

## ERRATA SHEET

SUBJECT: Order JO 7110.10U Flight Services

This errata sheet transmits, for clarity, revised pages and omitted pages from Change 1, dated 8/26/10, of the subject order.

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## 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. Service A/B 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 markings 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 FAAO JO 7340.2, Contractions, or FAAO 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	0

**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.

**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 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 flight plan is one that is removed from a proposed list and has not been activated.

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. PILOT WEATHER REPORTS**

a. Enter PIREPS into the operational system in accordance with FAA Form 7110–2, PIREP Form. PIREPS may initially be recorded on the form or other paper prior to entry in the operational system.

**REFERENCE–**

FAAO JO 7110.10, Para 9–2–14, PIREP Preparation  
FAAO JO 7110.10, Para 9–2–15, PIREP Format

**4–2–5. LOGGING AIRCRAFT CONTACTS**

a. MIFC. Aircraft contacts and inflight briefings are logged and stored on the DD file for accountability. The required elements are:

1. Inflight Briefing (IB).
2. Type of Flight (TOF).
3. Type of Service (TOS).
4. ACID.
5. Remarks.

**EXAMPLE–**

IB (TOF),(TOS),(ACID), REMARKS.

**NOTE–**

If current partial exists, ACID is optional. (See TBL 4–2–1.)

**TBL 4–2–1  
Type of Flight**

TOF	(TYPE OF FLIGHT)
IC	IFR AIR CARRIER
IG	IFR GENERAL
IM	IFR MILITARY
IT	IFR AIR TAXI
VC	VFR AIR CARRIER
VG	VFR GENERAL
VM	VFR MILITARY
VT	VFR AIR TAXI
Example: “IGI” = IFR General ICAO.	
For DVFR, replace “V” with “D.”	
For ICAO, add “I” to TOF.	
TOS (TYPE OF SERVICE)	
A	ACFT contact & airport advisory
AB	ACFT contact, airport advisory & briefing
B	ACFT contact & briefing
BLANK	ACFT contact

(See TBL 4–2–2.)

**TBL 4-2-2**  
**Contacts & Inflight Briefings**

CB	This is used to log general information in the DD file without adding to the traffic count. Current partial is by-passed.
IB DG,,N1234, "Remarks"	ACFT contact, DVFR General, ACID in current partial by-passed.
IB IG,,,ALSTG	ACFT contact, IFR General, Remarks.
IB IGI,B,N1,VNR	ACFT contact, IFR General ICAO, Briefing, ACID in current partial by-passed, Remarks.
IB VM,B,, "Remarks"	ACFT contact, VFR Military, Briefing.
IB VG,A,, "Remarks"	ACFT contact, VFR General, Airport Advisory.
IB ,,N1,Remarks	This is used to log additional radio contacts.

b. OASIS. Aircraft contacts and inflight briefings are logged and stored in the history files for accountability.

**NOTE-**

*ACID and Flight Rules are required to log an inflight briefing or aircraft contact.*

c. In the REMARKS block, locally approved contractions and identifiers may be used for frequently used terms not listed in either FAAO JO 7340.2, Contractions or FAAO JO 7350.8, Location Identifiers.

d. If the inflight position is recorded, you may limit entries in the REMARKS to those necessary for your use.

**4-2-6. 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 one flight progress strip for each flight, and record all contacts with that flight on the same strip. If supplemental strips are needed for additional writing space, keep the original and supplemental strips together and consider them as one strip.

**4-2-7. FLIGHT PROGRESS STRIPS AND ENTRY DATA**

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

**FIG 4-2-2**  
**Flight Progress Strip**

	1	2	3	10	12	13				14			
4	5			11									
6	7	8	9										

b. Flight progress strip entry. (See [FIG 4-2-3](#).)

FIG 4-2-3  
Strip Entry 1

N123E	R214R	150	1V	1615	AVFP	
				55	O/CRP	PB DFW S C I
MFE	CRP			1740	Q LNDG SAT AWX ✓	VNR
AUS	1610/1820/2110					

AA FORM 7230-21 (4-75)

FIG 4-2-4  
Strip Entry 2

N3456Y	BE35		V →	1941	O/SAT E 1+00 ✓	REQ UA
				55	32E SAT OVC65	PB PPSN - HOU
LFT	/ / /					

A FORM 7230-21 (4-75)

FIG 4-2-5  
Flight Progress Strip

ADDRESS				13	14
TEXT OF FLIGHT NOTIFICATION MESSAGE					
	10	11	12		

Flight progress strip Item and Information.  
(See TBL 4-2-3.)

**TBL 4-2-3**  
**Item and Information**

<i>Item</i>	<i>Information</i>
1	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	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; e.g., 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.

Flight progress strip abbreviation. (See [TBL 4-2-4](#))

**TBL 4-2-4**  
**Abbreviation**

<i>Abbreviation</i>	<i>Meaning</i>
→	Over Flight.
↓	Inbound Flight.
↗	Outbound Flight.
I	IFR.
IR	Island Reporting.
D	DVFR.
LR	Lake Reporting.
S	SVFR.
V	VFR.
MR	Mountain Reporting.
SR	Swamp Reporting.

Flight progress strip abbreviation. (See [TBL 4-2-5](#))

**TBL 4-2-5**  
**Abbreviation**

<i>Abbreviation</i>	<i>Meaning</i>
A	AIRMET (WA).
AA	Airport Advisory.
CWT	Caution Wake Turbulence.
DA	Decided Against Flight.
DD	Decided to Delay Flight.
DW	Downwind.
FP	Filed Flight Plan.
IC	Incomplete Briefing.
PB	Pilot Brief.
RY	Runway.
S	SIGMET (WS) and/or Convective SIGMET (WST).
VNR	VFR Flight not recommended (Pilot Brief).

c. Record ATC instructions and clearances completely and exactly.

d. Summarize other data using approved symbols and contractions.

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

f. When flight notification messages are used to record flight progress data, cut or tear the paper to fit the strip holder. Enter items 10 through 14 in the corresponding numbered location illustrated in [FIG 4-2-4](#).

#### 4-2-8. 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.

*TBL 4-2-6***Clearance Abbreviation**

<i>Abbreviation</i>	<i>Meaning</i>
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.

**4-2-9. CONTROL SYMBOLOGY**

a. Use authorized control and clearance symbols or abbreviations for recording clearances, reports, and instructions.

b. The following tables contain abbreviation and control information symbols. (See [TBL 4-2-6](#) and [TBL 4-2-7](#).)

*TBL 4-2-7***Miscellaneous Abbreviation**

<i>Abbreviation</i>	<i>Meaning</i>
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.

FIG 4-2-6  
Control Information Symbols Chart 1

Symbols	Meaning
T → ( )	Depart (direction, if specified)
↑	Climb and maintain
↓	Descend and maintain
→	Cruise
⊙	At
X	Cross
<del>M</del> →	Maintain
<u>7</u>	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 →	Cleared to enter, depart or through surface area Indicated direction of flight by arrow and appropriate compass letter. Main- tain Special VFR conditions (altitude if appro- priate) while in surface area
NE →	
E →	
250 K	
-20 K	Aircraft requested to reduce speed 20 knots.
+30 K	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
<u>170</u> (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 shall be lower than the second. Example: 310B370
v <	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 4-2-7

## 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 other 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)
<b>H</b> 10 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.
<b>C</b> (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)
<del>R</del>	Radar service terminated
<del>R</del>	Radar contact lost
RV	Radar vector
<del>R</del>	Pilot resumed own navigation
Ⓡ	Radar handoff (circle symbol when handoff completed)
E (red)	EMERGENCY
W (red)	WARNING
P	Point out initiated. Indicate 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.

# PILOT/CONTROLLER GLOSSARY

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## PURPOSE

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

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

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

## EXPLANATION OF CHANGES

a. Terms Added:

PREDICTIVE WINDSHEAR ALERT SYSTEM (PWS)  
SECURITY NOTICE (SECNOT)

b. Terms Modified:

AUTOMATIC FLIGHT INFORMATION SERVICE (AFIS)  
BRAKING ACTION ADVISORIES  
LOCAL AIRPORT ADVISORY (LAA)  
ONE MINUTE WEATHER  
REMOTE AIRPORT ADVISORY (RAA)  
TRACEABLE PRESSURE STANDARD

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



**AUTOLAND APPROACH**- An autoland approach is a precision instrument approach to touchdown and, in some cases, through the landing rollout. An autoland approach is performed by the aircraft autopilot which is receiving position information and/or steering commands from onboard navigation equipment.

