST AREA.

HAZARDOUS WEATHER INFORMATION– Summary of significant meteorological information (SIGMET/WS), convective significant meteorological information (convective SIGMET/WST), urgent pilot weather reports (urgent PIREP/UUA), center weather advisories (CWA), airmen's meteorological information (AIRMET/WA) and any other weather such as isolated thunderstorms that are rapidly developing and increasing in intensity, or low ceilings and visibilities that are becoming widespread which is considered significant and are not included in a current hazardous weather advisory.

HEAVY (AIRCRAFT)–
(See AIRCRAFT CLASSES.)

HEIGHT ABOVE AIRPORT– The height of the Minimum Descent Altitude above the published airport elevation. This is published in conjunction with circling minimums.
(See MINIMUM DESCENT ALTITUDE.)

HEIGHT ABOVE LANDING– The height above a designated helicopter landing area used for helicopter instrument approach procedures.
(Refer to 14 CFR Part 97.)

HEIGHT ABOVE TOUCHDOWN– The height of the Decision Height or Minimum Descent Altitude above the highest runway elevation in the touchdown zone (first 3,000 feet of the runway). HAT is published on instrument approach charts in conjunction with all straight-in minimums.
(See DECISION HEIGHT.)
(See MINIMUM DESCENT ALTITUDE.)

HELICOPTER– A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.

HELIPAD– A small, designated area, usually with a prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters.

HELIPORT– An area of land, water, or structure used or intended to be used for the landing and takeoff of helicopters and includes its buildings and facilities if any.

HELIPORT REFERENCE POINT (HRP)– The geographic center of a heliport.

HERTZ– The standard radio equivalent of frequency in cycles per second of an electromagnetic wave. Kilohertz (kHz) is a frequency of one thousand cycles per second. Megahertz (MHz) is a frequency of one million cycles per second.

HF–
(See HIGH FREQUENCY.)

HF COMMUNICATIONS–
(See HIGH FREQUENCY COMMUNICATIONS.)

HIGH ALTITUDE REDESIGN (HAR)– A level of non–restrictive routing (NRR) service for aircraft that have all waypoints associated with the HAR program in their flight management systems or RNAV equipage.

HIGH FREQUENCY– The frequency band between 3 and 30 MHz.
(See HIGH FREQUENCY COMMUNICATIONS.)

HIGH FREQUENCY COMMUNICATIONS– High radio frequencies (HF) between 3 and 30 MHz used for air-to-ground voice communication in overseas operations.

HIGH SPEED EXIT–
(See HIGH SPEED TAXIWAY.)

HIGH SPEED TAXIWAY– A long radius taxiway designed and provided with lighting or marking to define the path of aircraft, traveling at high speed (up to 60 knots), from the runway center to a point on the center of a taxiway. Also referred to as long radius exit or turn-off taxiway. The high speed taxiway is designed to expedite aircraft turning off the runway after landing, thus reducing runway occupancy time.

HIGH SPEED TURNOFF–
(See HIGH SPEED TAXIWAY.)

HIWAS–
(See HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE.)

HIWAS AREA–
(See HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE.)

HIWAS BROADCAST AREA– A geographical area of responsibility including one or more HIWAS outlet areas assigned to a FSS for hazardous weather advisory broadcasting.

HIWAS OUTLET AREA– An area defined as a 150 NM radius of a HIWAS outlet, expanded as necessary to provide coverage.

HOLD FOR RELEASE– Used by ATC to delay an aircraft for traffic management reasons; i.e., weather, traffic volume, etc. Hold for release instructions (including departure delay information) are used to inform a pilot or a controller (either directly or through an authorized relay) that an IFR departure clearance is not valid until a release time or additional instructions have been received.
(See ICAO term HOLDING POINT.)

HOLD IN LIEU OF PROCEDURE TURN– A hold in lieu of procedure turn shall be established over a final or intermediate fix when an approach can be made from a properly aligned holding pattern. The hold in lieu of procedure turn permits the pilot to align with the final or intermediate segment of the approach and/or descend in the holding pattern to an altitude that will permit a normal descent to the final approach fix altitude. The hold in lieu of procedure turn is a required maneuver (the same as a procedure turn) unless the aircraft is being radar vectored to the final approach course, when "NoPT" is shown on the approach chart, or when the pilot requests or the controller advises the pilot to make a "straight–in" approach.

HOLD PROCEDURE– A predetermined maneuver which keeps aircraft within a specified airspace while awaiting further clearance from air traffic control. Also used during ground operations to keep aircraft within a specified area or at a specified point while awaiting further clearance from air traffic control.
(See HOLDING FIX.)
(Refer to AIM.)

HOLDING FIX– A specified fix identifiable to a pilot by NAVAIDs or visual reference to the ground used as a reference point in establishing and maintaining the position of an aircraft while holding.
(See FIX.)
(See VISUAL HOLDING.)
(Refer to AIM.)

HOLDING POINT [ICAO]– A specified location, identified by visual or other means, in the vicinity of which the position of an aircraft in flight is maintained in accordance with air traffic control clearances.

HOLDING PROCEDURE–
(See HOLD PROCEDURE.)

HOLD-SHORT POINT– A point on the runway beyond which a landing aircraft with a LAHSO clearance is not authorized to proceed. This point may be located prior to an intersecting runway, taxiway, predetermined point, or approach/departure flight path.

HOLD-SHORT POSITION LIGHTS– Flashing in-pavement white lights located at specified hold-short points.

HOLD-SHORT POSITION MARKING– The painted runway marking located at the hold-short point on all LAHSO runways.

HOLD-SHORT POSITION SIGNS– Red and white holding position signs located alongside the hold-short point.

HOMING– Flight toward a NAVAID, without correcting for wind, by adjusting the aircraft heading to maintain a relative bearing of zero degrees.

(See BEARING.)

(See ICAO term HOMING.)

HOMING [ICAO]– The procedure of using the direction-finding equipment of one radio station with the emission of another radio station, where at least one of the stations is mobile, and whereby the mobile station proceeds continuously towards the other station.

HOVER CHECK– Used to describe when a helicopter/VTOL aircraft requires a stabilized hover to conduct a performance/power check prior to hover taxi, air taxi, or takeoff. Altitude of the hover will vary based on the purpose of the check.

HOVER TAXI– Used to describe a helicopter/VTOL aircraft movement conducted above the surface and in ground effect at airspeeds less than approximately 20 knots. The actual height may vary, and some helicopters may require hover taxi above 25 feet AGL to reduce ground effect turbulence or provide clearance for cargo slingloads.

(See AIR TAXI.)

(See HOVER CHECK.)

(Refer to AIM.)

HOW DO YOU HEAR ME?– A question relating to the quality of the transmission or to determine how well the transmission is being received.

HZ–

(See HERTZ.)

I

I SAY AGAIN– The message will be repeated.

IAF–
(See INITIAL APPROACH FIX.)

IAP–
(See INSTRUMENT APPROACH PROCEDURE.)

IAWP– Initial Approach Waypoint

ICAO–
(See ICAO Term INTERNATIONAL CIVIL AVIATION ORGANIZATION.)

ICING– The accumulation of airframe ice.

Types of icing are:

a. Rime Ice– Rough, milky, opaque ice formed by the instantaneous freezing of small supercooled water droplets.

b. Clear Ice– A glossy, clear, or translucent ice formed by the relatively slow freezing or large supercooled water droplets.

c. Mixed– A mixture of clear ice and rime ice.

Intensity of icing:

a. Trace– Ice becomes perceptible. Rate of accumulation is slightly greater than the rate of sublimation. Deicing/anti-icing equipment is not utilized unless encountered for an extended period of time (over 1 hour).

b. Light– The rate of accumulation may create a problem if flight is prolonged in this environment (over 1 hour). Occasional use of deicing/anti-icing equipment removes/prevents accumulation. It does not present a problem if the deicing/anti-icing equipment is used.

c. Moderate– The rate of accumulation is such that even short encounters become potentially hazardous and use of deicing/anti-icing equipment or flight diversion is necessary.

d. Severe– The rate of accumulation is such that deicing/anti-icing equipment fails to reduce or control the hazard. Immediate flight diversion is necessary.

IDENT– A request for a pilot to activate the aircraft transponder identification feature. This will help the controller to confirm an aircraft identity or to identify an aircraft.
(Refer to AIM.)

IDENT FEATURE– The special feature in the Air Traffic Control Radar Beacon System (ATCRBS) equipment. It is used to immediately distinguish one displayed beacon target from other beacon targets.
(See IDENT.)

IF–
(See INTERMEDIATE FIX.)

IFIM–
(See INTERNATIONAL FLIGHT INFORMATION MANUAL.)

IF NO TRANSMISSION RECEIVED FOR (TIME)– Used by ATC in radar approaches to prefix procedures which should be followed by the pilot in event of lost communications.
(See LOST COMMUNICATIONS.)

IFR–
(See INSTRUMENT FLIGHT RULES.)

IFR AIRCRAFT– An aircraft conducting flight in accordance with instrument flight rules.

IFR CONDITIONS– Weather conditions below the minimum for flight under visual flight rules.
(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

IFR DEPARTURE PROCEDURE–
(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)
(Refer to AIM.)

IFR FLIGHT–
(See IFR AIRCRAFT.)

IFR LANDING MINIMUMS–
(See LANDING MINIMUMS.)

IFR MILITARY TRAINING ROUTES (IR)– Routes used by the Department of Defense and associated Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training in both IFR and VFR weather conditions below 10,000 feet MSL at airspeeds in excess of 250 knots IAS.

IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES– Title 14 Code of Federal

Regulations Part 91, prescribes standard takeoff rules for certain civil users. At some airports, obstructions or other factors require the establishment of nonstandard takeoff minimums, departure procedures, or both to assist pilots in avoiding obstacles during climb to the minimum en route altitude. Those airports are listed in FAA/DOD Instrument Approach Procedures (IAPs) Charts under a section entitled "IFR Takeoff Minimums and Departure Procedures." The FAA/DOD IAP chart legend illustrates the symbol used to alert the pilot to nonstandard takeoff minimums and departure procedures. When departing IFR from such airports or from any airports where there are no departure procedures, DPs, or ATC facilities available, pilots should advise ATC of any departure limitations. Controllers may query a pilot to determine acceptable departure directions, turns, or headings after takeoff. Pilots should be familiar with the departure procedures and must assure that their aircraft can meet or exceed any specified climb gradients.

IF/IAWP– Intermediate Fix/Initial Approach Waypoint. The waypoint where the final approach course of a T approach meets the crossbar of the T. When designated (in conjunction with a TAA) this waypoint will be used as an IAWP when approaching the airport from certain directions, and as an IFWP when beginning the approach from another IAWP.

IFWP– Intermediate Fix Waypoint

ILS–
(See INSTRUMENT LANDING SYSTEM.)

ILS CATEGORIES– 1. Category I. An ILS approach procedure which provides for approach to a height above touchdown of not less than 200 feet and with runway visual range of not less than 1,800 feet.– 2. Special Authorization Category I. An ILS approach procedure which provides for approach to a height above touchdown of not less than 150 feet and with runway visual range of not less than 1,400 feet, HUD to DH. 3. Category II. An ILS approach procedure which provides for approach to a height above touchdown of not less than 100 feet and with runway visual range of not less than 1,200 feet (with autoland or HUD to touchdown and noted on authorization, RVR 1,000 feet).– 4. Special Authorization Category II with Reduced Lighting. An ILS approach procedure which provides for approach to a height above touchdown of not less than 100 feet and with runway visual range of not less than 1,200 feet with autoland or HUD to touchdown and noted on authorization (no touchdown zone and centerline lighting are required).– 5. Category III:

a. IIIA.–An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 700 feet.

b. IIIB.–An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 150 feet.

c. IIIC.–An ILS approach procedure which provides for approach without a decision height minimum and without runway visual range minimum.

ILS PRM APPROACH– An instrument landing system (ILS) approach conducted to parallel runways whose extended centerlines are separated by less than 4,300 feet and at least 3,000 feet where closely spaced independent approaches are permitted. Also used in conjunction with an LDA PRM, or RNAV (GPS) PRM approach to conduct Simultaneous Offset Instrument Approach (SOIA) operations. No Transgression Zone (NTZ) monitoring is required to conduct these approaches. When the runway spacing is less than 3,600 feet, the NTZ must be monitored by a Precision Runway Monitor (PRM) or other high update rate surveillance system.
(Refer to AIM)

IM–
(See INNER MARKER.)

IMC–
(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

IMMEDIATELY– Used by ATC or pilots when such action compliance is required to avoid an imminent situation.

INCERFA (Uncertainty Phase) [ICAO]– A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

INCREASE SPEED TO (SPEED)–
(See SPEED ADJUSTMENT.)

INERTIAL NAVIGATION SYSTEM– An RNAV system which is a form of self-contained navigation.
(See Area Navigation/RNAV.)

INFLIGHT REFUELING–
(See AERIAL REFUELING.)

INFLIGHT WEATHER ADVISORY–
(See WEATHER ADVISORY.)

INFORMATION REQUEST– A request originated by an FSS for information concerning an overdue VFR aircraft.

INITIAL APPROACH FIX– The fixes depicted on instrument approach procedure charts that identify the beginning of the initial approach segment(s).
(See FIX.)
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INITIAL APPROACH SEGMENT–
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INITIAL APPROACH SEGMENT [ICAO]– That segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point.

INLAND NAVIGATION FACILITY– A navigation aid on a North American Route at which the common route and/or the noncommon route begins or ends.

INNER MARKER– A marker beacon used with an ILS (CAT II) precision approach located between the middle marker and the end of the ILS runway, transmitting a radiation pattern keyed at six dots per second and indicating to the pilot, both aurally and visually, that he/she is at the designated decision height (DH), normally 100 feet above the touchdown zone elevation, on the ILS CAT II approach. It also marks progress during a CAT III approach.
(See INSTRUMENT LANDING SYSTEM.)
(Refer to AIM.)

INNER MARKER BEACON–
(See INNER MARKER.)

INREQ–
(See INFORMATION REQUEST.)

INS–
(See INERTIAL NAVIGATION SYSTEM.)

INSTRUMENT APPROACH–
(See INSTRUMENT APPROACH PROCEDURE.)

INSTRUMENT APPROACH PROCEDURE– A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority.
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

a. U.S. civil standard instrument approach procedures are approved by the FAA as prescribed under 14 CFR Part 97 and are available for public use.

b. U.S. military standard instrument approach procedures are approved and published by the Department of Defense.

c. Special instrument approach procedures are approved by the FAA for individual operators but are not published in 14 CFR Part 97 for public use.
(See ICAO term INSTRUMENT APPROACH PROCEDURE.)

INSTRUMENT APPROACH OPERATIONS [ICAO]* An approach and landing using instruments for navigation guidance based on an instrument approach procedure. There are two methods for executing instrument approach operations:

a. A two–dimensional (2D) instrument approach operation, using lateral navigation guidance only; and

b. A three–dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance.

Note: Lateral and vertical navigation guidance refers to the guidance provided either by:
a) a ground–based radio navigation aid; or
b) computer–generated navigation data from ground–based, space–based, self–contained navigation aids or a combination of these.

(See ICAO term INSTRUMENT APPROACH PROCEDURE.)

INSTRUMENT APPROACH PROCEDURE [ICAO]– A series of predetermined maneuvers by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en route obstacle clearance criteria apply.
(See ICAO term INSTRUMENT APPROACH OPERATIONS)

INSTRUMENT APPROACH PROCEDURES CHARTS–

(See AERONAUTICAL CHART.)

INSTRUMENT DEPARTURE PROCEDURE (DP)– A preplanned instrument flight rule (IFR) departure procedure published for pilot use, in graphic or textual format, that provides obstruction clearance from the terminal area to the appropriate en route structure. There are two types of DP, Obstacle Departure Procedure (ODP), printed either textually or graphically, and, Standard Instrument Departure (SID), which is always printed graphically.

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See OBSTACLE DEPARTURE PROCEDURES.)

(See STANDARD INSTRUMENT DEPARTURES.)

(Refer to AIM.)

INSTRUMENT DEPARTURE PROCEDURE (DP) CHARTS–

(See AERONAUTICAL CHART.)

INSTRUMENT FLIGHT RULES– Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

(See VISUAL FLIGHT RULES.)

(See VISUAL METEOROLOGICAL CONDITIONS.)

(See ICAO term INSTRUMENT FLIGHT RULES.)

(Refer to AIM.)

INSTRUMENT FLIGHT RULES [ICAO]– A set of rules governing the conduct of flight under instrument meteorological conditions.

INSTRUMENT LANDING SYSTEM– A precision instrument approach system which normally consists of the following electronic components and visual aids:

a. Localizer.

(See LOCALIZER.)

b. Glideslope.

(See GLIDESLOPE.)

c. Outer Marker.

(See OUTER MARKER.)

d. Middle Marker.

(See MIDDLE MARKER.)

e. Approach Lights.

(See AIRPORT LIGHTING.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

INSTRUMENT METEOROLOGICAL CONDITIONS– Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling less than the minima specified for visual meteorological conditions.

(See INSTRUMENT FLIGHT RULES.)

(See VISUAL FLIGHT RULES.)

(See VISUAL METEOROLOGICAL CONDITIONS.)

INSTRUMENT RUNWAY– A runway equipped with electronic and visual navigation aids for which a precision or nonprecision approach procedure having straight-in landing minimums has been approved.

(See ICAO term INSTRUMENT RUNWAY.)

INSTRUMENT RUNWAY [ICAO]– One of the following types of runways intended for the operation of aircraft using instrument approach procedures:

a. Nonprecision Approach Runway–An instrument runway served by visual aids and a nonvisual aid providing at least directional guidance adequate for a straight-in approach.

b. Precision Approach Runway, Category I–An instrument runway served by ILS and visual aids intended for operations down to 60 m (200 feet) decision height and down to an RVR of the order of 800 m.

c. Precision Approach Runway, Category II–An instrument runway served by ILS and visual aids intended for operations down to 30 m (100 feet) decision height and down to an RVR of the order of 400 m.

d. Precision Approach Runway, Category III–An instrument runway served by ILS to and along the surface of the runway and:

1. Intended for operations down to an RVR of the order of 200 m (no decision height being applicable) using visual aids during the final phase of landing;

2. Intended for operations down to an RVR of the order of 50 m (no decision height being applicable) using visual aids for taxiing;

3. Intended for operations without reliance on visual reference for landing or taxiing.

Note 1: See Annex 10 Volume I, Part I, Chapter 3, for related ILS specifications.

Note 2: Visual aids need not necessarily be matched to the scale of nonvisual aids provided. The criterion for the selection of visual aids is the conditions in which operations are intended to be conducted.

INTEGRITY– The ability of a system to provide timely warnings to users when the system should not be used for navigation.

INTERMEDIATE APPROACH SEGMENT–
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INTERMEDIATE APPROACH SEGMENT [ICAO]– That segment of an instrument approach procedure between either the intermediate approach fix and the final approach fix or point, or between the end of a reversal, race track or dead reckoning track procedure and the final approach fix or point, as appropriate.

INTERMEDIATE FIX– The fix that identifies the beginning of the intermediate approach segment of an instrument approach procedure. The fix is not normally identified on the instrument approach chart as an intermediate fix (IF).
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INTERMEDIATE LANDING– On the rare occasion that this option is requested, it should be approved. The departure center, however, must advise the ATCSCC so that the appropriate delay is carried over and assigned at the intermediate airport. An intermediate landing airport within the arrival center will not be accepted without coordination with and the approval of the ATCSCC.

