

APPENDIX A

PILOT/CONTROLLER GLOSSARY

APRIL 9, 1987

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.

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 *italicized*. 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 Federal Aviation Regulations (FAR's) and the Airman's Information Manual (AIM).

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

ABBREVIATED IFR FLIGHT PLANS — An authorization by ATC requiring pilots to submit only that information needed for the purpose of ATC. It includes only a small portion of the usual IFR flight plan information. In certain instances, this may be only aircraft identification, location, and pilot request. Other information may be requested if needed by ATC for separation/control purposes. It is frequently used by aircraft which are airborne and desire an instrument approach or by aircraft which are on the ground and desire a climb to VFR-on-top. (See VFR-ON-TOP) (Refer to AIM)

ABEAM — An aircraft is "abeam" a fix, point, or object when that fix, point, or object is approximately 90 degrees to the right or left of the aircraft track. Abeam indicates a general position rather than a precise point.

ABORT — To terminate a preplanned aircraft maneuver, e.g., an aborted takeoff.

ACKNOWLEDGE — Let me know that you have received my message.

ICAO-ACKNOWLEDGE — Let me know that you have received and understood this message.

ACROBATIC FLIGHT — An intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration not necessary for normal flight. (Refer to FAR Part 91)

ICAO-ACROBATIC FLIGHT — Manoeuvres intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude, or an abnormal variation in speed.

ADDITIONAL SERVICES — Advisory information provided by ATC which includes but is not limited to the following:

1. Traffic advisories.
2. Vectors, when requested by the pilot, to assist aircraft receiving traffic advisories to avoid observed traffic.
3. Altitude deviation information of 300 feet or more from an assigned altitude as observed on a verified (reading correctly) automatic altitude readout (Mode C).
4. Advisories that traffic is no longer a factor.
5. Weather and chaff information.
6. Weather assistance.
7. Bird activity information.
8. Holding pattern surveillance.

Additional services are provided to the extent possible contingent only upon the controller's capability to fit them into the performance of higher priority duties and on the basis of limitations of the radar, volume of traffic, frequency congestion, and controller workload. The controller has complete discretion for determining if he is able to provide or continue to provide a service in a particular case. The controller's reason not to provide or continue to provide a service in a particular case is not subject to question by the pilot and need not be made known to him. (See Traffic Advisories) (Refer to AIM)

ADMINISTRATOR — The Federal Aviation Administrator or any person to whom he has delegated his authority in the matter concerned.

ADVISE INTENTIONS — Tell me what you plan to do.

ADVISORY — Advice and information provided to assist pilots in the safe conduct of flight and aircraft movement. (See Advisory Service)

ADVISORY FREQUENCY — The appropriate frequency to be used for Airport Advisory Service. (See Airport Advisory Service and UNICOM) (Refer to Advisory Circular No. 90-42 and AIM)

ADVISORY SERVICE — Advice and information provided by a facility to assist pilots in the safe conduct of flight and aircraft movement. (See Airport Advisory Service, Traffic Advisories, Safety Alerts, Additional Services, Radar Advisory, En Route Flight Advisory Service) (Refer to AIM)

AERIAL REFUELING/IN-FLIGHT REFUELING — A procedure used by the military to transfer fuel from one aircraft to another during flight. (Refer to VFR/IFR Wall Planning Charts).

AERODROME — A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure, and movement of aircraft.

AERONAUTICAL BEACON — A visual NAVAID displaying flashes of white and/or colored light to indicate the location of an airport, a heliport, a landmark, a certain point of a Federal airway in mountainous terrain, or an obstruction. (See Airport Rotating Beacon) (Refer to AIM)

AERONAUTICAL CHART — A map used in air navigation containing all or part of the following: Topographic features, hazards and obstructions, navigation aids, navigation routes, designated airspace, and airports. Commonly used aeronautical charts are:

1. Sectional Charts (1:500,000) — Designed for visual navigation of slow or medium speed aircraft. Topographic information on these charts features the portrayal of relief and a judicious selection of visual check points for VFR flight. Aeronautical information includes visual and radio aids to navigation, airports, controlled airspace, restricted areas, obstructions, and related data.
2. VFR Terminal Area Charts (1:250,000) — Depict Terminal Control Area (TCA) airspace which provides for the control or segregation of all the aircraft within the TCA. The chart depicts topographic information and aeronautical information which includes visual and radio aids to navigation, airports, controlled airspace, restricted areas, obstructions, and related data.
3. World Aeronautical Charts (WAC) (1:1,000,000) — Provide a standard series of aeronautical charts covering land areas of the world at a size and scale convenient for navigation by moderate speed aircraft. Topographic information includes cities and towns, principal roads, railroads, distinctive landmarks, drainage, and relief. Aeronautical information includes visual and

radio aids to navigation, airports, airways, restricted areas, obstructions, and other pertinent data.