Note: Autoland and coupled approaches are flown in VFR and IFR. It is common for carriers to require their crews to fly coupled approaches and autoland approaches (if certified) when the weather conditions are less than approximately 4,000 RVR.

(See COUPLED APPROACH.)

**AUTOMATED INFORMATION TRANSFER**- A precoordinated process, specifically defined in facility directives, during which a transfer of altitude control and/or radar identification is accomplished without verbal coordination between controllers using information communicated in a full data block.

**AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM**- A facility which can deliver, in a matter of minutes, a surface picture (SURPIC) of vessels in the area of a potential or actual search and rescue incident, including their predicted positions and their characteristics.

(See FAAO JO 7110.65, Para 10-6-4, INFLIGHT CONTINGENCIES.)

**AUTOMATED PROBLEM DETECTION (APD)**- An Automation Processing capability that compares trajectories in order to predict conflicts.

**AUTOMATED PROBLEM DETECTION BOUNDARY (APB)**- The adapted distance beyond a facilities boundary defining the airspace within which URET performs conflict detection.

(See USER REQUEST EVALUATION TOOL.)

**AUTOMATED PROBLEM DETECTION INHIBITED AREA (APDIA)**- Airspace surrounding a terminal area within which APD is inhibited for all flights within that airspace.

**AUTOMATED RADAR TERMINAL SYSTEMS (ARTS)**- A generic term for several tracking systems included in the Terminal Automation Systems (TAS). ARTS plus a suffix roman numeral denotes a major modification to that system.

**a. ARTS IIIA.** The Radar Tracking and Beacon Tracking Level (RT&BTL) of the modular, programmable automated radar terminal system. ARTS IIIA detects, tracks, and predicts primary as

well as secondary radar-derived aircraft targets. This more sophisticated computer-driven system upgrades the existing ARTS III system by providing improved tracking, continuous data recording, and fail-soft capabilities.

**b. Common ARTS.** Includes ARTS IIE, ARTS IIIIE; and ARTS IIIIE with ACD (see DTAS) which combines functionalities of the previous ARTS systems.

**c. Programmable Indicator Data Processor (PIDP).** The PIDP is a modification to the AN/TPX-42 interrogator system currently installed in fixed RAPCONs. The PIDP detects, tracks, and predicts secondary radar aircraft targets. These are displayed by means of computer-generated symbols and alphanumeric characters depicting flight identification, aircraft altitude, ground speed, and flight plan data. Although primary radar targets are not tracked, they are displayed coincident with the secondary radar targets as well as with the other symbols and alphanumerics. The system has the capability of interfacing with ARTCCs.

**AUTOMATED WEATHER SYSTEM**- Any of the automated weather sensor platforms that collect weather data at airports and disseminate the weather information via radio and/or landline. The systems currently consist of the Automated Surface Observing System (ASOS), Automated Weather Sensor System (AWSS) and Automated Weather Observation System (AWOS).

**AUTOMATED UNICOM**- Provides completely automated weather, radio check capability and airport advisory information on an Automated UNICOM system. These systems offer a variety of features, typically selectable by microphone clicks, on the UNICOM frequency. Availability will be published in the Airport/Facility Directory and approach charts.

**AUTOMATIC ALTITUDE REPORT**-

(See ALTITUDE READOUT.)

**AUTOMATIC ALTITUDE REPORTING**- That function of a transponder which responds to Mode C interrogations by transmitting the aircraft's altitude in 100-foot increments.

**AUTOMATIC CARRIER LANDING SYSTEM**- U.S. Navy final approach equipment consisting of precision tracking radar coupled to a computer data link to provide continuous information to the aircraft, monitoring capability to the pilot, and a backup approach system.

**AUTOMATIC DEPENDENT SURVEILLANCE (ADS) [ICAO]**- A surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position fixing systems, including aircraft identification, four dimensional position and additional data as appropriate.

**AUTOMATIC DEPENDENT SURVEILLANCE-BROADCAST (ADS-B)**- A surveillance system in which an aircraft or vehicle to be detected is fitted with cooperative equipment in the form of a data link transmitter. The aircraft or vehicle periodically broadcasts its GPS-derived position and other information such as velocity over the data link, which is received by a ground-based transmitter/receiver (transceiver) for processing and display at an air traffic control facility.

(See GLOBAL POSITIONING SYSTEM.)

(See GROUND-BASED TRANSCEIVER.)

**AUTOMATIC DEPENDENT SURVEILLANCE-CONTRACT (ADS-C)**- A data link position reporting system, controlled by a ground station, that establishes contracts with an aircraft's avionics that occur automatically whenever specific events occur, or specific time intervals are reached.

**AUTOMATIC DIRECTION FINDER**- An aircraft radio navigation system which senses and indicates the direction to a L/MF nondirectional radio beacon (NDB) ground transmitter. Direction is indicated to the pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft depending on the type of indicator installed in the aircraft. In certain applications, such as military, ADF operations may be based on airborne and ground transmitters in the VHF/UHF frequency spectrum.

(See BEARING.)

(See NONDIRECTIONAL BEACON.)

**AUTOMATIC FLIGHT INFORMATION SERVICE (AFIS) - ALASKA FSSs ONLY**- The continuous broadcast of recorded non-control information at airports in Alaska where a FSS provides local airport advisory service. The AFIS broadcast automates the repetitive transmission of essential but routine information such as weather, wind, altimeter, favored runway, breaking action, airport NOTAMs, and other applicable information. The information is continuously broadcast over a

discrete VHF radio frequency (usually the ASOS/AWSS/AWOS frequency.)

**AUTOMATIC TERMINAL INFORMATION SERVICE**- The continuous broadcast of recorded noncontrol information in selected terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information; e.g., "Los Angeles information Alfa. One three zero zero Coordinated Universal Time. Weather, measured ceiling two thousand overcast, visibility three, haze, smoke, temperature seven one, dew point five seven, wind two five zero at five, altimeter two niner niner six. I-L-S Runway Two Five Left approach in use, Runway Two Five Right closed, advise you have Alfa."

(See ICAO term AUTOMATIC TERMINAL INFORMATION SERVICE.)

(Refer to AIM.)

**AUTOMATIC TERMINAL INFORMATION SERVICE [ICAO]**- The provision of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts throughout the day or a specified portion of the day.

**AUTOROTATION**- A rotorcraft flight condition in which the lifting rotor is driven entirely by action of the air when the rotorcraft is in motion.

**a. Autorotative Landing/Touchdown Autorotation.** Used by a pilot to indicate that the landing will be made without applying power to the rotor.

**b. Low Level Autorotation.** Commences at an altitude well below the traffic pattern, usually below 100 feet AGL and is used primarily for tactical military training.

**c. 180 degrees Autorotation.** Initiated from a downwind heading and is commenced well inside the normal traffic pattern. "Go around" may not be possible during the latter part of this maneuver.

**AVAILABLE LANDING DISTANCE (ALD)**- The portion of a runway available for landing and roll-out for aircraft cleared for LAHSO. This distance is measured from the landing threshold to the hold-short point.

**AVIATION WEATHER SERVICE**- A service provided by the National Weather Service (NWS) and FAA which collects and disseminates pertinent weather information for pilots, aircraft operators, and ATC. Available aviation weather reports and

# B

**BACK-TAXI-** A term used by air traffic controllers to taxi an aircraft on the runway opposite to the traffic flow. The aircraft may be instructed to back-taxi to the beginning of the runway or at some point before reaching the runway end for the purpose of departure or to exit the runway.

**BASE LEG-**

(See TRAFFIC PATTERN.)

**BEACON-**

(See AERONAUTICAL BEACON.)

(See AIRPORT ROTATING BEACON.)

(See AIRWAY BEACON.)

(See MARKER BEACON.)

(See NONDIRECTIONAL BEACON.)

(See RADAR.)

**BEARING-** The horizontal direction to or from any point, usually measured clockwise from true north, magnetic north, or some other reference point through 360 degrees.

(See NONDIRECTIONAL BEACON.)

**BELOW MINIMUMS-** Weather conditions below the minimums prescribed by regulation for the particular action involved; e.g., landing minimums, takeoff minimums.

**BLAST FENCE-** A barrier that is used to divert or dissipate jet or propeller blast.

**BLAST PAD-** A surface adjacent to the ends of a runway provided to reduce the erosive effect of jet blast and propeller wash.

**BLIND SPEED-** The rate of departure or closing of a target relative to the radar antenna at which cancellation of the primary radar target by moving target indicator (MTI) circuits in the radar equipment causes a reduction or complete loss of signal.