INTERNATIONAL AIRPORT– Relating to international flight, it means:

a. An airport of entry which has been designated by the Secretary of Treasury or Commissioner of Customs as an international airport for customs service.

b. A landing rights airport at which specific permission to land must be obtained from customs authorities in advance of contemplated use.

c. Airports designated under the Convention on International Civil Aviation as an airport for use by international commercial air transport and/or international general aviation.
(See ICAO term INTERNATIONAL AIRPORT.)
(Refer to AIRPORT/FACILITY DIRECTORY.)
(Refer to IFIM.)

INTERNATIONAL AIRPORT [ICAO]– Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

INTERNATIONAL CIVIL AVIATION ORGANIZATION [ICAO]– A specialized agency of the United Nations whose objective is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport.

a. Regions include:

1. African-Indian Ocean Region
2. Caribbean Region
3. European Region
4. Middle East/Asia Region
5. North American Region
6. North Atlantic Region
7. Pacific Region
8. South American Region

INTERNATIONAL FLIGHT INFORMATION MANUAL– A publication designed primarily as a pilot's preflight planning guide for flights into foreign airspace and for flights returning to the U.S. from foreign locations.

INTERROGATOR– The ground-based surveillance radar beacon transmitter-receiver, which normally scans in synchronism with a primary radar, transmitting discrete radio signals which repetitiously request all transponders on the mode being used to reply. The replies received are mixed with the primary radar returns and displayed on the same plan position indicator (radar scope). Also, applied to the airborne element of the TACAN/DME system.
(See TRANSPONDER.)
(Refer to AIM.)

INTERSECTING RUNWAYS– Two or more runways which cross or meet within their lengths.
(See INTERSECTION.)

INTERSECTION–

a. A point defined by any combination of courses, radials, or bearings of two or more navigational aids.

b. Used to describe the point where two runways, a runway and a taxiway, or two taxiways cross or meet.

INTERSECTION DEPARTURE– A departure from any runway intersection except the end of the runway.
(See INTERSECTION.)

INTERSECTION TAKEOFF–
(See INTERSECTION DEPARTURE.)

IR–
(See IFR MILITARY TRAINING ROUTES.)

ISR– Indicates the confidence level of the track requires 5NM separation. 3NM separation, 1 1/2NM separation, and target resolution cannot be used.

J

JAMMING– Electronic or mechanical interference which may disrupt the display of aircraft on radar or the transmission/reception of radio communications/ navigation.

JET BLAST– Jet engine exhaust (thrust stream turbulence).

(See WAKE TURBULENCE.)

JET ROUTE– A route designed to serve aircraft operations from 18,000 feet MSL up to and including flight level 450. The routes are referred to as "J" routes with numbering to identify the designated route; e.g., J105.

(See Class A AIRSPACE.)
(Refer to 14 CFR Part 71.)

JET STREAM– A migrating stream of high-speed winds present at high altitudes.

JETTISONING OF EXTERNAL STORES– Airborne release of external stores; e.g., tiptanks, ordnance.

(See FUEL DUMPING.)
(Refer to 14 CFR Part 91.)

JOINT USE RESTRICTED AREA–

(See RESTRICTED AREA.)

K

KNOWN TRAFFIC– With respect to ATC clearances, means aircraft whose altitude, position, and intentions are known to ATC.

L

LAA–

(See LOCAL AIRPORT ADVISORY.)

LAAS–

(See LOW ALTITUDE ALERT SYSTEM.)

LAHSO– An acronym for "Land and Hold Short Operation." These operations include landing and holding short of an intersecting runway, a taxiway, a predetermined point, or an approach/departure flightpath.

LAHSO-DRY– Land and hold short operations on runways that are dry.

LAHSO-WET– Land and hold short operations on runways that are wet (but not contaminated).

LAND AND HOLD SHORT OPERATIONS– Operations which include simultaneous takeoffs and landings and/or simultaneous landings when a landing aircraft is able and is instructed by the controller to hold-short of the intersecting runway/taxiway or designated hold-short point. Pilots are expected to promptly inform the controller if the hold short clearance cannot be accepted.

(See PARALLEL RUNWAYS.)

(Refer to AIM.)

LANDING AREA– Any locality either on land, water, or structures, including airports/heliports and intermediate landing fields, which is used, or intended to be used, for the landing and takeoff of aircraft whether or not facilities are provided for the shelter, servicing, or for receiving or discharging passengers or cargo.

(See ICAO term LANDING AREA.)

LANDING AREA [ICAO]– That part of a movement area intended for the landing or take-off of aircraft.

LANDING DIRECTION INDICATOR– A device which visually indicates the direction in which landings and takeoffs should be made.

(See TETRAHEDRON.)

(Refer to AIM.)

LANDING DISTANCE AVAILABLE (LDA)– The runway length declared available and suitable for a landing airplane.

(See ICAO term LANDING DISTANCE AVAILABLE.)

LANDING DISTANCE AVAILABLE [ICAO]– The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

LANDING MINIMUMS– The minimum visibility prescribed for landing a civil aircraft while using an instrument approach procedure. The minimum applies with other limitations set forth in 14 CFR Part 91 with respect to the Minimum Descent Altitude (MDA) or Decision Height (DH) prescribed in the instrument approach procedures as follows:

a. Straight-in landing minimums. A statement of MDA and visibility, or DH and visibility, required for a straight-in landing on a specified runway, or

b. Circling minimums. A statement of MDA and visibility required for the circle-to-land maneuver.

Note: Descent below the MDA or DH must meet the conditions stated in 14 CFR Section 91.175.

(See CIRCLE-TO-LAND MANEUVER.)

(See DECISION HEIGHT.)

(See INSTRUMENT APPROACH PROCEDURE.)

(See MINIMUM DESCENT ALTITUDE.)

(See STRAIGHT-IN LANDING.)

(See VISIBILITY.)

(Refer to 14 CFR Part 91.)

LANDING ROLL– The distance from the point of touchdown to the point where the aircraft can be brought to a stop or exit the runway.

LANDING SEQUENCE– The order in which aircraft are positioned for landing.

(See APPROACH SEQUENCE.)

LAST ASSIGNED ALTITUDE– The last altitude/flight level assigned by ATC and acknowledged by the pilot.

(See MAINTAIN.)

(Refer to 14 CFR Part 91.)

LATERAL NAVIGATION (LNAV)– A function of area navigation (RNAV) equipment which calculates,

displays, and provides lateral guidance to a profile or path.

LATERAL SEPARATION– The lateral spacing of aircraft at the same altitude by requiring operation on different routes or in different geographical locations.
(See SEPARATION.)

LDA–
(See LOCALIZER TYPE DIRECTIONAL AID.)
(See LANDING DISTANCE AVAILABLE.)
(See ICAO Term LANDING DISTANCE AVAILABLE.)

LF–
(See LOW FREQUENCY.)

LIGHTED AIRPORT– An airport where runway and obstruction lighting is available.
(See AIRPORT LIGHTING.)
(Refer to AIM.)

LIGHT GUN– A handheld directional light signaling device which emits a brilliant narrow beam of white, green, or red light as selected by the tower controller. The color and type of light transmitted can be used to approve or disapprove anticipated pilot actions where radio communication is not available. The light gun is used for controlling traffic operating in the vicinity of the airport and on the airport movement area.
(Refer to AIM.)

LIGHT-SPORT AIRCRAFT (LSA)- An FAA-registered aircraft, other than a helicopter or powered-lift, that meets certain weight and performance. Principally it is a single engine aircraft with a maximum of two seats and weighing no more than 1,430 pounds if intended for operation on water, or 1,320 pounds if not. They must be of simple design (fixed landing gear (except if intended for operations on water or a glider) piston powered, non-pressurized, with a fixed or ground adjustable propeller), Performance is also limited to a maximum airspeed in level flight of not more than 120 knots CAS, have a maximum never-exceed speed of not more than 120 knots CAS for a glider, and have a maximum stalling speed, without the use of lift-enhancing devices (VS1) of not more than 45 knots CAS. They may be certificated as either Experimental LSA or as a Special LSA aircraft. A minimum of a sport pilot_certificate is required to operate light-sport aircraft." (Refer to 14 CFR Part 1, §1.1.)

LINE UP AND WAIT (LUAW)– Used by ATC to inform a pilot to taxi onto the departure runway to line up and wait. It is not authorization for takeoff. It is used when takeoff clearance cannot immediately be issued because of traffic or other reasons.
(See CLEARED FOR TAKEOFF.)

LOCAL AIRPORT ADVISORY (LAA)– A service provided by facilities, which are located on the landing airport, have a discrete ground–to–air communication frequency or the tower frequency when the tower is closed, automated weather reporting with voice broadcasting, and a continuous ASOS/AWSS/AWOS data display, other continuous direct reading instruments, or manual observations available to the specialist.
(See AIRPORT ADVISORY AREA.)

LOCAL TRAFFIC– Aircraft operating in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.
(See TRAFFIC PATTERN.)

LOCALIZER– The component of an ILS which provides course guidance to the runway.
(See INSTRUMENT LANDING SYSTEM.)
(See ICAO term LOCALIZER COURSE.)
(Refer to AIM.)

LOCALIZER COURSE [ICAO]– The locus of points, in any given horizontal plane, at which the DDM (difference in depth of modulation) is zero.

LOCALIZER OFFSET– An angular offset of the localizer 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 TYPE DIRECTIONAL AID (LDA) PRECISION RUNWAY MONITOR (PRM) APPROACH – An approach, which includes a glideslope, used in conjunction with an ILS PRM or RNAV (GPS) PRM approach to an adjacent runway to conduct Simultaneous Offset Instrument

Approaches (SOIA) to parallel runways whose centerlines are separated by less than 3,000 feet and at least 750 feet. NTZ monitoring is required to conduct these approaches. When the approach course spacing is less than 3,600 feet at the Missed Approach Point (MAP), the use of a PRM or other high update rate surveillance system in order to conduct simultaneous independent approaches is required.

(See SIMULTANEOUS OFFSET INSTRUMENT APPROACH (SOIA).)

(Refer to AIM)

LOCALIZER USABLE DISTANCE– The maximum distance from the localizer transmitter at a specified altitude, as verified by flight inspection, at which reliable course information is continuously received.

(Refer to AIM.)

LOCATOR [ICAO]– An LM/MF NDB used as an aid to final approach.

Note: A locator usually has an average radius of rated coverage of between 18.5 and 46.3 km (10 and 25 NM).

LONG RANGE NAVIGATION–

(See LORAN.)

LONGITUDINAL SEPARATION– The longitudinal spacing of aircraft at the same altitude by a minimum distance expressed in units of time or miles.

(See SEPARATION.)

(Refer to AIM.)

LORAN– An electronic navigational system by which hyperbolic lines of position are determined by measuring the difference in the time of reception of synchronized pulse signals from two fixed transmitters. Loran A operates in the 1750-1950 kHz frequency band. Loran C and D operate in the 100-110 kHz frequency band. In 2010, the U.S. Coast Guard terminated all U.S. LORAN-C transmissions.

(Refer to AIM.)

LOST COMMUNICATIONS– Loss of the ability to communicate by radio. Aircraft are sometimes referred to as NORDO (No Radio). Standard pilot procedures are specified in 14 CFR Part 91. Radar controllers issue procedures for pilots to follow in the event of lost communications during a radar approach when weather reports indicate that an aircraft will likely encounter IFR weather conditions during the approach.

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

LOW ALTITUDE AIRWAY STRUCTURE– The network of airways serving aircraft operations up to but not including 18,000 feet MSL.

(See AIRWAY.)

(Refer to AIM.)

LOW ALTITUDE ALERT, CHECK YOUR ALTITUDE IMMEDIATELY–

(See SAFETY ALERT.)

LOW ALTITUDE ALERT SYSTEM– An automated function of the TPX-42 that alerts the controller when a Mode C transponder equipped aircraft on an IFR flight plan is below a predetermined minimum safe altitude. If requested by the pilot, Low Altitude Alert System monitoring is also available to VFR Mode C transponder equipped aircraft.

LOW APPROACH– An approach over an airport or runway following an instrument approach or a VFR approach including the go-around maneuver where the pilot intentionally does not make contact with the runway.

(Refer to AIM.)

LOW FREQUENCY– The frequency band between 30 and 300 kHz.

(Refer to AIM.)

LPV– A type of approach with vertical guidance (APV) based on WAAS, published on RNAV (GPS) approach charts. This procedure takes advantage of the precise lateral guidance available from WAAS. The minima is published as a decision altitude (DA).

LUAW–

(See LINE UP AND WAIT.)

M

MAA–
(See MAXIMUM AUTHORIZED ALTITUDE.)

MACH NUMBER– The ratio of true airspeed to the speed of sound; e.g., MACH .82, MACH 1.6.
(See AIRSPEED.)

MACH TECHNIQUE [ICAO]– Describes a control technique used by air traffic control whereby turbojet aircraft operating successively along suitable routes are cleared to maintain appropriate MACH numbers for a relevant portion of the en route phase of flight. The principle objective is to achieve improved utilization of the airspace and to ensure that separation between successive aircraft does not decrease below the established minima.

MAHWP– Missed Approach Holding Waypoint

MAINTAIN–

a. Concerning altitude/flight level, the term means to remain at the altitude/flight level specified. The phrase "climb and" or "descend and" normally precedes "maintain" and the altitude assignment; e.g., "descend and maintain 5,000."

b. Concerning other ATC instructions, the term is used in its literal sense; e.g., maintain VFR.

MAINTENANCE PLANNING FRICTION LEVEL– The friction level specified in AC 150/5320-12, Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces, which represents the friction value below which the runway pavement surface remains acceptable for any category or class of aircraft operations but which is beginning to show signs of deterioration. This value will vary depending on the particular friction measurement equipment used.

MAKE SHORT APPROACH– Used by ATC to inform a pilot to alter his/her traffic pattern so as to make a short final approach.
(See TRAFFIC PATTERN.)

MAN PORTABLE AIR DEFENSE SYSTEMS (MANPADS)– MANPADS are lightweight, shoulder–launched, missile systems used to bring down aircraft and create mass casualties. The potential for MANPADS use against airborne aircraft is real and requires familiarity with the subject. Terrorists choose MANPADS because the weapons are low cost, highly mobile, require minimal set–up time, and are easy to use and maintain. Although the weapons have limited range, and their accuracy is affected by poor visibility and adverse weather, they can be fired from anywhere on land or from boats where there is unrestricted visibility to the target.

MANDATORY ALTITUDE– An altitude depicted on an instrument Approach Procedure Chart requiring the aircraft to maintain altitude at the depicted value.

MANPADS–
(See MAN PORTABLE AIR DEFENSE SYSTEMS.)

MAP–
(See MISSED APPROACH POINT.)

MARKER BEACON– An electronic navigation facility transmitting a 75 MHz vertical fan or boneshaped radiation pattern. Marker beacons are identified by their modulation frequency and keying code, and when received by compatible airborne equipment, indicate to the pilot, both aurally and visually, that he/she is passing over the facility.
(See INNER MARKER.)
(See MIDDLE MARKER.)
(See OUTER MARKER.)
(Refer to AIM.)

MARSA–
(See MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT.)

MAWP– Missed Approach Waypoint

MAXIMUM AUTHORIZED ALTITUDE– A published altitude representing the maximum usable altitude or flight level for an airspace structure or route segment. It is the highest altitude on a Federal airway, jet route, area navigation low or high route, or other direct route for which an MEA is designated in 14 CFR Part 95 at which adequate reception of navigation aid signals is assured.

MAYDAY– The international radiotelephony distress signal. When repeated three times, it indicates

imminent and grave danger and that immediate assistance is requested.

(See PAN-PAN.)

(Refer to AIM.)

MCA–

(See MINIMUM CROSSING ALTITUDE.)

MDA–

(See MINIMUM DESCENT ALTITUDE.)

MEA–

(See MINIMUM EN ROUTE IFR ALTITUDE.)

MEARTS–

(See MICRO-EN ROUTE AUTOMATED RADAR TRACKING SYSTEM.)

METEOROLOGICAL IMPACT STATEMENT– An unscheduled planning forecast describing conditions expected to begin within 4 to 12 hours which may impact the flow of air traffic in a specific center's (ARTCC) area.

METER FIX ARC– A semicircle, equidistant from a meter fix, usually in low altitude relatively close to the meter fix, used to help CTAS/HOST calculate a meter time, and determine appropriate sector meter list assignments for aircraft not on an established arrival route or assigned a meter fix.

METER FIX TIME/SLOT TIME– A calculated time to depart the meter fix in order to cross the vertex at the ACLT. This time reflects descent speed adjustment and any applicable time that must be absorbed prior to crossing the meter fix.

METER LIST–

(See ARRIVAL SECTOR ADVISORY LIST.)

METER LIST DISPLAY INTERVAL– A dynamic parameter which controls the number of minutes prior to the flight plan calculated time of arrival at the meter fix for each aircraft, at which time the TCLT is frozen and becomes an ACLT; i.e., the VTA is updated and consequently the TCLT modified as appropriate until frozen at which time updating is suspended and an ACLT is assigned. When frozen, the flight entry is inserted into the arrival sector's meter list for display on the sector PVD/MDM. MLDI is used if filed true airspeed is less than or equal to freeze speed parameters (FSPD).

METERING– A method of time-regulating arrival traffic flow into a terminal area so as not to exceed a predetermined terminal acceptance rate.

METERING AIRPORTS– Airports adapted for metering and for which optimum flight paths are defined. A maximum of 15 airports may be adapted.

METERING FIX– A fix along an established route from over which aircraft will be metered prior to entering terminal airspace. Normally, this fix should be established at a distance from the airport which will facilitate a profile descent 10,000 feet above airport elevation (AAE) or above.

METERING POSITION(S)– Adapted PVDs/MDMs and associated "D" positions eligible for display of a metering position list. A maximum of four PVDs/MDMs may be adapted.

METERING POSITION LIST– An ordered list of data on arrivals for a selected metering airport displayed on a metering position PVD/MDM.

MFT–

(See METER FIX TIME/SLOT TIME.)

MHA–

(See MINIMUM HOLDING ALTITUDE.)

MIA–

(See MINIMUM IFR ALTITUDES.)

MICROBURST– A small downburst with outbursts of damaging winds extending 2.5 miles or less. In spite of its small horizontal scale, an intense microburst could induce wind speeds as high as 150 knots

(Refer to AIM.)

MICRO-EN ROUTE AUTOMATED RADAR TRACKING SYSTEM (MEARTS)– An automated radar and radar beacon tracking system capable of employing both short-range (ASR) and long-range (ARSR) radars. This microcomputer driven system provides improved tracking, continuous data recording, and use of full digital radar displays.

MICROWAVE LANDING SYSTEM– A precision instrument approach system operating in the microwave spectrum which normally consists of the following components:

a. Azimuth Station.

b. Elevation Station.

c. Precision Distance Measuring Equipment.

(See MLS CATEGORIES.)

MID RVR–

(See VISIBILITY.)

MIDDLE COMPASS LOCATOR–

(See COMPASS LOCATOR.)

MIDDLE MARKER– A marker beacon that defines a point along the glideslope of an ILS normally located at or near the point of decision height (ILS Category I). It is keyed to transmit alternate dots and dashes, with the alternate dots and dashes keyed at the rate of 95 dot/dash combinations per minute on a 1300 Hz tone, which is received aurally and visually by compatible airborne equipment.

(See INSTRUMENT LANDING SYSTEM.)

(See MARKER BEACON.)