4. En Route Low Altitude Charts — Provide aeronautical information for en route instrument navigation (IFR) in the low altitude stratum. Information includes the portrayal of airways, limits of controlled airspace, position identification and frequencies of radio aids, selected airports, minimum en route and minimum obstruction clearance altitudes, airway distances, reporting points, restricted areas, and related data. Area charts, which are a part of this series, furnish terminal data at a larger scale in congested areas.
5. En Route High Altitude Charts — Provide aeronautical information for en route instrument navigation (IFR) in the high altitude stratum. Information includes the portrayal of jet routes, identification and frequencies of radio aids, selected airports, distances, time zones, special use airspace, and related information.
6. Instrument Approach Procedures (IAP) Charts — Portray the aeronautical data which is required to execute an instrument approach to an airport. These charts depict the procedures, including all related data, and the airport diagram. Each procedure is designated for use with a specific type of electronic navigation system including NDB, TACAN, VOR, ILS/MLS, and RNAV. These charts are identified by the type of navigational aid(s) which provide final approach guidance.
7. Standard Instrument Departure (SID) Charts — Designed to expedite clearance delivery and to facilitate transition between takeoff and en route operations. Each SID procedure is presented as a separate chart and may serve a single airport or more than one airport in a given geographical location.
8. Standard Terminal Arrival (STAR) Charts — Designed to expedite air traffic control arrival procedures and to facilitate transition between en route and instrument approach operations. Each STAR procedure is presented as a separate chart and may serve a single airport or more than one airport in a given geographical location.
9. Airport Taxi Charts — Designed to expedite the efficient and safe flow of ground traffic at an airport. These charts are identified by the official airport name; e.g., Washington National Airport.

ICAO—AERONAUTICAL CHART — A representation of a portion of the earth, its culture and relief, specifically designated to meet the requirements of air navigation.

AFFIRMATIVE — Yes.

AIR CARRIER DISTRICT OFFICE/ACDO — An FAA field office serving an assigned geographical area, staffed with Flight Standards personnel serving the aviation industry and the general public on matters related to the certification and operation of scheduled air carriers and other large aircraft operations.

air other than the reactions of the air against the earth's surface.

AIRCRAFT APPROACH CATEGORY — A grouping of aircraft based on a speed of 1.3 times the stall speed in the landing configuration at maximum gross landing weight. An aircraft shall fit in only one category. If it is necessary to maneuver at speeds in excess of the upper limit of a speed range for a category, the minimums for the next higher category should be used. For example, an aircraft which falls in Category A, but is circling to land at a speed in excess of 91 knots, should use the approach Category B minimums when circling to land. The categories are as follows:

1. Category A—Speed less than 91 knots.
2. Category B—Speed 91 knots or more but less than 121 knots.
3. Category C—Speed 121 knots or more but less than 141 knots.
4. Category D—Speed 141 knots or more but less than 166 knots.
5. Category E—Speed 166 knots or more.

(Refer to FAR Parts 1 and 97)

AIRCRAFT CLASSES — For the purposes of Wake Turbulence Separation Minima, ATC classifies aircraft as Heavy, Large, and Small as follows:

1. Heavy—Aircraft capable of takeoff weights of 300,000 pounds or more whether or not they are operating at this weight during a particular phase of flight.
2. Large—Aircraft of more than 12,500 pounds, maximum certificated takeoff weight, up to 300,000 pounds.
3. Small—Aircraft of 12,500 pounds or less maximum certificated takeoff weight. (Refer to AIM)

AIR DEFENSE EMERGENCY — A military emergency condition declared by a designated authority. This condition exists when an attack upon the continental U.S., Alaska, Canada, or U.S. installations in Greenland by hostile aircraft or missiles is considered probable, is imminent, or is taking place. (Refer to AIM)

AIR DEFENSE IDENTIFICATION ZONE/ADIZ — The area of airspace over land or water, extending upward from the surface, within which the ready identification, the location, and the control of aircraft are required in the interest of national security.

1. Domestic Air Defense Identification Zone—An ADIZ within the United States along an international boundary of the United States.
2. Coastal Air Defense Identification Zone—An ADIZ over the coastal waters of the United States.
3. Distant Early Warning Identification Zone (DEWIZ)—An ADIZ over the coastal waters of the State of Alaska.

ADIZ locations and operating and flight plan requirements for civil aircraft operations are specified in FAR Part 99. (Refer to AIM)

AIRMAN'S INFORMATION MANUAL/AIM — A primary FAA publication whose purpose is to instruct airmen about operating in the National Airspace System of the U.S. It provides basic flight information, ATC Procedures and general instructional information concerning health, medical facts, factors affecting flight safety, accident and hazard reporting, and types of aeronautical charts and their use.