(See ICAO term BLIND VELOCITY.)

**BLIND SPOT-** An area from which radio transmissions and/or radar echoes cannot be received. The term is also used to describe portions of the airport not visible from the control tower.

**BLIND TRANSMISSION-**

(See TRANSMITTING IN THE BLIND.)

**BLIND VELOCITY [ICAO]-** The radial velocity of a moving target such that the target is not seen on primary radars fitted with certain forms of fixed echo suppression.

**BLIND ZONE-**

(See BLIND SPOT.)

**BLOCKED-** Phraseology used to indicate that a radio transmission has been distorted or interrupted due to multiple simultaneous radio transmissions.

**BOUNDARY LIGHTS-**

(See AIRPORT LIGHTING.)

**BRAKING ACTION (GOOD, FAIR, POOR, OR NIL)-** A report of conditions on the airport movement area providing a pilot with a degree/quality of braking that he/she might expect. Braking action is reported in terms of good, fair, poor, or nil.

(See RUNWAY CONDITION READING.)

**BRAKING ACTION ADVISORIES-** When tower controllers have received runway braking action reports which include the terms “fair,” “poor,” or “nil,” or whenever weather conditions are conducive to deteriorating or rapidly changing runway braking conditions, the tower will include on the ATIS broadcast the statement, “Braking action advisories are in effect” on the ATIS broadcast. During the time braking action advisories are in effect, ATC will issue the latest braking action report for the runway in use to each arriving and departing aircraft. Pilots should be prepared for deteriorating braking conditions and should request current runway condition information if not volunteered by controllers. Pilots should also be prepared to provide a descriptive runway condition report to controllers after landing.

**BREAKOUT-** A technique to direct aircraft out of the approach stream. In the context of close parallel operations, a breakout is used to direct threatened aircraft away from a deviating aircraft.

**BROADCAST-** Transmission of information for which an acknowledgement is not expected.

(See ICAO term BROADCAST.)

**BROADCAST [ICAO]-** A transmission of information relating to air navigation that is not addressed to a specific station or stations.



# L

## LAA-

(See LOCAL AIRPORT ADVISORY.)

## LAAS-

(See LOW ALTITUDE ALERT SYSTEM.)

**LAHSO-** An acronym for “Land and Hold Short Operation.” These operations include landing and holding short of an intersecting runway, a taxiway, a predetermined point, or an approach/departure flightpath.

**LAHSO-DRY-** Land and hold short operations on runways that are dry.

**LAHSO-WET-** Land and hold short operations on runways that are wet (but not contaminated).

**LAND AND HOLD SHORT OPERATIONS-** Operations which include simultaneous takeoffs and landings and/or simultaneous landings when a landing aircraft is able and is instructed by the controller to hold-short of the intersecting runway/taxiway or designated hold-short point. Pilots are expected to promptly inform the controller if the hold short clearance cannot be accepted.

(See PARALLEL RUNWAYS.)

(Refer to AIM.)

**LANDING AREA-** Any locality either on land, water, or structures, including airports/heliports and intermediate landing fields, which is used, or intended to be used, for the landing and takeoff of aircraft whether or not facilities are provided for the shelter, servicing, or for receiving or discharging passengers or cargo.

(See ICAO term LANDING AREA.)

**LANDING AREA [ICAO]-** That part of a movement area intended for the landing or take-off of aircraft.

**LANDING DIRECTION INDICATOR-** A device which visually indicates the direction in which landings and takeoffs should be made.

(See TETRAHEDRON.)

(Refer to AIM.)

**LANDING DISTANCE AVAILABLE [ICAO]-** The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

**LANDING MINIMUMS-** The minimum visibility prescribed for landing a civil aircraft while using an instrument approach procedure. The minimum applies with other limitations set forth in 14 CFR Part 91 with respect to the Minimum Descent Altitude (MDA) or Decision Height (DH) prescribed in the instrument approach procedures as follows:

**a. Straight-in landing minimums.** A statement of MDA and visibility, or DH and visibility, required for a straight-in landing on a specified runway, or

**b. Circling minimums.** A statement of MDA and visibility required for the circle-to-land maneuver.

Note: Descent below the established MDA or DH is not authorized during an approach unless the aircraft is in a position from which a normal approach to the runway of intended landing can be made and adequate visual reference to required visual cues is maintained.

(See CIRCLE-TO-LAND MANEUVER.)

(See DECISION HEIGHT.)

(See INSTRUMENT APPROACH PROCEDURE.)

(See MINIMUM DESCENT ALTITUDE.)

(See STRAIGHT-IN LANDING.)

(See VISIBILITY.)

(Refer to 14 CFR Part 91.)

**LANDING ROLL-** The distance from the point of touchdown to the point where the aircraft can be brought to a stop or exit the runway.

**LANDING SEQUENCE-** The order in which aircraft are positioned for landing.

(See APPROACH SEQUENCE.)

**LAST ASSIGNED ALTITUDE-** The last altitude/flight level assigned by ATC and acknowledged by the pilot.

(See MAINTAIN.)

(Refer to 14 CFR Part 91.)

**LATERAL NAVIGATION (LNAV)-** A function of area navigation (RNAV) equipment which calculates, displays, and provides lateral guidance to a profile or path.

**LATERAL SEPARATION-** The lateral spacing of aircraft at the same altitude by requiring operation on different routes or in different geographical locations.

(See SEPARATION.)

**LDA-**

(See LOCALIZER TYPE DIRECTIONAL AID.)  
(See ICAO Term LANDING DISTANCE AVAILABLE.)

**LF-**

(See LOW FREQUENCY.)

**LIGHTED AIRPORT-** An airport where runway and obstruction lighting is available.

(See AIRPORT LIGHTING.)  
(Refer to AIM.)

**LIGHT GUN-** A handheld directional light signaling device which emits a brilliant narrow beam of white, green, or red light as selected by the tower controller. The color and type of light transmitted can be used to approve or disapprove anticipated pilot actions where radio communication is not available. The light gun is used for controlling traffic operating in the vicinity of the airport and on the airport movement area.

(Refer to AIM.)

**LOCAL AIRPORT ADVISORY (LAA)-** A service provided by facilities, which are located on the landing airport, have a discrete ground-to-air communication frequency or the tower frequency when the tower is closed, automated weather reporting with voice broadcasting, and a continuous ASOS/AWSS/AWOS data display, other continuous direct reading instruments, or manual observations available to the specialist.

(See AIRPORT ADVISORY AREA.)

**LOCAL TRAFFIC-** Aircraft operating in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.

(See TRAFFIC PATTERN.)

**LOCALIZER-** The component of an ILS which provides course guidance to the runway.

(See INSTRUMENT LANDING SYSTEM.)  
(See ICAO term LOCALIZER COURSE.)  
(Refer to AIM.)

**LOCALIZER COURSE [ICAO]-** The locus of points, in any given horizontal plane, at which the DDM (difference in depth of modulation) is zero.

**LOCALIZER OFFSET-** An angular offset of the localizer from the runway extended centerline in a direction away from the no transgression zone (NTZ)

that increases the normal operating zone (NOZ) width. An offset requires a 50 foot increase in DH and is not authorized for CAT II and CAT III approaches.

**LOCALIZER TYPE DIRECTIONAL AID-** A NAVAID used for nonprecision instrument approaches with utility and accuracy comparable to a localizer but which is not a part of a complete ILS and is not aligned with the runway.

(Refer to AIM.)

**LOCALIZER USABLE DISTANCE-** The maximum distance from the localizer transmitter at a specified altitude, as verified by flight inspection, at which reliable course information is continuously received.

(Refer to AIM.)

**LOCATOR [ICAO]-** An LM/MF NDB used as an aid to final approach.

Note: A locator usually has an average radius of rated coverage of between 18.5 and 46.3 km (10 and 25 NM).

**LONG RANGE NAVIGATION-**

(See LORAN.)

**LONGITUDINAL SEPARATION-** The longitudinal spacing of aircraft at the same altitude by a minimum distance expressed in units of time or miles.

(See SEPARATION.)  
(Refer to AIM.)

**LORAN-** An electronic navigational system by which hyperbolic lines of position are determined by measuring the difference in the time of reception of synchronized pulse signals from two fixed transmitters. Loran A operates in the 1750-1950 kHz frequency band. Loran C and D operate in the 100-110 kHz frequency band.

(Refer to AIM.)