(Refer to AIM.)

MILES-IN-TRAIL– A specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight.

MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT– A condition whereby the military services involved assume responsibility for separation between participating military aircraft in the ATC system. It is used only for required IFR operations which are specified in letters of agreement or other appropriate FAA or military documents.

MILITARY LANDING ZONE– A landing strip used exclusively by the military for training. A military landing zone does not carry a runway designation.

MILITARY OPERATIONS AREA–

(See SPECIAL USE AIRSPACE.)

MILITARY TRAINING ROUTES– Airspace of defined vertical and lateral dimensions established for the conduct of military flight training at airspeeds in excess of 250 knots IAS.

(See IFR MILITARY TRAINING ROUTES.)

(See VFR MILITARY TRAINING ROUTES.)

MINIMA–

(See MINIMUMS.)

MINIMUM CROSSING ALTITUDE– The lowest altitude at certain fixes at which an aircraft must cross when proceeding in the direction of a higher minimum en route IFR altitude (MEA).

(See MINIMUM EN ROUTE IFR ALTITUDE.)

MINIMUM DESCENT ALTITUDE– The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instruction approach procedure where no electronic glideslope is provided.

(See NONPRECISION APPROACH PROCEDURE.)

MINIMUM EN ROUTE IFR ALTITUDE (MEA)– The lowest published altitude between radio fixes which assures acceptable navigational signal coverage and meets obstacle clearance requirements between those fixes. The MEA prescribed for a Federal airway or segment thereof, area navigation low or high route, or other direct route applies to the entire width of the airway, segment, or route between the radio fixes defining the airway, segment, or route.

(Refer to 14 CFR Part 91.)

(Refer to 14 CFR Part 95.)

(Refer to AIM.)

MINIMUM FRICTION LEVEL– The friction level specified in AC 150/5320-12, Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces, that represents the minimum recommended wet pavement surface friction value for any turbojet aircraft engaged in LAHSO. This value will vary with the particular friction measurement equipment used.

MINIMUM FUEL– Indicates that an aircraft's fuel supply has reached a state where, upon reaching the destination, it can accept little or no delay. This is not an emergency situation but merely indicates an emergency situation is possible should any undue delay occur.

(Refer to AIM.)

MINIMUM HOLDING ALTITUDE– The lowest altitude prescribed for a holding pattern which assures navigational signal coverage, communications, and meets obstacle clearance requirements.

MINIMUM IFR ALTITUDES (MIA)– Minimum altitudes for IFR operations as prescribed in 14 CFR Part 91. These altitudes are published on aeronautical charts and prescribed in 14 CFR Part 95 for airways and routes, and in 14 CFR Part 97 for standard instrument approach procedures. If no applicable minimum altitude is prescribed in 14 CFR Part 95 or 14 CFR Part 97, the following minimum IFR altitude applies:

a. In designated mountainous areas, 2,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

b. Other than mountainous areas, 1,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

c. As otherwise authorized by the Administrator or assigned by ATC.

(See MINIMUM CROSSING ALTITUDE.)

(See MINIMUM EN ROUTE IFR ALTITUDE.)

(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)

(See MINIMUM SAFE ALTITUDE.)

(See MINIMUM VECTORING ALTITUDE.)

(Refer to 14 CFR Part 91.)

MINIMUM NAVIGATION PERFORMANCE SPECIFICATION– A set of standards which require aircraft to have a minimum navigation performance capability in order to operate in MNPS designated airspace. In addition, aircraft must be certified by their State of Registry for MNPS operation.

MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE– Designated airspace in which MNPS procedures are applied between MNPS certified and equipped aircraft. Under certain conditions, non-MNPS aircraft can operate in MNPSA. However, standard oceanic separation minima is provided between the non-MNPS aircraft and other traffic. Currently, the only designated MNPSA is described as follows:

a. Between FL 285 and FL 420;

b. Between latitudes 27°N and the North Pole;

c. In the east, the eastern boundaries of the CTAs Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik;

d. In the west, the western boundaries of CTAs Reykjavik and Gander Oceanic and New York Oceanic excluding the area west of 60°W and south of 38°30'N.

MINIMUM OBSTRUCTION CLEARANCE ALTITUDE (MOCA)– The lowest published altitude in effect between radio fixes on VOR airways, off-airway routes, or route segments which meets obstacle clearance requirements for the entire route segment and which assures acceptable navigational signal coverage only within 25 statute (22 nautical) miles of a VOR.

(Refer to 14 CFR Part 91.)

(Refer to 14 CFR Part 95.)

MINIMUM RECEPTION ALTITUDE– The lowest altitude at which an intersection can be determined.

(Refer to 14 CFR Part 95.)

MINIMUM SAFE ALTITUDE–

a. The minimum altitude specified in 14 CFR Part 91 for various aircraft operations.

b. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes will be identified as Minimum Sector Altitudes or Emergency Safe Altitudes and are established as follows:

1. Minimum Sector Altitudes. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance within a 25-mile radius of the navigation facility upon which the procedure is predicated. Sectors depicted on approach charts must be at least 90 degrees in scope. These altitudes are for emergency use only and do not necessarily assure acceptable navigational signal coverage.

(See ICAO term Minimum Sector Altitude.)

2. Emergency Safe Altitudes. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance in nonmountainous areas and 2,000 feet of obstacle clearance in designated mountainous areas within a 100-mile radius of the navigation facility upon which the procedure is predicated and normally used only in military procedures. These altitudes are identified on published procedures as "Emergency Safe Altitudes."

MINIMUM SAFE ALTITUDE WARNING– A function of the ARTS III computer that aids the controller by alerting him/her when a tracked Mode C equipped aircraft is below or is predicted by the computer to go below a predetermined minimum safe altitude.

(Refer to AIM.)

MINIMUM SECTOR ALTITUDE [ICAO]– The lowest altitude which may be used under emergency conditions which will provide a minimum clearance of 300 m (1,000 feet) above all obstacles located in an area contained within a sector of a circle of 46 km (25 NM) radius centered on a radio aid to navigation.

MINIMUMS– Weather condition requirements established for a particular operation or type of

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

(See IFR CONDITIONS.)

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See LANDING MINIMUMS.)

(See VFR CONDITIONS.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

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

(Refer to AIM.)

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

MIS–

(See METEOROLOGICAL IMPACT STATEMENT.)

MISSED APPROACH–

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

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

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

(See MISSED APPROACH POINT.)

(Refer to AIM.)

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

(See MISSED APPROACH.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

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

MISSED APPROACH SEGMENT–

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

MLDI–

(See METER LIST DISPLAY INTERVAL.)

MLS–

(See MICROWAVE LANDING SYSTEM.)

MLS CATEGORIES–

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

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

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

MM–

(See MIDDLE MARKER.)

MNPS–

(See MINIMUM NAVIGATION PERFORMANCE SPECIFICATION.)

MNPSA–

(See MINIMUM NAVIGATION PERFORMANCE–SPECIFICATION AIRSPACE.)

MOA–

(See MILITARY OPERATIONS AREA.)

MOCA–

(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)

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

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

(See INTERROGATOR.)
(See RADAR.)
(See TRANSPONDER.)
(See ICAO term MODE.)
(Refer to AIM.)

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

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

(See CONFLICT ALERT.)

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

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

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

MOSAIC/MULTI–SENSOR MODE– Accepts positional data from multiple radar or ADS–B sites. Targets are displayed from a single source within a radar sort box according to the hierarchy of the sources assigned.

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

(See ICAO term MOVEMENT AREA.)

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

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

MRA–

(See MINIMUM RECEPTION ALTITUDE.)

MSA–

(See MINIMUM SAFE ALTITUDE.)

MSAW–

(See MINIMUM SAFE ALTITUDE WARNING.)

MTI–

(See MOVING TARGET INDICATOR.)

MTR–

(See MILITARY TRAINING ROUTES.)

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

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

MVA–

(See MINIMUM VECTORING ALTITUDE.)

N

NAS–

(See NATIONAL AIRSPACE SYSTEM.)

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

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

(See FLIGHT INFORMATION REGION.)

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

(See NATIONAL FLIGHT DATA DIGEST.)

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

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

NAVAID–

(See NAVIGATIONAL AID.)

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

a. T– Terminal.

b. L– Low altitude.

c. H– High altitude.

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

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

(Refer to 14 CFR Part 91.)

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

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

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

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

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

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

(See AIR NAVIGATION FACILITY.)

NBCAP AIRSPACE–

(See NATIONAL BEACON CODE ALLOCATION PLAN AIRSPACE.)

NDB–

(See NONDIRECTIONAL BEACON.)

NEGATIVE– "No," or "permission not granted," or "that is not correct."

NEGATIVE CONTACT– Used by pilots to inform ATC that:

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

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

NFDC–

(See NATIONAL FLIGHT DATA CENTER.)

NFDD–

(See NATIONAL FLIGHT DATA DIGEST.)

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

(See ICAO term NIGHT.)

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

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

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

(Refer to AIM.)

NO GYRO VECTOR–

(See NO GYRO APPROACH.)

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

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

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

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

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

(See AUTOMATIC DIRECTION FINDER.)

(See COMPASS LOCATOR.)

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

NONPRECISION APPROACH–

(See NONPRECISION APPROACH PROCEDURE.)

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

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

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

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

(See FINAL APPROACH COURSE.)

(See FINAL APPROACH-IFR.)

(See INSTRUMENT APPROACH PROCEDURE.)

(See RADAR APPROACH.)

b. Nonradar Approach Control. An ATC facility providing approach control service without the use of radar.

(See APPROACH CONTROL FACILITY.)

(See APPROACH CONTROL SERVICE.)

c. Nonradar Arrival. An aircraft arriving at an airport without radar service or at an airport served by a radar facility and radar contact has not been established or has been terminated due to a lack of radar service to the airport.

(See RADAR ARRIVAL.)

(See RADAR SERVICE.)

d. Nonradar Route. A flight path or route over which the pilot is performing his/her own navigation. The pilot may be receiving radar separation, radar monitoring, or other ATC services while on a nonradar route.

(See RADAR ROUTE.)

e. Nonradar Separation. The spacing of aircraft in accordance with established minima without the use of radar; e.g., vertical, lateral, or longitudinal separation.

(See RADAR SEPARATION.)

(See ICAO term NONRADAR SEPARATION.)

NONRADAR SEPARATION [ICAO]– The separation used when aircraft position information is derived from sources other than radar.

NON–RESTRICTIVE ROUTING (NRR)– Portions of a proposed route of flight where a user can flight plan the most advantageous flight path with no requirement to make reference to ground–based NAVAIDs.

NOPAC–

(See NORTH PACIFIC.)

NORDO (No Radio)– Aircraft that cannot or do not communicate by radio when radio communication is required are referred to as "NORDO."

(See LOST COMMUNICATIONS.)

NORMAL OPERATING ZONE (NOZ)– The NOZ is the operating zone within which aircraft flight remains during normal independent simultaneous parallel ILS approaches.

NORTH AMERICAN ROUTE– A numerically coded route preplanned over existing airway and route systems to and from specific coastal fixes serving the North Atlantic. North American Routes consist of the following:

a. Common Route/Portion. That segment of a North American Route between the inland navigation facility and the coastal fix.

b. Noncommon Route/Portion. That segment of a North American Route between the inland navigation facility and a designated North American terminal.

c. Inland Navigation Facility. A navigation aid on a North American Route at which the common route and/or the noncommon route begins or ends.

d. Coastal Fix. A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

NORTH AMERICAN ROUTE PROGRAM (NRP)– The NRP is a set of rules and procedures which are designed to increase the flexibility of user flight planning within published guidelines.

NORTH MARK– A beacon data block sent by the host computer to be displayed by the ARTS on a 360 degree bearing at a locally selected radar azimuth and distance. The North Mark is used to ensure correct range/azimuth orientation during periods of CENRAP.

NORTH PACIFIC– An organized route system between the Alaskan west coast and Japan.

NOTAM–

(See NOTICE TO AIRMEN.)

NOTAM [ICAO]– A notice containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

a. I Distribution– Distribution by means of telecommunication.

b. II Distribution– Distribution by means other than telecommunications.

NOTICE TO AIRMEN– A notice containing information (not known sufficiently in advance to publicize by other means) concerning the

establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the National Airspace System) the timely knowledge of which is essential to personnel concerned with flight operations.

a. NOTAM(D)– A NOTAM given (in addition to local dissemination) distant dissemination beyond the area of responsibility of the Flight Service Station. These NOTAMs will be stored and available until canceled.

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

(See ICAO term NOTAM.)

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

(See NOTICE TO AIRMEN.)

NRR–

(See NON–RESTRICTIVE ROUTING.)

NRS–

(See NAVIGATION REFERENCE SYSTEM.)

NTAP–

(See NOTICES TO AIRMEN PUBLICATION.)

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

(See TRAFFIC ADVISORIES.)

O

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

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

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See STANDARD INSTRUMENT DEPARTURES.)

(Refer to AIM.)

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

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

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

(a) 400 feet, or

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

2. For runways serving only small airplanes:

(a) 300 feet for precision instrument runways.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ODAPS–
(See OCEANIC DISPLAY AND PLANNING SYSTEM.)

ODP–
(See OBSTACLE DEPARTURE PROCEDURE.)

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

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

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

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

OFT–
(See OUTER FIX TIME.)

OM–
(See OUTER MARKER.)

ON COURSE–

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

b. Used by ATC to advise a pilot making a radar approach that his/her aircraft is lined up on the final approach course.
(See ON-COURSE INDICATION.)

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

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

ONER–
(See OCEANIC NAVIGATIONAL ERROR REPORT.)

OPERATIONAL–
(See DUE REGARD.)

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

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

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

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

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

OPTION APPROACH– An approach requested and conducted by a pilot which will result in either a touch-and-go, missed approach, low approach, stop-and-go, or full stop landing.
(See CLEARED FOR THE OPTION.)
(Refer to AIM.)

ORGANIZED TRACK SYSTEM– A series of ATS routes which are fixed and charted; i.e., CEP, NOPAC, or flexible and described by NOTAM; i.e., NAT TRACK MESSAGE.

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

OTR–
(See OCEANIC TRANSITION ROUTE.)

OTS–
(See ORGANIZED TRACK SYSTEM.)

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

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

OUTER COMPASS LOCATOR–
(See COMPASS LOCATOR.)

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

OR

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

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

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

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

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

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

a. The radio contact required of the pilot.

b. The speed to be maintained.

c. An initial approach 3 to 5 miles in length.

d. An elliptical pattern consisting of two 180 degree turns.

e. A break point at which the first 180 degree turn is started.

f. The direction of turns.

g. Altitude (at least 500 feet above the conventional pattern).

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

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

P

P TIME–
(See PROPOSED DEPARTURE TIME.)

P-ACP–
(See PREARRANGED COORDINATION PROCEDURES.)

PAN-PAN– The international radio-telephony urgency signal. When repeated three times, indicates uncertainty or alert followed by the nature of the urgency.
(See MAYDAY.)
(Refer to AIM.)

PAR–
(See PRECISION APPROACH RADAR.)

PAR [ICAO]–
(See ICAO Term PRECISION APPROACH RADAR.)

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

PARALLEL MLS APPROACHES–
(See PARALLEL ILS APPROACHES.)

PARALLEL OFFSET ROUTE– A parallel track to the left or right of the designated or established airway/route. Normally associated with Area Navigation (RNAV) operations.
(See AREA NAVIGATION.)

PARALLEL RUNWAYS– Two or more runways at the same airport whose centerlines are parallel. In addition to runway number, parallel runways are designated as L (left) and R (right) or, if three parallel runways exist, L (left), C (center), and R (right).

PBCT–
(See PROPOSED BOUNDARY CROSSING TIME.)

PBN
(See ICAO Term PERFORMANCE–BASED NAVIGATION.)

PDC–
(See PRE–DEPARTURE CLEARANCE.)

PERFORMANCE–BASED NAVIGATION (PBN) [ICAO]– Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.
Note: Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability, and functionality needed for the proposed operation in the context of a particular airspace concept.

PERMANENT ECHO– Radar signals reflected from fixed objects on the earth's surface; e.g., buildings, towers, terrain. Permanent echoes are distinguished from "ground clutter" by being definable locations rather than large areas. Under certain conditions they may be used to check radar alignment.

PHOTO RECONNAISSANCE– Military activity that requires locating individual photo targets and navigating to the targets at a preplanned angle and altitude. The activity normally requires a lateral route width of 16 NM and altitude range of 1,500 feet to 10,000 feet AGL.

PILOT BRIEFING– A service provided by the FSS to assist pilots in flight planning. Briefing items may include weather information, NOTAMS, military activities, flow control information, and other items as requested.
(Refer to AIM.)

PILOT IN COMMAND– The pilot responsible for the operation and safety of an aircraft during flight time.
(Refer to 14 CFR Part 91.)

PILOT WEATHER REPORT– A report of meteorological phenomena encountered by aircraft in flight.
(Refer to AIM.)

PILOT'S DISCRETION– When used in conjunction with altitude assignments, means that ATC has offered the pilot the option of starting climb or descent whenever he/she wishes and conducting the climb or descent at any rate he/she wishes. He/she may temporarily level off at any intermediate

altitude. However, once he/she has vacated an altitude, he/she may not return to that altitude.

PIREP–
(See PILOT WEATHER REPORT.)

PITCH POINT– A fix/waypoint that serves as a transition point from a departure procedure or the low altitude ground–based navigation structure into the high altitude waypoint system.

PLANS DISPLAY– A display available in URET that provides detailed flight plan and predicted conflict information in textual format for requested Current Plans and all Trial Plans.
(See USER REQUEST EVALUATION TOOL.)

POFZ–
(See PRECISION OBSTACLE FREE ZONE.)

POINT OUT–
(See RADAR POINT OUT.)

POINT–TO–POINT (PTP)– A level of NRR service for aircraft that is based on traditional waypoints in their FMSs or RNAV equipage.

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

POSITION REPORT– A report over a known location as transmitted by an aircraft to ATC.
(Refer to AIM.)

POSITION SYMBOL– A computer-generated indication shown on a radar display to indicate the mode of tracking.

POSITIVE CONTROL– The separation of all air traffic within designated airspace by air traffic control.

PRACTICE INSTRUMENT APPROACH– An instrument approach procedure conducted by a VFR or an IFR aircraft for the purpose of pilot training or proficiency demonstrations.

PRE–DEPARTURE CLEARANCE– An application with the Terminal Data Link System (TDLS) that provides clearance information to subscribers, through a service provider, in text to the cockpit or gate printer.

PREARRANGED COORDINATION– A standardized procedure which permits an air traffic controller to enter the airspace assigned to another air traffic controller without verbal coordination. The procedures are defined in a facility directive which ensures standard separation between aircraft.

PREARRANGED COORDINATION PROCEDURES– A facility's standardized procedure that describes the process by which one controller shall allow an aircraft to penetrate or transit another controller's airspace in a manner that assures standard separation without individual coordination for each aircraft.

PRECIPITATION– Any or all forms of water particles (rain, sleet, hail, or snow) that fall from the atmosphere and reach the surface.

PRECIPITATION RADAR WEATHER DESCRIPTIONS – Existing radar systems cannot detect turbulence. However, there is a direct correlation between the degree of turbulence and other weather features associated with thunderstorms and the weather radar precipitation intensity. Controllers will issue (where capable) precipitation intensity as observed by radar when using weather and radar processor (WARP) or NAS ground based digital radars with weather capabilities. When precipitation intensity information is not available, the intensity will be described as UNKNOWN. When intensity levels can be determined, they shall be described as:

a. LIGHT (< 30 dBZ)

b. MODERATE (30 to 40 dBZ)

c. HEAVY (> 40 to 50 dBZ)

d. EXTREME (> 50 dBZ)

(Refer to AC 00–45, Aviation Weather Services.)