ICAO—AERONAUTICAL INFORMATION PUBLICATION — A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

AIRMET/WA/AIRMAN'S METEOROLOGICAL INFORMATION — In-flight weather advisories issued only to amend the area forecast concerning weather phenomena which are of operational interest to all aircraft and potentially hazardous to aircraft having limited capability because of lack of equipment, instrumentation, or pilot qualifications. AIRMET's concern weather of less severity than that covered by SIGMET's or Convective SIGMET's. AIRMET's cover moderate icing, moderate turbulence, sustained winds of 30 knots or more at the surface, widespread areas of ceilings less than 1,000 feet and/or visibility less than 3 miles, and extensive mountain obscurement. (See AWW, SIGMET, Convective SIGMET, and CWA) (Refer to AIM)

AIR NAVIGATION FACILITY — Any facility used in, available for use in, or designed for use in, aid of air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio-directional finding, or for radio or other electrical communication, and any other structure or mechanism having a similar purpose for guiding or controlling flight in the air or the landing and take-off of aircraft. (See Navigational Aid)

AIRPORT — An area on land or water that is used or intended to be used for the landing and takeoff of aircraft and includes its buildings and facilities, if any.

AIRPORT ADVISORY AREA — The area within ten miles of an airport without a control tower or where the tower is not in operation, and on which a Flight Service Station is located. (See Airport Advisory Service) (Refer to AIM)

AIRPORT ADVISORY SERVICE/AAS — A service provided by flight service stations or the military at airports not serviced by a control tower. This service consists of providing information to arriving and departing aircraft concerning wind direction and speed, favored runway, altimeter setting, pertinent known traffic, pertinent known field conditions, airport taxi routes and traffic patterns, and authorized instrument approach procedures. This information is advisory in nature and does not constitute an ATC clearance. (See Airport Advisory Area)

AIRPORT ELEVATION/FIELD ELEVATION — The highest point of an airport's usable runways

AIRPORT ELEVATION/FIELD ELEVATION — The highest point of an airport's usable runways measured in feet from mean sea level. (See Touchdown Zone Elevation)

ICAO—AERODROME ELEVATION — The elevation of the highest point of the landing area.

AIRPORT/FACILITY DIRECTORY — A publication designed primarily as a pilot's operational manual containing all airports, seaplane bases, and heliports open to the public including communications data, navigational facilities, and certain special notices and procedures. This publication is issued in seven volumes according to geographical area.

AIRPORT INFORMATION DESK/AID — An airport unmanned facility designed for pilot self-service briefing, flight planning, and filing of flight plans. (Refer to AIM)

AIRPORT LIGHTING — Various lighting aids that may be installed on an airport. Types of airport lighting include:

1. **Approach Light System/ALS**—An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended centerline of the runway on his final approach for landing. Condenser-Discharge Sequential Flashing Lights/Sequenced Flashing Lights may be installed in conjunction with the ALS at some airports. Types of Approach Light Systems are:

- a. **ALSF-1**—Approach Light System with Sequenced Flashing Lights in ILS Cat-I configuration.
- b. **ALSF-2**—Approach Light System with Sequenced Flashing Lights in ILS Cat-II configuration. The ALSF-2 may operate as an SSALR when weather conditions permit.
- c. **SSALF**—Simplified Short Approach Light System with Sequenced Flashing Lights.
- d. **SSALR**—Simplified Short Approach Light System with Runway Alignment Indicator Lights.
- e. **MALSF**—Medium Intensity Approach Light System with Sequenced Flashing Lights.
- f. **MALSR**—Medium Intensity Approach Light System with Runway Alignment Indicator Lights.
- g. **LDIN**—Sequenced Flashing Lead-in Lights.
- h. **RAIL**—Runway Alignment Indicator Lights (Sequenced Flashing Lights which are installed only in combination with other light systems).
- i. **ODALS**—Omnidirectional Approach Lighting System consists of seven omnidirectional flashing lights located in the approach area of a nonprecision runway. Five lights are located on the runway centerline extended with the first light located 300 feet from the threshold and extending at equal interval up to 1,500 feet from the threshold. The other two lights are located, one on each side of the runway threshold, at a lateral distance of 40 feet from the runway edge, or 75

feet from the runway edge when installed on a runway equipped with a VASI. (Refer to Order 6850.2A)