**LOST COMMUNICATIONS-** Loss of the ability to communicate by radio. Aircraft are sometimes referred to as NORDO (No Radio). Standard pilot procedures are specified in 14 CFR Part 91. Radar controllers issue procedures for pilots to follow in the event of lost communications during a radar approach when weather reports indicate that an aircraft will likely encounter IFR weather conditions during the approach.

(Refer to 14 CFR Part 91.)  
(Refer AIM.)

# O

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

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

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See STANDARD INSTRUMENT DEPARTURES.)

(Refer to AIM.)

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

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

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

**(a)** 400 feet, or

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

**2.** For runways serving only small airplanes:

**(a)** 300 feet for precision instrument runways.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**ODAPS-**

(See OCEANIC DISPLAY AND PLANNING SYSTEM.)

**ODP-**

(See OBSTACLE DEPARTURE PROCEDURE.)

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

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

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

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

**OFT-**

(See OUTER FIX TIME.)

**OM-**

(See OUTER MARKER.)

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

**ON COURSE-**

**a.** Used to indicate that an aircraft is established on the route centerline.

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

(See ON-COURSE INDICATION.)

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

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

**ONER-**

(See OCEANIC NAVIGATIONAL ERROR REPORT.)

**OPERATIONAL-**

(See DUE REGARD.)

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

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

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

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

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

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

(See CLEARED FOR THE OPTION.)

(Refer to AIM.)

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

**PRECISION APPROACH RADAR**– Radar equipment in some ATC facilities operated by the FAA and/or the military services at joint-use civil/military locations and separate military installations to detect and display azimuth, elevation, and range of aircraft on the final approach course to a runway. This equipment may be used to monitor certain nonradar approaches, but is primarily used to conduct a precision instrument approach (PAR) wherein the controller issues guidance instructions to the pilot based on the aircraft's position in relation to the final approach course (azimuth), the glidepath (elevation), and the distance (range) from the touchdown point on the runway as displayed on the radar scope.

Note: The abbreviation "PAR" is also used to denote preferential arrival routes in ARTCC computers.

(See GLIDEPATH.)

(See PAR.)

(See PREFERENTIAL ROUTES.)

(See ICAO term PRECISION APPROACH RADAR.)

(Refer to AIM.)

**PRECISION APPROACH RADAR [ICAO]**– Primary radar equipment used to determine the position of an aircraft during final approach, in terms of lateral and vertical deviations relative to a nominal approach path, and in range relative to touchdown.

Note: Precision approach radars are designed to enable pilots of aircraft to be given guidance by radio communication during the final stages of the approach to land.

**PRECISION OBSTACLE FREE ZONE (POFZ)**– An 800 foot wide by 200 foot long area centered on the runway centerline adjacent to the threshold designed to protect aircraft flying precision approaches from ground vehicles and other aircraft when ceiling is less than 250 feet or visibility is less than 3/4 statute mile (or runway visual range below 4,000 feet.)

**PRECISION RUNWAY MONITOR (PRM)**– Provides air traffic controllers with high precision secondary surveillance data for aircraft on final approach to parallel runways that have extended centerlines separated by less than 4,300 feet. High resolution color monitoring displays (FMA) are required to present surveillance track data to controllers along with detailed maps depicting approaches and no transgression zone.

**PREDICTIVE WIND SHEAR ALERT SYSTEM (PWS)**– A self-contained system used onboard some aircraft to alert the flight crew to the presence of a potential wind shear. PWS systems typically monitor 3 miles ahead and 25 degrees left and right of the aircraft's heading at or below 1200' AGL. Departing flights may receive a wind shear alert after they start the takeoff roll and may elect to abort the takeoff. Aircraft on approach receiving an alert may elect to go around or perform a wind shear escape maneuver.

**PREFERENTIAL ROUTES**– Preferential routes (PDRs, PARs, and PDARs) are adapted in ARTCC computers to accomplish inter/intrafacility controller coordination and to assure that flight data is posted at the proper control positions. Locations having a need for these specific inbound and outbound routes normally publish such routes in local facility bulletins, and their use by pilots minimizes flight plan route amendments. When the workload or traffic situation permits, controllers normally provide radar vectors or assign requested routes to minimize circuitous routing. Preferential routes are usually confined to one ARTCC's area and are referred to by the following names or acronyms:

a. **Preferential Departure Route (PDR)**. A specific departure route from an airport or terminal area to an en route point where there is no further need for flow control. It may be included in an Instrument Departure Procedure (DP) or a Preferred IFR Route.

b. **Preferential Arrival Route (PAR)**. A specific arrival route from an appropriate en route point to an airport or terminal area. It may be included in a Standard Terminal Arrival (STAR) or a Preferred IFR Route. The abbreviation "PAR" is used primarily within the ARTCC and should not be confused with the abbreviation for Precision Approach Radar.

c. **Preferential Departure and Arrival Route (PDAR)**. A route between two terminals which are within or immediately adjacent to one ARTCC's area. PDARs are not synonymous with Preferred IFR Routes but may be listed as such as they do accomplish essentially the same purpose.

(See PREFERRED IFR ROUTES.)

**PREFERRED IFR ROUTES**– Routes established between busier airports to increase system efficiency and capacity. They normally extend through one or more ARTCC areas and are designed to achieve balanced traffic flows among high density terminals. IFR clearances are issued on the basis of these routes except when severe weather avoidance procedures or

other factors dictate otherwise. Preferred IFR Routes are listed in the Airport/Facility Directory. If a flight is planned to or from an area having such routes but the departure or arrival point is not listed in the Airport/Facility Directory, pilots may use that part of a Preferred IFR Route which is appropriate for the departure or arrival point that is listed. Preferred IFR Routes are correlated with DPs and STARs and may be defined by airways, jet routes, direct routes between NAVAIDs, Waypoints, NAVAID radials/DME, or any combinations thereof.

(See CENTER'S AREA.)

(See INSTRUMENT DEPARTURE PROCEDURE.)

(See PREFERENTIAL ROUTES.)

(See STANDARD TERMINAL ARRIVAL.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

(Refer to NOTICES TO AIRMEN PUBLICATION.)

**PRE-FLIGHT PILOT BRIEFING**–

(See PILOT BRIEFING.)

**PREVAILING VISIBILITY**–

(See VISIBILITY.)

**PRIMARY RADAR TARGET**– An analog or digital target, exclusive of a secondary radar target, presented on a radar display.

**PRM**–

(See ILS PRM APPROACH and PRECISION RUNWAY MONITOR.)

**PROCEDURE TURN**– The maneuver prescribed when it is necessary to reverse direction to establish an aircraft on the intermediate approach segment or final approach course. The outbound course, direction of turn, distance within which the turn must be completed, and minimum altitude are specified in the procedure. However, unless otherwise restricted, the point at which the turn may be commenced and the type and rate of turn are left to the discretion of the pilot.

(See ICAO term PROCEDURE TURN.)

**PROCEDURE TURN [ICAO]**– A maneuver in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

Note 1: Procedure turns are designated “left” or “right” according to the direction of the initial turn.

Note 2: Procedure turns may be designated as being made either in level flight or while

descending, according to the circumstances of each individual approach procedure.

**PROCEDURE TURN INBOUND**– That point of a procedure turn maneuver where course reversal has been completed and an aircraft is established inbound on the intermediate approach segment or final approach course. A report of “procedure turn inbound” is normally used by ATC as a position report for separation purposes.

(See FINAL APPROACH COURSE.)

(See PROCEDURE TURN.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

**PROFILE DESCENT**– An uninterrupted descent (except where level flight is required for speed adjustment; e.g., 250 knots at 10,000 feet MSL) from cruising altitude/level to interception of a glideslope or to a minimum altitude specified for the initial or intermediate approach segment of a nonprecision instrument approach. The profile descent normally terminates at the approach gate or where the glideslope or other appropriate minimum altitude is intercepted.

**PROGRESS REPORT**–

(See POSITION REPORT.)

**PROGRESSIVE TAXI**– Precise taxi instructions given to a pilot unfamiliar with the airport or issued in stages as the aircraft proceeds along the taxi route.

**PROHIBITED AREA**–

(See SPECIAL USE AIRSPACE.)

(See ICAO term PROHIBITED AREA.)

**PROHIBITED AREA [ICAO]**– An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

**PROPOSED BOUNDARY CROSSING TIME**–

Each center has a PBCT parameter for each internal airport. Proposed internal flight plans are transmitted to the adjacent center if the flight time along the proposed route from the departure airport to the center boundary is less than or equal to the value of PBCT or if airport adaptation specifies transmission regardless of PBCT.