PRECISION APPROACH–
(See PRECISION APPROACH PROCEDURE.)

PRECISION APPROACH PROCEDURE– A standard instrument approach procedure in which an electronic glideslope/glidepath is provided; e.g., ILS, MLS, and PAR.
(See INSTRUMENT LANDING SYSTEM.)
(See MICROWAVE LANDING SYSTEM.)
(See PRECISION APPROACH RADAR.)

PRECISION APPROACH RADAR– Radar equipment in some ATC facilities operated by the FAA and/or the military services at joint-use civil/military locations and separate military installations to detect and display azimuth, elevation, and range of aircraft on the final approach course to a runway. This equipment may be used to monitor certain nonradar approaches, but is primarily used to conduct a precision instrument approach (PAR) wherein the controller issues guidance instructions to the pilot based on the aircraft's position in relation to the final approach course (azimuth), the glidepath (elevation), and the distance (range) from the touchdown point on the runway as displayed on the radar scope.

Note: The abbreviation "PAR" is also used to denote preferential arrival routes in ARTCC computers.

(See GLIDEPATH.)

(See PAR.)

(See PREFERENTIAL ROUTES.)

(See ICAO term PRECISION APPROACH RADAR.)

(Refer to AIM.)

PRECISION APPROACH RADAR [ICAO]– Primary radar equipment used to determine the position of an aircraft during final approach, in terms of lateral and vertical deviations relative to a nominal approach path, and in range relative to touchdown.

Note: Precision approach radars are designed to enable pilots of aircraft to be given guidance by radio communication during the final stages of the approach to land.

PRECISION OBSTACLE FREE ZONE (POFZ)– An 800 foot wide by 200 foot long area centered on the runway centerline adjacent to the threshold designed to protect aircraft flying precision approaches from ground vehicles and other aircraft when ceiling is less than 250 feet or visibility is less than 3/4 statute mile (or runway visual range below 4,000 feet.)

PRECISION RUNWAY MONITOR (PRM)– Provides air traffic controllers monitoring the NTZ during simultaneous close parallel approaches with high precision secondary surveillance data. A PRM is required for simultaneous independent operations when runway centerlines, or in the case of SOIA, final approach courses, are separated by less than 3,600 feet. High resolution color monitoring display (FMA) present (NTZ) surveillance track data to controllers along with detailed maps depicting approaches and no transgression zone.

(Refer to AIM)

PREDICTIVE WIND SHEAR ALERT SYSTEM (PWS)– A self–contained system used onboard some aircraft to alert the flight crew to the presence of a potential wind shear. PWS systems typically monitor 3 miles ahead and 25 degrees left and right of the aircraft's heading at or below 1200' AGL. Departing flights may receive a wind shear alert after they start the takeoff roll and may elect to abort the takeoff. Aircraft on approach receiving an alert may elect to go around or perform a wind shear escape maneuver.

PREFERENTIAL ROUTES– Preferential routes (PDRs, PARs, and PDARs) are adapted in ARTCC computers to accomplish inter/intrafacility controller coordination and to assure that flight data is posted at the proper control positions. Locations having a need for these specific inbound and outbound routes normally publish such routes in local facility bulletins, and their use by pilots minimizes flight plan route amendments. When the workload or traffic situation permits, controllers normally provide radar vectors or assign requested routes to minimize circuitous routing. Preferential routes are usually confined to one ARTCC's area and are referred to by the following names or acronyms:

a. Preferential Departure Route (PDR). A specific departure route from an airport or terminal area to an en route point where there is no further need for flow control. It may be included in an Instrument Departure Procedure (DP) or a Preferred IFR Route.

b. Preferential Arrival Route (PAR). A specific arrival route from an appropriate en route point to an airport or terminal area. It may be included in a Standard Terminal Arrival (STAR) or a Preferred IFR Route. The abbreviation "PAR" is used primarily within the ARTCC and should not be confused with the abbreviation for Precision Approach Radar.

c. Preferential Departure and Arrival Route (PDAR). A route between two terminals which are within or immediately adjacent to one ARTCC's area. PDARs are not synonymous with Preferred IFR Routes but may be listed as such as they do accomplish essentially the same purpose.

(See PREFERRED IFR ROUTES.)

PREFERRED IFR ROUTES– Routes established between busier airports to increase system efficiency and capacity. They normally extend through one or

more ARTCC areas and are designed to achieve balanced traffic flows among high density terminals. IFR clearances are issued on the basis of these routes except when severe weather avoidance procedures or other factors dictate otherwise. Preferred IFR Routes are listed in the Airport/Facility Directory. If a flight is planned to or from an area having such routes but the departure or arrival point is not listed in the Airport/Facility Directory, pilots may use that part of a Preferred IFR Route which is appropriate for the departure or arrival point that is listed. Preferred IFR Routes are correlated with DPs and STARs and may be defined by airways, jet routes, direct routes between NAVAIDs, Waypoints, NAVAID radials/DME, or any combinations thereof.

(See CENTER'S AREA.)

(See INSTRUMENT DEPARTURE PROCEDURE.)

(See PREFERENTIAL ROUTES.)

(See STANDARD TERMINAL ARRIVAL.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

(Refer to NOTICES TO AIRMEN PUBLICATION.)

PRE-FLIGHT PILOT BRIEFING–

(See PILOT BRIEFING.)

PREVAILING VISIBILITY–

(See VISIBILITY.)

PRIMARY RADAR TARGET– An analog or digital target, exclusive of a secondary radar target, presented on a radar display.

PRM–

(See ILS PRM APPROACH and PRECISION RUNWAY MONITOR.)

PROCEDURE TURN– The maneuver prescribed when it is necessary to reverse direction to establish an aircraft on the intermediate approach segment or final approach course. The outbound course, direction of turn, distance within which the turn must be completed, and minimum altitude are specified in the procedure. However, unless otherwise restricted, the point at which the turn may be commenced and the type and rate of turn are left to the discretion of the pilot.

(See ICAO term PROCEDURE TURN.)

PROCEDURE TURN [ICAO]– A maneuver in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

Note 1: Procedure turns are designated "left" or "right" according to the direction of the initial turn.

Note 2: Procedure turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual approach procedure.

PROCEDURE TURN INBOUND– That point of a procedure turn maneuver where course reversal has been completed and an aircraft is established inbound on the intermediate approach segment or final approach course. A report of "procedure turn inbound" is normally used by ATC as a position report for separation purposes.

(See FINAL APPROACH COURSE.)

(See PROCEDURE TURN.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

PROFILE DESCENT– An uninterrupted descent (except where level flight is required for speed adjustment; e.g., 250 knots at 10,000 feet MSL) from cruising altitude/level to interception of a glideslope or to a minimum altitude specified for the initial or intermediate approach segment of a nonprecision instrument approach. The profile descent normally terminates at the approach gate or where the glideslope or other appropriate minimum altitude is intercepted.

PROGRESS REPORT–

(See POSITION REPORT.)

PROGRESSIVE TAXI– Precise taxi instructions given to a pilot unfamiliar with the airport or issued in stages as the aircraft proceeds along the taxi route.

PROHIBITED AREA–

(See SPECIAL USE AIRSPACE.)

(See ICAO term PROHIBITED AREA.)

PROHIBITED AREA [ICAO]– An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

PROMINENT OBSTACLE– An obstacle that meets one or more of the following conditions:

a. An obstacle which stands out beyond the adjacent surface of surrounding terrain and immediately projects a noticeable hazard to aircraft in flight.

b. An obstacle, not characterized as low and close in, whose height is no less than 300 feet above the

departure end of takeoff runway (DER) elevation, is within 10NM from the DER, and that penetrates that airport/heliport's diverse departure obstacle clearance surface (OCS).

c. An obstacle beyond 10NM from an airport/heliport that requires an obstacle departure procedure (ODP) to ensure obstacle avoidance.

(See OBSTACLE.)
(See OBSTRUCTION.)

PROPOSED BOUNDARY CROSSING TIME– Each center has a PBCT parameter for each internal airport. Proposed internal flight plans are transmitted to the adjacent center if the flight time along the proposed route from the departure airport to the center boundary is less than or equal to the value of PBCT or if airport adaptation specifies transmission regardless of PBCT.

PROPOSED DEPARTURE TIME– The time that the aircraft expects to become airborne.

PROTECTED AIRSPACE– The airspace on either side of an oceanic route/track that is equal to one-half the lateral separation minimum except where reduction of protected airspace has been authorized.

PROTECTED SEGMENT- The protected segment is a segment on the amended TFM route that is to be inhibited from automatic adapted route alteration by ERAM.

PT–

(See PROCEDURE TURN.)

PTP–

(See POINT–TO–POINT.)

PTS–

(See POLAR TRACK STRUCTURE.)

PUBLISHED INSTRUMENT APPROACH PROCEDURE VISUAL SEGMENT– A segment on an IAP chart annotated as "Fly Visual to Airport" or "Fly Visual." A dashed arrow will indicate the visual flight path on the profile and plan view with an associated note on the approximate heading and distance. The visual segment should be flown as a dead reckoning course while maintaining visual conditions.

PUBLISHED ROUTE– A route for which an IFR altitude has been established and published; e.g., Federal Airways, Jet Routes, Area Navigation Routes, Specified Direct Routes.

PWS–

(See PREDICTIVE WIND SHEAR ALERT SYSTEM.)

Q

Q ROUTE– ‘Q’ is the designator assigned to published RNAV routes used by the United States.

QNE– The barometric pressure used for the standard altimeter setting (29.92 inches Hg.).

QNH– The barometric pressure as reported by a particular station.

QUADRANT– A quarter part of a circle, centered on a NAVAID, oriented clockwise from magnetic north as follows: NE quadrant 000-089, SE quadrant 090-179, SW quadrant 180-269, NW quadrant 270-359.

QUEUING–
(See STAGING/QUEUING.)

QUICK LOOK– A feature of the EAS and ARTS which provides the controller the capability to display full data blocks of tracked aircraft from other control positions.

R

RAA–
(See REMOTE AIRPORT ADVISORY.)

RADAR– A device which, by measuring the time interval between transmission and reception of radio pulses and correlating the angular orientation of the radiated antenna beam or beams in azimuth and/or elevation, provides information on range, azimuth, and/or elevation of objects in the path of the transmitted pulses.

a. Primary Radar– A radar system in which a minute portion of a radio pulse transmitted from a site is reflected by an object and then received back at that site for processing and display at an air traffic control facility.

b. Secondary Radar/Radar Beacon (ATCRBS)– A radar system in which the object to be detected is fitted with cooperative equipment in the form of a radio receiver/transmitter (transponder). Radar pulses transmitted from the searching transmitter/receiver (interrogator) site are received in the cooperative equipment and used to trigger a distinctive transmission from the transponder. This reply transmission, rather than a reflected signal, is then received back at the transmitter/receiver site for processing and display at an air traffic control facility.
(See INTERROGATOR.)
(See TRANSPONDER.)
(See ICAO term RADAR.)
(Refer to AIM.)

RADAR [ICAO]– A radio detection device which provides information on range, azimuth and/or elevation of objects.

a. Primary Radar– Radar system which uses reflected radio signals.

b. Secondary Radar– Radar system wherein a radio signal transmitted from a radar station initiates the transmission of a radio signal from another station.

RADAR ADVISORY– The provision of advice and information based on radar observations.
(See ADVISORY SERVICE.)

RADAR ALTIMETER–
(See RADIO ALTIMETER.)

RADAR APPROACH– An instrument approach procedure which utilizes Precision Approach Radar (PAR) or Airport Surveillance Radar (ASR).
(See AIRPORT SURVEILLANCE RADAR.)
(See INSTRUMENT APPROACH PROCEDURE.)
(See PRECISION APPROACH RADAR.)
(See SURVEILLANCE APPROACH.)
(See ICAO term RADAR APPROACH.)
(Refer to AIM.)

RADAR APPROACH [ICAO]– An approach, executed by an aircraft, under the direction of a radar controller.

RADAR APPROACH CONTROL FACILITY– A terminal ATC facility that uses radar and nonradar capabilities to provide approach control services to aircraft arriving, departing, or transiting airspace controlled by the facility.
(See APPROACH CONTROL SERVICE.)

a. Provides radar ATC services to aircraft operating in the vicinity of one or more civil and/or military airports in a terminal area. The facility may provide services of a ground controlled approach (GCA); i.e., ASR and PAR approaches. A radar approach control facility may be operated by FAA, USAF, US Army, USN, USMC, or jointly by FAA and a military service. Specific facility nomenclatures are used for administrative purposes only and are related to the physical location of the facility and the operating service generally as follows:

1. Army Radar Approach Control (ARAC) (Army).

2. Radar Air Traffic Control Facility (RATCF) (Navy/FAA).

3. Radar Approach Control (RAPCON) (Air Force/FAA).

4. Terminal Radar Approach Control (TRACON) (FAA).

5. Air Traffic Control Tower (ATCT) (FAA). (Only those towers delegated approach control authority.)

RADAR ARRIVAL– An aircraft arriving at an airport served by a radar facility and in radar contact with the facility.
(See NONRADAR.)

RADAR BEACON–
(See RADAR.)

RADAR CLUTTER [ICAO]– The visual indication on a radar display of unwanted signals.

RADAR CONTACT–

a. Used by ATC to inform an aircraft that it is identified on the radar display and radar flight following will be provided until radar identification is terminated. Radar service may also be provided within the limits of necessity and capability. When a pilot is informed of "radar contact," he/she automatically discontinues reporting over compulsory reporting points.
(See RADAR CONTACT LOST.)
(See RADAR FLIGHT FOLLOWING.)
(See RADAR SERVICE.)
(See RADAR SERVICE TERMINATED.)
(Refer to AIM.)

b. The term used to inform the controller that the aircraft is identified and approval is granted for the aircraft to enter the receiving controllers airspace.
(See ICAO term RADAR CONTACT.)

RADAR CONTACT [ICAO]– The situation which exists when the radar blip or radar position symbol of a particular aircraft is seen and identified on a radar display.

RADAR CONTACT LOST– Used by ATC to inform a pilot that radar data used to determine the aircraft's position is no longer being received, or is no longer reliable and radar service is no longer being provided. The loss may be attributed to several factors including the aircraft merging with weather or ground clutter, the aircraft operating below radar line of sight coverage, the aircraft entering an area of poor radar return, failure of the aircraft transponder, or failure of the ground radar equipment.
(See CLUTTER.)
(See RADAR CONTACT.)

RADAR ENVIRONMENT– An area in which radar service may be provided.
(See ADDITIONAL SERVICES.)
(See RADAR CONTACT.)
(See RADAR SERVICE.)
(See TRAFFIC ADVISORIES.)

RADAR FLIGHT FOLLOWING– The observation of the progress of radar identified aircraft, whose primary navigation is being provided by the pilot, wherein the controller retains and correlates the aircraft identity with the appropriate target or target symbol displayed on the radar scope.
(See RADAR CONTACT.)
(See RADAR SERVICE.)
(Refer to AIM.)

RADAR IDENTIFICATION– The process of ascertaining that an observed radar target is the radar return from a particular aircraft.
(See RADAR CONTACT.)
(See RADAR SERVICE.)
(See ICAO term RADAR IDENTIFICATION.)

RADAR IDENTIFICATION [ICAO]– The process of correlating a particular radar blip or radar position symbol with a specific aircraft.

RADAR IDENTIFIED AIRCRAFT– An aircraft, the position of which has been correlated with an observed target or symbol on the radar display.
(See RADAR CONTACT.)
(See RADAR CONTACT LOST.)

RADAR MONITORING–
(See RADAR SERVICE.)

RADAR NAVIGATIONAL GUIDANCE–
(See RADAR SERVICE.)

RADAR POINT OUT– An action taken by a controller to transfer the radar identification of an aircraft to another controller if the aircraft will or may enter the airspace or protected airspace of another controller and radio communications will not be transferred.

RADAR REQUIRED– A term displayed on charts and approach plates and included in FDC NOTAMs to alert pilots that segments of either an instrument approach procedure or a route are not navigable because of either the absence or unusability of a NAVAID. The pilot can expect to be provided radar navigational guidance while transiting segments labeled with this term.
(See RADAR ROUTE.)
(See RADAR SERVICE.)

RADAR ROUTE– A flight path or route over which an aircraft is vectored. Navigational guidance and altitude assignments are provided by ATC.
(See FLIGHT PATH.)
(See ROUTE.)

RADAR SEPARATION–
(See RADAR SERVICE.)

RADAR SERVICE– A term which encompasses one or more of the following services based on the use of radar which can be provided by a controller to a pilot of a radar identified aircraft.

a. Radar Monitoring– The radar flight-following of aircraft, whose primary navigation is being performed by the pilot, to observe and note deviations from its authorized flight path, airway, or route. When being applied specifically to radar monitoring of instrument approaches; i.e., with precision approach radar (PAR) or radar monitoring of simultaneous ILS/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 FSS specialist.

REMOTE AIRPORT INFORMATION SERVICE (RAIS)– A temporary service provided by facilities, which are not located on the landing airport, but have communication capability and automated weather reporting available to the pilot at the landing airport.

REMOTE COMMUNICATIONS AIR/GROUND FACILITY– An unmanned VHF/UHF transmitter/receiver facility which is used to expand ARTCC air/ground communications coverage and to facilitate direct contact between pilots and controllers. RCAG facilities are sometimes not equipped with emergency frequencies 121.5 MHz and 243.0 MHz.
(Refer to AIM.)

REMOTE COMMUNICATIONS OUTLET– An unmanned communications facility remotely controlled by air traffic personnel. RCOs serve FSSs. RTRs serve terminal ATC facilities. An RCO or RTR may be UHF or VHF and will extend the communication range of the air traffic facility. There are several classes of RCOs and RTRs. The class is determined by the number of transmitters or receivers. Classes A through G are used primarily for air/ground purposes. RCO and RTR class O facilities are nonprotected outlets subject to undetected and prolonged outages. RCO (O's) and RTR (O's) were established for the express purpose of providing ground-to-ground communications between air traffic control specialists and pilots located at a satellite airport for delivering en route clearances, issuing departure authorizations, and acknowledging instrument flight rules cancellations or departure/landing times. As a secondary function, they may be used for advisory purposes whenever the aircraft is below the coverage of the primary air/ground frequency.

REMOTE TRANSMITTER/RECEIVER–
(See REMOTE COMMUNICATIONS OUTLET.)

REPORT– Used to instruct pilots to advise ATC of specified information; e.g., "Report passing Hamilton VOR."

REPORTING POINT– A geographical location in relation to which the position of an aircraft is reported.

(See COMPULSORY REPORTING POINTS.)
(See ICAO term REPORTING POINT.)
(Refer to AIM.)

REPORTING POINT [ICAO]– A specified geographical location in relation to which the position of an aircraft can be reported.

REQUEST FULL ROUTE CLEARANCE– Used by pilots to request that the entire route of flight be read verbatim in an ATC clearance. Such request should be made to preclude receiving an ATC clearance based on the original filed flight plan when a filed IFR flight plan has been revised by the pilot, company, or operations prior to departure.

REQUIRED NAVIGATION PERFORMANCE (RNP)– A statement of the navigational performance necessary for operation within a defined airspace. The following terms are commonly associated with RNP:

a. Required Navigation Performance Level or Type (RNP-X). A value, in nautical miles (NM), from the intended horizontal position within which an aircraft would be at least 95-percent of the total flying time.

b. Required Navigation Performance (RNP) Airspace. A generic term designating airspace, route (s), leg (s), operation (s), or procedure (s) where minimum required navigational performance (RNP) have been established.

c. Actual Navigation Performance (ANP). A measure of the current estimated navigational performance. Also referred to as Estimated Position Error (EPE).

d. Estimated Position Error (EPE). A measure of the current estimated navigational performance. Also referred to as Actual Navigation Performance (ANP).

e. Lateral Navigation (LNAV). A function of area navigation (RNAV) equipment which calculates, displays, and provides lateral guidance to a profile or path.

f. Vertical Navigation (VNAV). A function of area navigation (RNAV) equipment which calculates, displays, and provides vertical guidance to a profile or path.

RESCUE COORDINATION CENTER– A search and rescue (SAR) facility equipped and manned to coordinate and control SAR operations in an area designated by the SAR plan. The U.S. Coast Guard and the U.S. Air Force have responsibility for the operation of RCCs.

(See ICAO term RESCUE CO-ORDINATION CENTRE.)

RESCUE CO-ORDINATION CENTRE [ICAO]– A unit responsible for promoting efficient organization of search and rescue service and for coordinating the conduct of search and rescue operations within a search and rescue region.

RESOLUTION ADVISORY–A display indication given to the pilot by the traffic alert and collision avoidance systems (TCAS II) recommending a maneuver to increase vertical separation relative to an intruding aircraft. Positive, negative, and vertical speed limit (VSL) advisories constitute the resolution advisories. A resolution advisory is also classified as corrective or preventive

RESTRICTED AREA–

(See SPECIAL USE AIRSPACE.)
(See ICAO term RESTRICTED AREA.)

RESTRICTED AREA [ICAO]– An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

RESUME NORMAL SPEED– Used by ATC to advise a pilot to resume an aircraft's normal operating speed. It is issued to terminate a speed adjustment where no published speed restrictions apply. It does not delete speed restrictions in published procedures of upcoming segments of flight. This does not relieve the pilot of those speed restrictions, which are applicable to 14 CFR Section 91.117.

RESUME OWN NAVIGATION– Used by ATC to advise a pilot to resume his/her own navigational responsibility. It is issued after completion of a radar vector or when radar contact is lost while the aircraft is being radar vectored.

(See RADAR CONTACT LOST.)
(See RADAR SERVICE TERMINATED.)

RESUME PUBLISHED SPEED- Used by ATC to advise a pilot to resume published speed restrictions

that are applicable to a SID, STAR, or other instrument procedure. It is issued to terminate a speed adjustment where speed restrictions are published on a charted procedure.

RMI–
(See RADIO MAGNETIC INDICATOR.)

RNAV–
(See AREA NAVIGATION (RNAV).)

RNAV APPROACH– An instrument approach procedure which relies on aircraft area navigation equipment for navigational guidance.
(See AREA NAVIGATION (RNAV).)
(See INSTRUMENT APPROACH PROCEDURE.)

ROAD RECONNAISSANCE– Military activity requiring navigation along roads, railroads, and rivers. Reconnaissance route/route segments are seldom along a straight line and normally require a lateral route width of 10 NM to 30 NM and an altitude range of 500 feet to 10,000 feet AGL.

ROGER– I have received all of your last transmission. It should not be used to answer a question requiring a yes or a no answer.
(See AFFIRMATIVE.)
(See NEGATIVE.)

ROLLOUT RVR–
(See VISIBILITY.)

ROUTE– A defined path, consisting of one or more courses in a horizontal plane, which aircraft traverse over the surface of the earth.
(See AIRWAY.)
(See JET ROUTE.)
(See PUBLISHED ROUTE.)
(See UNPUBLISHED ROUTE.)

ROUTE ACTION NOTIFICATION– URET notification that a PAR/PDR/PDAR has been applied to the flight plan.
(See ATC PREFERRED ROUTE NOTIFICATION.)
(See USER REQUEST EVALUATION TOOL.)

ROUTE SEGMENT– As used in Air Traffic Control, a part of a route that can be defined by two navigational fixes, two NAVAIDs, or a fix and a NAVAID.
(See FIX.)
(See ROUTE.)
(See ICAO term ROUTE SEGMENT.)

ROUTE SEGMENT [ICAO]– A portion of a route to be flown, as defined by two consecutive significant points specified in a flight plan.

RSA–
(See RUNWAY SAFETY AREA.)

RTR–
(See REMOTE TRANSMITTER/RECEIVER.)

RUNWAY– A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees; e.g., Runway 1, Runway 25.
(See PARALLEL RUNWAYS.)
(See ICAO term RUNWAY.)

RUNWAY [ICAO]– A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

RUNWAY CENTERLINE LIGHTING–
(See AIRPORT LIGHTING.)

RUNWAY CONDITION READING– Numerical decelerometer readings relayed by air traffic controllers at USAF and certain civil bases for use by the pilot in determining runway braking action. These readings are routinely relayed only to USAF and Air National Guard Aircraft.
(See BRAKING ACTION.)

RUNWAY END IDENTIFIER LIGHTS–
(See AIRPORT LIGHTING.)

RUNWAY GRADIENT– The average slope, measured in percent, between two ends or points on a runway. Runway gradient is depicted on Government aerodrome sketches when total runway gradient exceeds 0.3%.

RUNWAY HEADING– The magnetic direction that corresponds with the runway centerline extended, not the painted runway number. When cleared to “fly or maintain runway heading,” pilots are expected to fly or maintain the heading that corresponds with the extended centerline of the departure runway. Drift correction shall not be applied; e.g., Runway 4, actual magnetic heading of the runway centerline 044, fly 044.

RUNWAY IN USE/ACTIVE RUNWAY/DUTY RUNWAY– Any runway or runways currently being used for takeoff or landing. When multiple runways are used, they are all considered active runways. In the metering sense, a selectable adapted item which specifies the landing runway configuration or direction of traffic flow. The adapted optimum flight plan from each transition fix to the vertex is determined by the runway configuration for arrival metering processing purposes.

RUNWAY LIGHTS–
(See AIRPORT LIGHTING.)

RUNWAY MARKINGS–
(See AIRPORT MARKING AIDS.)

RUNWAY OVERRUN– In military aviation exclusively, a stabilized or paved area beyond the end of a runway, of the same width as the runway plus shoulders, centered on the extended runway centerline.

RUNWAY PROFILE DESCENT– An instrument flight rules (IFR) air traffic control arrival procedure to a runway published for pilot use in graphic and/or textual form and may be associated with a STAR. Runway Profile Descents provide routing and may depict crossing altitudes, speed restrictions, and headings to be flown from the en route structure to the point where the pilot will receive clearance for and execute an instrument approach procedure. A Runway Profile Descent may apply to more than one runway if so stated on the chart.
(Refer to AIM.)

RUNWAY SAFETY AREA– A defined surface surrounding the runway prepared, or suitable, for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. The dimensions of the RSA vary and can be determined by using the criteria contained within AC 150/5300-13, Airport Design, Chapter 3. Figure 3–1 in AC 150/5300-13 depicts the RSA. The design standards dictate that the RSA shall be:

a. Cleared, graded, and have no potentially hazardous ruts, humps, depressions, or other surface variations;

b. Drained by grading or storm sewers to prevent water accumulation;

c. Capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and,

d. Free of objects, except for objects that need to be located in the runway safety area because of their function. These objects shall be constructed on low impact resistant supports (frangible mounted structures) to the lowest practical height with the frangible point no higher than 3 inches above grade.
(Refer to AC 150/5300-13, Airport Design, Chapter 3.)

RUNWAY TRANSITION–

a. Conventional STARs/SIDs. The portion of a STAR/SID that serves a particular runway or runways at an airport.

b. RNAV STARs/SIDs. Defines a path(s) from the common route to the final point(s) on a STAR. For a SID, the common route that serves a particular runway or runways at an airport.

RUNWAY USE PROGRAM– A noise abatement runway selection plan designed to enhance noise abatement efforts with regard to airport communities for arriving and departing aircraft. These plans are developed into runway use programs and apply to all turbojet aircraft 12,500 pounds or heavier; turbojet aircraft less than 12,500 pounds are included only if the airport proprietor determines that the aircraft creates a noise problem. Runway use programs are coordinated with FAA offices, and safety criteria used in these programs are developed by the Office of Flight Operations. Runway use programs are administered by the Air Traffic Service as “Formal” or “Informal” programs.

a. Formal Runway Use Program– An approved noise abatement program which is defined and acknowledged in a Letter of Understanding between Flight Operations, Air Traffic Service, the airport proprietor, and the users. Once established, participation in the program is mandatory for aircraft operators and pilots as provided for in 14 CFR Section 91.129.

b. Informal Runway Use Program– An approved noise abatement program which does not require a Letter of Understanding, and participation in the program is voluntary for aircraft operators/pilots.

RUNWAY VISIBILITY VALUE–
(See VISIBILITY.)

RUNWAY VISUAL RANGE–
(See VISIBILITY.)

S

SAA–
(See SPECIAL ACTIVITY AIRSPACE.)

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

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

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

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

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

SAFETY LOGIC SYSTEM ALERTS–

a. ALERT– An actual situation involving two real safety logic tracks (aircraft/aircraft, aircraft/vehicle, or aircraft/other tangible object) that safety logic has predicted will result in an imminent collision, based upon the current set of Safety Logic parameters.

b. FALSE ALERT–

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

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

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

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

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

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

3. One or more of the aircraft involved in the alert is not intending to use a runway (for example, helicopter, pipeline patrol, non–Mode C overflight, etc.).

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

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

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

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

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

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

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

SAR–
(See SEARCH AND RESCUE.)

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

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

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

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

SDF–
(See SIMPLIFIED DIRECTIONAL FACILITY.)

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

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

SEARCH AND RESCUE FACILITY– A facility responsible for maintaining and operating a search and rescue (SAR) service to render aid to persons and property in distress. It is any SAR unit, station, NET, or other operational activity which can be usefully employed during an SAR Mission; e.g., a Civil Air Patrol Wing, or a Coast Guard Station.
(See SEARCH AND RESCUE.)

SECNOT–
(See SECURITY NOTICE.)

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

SECTIONAL AERONAUTICAL CHARTS–
(See AERONAUTICAL CHART.)

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

SECURITY NOTICE (SECNOT) – A SECNOT is a request originated by the Air Traffic Security Coordinator (ATSC) for an extensive communications search for aircraft involved, or suspected of being involved, in a security violation, or are considered a security risk. A SECNOT will include the aircraft identification, search area, and expiration time. The search area, as defined by the ATSC, could be a single airport, multiple airports, a radius of an airport or fix, or a route of flight. Once the expiration time has been reached, the SECNOT is considered to be cancelled.

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

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

SEGMENTED CIRCLE– A system of visual indicators designed to provide traffic pattern information at airports without operating control towers.
(Refer to AIM.)

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

a. Initial Approach– The segment between the initial approach fix and the intermediate fix or the

point where the aircraft is established on the intermediate course or final approach course.

(See ICAO term INITIAL APPROACH SEGMENT.)

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

(See ICAO term INTERMEDIATE APPROACH SEGMENT.)

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

(See ICAO term FINAL APPROACH SEGMENT.)

d. Missed Approach– The segment between the missed approach point or the point of arrival at decision height and the missed approach fix at the prescribed altitude.

(Refer to 14 CFR Part 97.)

(See ICAO term MISSED APPROACH PROCEDURE.)

SEPARATION– In air traffic control, the spacing of aircraft to achieve their safe and orderly movement in flight and while landing and taking off.

(See SEPARATION MINIMA.)

(See ICAO term SEPARATION.)

SEPARATION [ICAO]– Spacing between aircraft, levels or tracks.

SEPARATION MINIMA– The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

(See SEPARATION.)

SERVICE– A generic term that designates functions or assistance available from or rendered by air traffic control. For example, Class C service would denote the ATC services provided within a Class C airspace area.

SEVERE WEATHER AVOIDANCE PLAN– An approved plan to minimize the affect of severe weather on traffic flows in impacted terminal and/or ARTCC areas. SWAP is normally implemented to provide the least disruption to the ATC system when flight through portions of airspace is difficult or impossible due to severe weather.

SEVERE WEATHER FORECAST ALERTS– Preliminary messages issued in order to alert users that a Severe Weather Watch Bulletin (WW) is being issued. These messages define areas of possible severe thunderstorms or tornado activity. The messages are unscheduled and issued as required by the Storm Prediction Center (SPC) at Norman, Oklahoma.

(See AIRMET.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(See SIGMET.)

SFA–

(See SINGLE FREQUENCY APPROACH.)

SFO–

(See SIMULATED FLAMEOUT.)

SHF–

(See SUPER HIGH FREQUENCY.)

SHORT RANGE CLEARANCE– A clearance issued to a departing IFR flight which authorizes IFR flight to a specific fix short of the destination while air traffic control facilities are coordinating and obtaining the complete clearance.

SHORT TAKEOFF AND LANDING AIRCRAFT– An aircraft which, at some weight within its approved operating weight, is capable of operating from a runway in compliance with the applicable STOL characteristics, airworthiness, operations, noise, and pollution standards.

(See VERTICAL TAKEOFF AND LANDING AIRCRAFT.)

SIAP–

(See STANDARD INSTRUMENT APPROACH PROCEDURE.)

SID–

(See STANDARD INSTRUMENT DEPARTURE.)

SIDESTEP MANEUVER– A visual maneuver accomplished by a pilot at the completion of an instrument approach to permit a straight-in landing on a parallel runway not more than 1,200 feet to either side of the runway to which the instrument approach was conducted.

(Refer to AIM.)

SIGMET– A weather advisory issued concerning weather significant to the safety of all aircraft.

SIGMET advisories cover severe and extreme turbulence, severe icing, and widespread dust or sandstorms that reduce visibility to less than 3 miles.
(See AIRMET.)
(See AWW.)
(See CONVECTIVE SIGMET.)
(See CWA.)
(See ICAO term SIGMET INFORMATION.)
(Refer to AIM.)

SIGMET INFORMATION [ICAO]– Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

SIGNIFICANT METEOROLOGICAL INFORMATION–
(See SIGMET.)

SIGNIFICANT POINT– A point, whether a named intersection, a NAVAID, a fix derived from a NAVAID(s), or geographical coordinate expressed in degrees of latitude and longitude, which is established for the purpose of providing separation, as a reporting point, or to delineate a route of flight.

SIMPLIFIED DIRECTIONAL FACILITY– A NAVAID used for nonprecision instrument approaches. The final approach course is similar to that of an ILS localizer except that the SDF course may be offset from the runway, generally not more than 3 degrees, and the course may be wider than the localizer, resulting in a lower degree of accuracy.
(Refer to AIM.)

SIMULATED FLAMEOUT– A practice approach by a jet aircraft (normally military) at idle thrust to a runway. The approach may start at a runway (high key) and may continue on a relatively high and wide downwind leg with a continuous turn to final. It terminates in landing or low approach. The purpose of this approach is to simulate a flameout.
(See FLAMEOUT.)

SIMULTANEOUS 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.)

SIMULTANEOUS OFFSET INSTRUMENT APPROACH (SOIA) – An instrument landing system comprised of an ILS PRM or RNAV (GPS) PRM approach to one runway and an offset LDA PRM with glideslope or an RNAV (GPS) PRM approach utilizing vertical guidance to another where parallel runway spaced less than 3,000 feet and at least 750 feet apart. The approach courses converge by 2.5 to 3 degrees. Closely spaced independent approach procedures apply up to the point where the approach course separation becomes 3,000 feet, at the offset MAP. From the offset MAP to the runway threshold, visual separation by the aircraft conducting the offset LDA PRM or GPS PRM approach is utilized.
(Refer to AIM)

SINGLE DIRECTION ROUTES– Preferred IFR Routes which are sometimes depicted on high altitude en route charts and which are normally flown in one direction only.
(See PREFERRED IFR ROUTES.)
(Refer to AIRPORT/FACILITY DIRECTORY.)

SINGLE FREQUENCY APPROACH– A service provided under a letter of agreement to military single-piloted turbojet aircraft which permits use of a single UHF frequency during approach for landing. Pilots will not normally be required to change frequency from the beginning of the approach to touchdown except that pilots conducting an en route descent are required to change frequency when control is transferred from the air route traffic control center to the terminal facility. The abbreviation “SFA” in the DOD FLIP IFR Supplement under “Communications” indicates this service is available at an aerodrome.

SINGLE-PILOTED AIRCRAFT– A military turbojet aircraft possessing one set of flight controls, tandem cockpits, or two sets of flight controls but operated by one pilot is considered single-piloted by ATC when determining the appropriate air traffic service to be applied.
(See SINGLE FREQUENCY APPROACH.)

SKYSPOTTER– A pilot who has received specialized training in observing and reporting inflight weather phenomena.

SLASH– A radar beacon reply displayed as an elongated target.

SLDI–
(See SECTOR LIST DROP INTERVAL.)

SLOT TIME–
(See METER FIX TIME/SLOT TIME.)

SLOW TAXI– To taxi a float plane at low power or low RPM.

SN–
(See SYSTEM STRATEGIC NAVIGATION.)

SPEAK SLOWER– Used in verbal communications as a request to reduce speech rate.

SPECIAL ACTIVITY AIRSPACE (SAA)– Any airspace with defined dimensions within the National Airspace System wherein limitations may be imposed upon aircraft operations. This airspace may be restricted areas, prohibited areas, military operations areas, air ATC assigned airspace, and any other designated airspace areas. The dimensions of this airspace are programmed into URET and can be designated as either active or inactive by screen entry. Aircraft trajectories are constantly tested against the dimensions of active areas and alerts issued to the applicable sectors when violations are predicted.
(See USER REQUEST EVALUATION TOOL.)

SPECIAL EMERGENCY– A condition of air piracy or other hostile act by a person(s) aboard an aircraft which threatens the safety of the aircraft or its passengers.

SPECIAL INSTRUMENT APPROACH PROCEDURE–
(See INSTRUMENT APPROACH PROCEDURE.)

SPECIAL USE AIRSPACE– Airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. Types of special use airspace are:

a. Alert Area– Airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. Alert Areas are depicted on aeronautical charts for the information of nonparticipating pilots. All activities within an Alert Area are conducted in accordance with Federal Aviation Regulations, and pilots of participating aircraft as well as pilots transiting the area are equally responsible for collision avoidance.

b. Controlled Firing Area– Airspace wherein activities are conducted under conditions so controlled as to eliminate hazards to nonparticipating aircraft and to ensure the safety of persons and property on the ground.

c. Military Operations Area (MOA)– A MOA is airspace established outside of Class A airspace area to separate or segregate certain nonhazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted.
(Refer to AIM.)

d. Prohibited Area– Airspace designated under 14 CFR Part 73 within which no person may operate an aircraft without the permission of the using agency.
(Refer to AIM.)
(Refer to En Route Charts.)

e. Restricted Area– Airspace designated under 14 CFR Part 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency. Restricted areas are depicted on en route charts. Where joint use is authorized, the name of the ATC controlling facility is also shown.
(Refer to 14 CFR Part 73.)
(Refer to AIM.)

f. Warning Area– A warning area is airspace of defined dimensions extending from 3 nautical miles outward from the coast of the United States, that contains activity that may be hazardous to nonparticipating aircraft. The purpose of such warning area is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both.