**PROPOSED DEPARTURE TIME**– The time that the aircraft expects to become airborne.

**PROTECTED AIRSPACE**– The airspace on either side of an oceanic route/track that is equal to one-half

the lateral separation minimum except where reduction of protected airspace has been authorized.

PT–

(See PROCEDURE TURN.)

PTP–

(See POINT–TO–POINT.)

PTS–

(See POLAR TRACK STRUCTURE.)

**PUBLISHED INSTRUMENT APPROACH  
PROCEDURE VISUAL SEGMENT**– A segment on an IAP chart annotated as “Fly Visual to Airport” or

“Fly Visual.” A dashed arrow will indicate the visual flight path on the profile and plan view with an associated note on the approximate heading and distance. The visual segment should be flown as a dead reckoning course while maintaining visual conditions.

**PUBLISHED ROUTE**– A route for which an IFR altitude has been established and published; e.g., Federal Airways, Jet Routes, Area Navigation Routes, Specified Direct Routes.

PWS–

(See PREDICTIVE WIND SHEAR ALERT SYSTEM.)



**RADAR SERVICE-** A term which encompasses one or more of the following services based on the use of radar which can be provided by a controller to a pilot of a radar identified aircraft.

**a. Radar Monitoring-** The radar flight-following of aircraft, whose primary navigation is being performed by the pilot, to observe and note deviations from its authorized flight path, airway, or route. When being applied specifically to radar monitoring of instrument approaches; i.e., with precision approach radar (PAR) or radar monitoring of simultaneous ILS/MLS approaches, it includes advice and instructions whenever an aircraft nears or exceeds the prescribed PAR safety limit or simultaneous ILS/MLS no transgression zone.

(See ADDITIONAL SERVICES.)

(See TRAFFIC ADVISORIES.)

**b. Radar Navigational Guidance-** Vectoring aircraft to provide course guidance.

**c. Radar Separation-** Radar spacing of aircraft in accordance with established minima.

(See ICAO term RADAR SERVICE.)

**RADAR SERVICE [ICAO]-** Term used to indicate a service provided directly by means of radar.

**a. Monitoring-** The use of radar for the purpose of providing aircraft with information and advice relative to significant deviations from nominal flight path.

**b. Separation-** The separation used when aircraft position information is derived from radar sources.

***RADAR SERVICE TERMINATED-*** Used by ATC to inform a pilot that he/she will no longer be provided any of the services that could be received while in radar contact. Radar service is automatically terminated, and the pilot is not advised in the following cases:

**a.** An aircraft cancels its IFR flight plan, except within Class B airspace, Class C airspace, a TRSA, or where Basic Radar service is provided.

**b.** An aircraft conducting an instrument, visual, or contact approach has landed or has been instructed to change to advisory frequency.

**c.** An arriving VFR aircraft, receiving radar service to a tower-controlled airport within Class B airspace, Class C airspace, a TRSA, or where sequencing service is provided, has landed; or to all

other airports, is instructed to change to tower or advisory frequency.

**d.** An aircraft completes a radar approach.

**RADAR SURVEILLANCE-** The radar observation of a given geographical area for the purpose of performing some radar function.

**RADAR TRAFFIC ADVISORIES-** Advisories issued to alert pilots to known or observed radar traffic which may affect the intended route of flight of their aircraft.

(See TRAFFIC ADVISORIES.)

**RADAR TRAFFIC INFORMATION SERVICE-**

(See TRAFFIC ADVISORIES.)

**RADAR VECTORING [ICAO]-** Provision of navigational guidance to aircraft in the form of specific headings, based on the use of radar.

**RADIAL-** A magnetic bearing extending from a VOR/VORTAC/TACAN navigation facility.

**RADIO-**

**a.** A device used for communication.

**b.** Used to refer to a flight service station; e.g., "Seattle Radio" is used to call Seattle FSS.

**RADIO ALTIMETER-** Aircraft equipment which makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the surface.

**RADIO BEACON-**

(See NONDIRECTIONAL BEACON.)

**RADIO DETECTION AND RANGING-**

(See RADAR.)

**RADIO MAGNETIC INDICATOR-** An aircraft navigational instrument coupled with a gyro compass or similar compass that indicates the direction of a selected NAVAID and indicates bearing with respect to the heading of the aircraft.

**RAIS-**

(See REMOTE AIRPORT INFORMATION SERVICE.)

**RAMP-**

(See APRON.)

**RANDOM ALTITUDE-** An altitude inappropriate for direction of flight and/or not in accordance with FAAO JO 7110.65, Para 4-5-1, VERTICAL SEPARATION MINIMA.

**RANDOM ROUTE-** Any route not established or charted/published or not otherwise available to all users.

**RC-**

(See **ROAD RECONNAISSANCE**.)

**RCAG-**

(See **REMOTE COMMUNICATIONS AIR/GROUND FACILITY**.)

**RCC-**

(See **RESCUE COORDINATION CENTER**.)

**RCO-**

(See **REMOTE COMMUNICATIONS OUTLET**.)

**RCR-**

(See **RUNWAY CONDITION READING**.)

**READ BACK-** Repeat my message back to me.

**RECEIVER AUTONOMOUS INTEGRITY MONITORING (RAIM)-** A technique whereby a civil GNSS receiver/processor determines the integrity of the GNSS navigation signals without reference to sensors or non-DoD integrity systems other than the receiver itself. This determination is achieved by a consistency check among redundant pseudorange measurements.

**RECEIVING CONTROLLER-** A controller/facility receiving control of an aircraft from another controller/facility.

**RECEIVING FACILITY-**

(See **RECEIVING CONTROLLER**.)

**RECONFORMANCE-** The automated process of bringing an aircraft's Current Plan Trajectory into conformance with its track.

**REDUCE SPEED TO (SPEED)-**

(See **SPEED ADJUSTMENT**.)

**REIL-**

(See **RUNWAY END IDENTIFIER LIGHTS**.)

**RELEASE TIME-** A departure time restriction issued to a pilot by ATC (either directly or through an authorized relay) when necessary to separate a departing aircraft from other traffic.

(See ICAO term **RELEASE TIME**.)

**RELEASE TIME [ICAO]-** Time prior to which an aircraft should be given further clearance or prior to which it should not proceed in case of radio failure.

**REMOTE AIRPORT ADVISORY (RAA)-** A remote service which may be provided by facilities, which are not located on the landing airport, but have a discrete ground-to-air communication frequency or tower frequency when the tower is closed, automated weather reporting with voice available to the pilot at the landing airport, and a continuous ASOS/AWSS/AWOS data display, other direct reading instruments, or manual observation is available to the AFSS specialist.

**REMOTE AIRPORT INFORMATION SERVICE (RAIS)-** A temporary service provided by facilities, which are not located on the landing airport, but have communication capability and automated weather reporting available to the pilot at the landing airport.

**REMOTE COMMUNICATIONS AIR/GROUND FACILITY-** An unmanned VHF/UHF transmitter/receiver facility which is used to expand ARTCC air/ground communications coverage and to facilitate direct contact between pilots and controllers. RCAG facilities are sometimes not equipped with emergency frequencies 121.5 MHz and 243.0 MHz.

(Refer to AIM.)

**REMOTE COMMUNICATIONS OUTLET-** An unmanned communications facility remotely controlled by air traffic personnel. RCOs serve FSSs. RTRs serve terminal ATC facilities. An RCO or RTR may be UHF or VHF and will extend the communication range of the air traffic facility. There are several classes of RCOs and RTRs. The class is determined by the number of transmitters or receivers. Classes A through G are used primarily for air/ground purposes. RCO and RTR class O facilities are nonprotected outlets subject to undetected and prolonged outages. RCO (O's) and RTR (O's) were established for the express purpose of providing ground-to-ground communications between air traffic control specialists and pilots located at a satellite airport for delivering en route clearances, issuing departure authorizations, and acknowledging instrument flight rules cancellations or departure/landing times. As a secondary function, they may be used for advisory purposes whenever the aircraft is below the coverage of the primary air/ground frequency.

**REMOTE TRANSMITTER/RECEIVER-**

(See **REMOTE COMMUNICATIONS OUTLET**.)

# S

SAA–

(See SPECIAL ACTIVITY AIRSPACE.)

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

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

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

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

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

**SAFETY LOGIC SYSTEM ALERTS–**

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

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

**b. FALSE ALERT–**

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

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

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

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

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

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

**3.** One or more of the aircraft involved in the alert is not intending to use a runway (for example, helicopter, pipeline patrol, non–Mode C overflight, etc.).

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

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

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

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

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

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

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

SAR-

(See SEARCH AND RESCUE.)