SPECIAL VFR CONDITIONS– Meteorological conditions that are less than those required for basic VFR flight in Class B, C, D, or E surface areas and in which some aircraft are permitted flight under visual flight rules.
(See SPECIAL VFR OPERATIONS.)
(Refer to 14 CFR Part 91.)

SPECIAL VFR FLIGHT [ICAO]– A VFR flight cleared by air traffic control to operate within Class B, C, D, and E surface areas in metrological conditions below VMC.

SPECIAL VFR OPERATIONS– Aircraft operating in accordance with clearances within Class B, C, D, and E surface areas in weather conditions less than the basic VFR weather minima. Such operations must be requested by the pilot and approved by ATC.

(See SPECIAL VFR CONDITIONS.)

(See ICAO term SPECIAL VFR FLIGHT.)

SPEED–

(See AIRSPEED.)

(See GROUND SPEED.)

SPEED ADJUSTMENT– An ATC procedure used to request pilots to adjust aircraft speed to a specific value for the purpose of providing desired spacing. Pilots are expected to maintain a speed of plus or minus 10 knots or 0.02 Mach number of the specified speed. Examples of speed adjustments are:

a. "Increase/reduce speed to Mach point (number.)"

b. "Increase/reduce speed to (speed in knots)" or "Increase/reduce speed (number of knots) knots."

SPEED BRAKES– Moveable aerodynamic devices on aircraft that reduce airspeed during descent and landing.

SPEED SEGMENTS– Portions of the arrival route between the transition point and the vertex along the optimum flight path for which speeds and altitudes are specified. There is one set of arrival speed segments adapted from each transition point to each vertex. Each set may contain up to six segments.

SQUAWK (Mode, Code, Function)– Activate specific modes/codes/functions on the aircraft transponder; e.g., "Squawk three/alpha, two one zero five, low."

(See TRANSPONDER.)

STA–

(See SCHEDULED TIME OF ARRIVAL.)

STAGING/QUEUING– The placement, integration, and segregation of departure aircraft in designated movement areas of an airport by departure fix, EDCT, and/or restriction.

STAND BY– Means the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority. Also means to wait as in "stand by for clearance." The caller should reestablish contact if a delay is lengthy. "Stand by" is not an approval or denial.

STANDARD INSTRUMENT APPROACH PROCEDURE (SIAP)–

(See INSTRUMENT APPROACH PROCEDURE.)

STANDARD INSTRUMENT DEPARTURE (SID)– A preplanned instrument flight rule (IFR) air traffic control (ATC) departure procedure printed for pilot/controller use in graphic form to provide obstacle clearance and a transition from the terminal area to the appropriate en route structure. SIDs are primarily designed for system enhancement to expedite traffic flow and to reduce pilot/controller workload. ATC clearance must always be received prior to flying a SID.

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See OBSTACLE DEPARTURE PROCEDURE.)

(Refer to AIM.)

STANDARD RATE TURN– A turn of three degrees per second.

STANDARD TERMINAL ARRIVAL– A preplanned instrument flight rule (IFR) air traffic control arrival procedure published for pilot use in graphic and/or textual form. STARs provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area.

STANDARD TERMINAL ARRIVAL CHARTS–

(See AERONAUTICAL CHART.)

STANDARD TERMINAL AUTOMATION REPLACEMENT SYSTEM (STARS)–

(See DTAS.)

STAR–

(See STANDARD TERMINAL ARRIVAL.)

STATE AIRCRAFT– Aircraft used in military, customs and police service, in the exclusive service of any government, or of any political subdivision, thereof including the government of any state, territory, or possession of the United States or the District of Columbia, but not including any government-owned aircraft engaged in carrying persons or property for commercial purposes.

STATIC RESTRICTIONS– Those restrictions that are usually not subject to change, fixed, in place, and/or published.

STATIONARY RESERVATIONS– Altitude reservations which encompass activities in a fixed area. Stationary reservations may include activities,

such as special tests of weapons systems or equipment, certain U.S. Navy carrier, fleet, and anti-submarine operations, rocket, missile and drone operations, and certain aerial refueling or similar operations.

STEP TAXI– To taxi a float plane at full power or high RPM.

STEP TURN– A maneuver used to put a float plane in a planing configuration prior to entering an active sea lane for takeoff. The STEP TURN maneuver should only be used upon pilot request.

STEPDOWN FIX– A fix permitting additional descent within a segment of an instrument approach procedure by identifying a point at which a controlling obstacle has been safely overflown.

STEREO ROUTE– A routinely used route of flight established by users and ARTCCs identified by a coded name; e.g., ALPHA 2. These routes minimize flight plan handling and communications.

STOL AIRCRAFT–
(See SHORT TAKEOFF AND LANDING AIRCRAFT.)

STOP ALTITUDE SQUAWK– Used by ATC to inform an aircraft to turn-off the automatic altitude reporting feature of its transponder. It is issued when the verbally reported altitude varies 300 feet or more from the automatic altitude report.
(See ALTITUDE READOUT.)
(See TRANSPONDER.)

STOP AND GO– A procedure wherein an aircraft will land, make a complete stop on the runway, and then commence a takeoff from that point.
(See LOW APPROACH.)
(See OPTION APPROACH.)

STOP BURST–
(See STOP STREAM.)

STOP BUZZER–
(See STOP STREAM.)

STOP SQUAWK (Mode or Code)– Used by ATC to tell the pilot to turn specified functions of the aircraft transponder off.
(See STOP ALTITUDE SQUAWK.)
(See TRANSPONDER.)

STOP STREAM– Used by ATC to request a pilot to suspend electronic attack activity.
(See JAMMING.)

STOPOVER FLIGHT PLAN– A flight plan format which permits in a single submission the filing of a sequence of flight plans through interim full-stop destinations to a final destination.

STOPWAY– An area beyond the takeoff runway no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted takeoff, without causing structural damage to the airplane, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff.

STRAIGHT-IN APPROACH IFR– An instrument approach wherein final approach is begun without first having executed a procedure turn, not necessarily completed with a straight-in landing or made to straight-in landing minimums.
(See LANDING MINIMUMS.)
(See STRAIGHT-IN APPROACH VFR.)
(See STRAIGHT-IN LANDING.)

STRAIGHT-IN APPROACH VFR– Entry into the traffic pattern by interception of the extended runway centerline (final approach course) without executing any other portion of the traffic pattern.
(See TRAFFIC PATTERN.)

STRAIGHT-IN LANDING– A landing made on a runway aligned within 30° of the final approach course following completion of an instrument approach.
(See STRAIGHT-IN APPROACH IFR.)

STRAIGHT-IN LANDING MINIMUMS–
(See LANDING MINIMUMS.)

STRAIGHT-IN MINIMUMS–
(See STRAIGHT-IN LANDING MINIMUMS.)

STRATEGIC PLANNING– Planning whereby solutions are sought to resolve potential conflicts.

SUBSTITUTE ROUTE– A route assigned to pilots when any part of an airway or route is unusable because of NAVAID status. These routes consist of:

a. Substitute routes which are shown on U.S. Government charts.

b. Routes defined by ATC as specific NAVAID radials or courses.

c. Routes defined by ATC as direct to or between NAVAIDs.

SUNSET AND SUNRISE– The mean solar times of sunset and sunrise as published in the Nautical Almanac, converted to local standard time for the locality concerned. Within Alaska, the end of evening civil twilight and the beginning of morning civil twilight, as defined for each locality.

SUPER HIGH FREQUENCY– The frequency band between 3 and 30 gigahertz (GHz). The elevation and azimuth stations of the microwave landing system operate from 5031 MHz to 5091 MHz in this spectrum.

SUPPLEMENTAL WEATHER SERVICE LOCATION– Airport facilities staffed with contract personnel who take weather observations and provide current local weather to pilots via telephone or radio. (All other services are provided by the parent FSS.)

SUPPS– Refers to ICAO Document 7030 Regional Supplementary Procedures. SUPPS contain procedures for each ICAO Region which are unique to that Region and are not covered in the worldwide provisions identified in the ICAO Air Navigation Plan. Procedures contained in Chapter 8 are based in part on those published in SUPPS.

SURFACE AREA– The airspace contained by the lateral boundary of the Class B, C, D, or E airspace designated for an airport that begins at the surface and extends upward.

SURPIC– A description of surface vessels in the area of a Search and Rescue incident including their predicted positions and their characteristics.

(Refer to FAAO JO 7110.65, Para 10–6–4, INFLIGHT CONTINGENCIES.)

SURVEILLANCE APPROACH– An instrument approach wherein the air traffic controller issues instructions, for pilot compliance, based on aircraft position in relation to the final approach course (azimuth), and the distance (range) from the end of the runway as displayed on the controller's radar scope. The controller will provide recommended altitudes on final approach if requested by the pilot.

(Refer to AIM.)

SWAP–

(See SEVERE WEATHER AVOIDANCE PLAN.)

SWSL–

(See SUPPLEMENTAL WEATHER SERVICE LOCATION.)

SYSTEM STRATEGIC NAVIGATION– Military activity accomplished by navigating along a preplanned route using internal aircraft systems to maintain a desired track. This activity normally requires a lateral route width of 10 NM and altitude range of 1,000 feet to 6,000 feet AGL with some route segments that permit terrain following.

T

TACAN–
(See TACTICAL AIR NAVIGATION.)

TACAN-ONLY AIRCRAFT– An aircraft, normally military, possessing TACAN with DME but no VOR navigational system capability. Clearances must specify TACAN or VORTAC fixes and approaches.

TACTICAL AIR NAVIGATION– An ultra-high frequency electronic rho-theta air navigation aid which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station.
(See VORTAC.)
(Refer to AIM.)

TAILWIND– Any wind more than 90 degrees to the longitudinal axis of the runway. The magnetic direction of the runway shall be used as the basis for determining the longitudinal axis.

TAKEOFF AREA–
(See LANDING AREA.)

TAKEOFF DISTANCE AVAILABLE (TODA)– The takeoff run available plus the length of any remaining runway or clearway beyond the far end of the takeoff run available.
(See ICAO term TAKEOFF DISTANCE AVAILABLE.)

TAKEOFF DISTANCE AVAILABLE [ICAO]– The length of the takeoff run available plus the length of the clearway, if provided.

TAKEOFF ROLL – The process whereby an aircraft is aligned with the runway centerline and the aircraft is moving with the intent to take off. For helicopters, this pertains to the act of becoming airborne after departing a takeoff area.

TAKEOFF RUN AVAILABLE (TORA) – The runway length declared available and suitable for the ground run of an airplane taking off.
(See ICAO term TAKEOFF RUN AVAILABLE.)

TAKEOFF RUN AVAILABLE [ICAO]– The length of runway declared available and suitable for the ground run of an aeroplane take-off.

TARGET– The indication shown on an analog display resulting from a primary radar return or a radar beacon reply.
(See ASSOCIATED.)
(See DIGITAL TARGET.)
(See DIGITIZED RADAR TARGET.)
(See FUSED TARGET)
(See PRIMARY RADAR TARGET.)
(See RADAR.)
(See SECONDARY RADAR TARGET.)
(See TARGET SYMBOL.)
(See ICAO term TARGET.)
(See UNASSOCIATED.)

TARGET [ICAO]– In radar:

a. Generally, any discrete object which reflects or retransmits energy back to the radar equipment.

b. Specifically, an object of radar search or surveillance.

TARGET RESOLUTION– A process to ensure that correlated radar targets do not touch. Target resolution must be applied as follows:

a. Between the edges of two primary targets or the edges of the ASR-9/11 primary target symbol.

b. Between the end of the beacon control slash and the edge of a primary target.

c. Between the ends of two beacon control slashes.

Note 1: Mandatory traffic advisories and safety alerts must be issued when this procedure is used.

Note 2: This procedure must not be used when utilizing mosaic radar systems or multi–sensor mode.

TARGET SYMBOL– A computer-generated indication shown on a radar display resulting from a primary radar return or a radar beacon reply.

TARMAC DELAY– The holding of an aircraft on the ground either before departure or after landing with no opportunity for its passengers to deplane.

TARMAC DELAY AIRCRAFT– An aircraft whose pilot–in–command has requested to taxi to the ramp, gate, or alternate deplaning area to comply with the Three–hour Tarmac Rule.

TARMAC DELAY REQUEST– A request by the pilot–in–command to taxi to the ramp, gate, or alternate deplaning location to comply with the Three–hour Tarmac Rule.

TAS–
(See TERMINAL AUTOMATION SYSTEMS.)

TAWS–
(See TERRAIN AWARENESS WARNING SYSTEM.)

TAXI– The movement of an airplane under its own power on the surface of an airport (14 CFR Section 135.100 [Note]). Also, it describes the surface movement of helicopters equipped with wheels.
(See AIR TAXI.)
(See HOVER TAXI.)
(Refer to 14 CFR Section 135.100.)
(Refer to AIM.)

TAXI PATTERNS– Patterns established to illustrate the desired flow of ground traffic for the different runways or airport areas available for use.

TCAS–
(See TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM.)

TCH–
(See THRESHOLD CROSSING HEIGHT.)

TCLT–
(See TENTATIVE CALCULATED LANDING TIME.)

TDLS–
(See TERMINAL DATA LINK SYSTEM.)

TDZE–
(See TOUCHDOWN ZONE ELEVATION.)

TELEPHONE INFORMATION BRIEFING SERVICE– A continuous telephone recording of meteorological and/or aeronautical information.
(Refer to AIM.)

TEMPORARY FLIGHT RESTRICTION (TFR) – A TFR is a regulatory action issued by the FAA via the U.S. NOTAM System, under the authority of United States Code, Title 49. TFRs are issued within the sovereign airspace of the United States and its territories to restrict certain aircraft from operating within a defined area on a temporary basis to protect persons or property in the air or on the ground. While not all inclusive, TFRs may be issued for disaster or hazard situations such as: toxic gas leaks or spills, fumes from flammable agents, aircraft accident/incident sites, aviation or ground resources engaged in wildlife suppression, or aircraft relief activities following a disaster. TFRs may also be issued in support of VIP movements; for reasons of national security; or when determined necessary for the management of air traffic in the vicinity of aerial demonstrations or major sporting events. NAS users or other interested parties should contact a FSS for TFR information. Additionally, TFR information can be found in automated briefings, NOTAM publications, and on the internet at http://www.faa.gov. The FAA also distributes TFR information to aviation user groups for further dissemination.

TENTATIVE CALCULATED LANDING TIME– A projected time calculated for adapted vertex for each arrival aircraft based upon runway configuration, airport acceptance rate, airport arrival delay period, and other metered arrival aircraft. This time is either the VTA of the aircraft or the TCLT/ACLT of the previous aircraft plus the AAI, whichever is later. This time will be updated in response to an aircraft's progress and its current relationship to other arrivals.

TERMINAL AREA– A general term used to describe airspace in which approach control service or airport traffic control service is provided.

TERMINAL AREA FACILITY– A facility providing air traffic control service for arriving and departing IFR, VFR, Special VFR, and on occasion en route aircraft.
(See APPROACH CONTROL FACILITY.)
(See TOWER.)

TERMINAL AUTOMATION SYSTEMS (TAS)– TAS is used to identify the numerous automated tracking systems including ARTS IIE, ARTS IIIA, ARTS IIIE, STARS, and MEARTS.

TERMINAL DATA LINK SYSTEM (TDLS)– A system that provides Digital Automatic Terminal Information Service (D–ATIS) both on a specified radio frequency and also, for subscribers, in a text message via data link to the cockpit or to a gate printer. TDLS also provides Pre–departure Clearances (PDC), at selected airports, to subscribers, through a service provider, in text to the cockpit or to a gate printer. In addition, TDLS will emulate the Flight Data Input/Output (FDIO) information within the control tower.

TERMINAL RADAR SERVICE AREA– Airspace surrounding designated airports wherein ATC provides radar vectoring, sequencing, and separation on a full-time basis for all IFR and participating VFR aircraft. The AIM contains an explanation of TRSA.

TRSAs are depicted on VFR aeronautical charts. Pilot participation is urged but is not mandatory.

TERMINAL VFR RADAR SERVICE– A national program instituted to extend the terminal radar services provided instrument flight rules (IFR) aircraft to visual flight rules (VFR) aircraft. The program is divided into four types service referred to as basic radar service, terminal radar service area (TRSA) service, Class B service and Class C service. The type of service provided at a particular location is contained in the Airport/Facility Directory.

a. Basic Radar Service– These services are provided for VFR aircraft by all commissioned terminal radar facilities. Basic radar service includes safety alerts, traffic advisories, limited radar vectoring when requested by the pilot, and sequencing at locations where procedures have been established for this purpose and/or when covered by a letter of agreement. The purpose of this service is to adjust the flow of arriving IFR and VFR aircraft into the traffic pattern in a safe and orderly manner and to provide traffic advisories to departing VFR aircraft.

b. TRSA Service– This service provides, in addition to basic radar service, sequencing of all IFR and participating VFR aircraft to the primary airport and separation between all participating VFR aircraft. The purpose of this service is to provide separation between all participating VFR aircraft and all IFR aircraft operating within the area defined as a TRSA.

c. Class C Service– This service provides, in addition to basic radar service, approved separation between IFR and VFR aircraft, and sequencing of VFR aircraft, and sequencing of VFR arrivals to the primary airport.

d. Class B Service– This service provides, in addition to basic radar service, approved separation of aircraft based on IFR, VFR, and/or weight, and sequencing of VFR arrivals to the primary airport(s).

(See CONTROLLED AIRSPACE.)
(See TERMINAL RADAR SERVICE AREA.)
(Refer to AIM.)
(Refer to AIRPORT/FACILITY DIRECTORY.)

TERMINAL-VERY HIGH FREQUENCY OMNI-DIRECTIONAL RANGE STATION– A very high frequency terminal omnirange station located on or near an airport and used as an approach aid.

(See NAVIGATIONAL AID.)
(See VOR.)

TERRAIN AWARENESS WARNING SYSTEM (TAWS)– An on–board, terrain proximity alerting system providing the aircrew 'Low Altitude warnings' to allow immediate pilot action.

TERRAIN FOLLOWING– The flight of a military aircraft maintaining a constant AGL altitude above the terrain or the highest obstruction. The altitude of the aircraft will constantly change with the varying terrain and/or obstruction.

TETRAHEDRON– A device normally located on uncontrolled airports and used as a landing direction indicator. The small end of a tetrahedron points in the direction of landing. At controlled airports, the tetrahedron, if installed, should be disregarded because tower instructions supersede the indicator.

(See SEGMENTED CIRCLE.)
(Refer to AIM.)

TF–

(See TERRAIN FOLLOWING.)

THAT IS CORRECT– The understanding you have is right.

THREE–HOUR TARMAC RULE– Rule that relates to Department of Transportation (DOT) requirements placed on airlines when tarmac delays are anticipated to reach 3 hours.

360 OVERHEAD–

(See OVERHEAD MANEUVER.)

THRESHOLD– The beginning of that portion of the runway usable for landing.

(See AIRPORT LIGHTING.)
(See DISPLACED THRESHOLD.)

THRESHOLD CROSSING HEIGHT– The theoretical height above the runway threshold at which the aircraft's glideslope antenna would be if the aircraft maintains the trajectory established by the mean ILS glideslope or MLS glidepath.

(See GLIDESLOPE.)
(See THRESHOLD.)

THRESHOLD LIGHTS–

(See AIRPORT LIGHTING.)

TIBS–

(See TELEPHONE INFORMATION BRIEFING SERVICE.)

TIE-IN FACILITY– The FSS primarily responsible for providing FSS services, including telecommunications services for landing facilities or

navigational aids located within the boundaries of a flight plan area (FPA). Three-letter identifiers are assigned to each FSS/FPA and are annotated as tie-in facilities in A/FDs, the Alaska Supplement, the Pacific Supplement, and FAA Order JO 7350.8, Location Identifiers. Large consolidated FSS facilities may have many tie-in facilities or FSS sectors within one facility.

(See FLIGHT PLAN AREA.)

(See FLIGHT SERVICE STATION.)

TIME GROUP– Four digits representing the hour and minutes from the Coordinated Universal Time (UTC) clock. FAA uses UTC for all operations. The term "ZULU" may be used to denote UTC. The word "local" or the time zone equivalent shall be used to denote local when local time is given during radio and telephone communications. When written, a time zone designator is used to indicate local time; e.g. "0205M" (Mountain). The local time may be based on the 24-hour clock system. The day begins at 0000 and ends at 2359.

TIS–B–

(See TRAFFIC INFORMATION SERVICE–BROADCAST.)

TMA–

(See TRAFFIC MANAGEMENT ADVISOR.)

TMPA–

(See TRAFFIC MANAGEMENT PROGRAM ALERT.)

TMU–

(See TRAFFIC MANAGEMENT UNIT.)

TODA–

(See TAKEOFF DISTANCE AVAILABLE.)

(See ICAO term TAKEOFF DISTANCE AVAILABLE.)

TOI–

(See TRACK OF INTEREST.)

TOP ALTITUDE– In reference to SID published altitude restrictions the charted "maintain" altitude contained in the procedure description or assigned by ATC.

TORA–

(See TAKEOFF RUN AVAILABLE.)

(See ICAO term TAKEOFF RUN AVAILABLE.)

TORCHING– The burning of fuel at the end of an exhaust pipe or stack of a reciprocating aircraft engine, the result of an excessive richness in the fuel air mixture.

TOTAL ESTIMATED ELAPSED TIME [ICAO]– For IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome.

(See ICAO term ESTIMATED ELAPSED TIME.)

TOUCH-AND-GO– An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway.

TOUCH-AND-GO LANDING–

(See TOUCH-AND-GO.)

TOUCHDOWN–

a. The point at which an aircraft first makes contact with the landing surface.

b. Concerning a precision radar approach (PAR), it is the point where the glide path intercepts the landing surface.

(See ICAO term TOUCHDOWN.)

TOUCHDOWN [ICAO]– The point where the nominal glide path intercepts the runway.

Note: Touchdown as defined above is only a datum and is not necessarily the actual point at which the aircraft will touch the runway.

TOUCHDOWN RVR–

(See VISIBILITY.)

TOUCHDOWN ZONE– The first 3,000 feet of the runway beginning at the threshold. The area is used for determination of Touchdown Zone Elevation in the development of straight-in landing minimums for instrument approaches.

(See ICAO term TOUCHDOWN ZONE.)

TOUCHDOWN ZONE [ICAO]– The portion of a runway, beyond the threshold, where it is intended landing aircraft first contact the runway.

TOUCHDOWN ZONE ELEVATION– The highest elevation in the first 3,000 feet of the landing surface. TDZE is indicated on the instrument approach

procedure chart when straight-in landing minimums are authorized.

(See TOUCHDOWN ZONE.)

TOUCHDOWN ZONE LIGHTING–

(See AIRPORT LIGHTING.)

TOWER– A terminal facility that uses air/ground communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area. Authorizes aircraft to land or takeoff at the airport controlled by the tower or to transit the Class D airspace area regardless of flight plan or weather conditions (IFR or VFR). A tower may also provide approach control services (radar or nonradar).

(See AIRPORT TRAFFIC CONTROL SERVICE.)

(See APPROACH CONTROL FACILITY.)

(See APPROACH CONTROL SERVICE.)

(See MOVEMENT AREA.)

(See TOWER EN ROUTE CONTROL SERVICE.)

(See ICAO term AERODROME CONTROL TOWER.)

(Refer to AIM.)

TOWER EN ROUTE CONTROL SERVICE– The control of IFR en route traffic within delegated airspace between two or more adjacent approach control facilities. This service is designed to expedite traffic and reduce control and pilot communication requirements.

TOWER TO TOWER–

(See TOWER EN ROUTE CONTROL SERVICE.)

TPX-42– A numeric beacon decoder equipment/system. It is designed to be added to terminal radar systems for beacon decoding. It provides rapid target identification, reinforcement of the primary radar target, and altitude information from Mode C.

(See AUTOMATED RADAR TERMINAL SYSTEMS.)

(See TRANSPONDER.)

TRACEABLE PRESSURE STANDARD– The facility station pressure instrument, with certification/calibration traceable to the National Institute of Standards and Technology. Traceable pressure standards may be mercurial barometers, commissioned ASOS/AWSS or dual transducer AWOS, or portable pressure standards or DASI.

TRACK– The actual flight path of an aircraft over the surface of the earth.

(See COURSE.)

(See FLIGHT PATH.)

(See ROUTE.)

(See ICAO term TRACK.)

TRACK [ICAO]– The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (True, Magnetic, or Grid).

TRACK OF INTEREST (TOI)– Displayed data representing an airborne object that threatens or has the potential to threaten North America or National Security. Indicators may include, but are not limited to: noncompliance with air traffic control instructions or aviation regulations; extended loss of communications; unusual transmissions or unusual flight behavior; unauthorized intrusion into controlled airspace or an ADIZ; noncompliance with issued flight restrictions/security procedures; or unlawful interference with airborne flight crews, up to and including hijack. In certain circumstances, an object may become a TOI based on specific and credible intelligence pertaining to that particular aircraft/object, its passengers, or its cargo.

TRACK OF INTEREST RESOLUTION– A TOI will normally be considered resolved when: the aircraft/object is no longer airborne; the aircraft complies with air traffic control instructions, aviation regulations, and/or issued flight restrictions/security procedures; radio contact is re–established and authorized control of the aircraft is verified; the aircraft is intercepted and intent is verified to be nonthreatening/nonhostile; TOI was identified based on specific and credible intelligence that was later determined to be invalid or unreliable; or displayed data is identified and characterized as invalid.

TRAFFIC–

a. A term used by a controller to transfer radar identification of an aircraft to another controller for the purpose of coordinating separation action. Traffic is normally issued:

1. In response to a handoff or point out,

2. In anticipation of a handoff or point out, or

3. In conjunction with a request for control of an aircraft.

b. A term used by ATC to refer to one or more aircraft.

TRAFFIC ADVISORIES– Advisories issued to alert pilots to other known or observed air traffic which may be in such proximity to the position or intended route of flight of their aircraft to warrant their attention. Such advisories may be based on:

a. Visual observation.

b. Observation of radar identified and nonidentified aircraft targets on an ATC radar display, or

c. Verbal reports from pilots or other facilities.

Note 1: The word "traffic" followed by additional information, if known, is used to provide such advisories; e.g., "Traffic, 2 o'clock, one zero miles, southbound, eight thousand."

Note 2: Traffic advisory service will be provided to the extent possible depending on higher priority duties of the controller or other limitations; e.g., radar limitations, volume of traffic, frequency congestion, or controller workload. Radar/nonradar traffic advisories do not relieve the pilot of his/her responsibility to see and avoid other aircraft. Pilots are cautioned that there are many times when the controller is not able to give traffic advisories concerning all traffic in the aircraft's proximity; in other words, when a pilot requests or is receiving traffic advisories, he/she should not assume that all traffic will be issued.

(Refer to AIM.)

TRAFFIC ALERT (aircraft call sign), TURN (left/right) IMMEDIATELY, (climb/descend) AND MAINTAIN (altitude).

(See SAFETY ALERT.)

TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM– An airborne collision avoidance system based on radar beacon signals which operates independent of ground-based equipment. TCAS-I generates traffic advisories only. TCAS-II generates traffic advisories, and resolution (collision avoidance) advisories in the vertical plane.

TRAFFIC INFORMATION–

(See TRAFFIC ADVISORIES.)

TRAFFIC INFORMATION SERVICE–BROADCAST (TIS–B)– The broadcast of ATC derived traffic information to ADS–B equipped (1090ES or UAT) aircraft. The source of this traffic information is derived from ground–based air traffic surveillance sensors, typically from radar targets. TIS–B service will be available throughout the NAS where there are both adequate surveillance coverage (radar) and adequate broadcast coverage from ADS–B ground stations. Loss of TIS–B will occur when an aircraft enters an area not covered by the GBT network. If this occurs in an area with adequate surveillance coverage (radar), nearby aircraft that remain within the adequate broadcast coverage (ADS–B) area will view the first aircraft. TIS–B may continue when an aircraft enters an area with inadequate surveillance coverage (radar); nearby aircraft that remain within the adequate broadcast coverage (ADS–B) area will not view the first aircraft.

TRAFFIC IN SIGHT– Used by pilots to inform a controller that previously issued traffic is in sight.

(See NEGATIVE CONTACT.)
(See TRAFFIC ADVISORIES.)

TRAFFIC MANAGEMENT ADVISOR (TMA)– A computerized tool which assists Traffic Management Coordinators to efficiently schedule arrival traffic to a metered airport, by calculating meter fix times and delays then sending that information to the sector controllers.

TRAFFIC MANAGEMENT PROGRAM ALERT– A term used in a Notice to Airmen (NOTAM) issued in conjunction with a special traffic management program to alert pilots to the existence of the program and to refer them to either the Notices to Airmen publication or a special traffic management program advisory message for program details. The contraction TMPA is used in NOTAM text.

TRAFFIC MANAGEMENT UNIT– The entity in ARTCCs and designated terminals directly involved in the active management of facility traffic. Usually under the direct supervision of an assistant manager for traffic management.

TRAFFIC NO FACTOR– Indicates that the traffic described in a previously issued traffic advisory is no factor.

TRAFFIC NO LONGER OBSERVED– Indicates that the traffic described in a previously issued traffic advisory is no longer depicted on radar, but may still be a factor.

TRAFFIC PATTERN– The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

a. Upwind Leg– A flight path parallel to the landing runway in the direction of landing.

b. Crosswind Leg– A flight path at right angles to the landing runway off its upwind end.

c. Downwind Leg– A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.

d. Base Leg– A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.

e. Final Approach. A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway. An aircraft making a straight-in approach VFR is also considered to be on final approach.

(See STRAIGHT-IN APPROACH VFR.)

(See TAXI PATTERNS.)

(See ICAO term AERODROME TRAFFIC CIRCUIT.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

TRAFFIC SITUATION DISPLAY (TSD)– TSD is a computer system that receives radar track data from all 20 CONUS ARTCCs, organizes this data into a mosaic display, and presents it on a computer screen. The display allows the traffic management coordinator multiple methods of selection and highlighting of individual aircraft or groups of aircraft. The user has the option of superimposing these aircraft positions over any number of background displays. These background options include ARTCC boundaries, any stratum of en route sector boundaries, fixes, airways, military and other special use airspace, airports, and geopolitical boundaries. By using the TSD, a coordinator can monitor any number of traffic situations or the entire systemwide traffic flows.

TRAJECTORY– A URET representation of the path an aircraft is predicted to fly based upon a Current Plan or Trial Plan.

(See USER REQUEST EVALUATION TOOL.)

TRAJECTORY MODELING– The automated process of calculating a trajectory.

TRANSCRIBED WEATHER BROADCAST– A continuous recording of meteorological and aeronautical information that is broadcast on L/MF and VOR facilities for pilots. (Provided only in Alaska.)

(Refer to AIM.)

TRANSFER OF CONTROL– That action whereby the responsibility for the separation of an aircraft is transferred from one controller to another.

(See ICAO term TRANSFER OF CONTROL.)

TRANSFER OF CONTROL [ICAO]– Transfer of responsibility for providing air traffic control service.

TRANSFERRING CONTROLLER– A controller/facility transferring control of an aircraft to another controller/facility.

(See ICAO term TRANSFERRING UNIT/CONTROLLER.)

TRANSFERRING FACILITY–

(See TRANSFERRING CONTROLLER.)

TRANSFERRING UNIT/CONTROLLER [ICAO]– Air traffic control unit/air traffic controller in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit/air traffic controller along the route of flight.

Note: See definition of accepting unit/controller.

TRANSITION–

a. The general term that describes the change from one phase of flight or flight condition to another; e.g., transition from en route flight to the approach or transition from instrument flight to visual flight.

b. A published procedure (DP Transition) used to connect the basic DP to one of several en route airways/jet routes, or a published procedure (STAR Transition) used to connect one of several en route airways/jet routes to the basic STAR.

(Refer to DP/STAR Charts.)

TRANSITION POINT– A point at an adapted number of miles from the vertex at which an arrival aircraft would normally commence descent from its en route altitude. This is the first fix adapted on the arrival speed segments.

TRANSITION WAYPOINT– The waypoint that defines the beginning of a runway or en route transition on an RNAV SID or STAR.

TRANSITIONAL AIRSPACE– That portion of controlled airspace wherein aircraft change from one phase of flight or flight condition to another.

TRANSMISSOMETER– An apparatus used to determine visibility by measuring the transmission of light through the atmosphere. It is the measurement

source for determining runway visual range (RVR) and runway visibility value (RVV).

(See VISIBILITY.)

TRANSMITTING IN THE BLIND– A transmission from one station to other stations in circumstances where two-way communication cannot be established, but where it is believed that the called stations may be able to receive the transmission.

TRANSPONDER– The airborne radar beacon receiver/transmitter portion of the Air Traffic Control Radar Beacon System (ATCRBS) which automatically receives radio signals from interrogators on the ground, and selectively replies with a specific reply pulse or pulse group only to those interrogations being received on the mode to which it is set to respond.

(See INTERROGATOR.)

(See ICAO term TRANSPONDER.)

(Refer to AIM.)

TRANSPONDER [ICAO]– A receiver/transmitter which will generate a reply signal upon proper interrogation; the interrogation and reply being on different frequencies.

TRANSPONDER CODES–

(See CODES.)

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

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

TRSA–

(See TERMINAL RADAR SERVICE AREA.)

TSD–

(See TRAFFIC SITUATION DISPLAY.)

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

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

TURN ANTICIPATION– (maneuver anticipation).

TVOR–

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

TWEB–

(See TRANSCRIBED WEATHER BROADCAST.)

TWO-WAY RADIO COMMUNICATIONS FAILURE–

(See LOST COMMUNICATIONS.)

U

UHF–
(See ULTRAHIGH FREQUENCY.)

ULTRAHIGH FREQUENCY– The frequency band between 300 and 3,000 MHz. The bank of radio frequencies used for military air/ground voice communications. In some instances this may go as low as 225 MHz and still be referred to as UHF.

ULTRALIGHT VEHICLE– A single-occupant aeronautical vehicle operated for sport or recreational purposes which does not require FAA registration, an airworthiness certificate, nor pilot certification. Operation of an ultralight vehicle in certain airspace requires authorization from ATC
(Refer to 14 CFR Part 103.)

UNABLE– Indicates inability to comply with a specific instruction, request, or clearance.

UNASSOCIATED– A radar target that does not display a data block with flight identification and altitude information.
(See ASSOCIATED.)

UNDER THE HOOD– Indicates that the pilot is using a hood to restrict visibility outside the cockpit while simulating instrument flight. An appropriately rated pilot is required in the other control seat while this operation is being conducted.
(Refer to 14 CFR Part 91.)

UNFROZEN– The Scheduled Time of Arrival (STA) tags, which are still being rescheduled by traffic management advisor (TMA) calculations. The aircraft will remain unfrozen until the time the corresponding estimated time of arrival (ETA) tag passes the preset freeze horizon for that aircraft's stream class. At this point the automatic rescheduling will stop, and the STA becomes "frozen."

UNICOM– A nongovernment communication facility which may provide airport information at certain airports. Locations and frequencies of UNICOMs are shown on aeronautical charts and publications.
(See AIRPORT/FACILITY DIRECTORY.)
(Refer to AIM.)

UNPUBLISHED ROUTE– A route for which no minimum altitude is published or charted for pilot use. It may include a direct route between NAVAIDs, a radial, a radar vector, or a final approach course beyond the segments of an instrument approach procedure.
(See PUBLISHED ROUTE.)
(See ROUTE.)

UNRELIABLE (GPS/WAAS)– An advisory to pilots indicating the expected level of service of the GPS and/or WAAS may not be available. Pilots must then determine the adequacy of the signal for desired use.

UPWIND LEG–
(See TRAFFIC PATTERN.)

URET–
(See USER REQUEST EVALUATION TOOL.)

URGENCY– A condition of being concerned about safety and of requiring timely but not immediate assistance; a potential distress condition.
(See ICAO term URGENCY.)

URGENCY [ICAO]– A condition concerning the safety of an aircraft or other vehicle, or of person on board or in sight, but which does not require immediate assistance.

USAFIB–
(See ARMY AVIATION FLIGHT INFORMATION BULLETIN.)

USER REQUEST EVALUATION TOOL (URET)– User Request Evaluation Tool is an automated tool provided at each Radar Associate position in selected En Route facilities. This tool utilizes flight and radar data to determine present and future trajectories for all active and proposal aircraft and provides enhanced, automated flight data management.

V

VASI–
(See VISUAL APPROACH SLOPE INDICATOR.)

VCOA–
(See VISUAL CLIMB OVER AIRPORT.)

VDP–
(See VISUAL DESCENT POINT.)

VECTOR– A heading issued to an aircraft to provide navigational guidance by radar.
(See ICAO term RADAR VECTORING.)

VERIFY– Request confirmation of information; e.g., "verify assigned altitude."

VERIFY SPECIFIC DIRECTION OF TAKEOFF (OR TURNS AFTER TAKEOFF)– Used by ATC to ascertain an aircraft's direction of takeoff and/or direction of turn after takeoff. It is normally used for IFR departures from an airport not having a control tower. When direct communication with the pilot is not possible, the request and information may be relayed through an FSS, dispatcher, or by other means.
(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

VERTEX– The last fix adapted on the arrival speed segments. Normally, it will be the outer marker of the runway in use. However, it may be the actual threshold or other suitable common point on the approach path for the particular runway configuration.

VERTEX TIME OF ARRIVAL– A calculated time of aircraft arrival over the adapted vertex for the runway configuration in use. The time is calculated via the optimum flight path using adapted speed segments.

VERTICAL NAVIGATION (VNAV)– A function of area navigation (RNAV) equipment which calculates, displays, and provides vertical guidance to a profile or path.

VERTICAL SEPARATION– Separation between aircraft expressed in units of vertical distance.
(See SEPARATION.)

VERTICAL TAKEOFF AND LANDING AIRCRAFT– Aircraft capable of vertical climbs and/or descents and of using very short runways or small areas for takeoff and landings. These aircraft include, but are not limited to, helicopters.
(See SHORT TAKEOFF AND LANDING AIRCRAFT.)

VERY HIGH FREQUENCY– The frequency band between 30 and 300 MHz. Portions of this band, 108 to 118 MHz, are used for certain NAVAIDs; 118 to 136 MHz are used for civil air/ground voice communications. Other frequencies in this band are used for purposes not related to air traffic control.

VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION–
(See VOR.)

VERY LOW FREQUENCY– The frequency band between 3 and 30 kHz.

VFR–
(See VISUAL FLIGHT RULES.)

VFR AIRCRAFT– An aircraft conducting flight in accordance with visual flight rules.
(See VISUAL FLIGHT RULES.)