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

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

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

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

SDF-

(See SIMPLIFIED DIRECTIONAL FACILITY.)

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

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

(See FLIGHT SERVICE STATION.)

(See RESCUE COORDINATION CENTER.)

(Refer to AIM.)

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

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

(See SEARCH AND RESCUE.)

SECNOT-

(See SECURITY NOTICE.)

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

**SECTIONAL AERONAUTICAL CHARTS-**

(See AERONAUTICAL CHART.)

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

**SECURITY NOTICE (SECNOT) -** A SECNOT is a request originated by the Air Traffic Security Coordinator (ATSC) for an extensive communications search for aircraft involved, or suspected of being involved, in a security violation.

A SECNOT will include the aircraft identification, search area, and expiration time. The search area, as defined by the ATSC, could be a single airport, multiple airports, a radius of an airport or fix, or a route of flight. Once the expiration time has been reached, the SECNOT is considered to be cancelled.

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

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

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

(Refer to AIM.)

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

**a. Initial Approach-** The segment between the initial approach fix and the intermediate fix or the

point where the aircraft is established on the intermediate course or final approach course.

(See ICAO term INITIAL APPROACH SEGMENT.)

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

(See ICAO term INTERMEDIATE APPROACH SEGMENT.)

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

(See ICAO term FINAL APPROACH SEGMENT.)

**d. Missed Approach-** The segment between the missed approach point or the point of arrival at decision height and the missed approach fix at the prescribed altitude.

(Refer to 14 CFR Part 97.)

(See ICAO term MISSED APPROACH PROCEDURE.)

**SEPARATION-** In air traffic control, the spacing of aircraft to achieve their safe and orderly movement in flight and while landing and taking off.

(See SEPARATION MINIMA.)

(See ICAO term SEPARATION.)

**SEPARATION [ICAO]-** Spacing between aircraft, levels or tracks.

**SEPARATION MINIMA-** The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

(See SEPARATION.)

**SERVICE-** A generic term that designates functions or assistance available from or rendered by air traffic control. For example, Class C service would denote the ATC services provided within a Class C airspace area.

**SEVERE WEATHER AVOIDANCE PLAN-** An approved plan to minimize the affect of severe weather on traffic flows in impacted terminal and/or ARTCC areas. SWAP is normally implemented to provide the least disruption to the ATC system when flight through portions of airspace is difficult or impossible due to severe weather.

**SEVERE WEATHER FORECAST ALERTS-** Preliminary messages issued in order to alert users that a Severe Weather Watch Bulletin (WW) is being issued. These messages define areas of possible severe thunderstorms or tornado activity. The messages are unscheduled and issued as required by the Storm Prediction Center (SPC) at Norman, Oklahoma.

(See AIRMET.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(See SIGMET.)

**SFA-**

(See SINGLE FREQUENCY APPROACH.)

**SFO-**

(See SIMULATED FLAMEOUT.)

**SHF-**

(See SUPER HIGH FREQUENCY.)

**SHORT RANGE CLEARANCE-** A clearance issued to a departing IFR flight which authorizes IFR flight to a specific fix short of the destination while air traffic control facilities are coordinating and obtaining the complete clearance.

**SHORT TAKEOFF AND LANDING AIRCRAFT-** An aircraft which, at some weight within its approved operating weight, is capable of operating from a runway in compliance with the applicable STOL characteristics, airworthiness, operations, noise, and pollution standards.

(See VERTICAL TAKEOFF AND LANDING AIRCRAFT.)

**SIAP-**

(See STANDARD INSTRUMENT APPROACH PROCEDURE.)

**SID-**

(See STANDARD INSTRUMENT DEPARTURE.)

**SIDESTEP MANEUVER-** A visual maneuver accomplished by a pilot at the completion of an instrument approach to permit a straight-in landing on a parallel runway not more than 1,200 feet to either side of the runway to which the instrument approach was conducted.

(Refer to AIM.)

**SIGMET-** A weather advisory issued concerning weather significant to the safety of all aircraft.

SIGMET advisories cover severe and extreme turbulence, severe icing, and widespread dust or sandstorms that reduce visibility to less than 3 miles.

(See AIRMET.)

(See AWW.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(See ICAO term SIGMET INFORMATION.)

(Refer to AIM.)

SIGMET INFORMATION [ICAO]- Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

**SIGNIFICANT METEOROLOGICAL INFORMATION-**

(See SIGMET.)

SIGNIFICANT POINT- A point, whether a named intersection, a NAVAID, a fix derived from a NAVAID(s), or geographical coordinate expressed in degrees of latitude and longitude, which is established for the purpose of providing separation, as a reporting point, or to delineate a route of flight.

SIMPLIFIED DIRECTIONAL FACILITY- A NAVAID used for nonprecision instrument approaches. The final approach course is similar to that of an ILS localizer except that the SDF course may be offset from the runway, generally not more than 3 degrees, and the course may be wider than the localizer, resulting in a lower degree of accuracy.

(Refer to AIM.)

SIMULATED FLAMEOUT- A practice approach by a jet aircraft (normally military) at idle thrust to a runway. The approach may start at a runway (high key) and may continue on a relatively high and wide downwind leg with a continuous turn to final. It terminates in landing or low approach. The purpose of this approach is to simulate a flameout.

(See FLAMEOUT.)

SIMULTANEOUS ILS APPROACHES- An approach system permitting simultaneous ILS/MLS approaches to airports having parallel runways separated by at least 4,300 feet between centerlines. Integral parts of a total system are ILS/MLS, radar, communications, ATC procedures, and appropriate airborne equipment.

(See PARALLEL RUNWAYS.)

(Refer to AIM.)

**SIMULTANEOUS MLS APPROACHES-**

(See SIMULTANEOUS ILS APPROACHES.)

SINGLE DIRECTION ROUTES- Preferred IFR Routes which are sometimes depicted on high altitude en route charts and which are normally flown in one direction only.

(See PREFERRED IFR ROUTES.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

SINGLE FREQUENCY APPROACH- A service provided under a letter of agreement to military single-piloted turbojet aircraft which permits use of a single UHF frequency during approach for landing. Pilots will not normally be required to change frequency from the beginning of the approach to touchdown except that pilots conducting an en route descent are required to change frequency when control is transferred from the air route traffic control center to the terminal facility. The abbreviation "SFA" in the DOD FLIP IFR Supplement under "Communications" indicates this service is available at an aerodrome.

SINGLE-PILOTED AIRCRAFT- A military turbojet aircraft possessing one set of flight controls, tandem cockpits, or two sets of flight controls but operated by one pilot is considered single-piloted by ATC when determining the appropriate air traffic service to be applied.

(See SINGLE FREQUENCY APPROACH.)

SKYSPOTTER- A pilot who has received specialized training in observing and reporting inflight weather phenomena.

SLASH- A radar beacon reply displayed as an elongated target.

**SLDI-**

(See SECTOR LIST DROP INTERVAL.)

**SLOT TIME-**

(See METER FIX TIME/SLOT TIME.)

SLOW TAXI- To taxi a float plane at low power or low RPM.

**SN-**

(See SYSTEM STRATEGIC NAVIGATION.)

**SPEAK SLOWER-** Used in verbal communications as a request to reduce speech rate.

SPECIAL ACTIVITY AIRSPACE (SAA)- Any airspace with defined dimensions within the National Airspace System wherein limitations may be

imposed upon aircraft operations. This airspace may be restricted areas, prohibited areas, military operations areas, air ATC assigned airspace, and any other designated airspace areas. The dimensions of this airspace are programmed into URET and can be designated as either active or inactive by screen entry. Aircraft trajectories are constantly tested against the dimensions of active areas and alerts issued to the applicable sectors when violations are predicted.

(See USER REQUEST EVALUATION TOOL.)

**SPECIAL EMERGENCY-** A condition of air piracy or other hostile act by a person(s) aboard an aircraft which threatens the safety of the aircraft or its passengers.

**SPECIAL INSTRUMENT APPROACH PROCEDURE-**

(See INSTRUMENT APPROACH PROCEDURE.)

**SPECIAL USE AIRSPACE-** Airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. Types of special use airspace are:

**a. Alert Area-** Airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. Alert Areas are depicted on aeronautical charts for the information of nonparticipating pilots. All activities within an Alert Area are conducted in accordance with Federal Aviation Regulations, and pilots of participating aircraft as well as pilots transiting the area are equally responsible for collision avoidance.

**b. Controlled Firing Area-** Airspace wherein activities are conducted under conditions so controlled as to eliminate hazards to nonparticipating aircraft and to ensure the safety of persons and property on the ground.

**c. Military Operations Area (MOA)-** A MOA is airspace established outside of Class A airspace area to separate or segregate certain nonhazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted.

(Refer to AIM.)

**d. Prohibited Area-** Airspace designated under 14 CFR Part 73 within which no person may operate

an aircraft without the permission of the using agency.

(Refer to AIM.)

(Refer to En Route Charts.)

**e. Restricted Area-** Airspace designated under 14 CFR Part 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency. Restricted areas are depicted on en route charts. Where joint use is authorized, the name of the ATC controlling facility is also shown.

(Refer to 14 CFR Part 73.)

(Refer to AIM.)

**f. Warning Area-** A warning area is airspace of defined dimensions extending from 3 nautical miles outward from the coast of the United States, that contains activity that may be hazardous to nonparticipating aircraft. The purpose of such warning area is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both.

**SPECIAL VFR CONDITIONS-** Meteorological conditions that are less than those required for basic VFR flight in Class B, C, D, or E surface areas and in which some aircraft are permitted flight under visual flight rules.

(See SPECIAL VFR OPERATIONS.)

(Refer to 14 CFR Part 91.)

**SPECIAL VFR FLIGHT [ICAO]-** A VFR flight cleared by air traffic control to operate within Class B, C, D, and E surface areas in meteorological conditions below VMC.

**SPECIAL VFR OPERATIONS-** Aircraft operating in accordance with clearances within Class B, C, D, and E surface areas in weather conditions less than the basic VFR weather minima. Such operations must be requested by the pilot and approved by ATC.

(See SPECIAL VFR CONDITIONS.)

(See ICAO term SPECIAL VFR FLIGHT.)

**SPEED-**

(See AIRSPEED.)

(See GROUND SPEED.)

**SPEED ADJUSTMENT-** An ATC procedure used to request pilots to adjust aircraft speed to a specific value for the purpose of providing desired spacing.

Pilots are expected to maintain a speed of plus or minus 10 knots or 0.02 Mach number of the specified speed. Examples of speed adjustments are:

- a. "Increase/reduce speed to Mach point (number.)"
- b. "Increase/reduce speed to (speed in knots)" or "Increase/reduce speed (number of knots) knots."

**SPEED BRAKES**- Moveable aerodynamic devices on aircraft that reduce airspeed during descent and landing.

**SPEED SEGMENTS**- Portions of the arrival route between the transition point and the vertex along the optimum flight path for which speeds and altitudes are specified. There is one set of arrival speed segments adapted from each transition point to each vertex. Each set may contain up to six segments.

**SQUAWK (Mode, Code, Function)**- Activate specific modes/codes/functions on the aircraft transponder; e.g., "Squawk three/alpha, two one zero five, low."

(See TRANSPONDER.)

**STA**-

(See SCHEDULED TIME OF ARRIVAL.)

**STAGING/QUEUING**- The placement, integration, and segregation of departure aircraft in designated movement areas of an airport by departure fix, EDCT, and/or restriction.

**STAND BY**- Means the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority. Also means to wait as in "stand by for clearance." The caller should reestablish contact if a delay is lengthy. "Stand by" is not an approval or denial.

**STANDARD INSTRUMENT APPROACH PROCEDURE (SIAP)**-

(See INSTRUMENT APPROACH PROCEDURE.)

**STANDARD INSTRUMENT DEPARTURE (SID)**- A preplanned instrument flight rule (IFR) air traffic control (ATC) departure procedure printed for pilot/controller use in graphic form to provide obstacle clearance and a transition from the terminal area to the appropriate en route structure. SIDs are primarily designed for system enhancement to expedite traffic flow and to reduce pilot/controller

workload. ATC clearance must always be received prior to flying a SID.

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See OBSTACLE DEPARTURE PROCEDURE.)

(Refer to AIM.)

**STANDARD RATE TURN**- A turn of three degrees per second.

**STANDARD TERMINAL ARRIVAL**- A preplanned instrument flight rule (IFR) air traffic control arrival procedure published for pilot use in graphic and/or textual form. STARs provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area.

**STANDARD TERMINAL ARRIVAL CHARTS**-

(See AERONAUTICAL CHART.)

**STANDARD TERMINAL AUTOMATION REPLACEMENT SYSTEM (STARS)**-

(See DTAS.)

**STAR**-

(See STANDARD TERMINAL ARRIVAL.)

**STATE AIRCRAFT**- Aircraft used in military, customs and police service, in the exclusive service of any government, or of any political subdivision, thereof including the government of any state, territory, or possession of the United States or the District of Columbia, but not including any government-owned aircraft engaged in carrying persons or property for commercial purposes.

**STATIC RESTRICTIONS**- Those restrictions that are usually not subject to change, fixed, in place, and/or published.

**STATIONARY RESERVATIONS**- Altitude reservations which encompass activities in a fixed area. Stationary reservations may include activities, such as special tests of weapons systems or equipment, certain U.S. Navy carrier, fleet, and anti-submarine operations, rocket, missile and drone operations, and certain aerial refueling or similar operations.

**STEP TAXI**- To taxi a float plane at full power or high RPM.

**STEP TURN**- A maneuver used to put a float plane in a planing configuration prior to entering an active sea lane for takeoff. The STEP TURN maneuver should only be used upon pilot request.

**STEPDOWN FIX**- A fix permitting additional descent within a segment of an instrument approach

procedure by identifying a point at which a controlling obstacle has been safely overflown.

**STEREO ROUTE-** A routinely used route of flight established by users and ARTCCs identified by a coded name; e.g., ALPHA 2. These routes minimize flight plan handling and communications.

**STOL AIRCRAFT-**

(See **SHORT TAKEOFF AND LANDING AIRCRAFT**.)

**STOP ALTITUDE SQUAWK-** Used by ATC to inform an aircraft to turn-off the automatic altitude reporting feature of its transponder. It is issued when the verbally reported altitude varies 300 feet or more from the automatic altitude report.

(See **ALTITUDE READOUT**.)

(See **TRANSPONDER**.)

**STOP AND GO-** A procedure wherein an aircraft will land, make a complete stop on the runway, and then commence a takeoff from that point.

(See **LOW APPROACH**.)

(See **OPTION APPROACH**.)

**STOP BURST-**

(See **STOP STREAM**.)

**STOP BUZZER-**

(See **STOP STREAM**.)

**STOP SQUAWK (Mode or Code)-** Used by ATC to tell the pilot to turn specified functions of the aircraft transponder off.

(See **STOP ALTITUDE SQUAWK**.)

(See **TRANSPONDER**.)

**STOP STREAM-** Used by ATC to request a pilot to suspend electronic attack activity.

(See **JAMMING**.)

**STOPOVER FLIGHT PLAN-** A flight plan format which permits in a single submission the filing of a sequence of flight plans through interim full-stop destinations to a final destination.

**STOPWAY-** An area beyond the takeoff runway no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted takeoff, without causing structural damage to the airplane, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff.

**STRAIGHT-IN APPROACH IFR-** An instrument approach wherein final approach is begun without first having executed a procedure turn, not necessarily completed with a straight-in landing or made to straight-in landing minimums.

(See **LANDING MINIMUMS**.)

(See **STRAIGHT-IN APPROACH VFR**.)

(See **STRAIGHT-IN LANDING**.)

**STRAIGHT-IN APPROACH VFR-** Entry into the traffic pattern by interception of the extended runway centerline (final approach course) without executing any other portion of the traffic pattern.

(See **TRAFFIC PATTERN**.)

**STRAIGHT-IN LANDING-** A landing made on a runway aligned within 30° of the final approach course following completion of an instrument approach.

(See **STRAIGHT-IN APPROACH IFR**.)

**STRAIGHT-IN LANDING MINIMUMS-**

(See **LANDING MINIMUMS**.)

**STRAIGHT-IN MINIMUMS-**

(See **STRAIGHT-IN LANDING MINIMUMS**.)

**STRATEGIC PLANNING-** Planning whereby solutions are sought to resolve potential conflicts.

**SUBSTITUTE ROUTE-** A route assigned to pilots when any part of an airway or route is unusable because of NAVAID status. These routes consist of:

a. Substitute routes which are shown on U.S. Government charts.

b. Routes defined by ATC as specific NAVAID radials or courses.

c. Routes defined by ATC as direct to or between NAVAIDs.

**SUNSET AND SUNRISE-** The mean solar times of sunset and sunrise as published in the Nautical Almanac, converted to local standard time for the locality concerned. Within Alaska, the end of evening civil twilight and the beginning of morning civil twilight, as defined for each locality.