VFR CONDITIONS– Weather conditions equal to or better than the minimum for flight under visual flight rules. The term may be used as an ATC clearance/instruction only when:

a. An IFR aircraft requests a climb/descent in VFR conditions.

b. The clearance will result in noise abatement benefits where part of the IFR departure route does not conform to an FAA approved noise abatement route or altitude.

c. A pilot has requested a practice instrument approach and is not on an IFR flight plan.

Note: All pilots receiving this authorization must comply with the VFR visibility and distance from cloud criteria in 14 CFR Part 91. Use of the term does not relieve controllers of their responsibility to separate aircraft in Class B and Class C airspace or TRSAs as required by FAAO JO 7110.65. When used as an ATC clearance/instruction, the term may be abbreviated "VFR;" e.g., "MAINTAIN VFR," "CLIMB/DESCEND VFR," etc.

VFR FLIGHT–
(See VFR AIRCRAFT.)

VFR MILITARY TRAINING ROUTES– Routes used by the Department of Defense and associated Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training under VFR below 10,000 feet MSL at airspeeds in excess of 250 knots IAS.

VFR NOT RECOMMENDED– An advisory provided by a flight service station to a pilot during a preflight or inflight weather briefing that flight under visual flight rules is not recommended. To be given when the current and/or forecast weather conditions are at or below VFR minimums. It does not abrogate the pilot's authority to make his/her own decision.

VFR-ON-TOP– ATC authorization for an IFR aircraft to operate in VFR conditions at any appropriate VFR altitude (as specified in 14 CFR and as restricted by ATC). A pilot receiving this authorization must comply with the VFR visibility, distance from cloud criteria, and the minimum IFR altitudes specified in 14 CFR Part 91. The use of this term does not relieve controllers of their responsibility to separate aircraft in Class B and Class C airspace or TRSAs as required by FAAO JO 7110.65.

VFR TERMINAL AREA CHARTS–
(See AERONAUTICAL CHART.)

VFR WAYPOINT–
(See WAYPOINT.)

VHF–
(See VERY HIGH FREQUENCY.)

VHF OMNIDIRECTIONAL RANGE/TACTICAL AIR NAVIGATION–
(See VORTAC.)

VIDEO MAP– An electronically displayed map on the radar display that may depict data such as airports, heliports, runway centerline extensions, hospital emergency landing areas, NAVAIDs and fixes, reporting points, airway/route centerlines, boundaries, handoff points, special use tracks, obstructions, prominent geographic features, map alignment indicators, range accuracy marks, minimum vectoring altitudes.

VISIBILITY– The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night. Visibility is reported as statute miles, hundreds of feet or meters.

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

a. Flight Visibility– The average forward horizontal distance, from the cockpit of an aircraft in flight, at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night.

b. Ground Visibility– Prevailing horizontal visibility near the earth's surface as reported by the United States National Weather Service or an accredited observer.

c. Prevailing Visibility– The greatest horizontal visibility equaled or exceeded throughout at least half the horizon circle which need not necessarily be continuous.

d. Runway Visibility Value (RVV)– The visibility determined for a particular runway by a transmissometer. A meter provides a continuous indication of the visibility (reported in miles or fractions of miles) for the runway. RVV is used in lieu of prevailing visibility in determining minimums for a particular runway.

e. Runway Visual Range (RVR)– An instrumentally derived value, based on standard calibrations, that represents the horizontal distance a pilot will see down the runway from the approach end. It is based on the sighting of either high intensity runway lights or on the visual contrast of other targets whichever yields the greater visual range. RVR, in contrast to prevailing or runway visibility, is based on what a pilot in a moving aircraft should see looking down the runway. RVR is horizontal visual range, not slant visual range. It is based on the measurement of a transmissometer made near the touchdown point of the instrument runway and is reported in hundreds of feet. RVR is used in lieu of RVV and/or prevailing visibility in determining minimums for a particular runway.

1. Touchdown RVR– The RVR visibility readout values obtained from RVR equipment serving the runway touchdown zone.

2. Mid-RVR– The RVR readout values obtained from RVR equipment located midfield of the runway.

3. Rollout RVR– The RVR readout values obtained from RVR equipment located nearest the rollout end of the runway.

(See ICAO term FLIGHT VISIBILITY.)
(See ICAO term GROUND VISIBILITY.)
(See ICAO term RUNWAY VISUAL RANGE.)
(See ICAO term VISIBILITY.)

VISIBILITY [ICAO]– The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night.

a. Flight Visibility–The visibility forward from the cockpit of an aircraft in flight.

b. Ground Visibility–The visibility at an aerodrome as reported by an accredited observer.

c. Runway Visual Range [RVR]–The range over which the pilot of an aircraft on the centerline of a runway can see the runway surface markings or the lights delineating the runway or identifying its centerline.

VISUAL APPROACH– An approach conducted on an instrument flight rules (IFR) flight plan which authorizes the pilot to proceed visually and clear of clouds to the airport. The pilot must, at all times, have either the airport or the preceding aircraft in sight. This approach must be authorized and under the control of the appropriate air traffic control facility. Reported weather at the airport must be ceiling at or above 1,000 feet and visibility of 3 miles or greater.

(See ICAO term VISUAL APPROACH.)

VISUAL APPROACH [ICAO]– An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

VISUAL APPROACH SLOPE INDICATOR–

(See AIRPORT LIGHTING.)

VISUAL CLIMB OVER AIRPORT (VCOA)– A departure option for an IFR aircraft, operating in visual meteorological conditions equal to or greater than the specified visibility and ceiling, to visually conduct climbing turns over the airport to the published "climb–to" altitude from which to proceed with the instrument portion of the departure. VCOA procedures are developed to avoid obstacles greater than 3 statute miles from the departure end of the runway as an alternative to complying with climb gradients greater than 200 feet per nautical mile. These procedures are published in the 'Take–Off Minimums and (Obstacle) Departure Procedures' section of the Terminal Procedures Publications.

(See AIM.)

VISUAL DESCENT POINT– A defined point on the final approach course of a nonprecision straight-in approach procedure from which normal descent from the MDA to the runway touchdown point may be commenced, provided the approach threshold of that runway, or approach lights, or other markings identifiable with the approach end of that runway are clearly visible to the pilot.

VISUAL FLIGHT RULES– Rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

(See INSTRUMENT FLIGHT RULES.)
(See INSTRUMENT METEOROLOGICAL CONDITIONS.)
(See VISUAL METEOROLOGICAL CONDITIONS.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

VISUAL HOLDING– The holding of aircraft at selected, prominent geographical fixes which can be easily recognized from the air.

(See HOLDING FIX.)

VISUAL METEOROLOGICAL CONDITIONS– Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima.

(See INSTRUMENT FLIGHT RULES.)
(See INSTRUMENT METEOROLOGICAL CONDITIONS.)
(See VISUAL FLIGHT RULES.)

VISUAL SEGMENT–

(See PUBLISHED INSTRUMENT APPROACH PROCEDURE VISUAL SEGMENT.)

VISUAL SEPARATION– A means employed by ATC to separate aircraft in terminal areas and en route airspace in the NAS. There are two ways to effect this separation:

a. The tower controller sees the aircraft involved and issues instructions, as necessary, to ensure that the aircraft avoid each other.

b. A pilot sees the other aircraft involved and upon instructions from the controller provides his/her own separation by maneuvering his/her aircraft as necessary to avoid it. This may involve following another aircraft or keeping it in sight until it is no longer a factor.

(See SEE AND AVOID.)
(Refer to 14 CFR Part 91.)

VLF–
(See VERY LOW FREQUENCY.)

VMC–
(See VISUAL METEOROLOGICAL CONDITIONS.)

VOICE SWITCHING AND CONTROL SYSTEM– The VSCS is a computer controlled switching system that provides air traffic controllers with all voice circuits (air to ground and ground to ground) necessary for air traffic control.

(See VOICE SWITCHING AND CONTROL SYSTEM.)
(Refer to AIM.)

VOR– A ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the National Airspace System. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature. Voice features may be used by ATC or FSS for transmitting instructions/information to pilots.

(See NAVIGATIONAL AID.)
(Refer to AIM.)

VOR TEST SIGNAL–
(See VOT.)

VORTAC– A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site.

(See DISTANCE MEASURING EQUIPMENT.)
(See NAVIGATIONAL AID.)
(See TACAN.)
(See VOR.)
(Refer to AIM.)

VORTICES– Circular patterns of air created by the movement of an airfoil through the air when generating lift. As an airfoil moves through the atmosphere in sustained flight, an area of area of low pressure is created above it. The air flowing from the high pressure area to the low pressure area around and about the tips of the airfoil tends to roll up into two rapidly rotating vortices, cylindrical in shape. These vortices are the most predominant parts of aircraft wake turbulence and their rotational force is dependent upon the wing loading, gross weight, and speed of the generating aircraft. The vortices from medium to heavy aircraft can be of extremely high velocity and hazardous to smaller aircraft.

(See AIRCRAFT CLASSES.)
(See WAKE TURBULENCE.)
(Refer to AIM.)

VOT– A ground facility which emits a test signal to check VOR receiver accuracy. Some VOTs are available to the user while airborne, and others are limited to ground use only.

(See AIRPORT/FACILITY DIRECTORY.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

VR–
(See VFR MILITARY TRAINING ROUTES.)

VSCS–
(See VOICE SWITCHING AND CONTROL SYSTEM.)

VTA–
(See VERTEX TIME OF ARRIVAL.)

VTOL AIRCRAFT–
(See VERTICAL TAKEOFF AND LANDING AIRCRAFT.)

W

WA–
(See AIRMET.)
(See WEATHER ADVISORY.)

WAAS–
(See WIDE-AREA AUGMENTATION SYSTEM.)

WAKE TURBULENCE– Phenomena resulting from the passage of an aircraft through the atmosphere. The term includes vortices, thrust stream turbulence, jet blast, jet wash, propeller wash, and rotor wash both on the ground and in the air.
(See AIRCRAFT CLASSES.)
(See JET BLAST.)
(See VORTICES.)
(Refer to AIM.)

WARNING AREA–
(See SPECIAL USE AIRSPACE.)

WAYPOINT– A predetermined geographical position used for route/instrument approach definition, progress reports, published VFR routes, visual reporting points or points for transitioning and/or circumnavigating controlled and/or special use airspace, that is defined relative to a VORTAC station or in terms of latitude/longitude coordinates.

WEATHER ADVISORY– In aviation weather forecast practice, an expression of hazardous weather conditions not predicted in the area forecast, as they affect the operation of air traffic and as prepared by the NWS.
(See AIRMET.)
(See SIGMET.)

WHEN ABLE–

a. In conjunction with ATC instructions, gives the pilot the latitude to delay compliance until a condition or event has been reconciled. Unlike "pilot discretion," when instructions are prefaced "when able," the pilot is expected to seek the first opportunity to comply.

b. In conjunction with a weather deviation clearance, requires the pilot to determine when he/she is clear of weather, then execute ATC instructions.

c. Once a maneuver has been initiated, the pilot is expected to continue until the specifications of the instructions have been met. "When able," should not be used when expeditious compliance is required.

WIDE-AREA AUGMENTATION SYSTEM (WAAS)– The WAAS is a satellite navigation system consisting of the equipment and software which augments the GPS Standard Positioning Service (SPS). The WAAS provides enhanced integrity, accuracy, availability, and continuity over and above GPS SPS. The differential correction function provides improved accuracy required for precision approach.

WILCO– I have received your message, understand it, and will comply with it.

WIND GRID DISPLAY– A display that presents the latest forecasted wind data overlaid on a map of the ARTCC area. Wind data is automatically entered and updated periodically by transmissions from the National Weather Service. Winds at specific altitudes, along with temperatures and air pressure can be viewed.

WIND SHEAR– A change in wind speed and/or wind direction in a short distance resulting in a tearing or shearing effect. It can exist in a horizontal or vertical direction and occasionally in both.

WIND SHEAR ESCAPE– An unplanned abortive maneuver initiated by the pilot in command (PIC) as a result of onboard cockpit systems. Wind shear escapes are characterized by maximum thrust climbs in the low altitude terminal environment until wind shear conditions are no longer detected.

WING TIP VORTICES–
(See VORTICES.)

WORDS TWICE–

a. As a request: "Communication is difficult. Please say every phrase twice."

b. As information: "Since communications are difficult, every phrase in this message will be spoken twice."

WORLD AERONAUTICAL CHARTS–
(See AERONAUTICAL CHART.)

WS–
(See SIGMET.)
(See WEATHER ADVISORY.)

WST–
(See CONVECTIVE SIGMET.)
(See WEATHER ADVISORY.)

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BRIEFING GUIDE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

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

Table of Contents

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1. PARAGRAPH NUMBER AND TITLE: 2−1−2. SPEECH RATE AND PHRASEOLOGY

2. BACKGROUND: FAA Order JO 7110.10, paragraph 2-1-2 specifies the standardized speech rate and phraseology to be used by Flight Service Station (FSS) personnel and automated equipment.

3. CHANGE:

	OLD	NEW
	2−1−2. SPEECH RATE AND PHRASEOLOGY	**2−1−2. SPEECH RATE AND PHRASEOLOGY**
	Data must be spoken at a rate of 100 to 120 words per minute. Standardized procedures and phraseology to be used by FSS personnel and automated equipment are to be conducted in accordance with Chapter 12, Phraseology.	**a.** Data must be spoken **such that:**
Add		**1. The speech rate is not excessive,**
Add		**2. The enunciation is of the highest quality, and**
Add		**3. Each part of the message is easily understood.**
Add		**b. Standardized procedures and phraseology to be used by FSS personnel and automated equipment are to be conducted in accordance with Chapter 12, Phraseology.**

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1. PARAGRAPH NUMBER AND TITLE: 6−2−1. FLIGHT PLAN RECORDING

2. BACKGROUND: Since the introduction of ICAO flight plan filing in the NAS, a translation issue has been identified in the HOST/ERAM processing of those flight plans. ICAO flight plan format requires multiple codes be used to describe individual navigation capabilities. Occasionally, when these flight plans are processed by HOST or ERAM, the NAS equipment suffix displayed to the controller for an aircraft is /R, /Q, /Y, or /C. For these suffixes the aircraft may or may not be GNSS capable.

3. CHANGE:

OLD

6−2−1. FLIGHT PLAN RECORDING

TBL 6-2-5
Suffix to Aircraft Type

Delete

Suffix	Aircraft Equipment Suffixes
	DME
/A	Transponder with Mode C.
/B	Transponder with no Mode C.
/D	No transponder.
	NO DME
/T	Transponder with no Mode C.
/U	Transponder with Mode C.

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

NEW

6–2–1. FLIGHT PLAN RECORDING

TBL 6-2-5

Suffix to Aircraft Type

Add

	Navigation Capability	Transponder Capability	Suffix
RVSM	No GNSS, No RNAV	Transponder with Mode C	/W
	RNAV, No GNSS	Transponder with Mode C	/Z
	GNSS	Transponder with Mode C	/L
No RVSM	No DME	No transponder	/X
		Transponder with no Mode C	/T
		Transponder with Mode C	/U
	DME	No transponder	/D
		Transponder with no Mode C	/B
		Transponder with Mode C	/A
	TACAN	No transponder	/M
		Transponder with no Mode C	/N
		Transponder with Mode C	/P
	RNAV, No GNSS	No transponder	/Y
		Transponder with no Mode C	/C
		Transponder with Mode C	/I
	GNSS	No transponder	/V
		Transponder with no Mode C	/S
		Transponder with Mode C	/G

1. PARAGRAPH NUMBER AND TITLE: 9−5−2. AREA FORECAST (FA) SCHEDULE

2. BACKGROUND: This change is proposed in response to National Weather Service (NWS) Technical Implementation Notice 13-21 in which NWS reduced the issuance of the Alaska Area Forecasts from four times a day to three times a day effective October 15, 2013.

3. CHANGE:

OLD

9−5−2. AREA FORECAST (FA) SCHEDULE

FAs are issued three times a day in the contiguous U.S., **and the Gulf of Mexico and four times a day in Alaska,** Hawaii, and the Caribbean. The issuance times are in TBL 9-5-2.

	Boston and Miami (UTC)	Chicago and Fort Worth (UTC)	San Francisco and Salt Lake City (UTC)	Gulf of Mexico (UTC)	Caribbean (UTC)	Hawaii (UTC)	Alaska (UTC)
1st Issuance	0845 DT 0945 ST	0945 DT 1045 ST	1045 DT 1145 ST	0130	0330	0340	0145 DT 0245 ST
2nd Issuance	1745 DT 1845 ST	1845 DT 1945 ST	1945 DT 2045 ST	1030	0930	0940	0745 DT 0845 ST
3rd Issuance	0045 DT 0145 ST	0145 DT 0245 ST	0245 DT 0345 DT	1830	1530	1540	1345 DT 1445 ST
4th Issuance					2130	2140	1945 DT 2045 ST
Note: DT – Daylight Time, ST – Standard Time, UTC – Coordinated Universal Time							

NEW

9−5−2. AREA FORECAST (FA) SCHEDULE

FAs are issued three times a day in the contiguous U.S., **Alaska and the Gulf of Mexico and four times a day in** Hawaii, and the Caribbean. The issuance times are in TBL 9-5-2.

	Boston and Miami (UTC)	Chicago and Fort Worth (UTC)	San Francisco and Salt Lake City (UTC)	Gulf of Mexico (UTC)	Caribbean (UTC)	Hawaii (UTC)	Alaska (UTC)
1st Issuance	0845 DT 0945 ST	0945 DT 1045 ST	1045 DT 1145 ST	0130	0330	0340	**0415 DT 0515 ST**
2nd Issuance	1745 DT 1845 ST	1845 DT 1945 ST	1945 DT 2045 ST	1030	0930	0940	**1215 DT 1315 ST**
3rd Issuance	0045 DT 0145 ST	0145 DT 0245 ST	0245 DT 0345 DT	1830	1530	1540	**2015 DT 2115 ST**
4th Issuance					2130	2140	
Note: DT – Daylight Time, ST – Standard Time, UTC – Coordinated Universal Time							

1. PARAGRAPH NUMBER AND TITLE: 9−7−1. GENERAL

2. BACKGROUND: This change is proposed in response to National Weather Service (NWS) plans to modify transmission times of Alaskan Airmets on October 15, 2013. This change to Table 9-7-1 is needed to reflect the new issuance times for NWS Alaska Airmets.

3. CHANGE:

OLD

TBL 9-7-1

	1st Scheduled Issuance (UTC)	2nd Scheduled Issuance (UTC)	3rd Scheduled Issuance (UTC)	4th Scheduled Issuance (UTC)
CONUS	O255	0855	1455	2055
Alaska	0145 (DT)/ 0245 (ST)	0745 (DT)/ 0845 (ST)	1345(DT)/ 1445 (ST)	1945(DT)/ 2045(ST)
Hawaii	0400	1000	1600	2200
Note: DT – Daylight Time, ST – Standard Time				

NEW

TBL 9-7-1

	1st Scheduled Issuance (UTC)	2nd Scheduled Issuance (UTC)	3rd Scheduled Issuance (UTC)	4th Scheduled Issuance (UTC)
CONUS	O255	0855	1455	2055
Alaska	0215 (DT)/ 0315 (ST)	0815 (DT)/ 0915 (ST)	1415 (DT)/ 1515 (ST)	2015 (DT)/ 2115 (ST)
Hawaii	0400	1000	1600	2200
Note: DT – Daylight Time, ST – Standard Time				