**SUPER HIGH FREQUENCY-** The frequency band between 3 and 30 gigahertz (GHz). The elevation and azimuth stations of the microwave landing system operate from 5031 MHz to 5091 MHz in this spectrum.

**SUPPLEMENTAL WEATHER SERVICE LOCATION-** Airport facilities staffed with contract

personnel who take weather observations and provide current local weather to pilots via telephone or radio. (All other services are provided by the parent FSS.)

**SUPPS-** Refers to ICAO Document 7030 Regional Supplementary Procedures. SUPPS contain procedures for each ICAO Region which are unique to that Region and are not covered in the worldwide provisions identified in the ICAO Air Navigation Plan. Procedures contained in Chapter 8 are based in part on those published in SUPPS.

**SURFACE AREA-** The airspace contained by the lateral boundary of the Class B, C, D, or E airspace designated for an airport that begins at the surface and extends upward.

**SURPIC-** A description of surface vessels in the area of a Search and Rescue incident including their predicted positions and their characteristics.

(Refer to FAAO JO 7110.65, Para 10-6-4, INFLIGHT CONTINGENCIES.)

**SURVEILLANCE APPROACH-** An instrument approach wherein the air traffic controller issues instructions, for pilot compliance, based on aircraft position in relation to the final approach course (azimuth), and the distance (range) from the end of the runway as displayed on the controller's radar scope. The controller will provide recommended altitudes on final approach if requested by the pilot.

(Refer to AIM.)

**SWAP-**

(See SEVERE WEATHER AVOIDANCE PLAN.)

**SWSL-**

(See SUPPLEMENTAL WEATHER SERVICE LOCATION.)

**SYSTEM STRATEGIC NAVIGATION-** Military activity accomplished by navigating along a preplanned route using internal aircraft systems to maintain a desired track. This activity normally requires a lateral route width of 10 NM and altitude range of 1,000 feet to 6,000 feet AGL with some route segments that permit terrain following.

system providing the aircrew 'Low Altitude warnings' to allow immediate pilot action.

**TERRAIN FOLLOWING-** The flight of a military aircraft maintaining a constant AGL altitude above the terrain or the highest obstruction. The altitude of the aircraft will constantly change with the varying terrain and/or obstruction.

**TETRAHEDRON-** A device normally located on uncontrolled airports and used as a landing direction indicator. The small end of a tetrahedron points in the direction of landing. At controlled airports, the tetrahedron, if installed, should be disregarded because tower instructions supersede the indicator.

(See SEGMENTED CIRCLE.)

(Refer to AIM.)

**TF-**

(See TERRAIN FOLLOWING.)

***THAT IS CORRECT-*** The understanding you have is right.

**360 OVERHEAD-**

(See OVERHEAD MANEUVER.)

**THRESHOLD-** The beginning of that portion of the runway usable for landing.

(See AIRPORT LIGHTING.)

(See DISPLACED THRESHOLD.)

**THRESHOLD CROSSING HEIGHT-** The theoretical height above the runway threshold at which the aircraft's glideslope antenna would be if the aircraft maintains the trajectory established by the mean ILS glideslope or MLS glidepath.

(See GLIDESLOPE.)

(See THRESHOLD.)

**THRESHOLD LIGHTS-**

(See AIRPORT LIGHTING.)

**TIBS-**

(See TELEPHONE INFORMATION BRIEFING SERVICE.)

**TIME GROUP-** Four digits representing the hour and minutes from the Coordinated Universal Time (UTC) clock. FAA uses UTC for all operations. The term "ZULU" may be used to denote UTC. The word "local" or the time zone equivalent shall be used to denote local when local time is given during radio and telephone communications. When written, a time

zone designator is used to indicate local time; e.g. "0205M" (Mountain). The local time may be based on the 24-hour clock system. The day begins at 0000 and ends at 2359.

**TIS-B-**

(See TRAFFIC INFORMATION SERVICE-BROADCAST.)

**TMA-**

(See TRAFFIC MANAGEMENT ADVISOR.)

**TMPA-**

(See TRAFFIC MANAGEMENT PROGRAM ALERT.)

**TMU-**

(See TRAFFIC MANAGEMENT UNIT.)

**TODA [ICAO]-**

(See ICAO Term TAKE-OFF DISTANCE AVAILABLE.)

**TOI-**

(See TRACK OF INTEREST.)

**TORA [ICAO]-**

(See ICAO Term TAKE-OFF RUN AVAILABLE.)

**TORCHING-** The burning of fuel at the end of an exhaust pipe or stack of a reciprocating aircraft engine, the result of an excessive richness in the fuel air mixture.

**TOTAL ESTIMATED ELAPSED TIME [ICAO]-** For IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome.

(See ICAO term ESTIMATED ELAPSED TIME.)

**TOUCH-AND-GO-** An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway.

**TOUCH-AND-GO LANDING-**

(See TOUCH-AND-GO.)

**TOUCHDOWN-**

**a.** The point at which an aircraft first makes contact with the landing surface.

**b.** Concerning a precision radar approach (PAR), it is the point where the glide path intercepts the landing surface.

(See ICAO term TOUCHDOWN.)

**TOUCHDOWN [ICAO]**- The point where the nominal glide path intercepts the runway.

Note: Touchdown as defined above is only a datum and is not necessarily the actual point at which the aircraft will touch the runway.

**TOUCHDOWN RVR**-

(See VISIBILITY.)

**TOUCHDOWN ZONE**- The first 3,000 feet of the runway beginning at the threshold. The area is used for determination of Touchdown Zone Elevation in the development of straight-in landing minimums for instrument approaches.

(See ICAO term TOUCHDOWN ZONE.)

**TOUCHDOWN ZONE [ICAO]**- The portion of a runway, beyond the threshold, where it is intended landing aircraft first contact the runway.

**TOUCHDOWN ZONE ELEVATION**- The highest elevation in the first 3,000 feet of the landing surface. TDZE is indicated on the instrument approach procedure chart when straight-in landing minimums are authorized.

(See TOUCHDOWN ZONE.)

**TOUCHDOWN ZONE LIGHTING**-

(See AIRPORT LIGHTING.)

**TOWER**- A terminal facility that uses air/ground communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area. Authorizes aircraft to land or takeoff at the airport controlled by the tower or to transit the Class D airspace area regardless of flight plan or weather conditions (IFR or VFR). A tower may also provide approach control services (radar or nonradar).

(See AIRPORT TRAFFIC CONTROL SERVICE.)

(See APPROACH CONTROL FACILITY.)

(See APPROACH CONTROL SERVICE.)

(See MOVEMENT AREA.)

(See TOWER EN ROUTE CONTROL SERVICE.)

(See ICAO term AERODROME CONTROL TOWER.)

(Refer to AIM.)

**TOWER EN ROUTE CONTROL SERVICE**- The control of IFR en route traffic within delegated airspace between two or more adjacent approach control facilities. This service is designed to expedite traffic and reduce control and pilot communication requirements.

**TOWER TO TOWER**-

(See TOWER EN ROUTE CONTROL SERVICE.)

**TPX-42**- A numeric beacon decoder equipment/system. It is designed to be added to terminal radar systems for beacon decoding. It provides rapid target identification, reinforcement of the primary radar target, and altitude information from Mode C.

(See AUTOMATED RADAR TERMINAL SYSTEMS.)

(See TRANSPONDER.)

**TRACEABLE PRESSURE STANDARD**- The facility station pressure instrument, with certification/calibration traceable to the National Institute of Standards and Technology. Traceable pressure standards may be mercurial barometers, commissioned ASOS/AWSS or dual transducer AWOS, or portable pressure standards or DASI.

**TRACK**- The actual flight path of an aircraft over the surface of the earth.

(See COURSE.)

(See FLIGHT PATH.)

(See ROUTE.)

(See ICAO term TRACK.)

**TRACK [ICAO]**- The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (True, Magnetic, or Grid).

**TRACK OF INTEREST (TOI)**- Displayed data representing an airborne object that threatens or has the potential to threaten North America or National Security. Indicators may include, but are not limited to: noncompliance with air traffic control instructions or aviation regulations; extended loss of communications; unusual transmissions or unusual flight behavior; unauthorized intrusion into controlled airspace or an ADIZ; noncompliance with issued flight restrictions/security procedures; or unlawful interference with airborne flight crews, up to and including hijack. In certain circumstances, an object may become a TOI based on specific and credible intelligence pertaining to that particular aircraft/object, its passengers, or its cargo.

# 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**– When used 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. 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.

## 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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