2. **Runway Lights/Runway Edge Lights**—Lights having a prescribed angle of emission used to define the lateral limits of a runway. Runway lights are uniformly spaced at intervals of approximately 200 feet, and the intensity may be controlled or preset.
3. **Touchdown Zone Lighting**—Two rows of transverse light bars located symmetrically about the runway centerline normally at 100 foot intervals. The basic system extends 3,000 feet along the runway.
4. **Runway Centerline Lighting**—Flush centerline lights spaced at 50-foot intervals beginning 75 feet from the landing threshold and extending to within 75 feet of the opposite end of the runway.
5. **Threshold Lights**—Fixed green lights arranged symmetrically left and right of the runway centerline, identifying the runway threshold.
6. **Runway End Identifier Lights/REIL**—Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.
7. **Visual Approach Slope Indicator/VASI**—An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he is "on path" if he sees red/white, "above path" if white/white, and "below path" if red/red. Some airports serving large aircraft have three-bar VASIs which provide two visual glide paths to the same runway.
8. **Boundary Lights**—Lights defining the perimeter of an airport or landing area. (Refer to AIM)

AIRPORT MARKING AIDS — Markings used on runway and taxiway surfaces to identify a specific runway, a runway threshold, a centerline, a hold line, etc. A runway should be marked in accordance with its present usage such as:

1. Visual.
2. Nonprecision instrument.
3. Precision instrument. (Refer to AIM)

AIRPORT RADAR SERVICE AREA/ARSA — (See Controlled Airspace)

AIRPORT ROTATING BEACON — A visual NAVAID operated at many airports. At civil airports, alternating white and green flashes indicate the location of the airport. At military airports, the beacons flash alternately white and green, but are differentiated from civil beacons by doublepeaked (two quick) white flashes between the green flashes. (See Special VFR Operations, Instrument Flight Rules) (Refer to AIM, Rotating Beacons)

ICAO—AERODROME BEACON — Aeronautical beacon used to indicate the location of an aerodrome from the air.

AIRPORT SURFACE DETECTION EQUIPMENT/ASDE — Radar equipment specifically designed to detect all principal features on the surface of an airport, including aircraft and vehicular traffic, and to present the entire image on a radar indicator console in the control tower. Used to augment visual observation by tower personnel of aircraft and/or vehicular movements on runways and taxiways.

AIRPORT SURVEILLANCE RADAR/ASR — Approach control radar used to detect and display an aircraft's position in the terminal area. ASR provides range and azimuth information but does not provide elevation data. Coverage of the ASR can extend up to 60 miles.

AIRPORT TRAFFIC AREA — Unless otherwise specifically designated in FAR Part 93, that airspace within a horizontal radius of 5 statute miles from the geographical center of any airport at which a control tower is operating, extending from the surface up to, but not including, an altitude of 3,000 feet above the elevation of an airport. Unless otherwise authorized or required by ATC, no person may operate an aircraft within an airport traffic area except for the purpose of landing at or taking off from an airport within that area. ATC authorizations may be given as individual approval of specific operations or may be contained in written agreements between airport users and the tower concerned. (Refer to FAR, Parts 1 and 91).

AIRPORT TRAFFIC CONTROL SERVICE — A service provided by a control tower for aircraft operating on the movement area and in the vicinity of an airport. (See Movement Area, Tower)

ICAO-AERODROME CONTROL SERVICE — Air traffic control service for aerodrome traffic.

AIR ROUTE SURVEILLANCE RADAR/ARSR — Air route traffic control center (ARTCC) radar used primarily to detect and display an aircraft's position while en route between terminal areas. The ARSR enables controllers to provide radar air traffic control service when aircraft are within the ARSR coverage. In some instances, ARSR may enable an ARTCC to provide terminal radar services similar to but usually more limited than those provided by a radar approach control.

AIR ROUTE TRAFFIC CONTROL CENTER/ARTCC — A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace and principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft. (See NAS Stage A, En Route Air Traffic Control Service) (Refer to AIM)

AIRSPEED — The speed of an aircraft relative to its surrounding air mass. The unqualified term "airspeed" means one of the following:

1. Indicated Airspeed—The speed shown on the aircraft airspeed indicator. This is the speed used in

pilot/controller communications under the general term "airspeed." (Refer to FAR Part 1)

2. True Airspeed—The airspeed of an aircraft relative to undisturbed air. Used primarily in flight planning and en route portion of flight. When used in pilot/controller communications, it is referred to as "true airspeed" and not shortened to "airspeed."

AIRSTART — The starting of an aircraft engine while the aircraft is airborne, preceded by engine shutdown during training flights or by actual engine failure.

AIR TAXI — Used to describe a helicopter/VTOL aircraft movement conducted above the surface but normally not above 100 feet AGL. The aircraft may proceed either via hover taxi or flight at speeds more than 20 knots. The pilot is solely responsible for selecting a safe airspeed/altitude for the operation being conducted. (See Hover Taxi) (Refer to AIM)

AIR TRAFFIC — Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

ICAO—AIR TRAFFIC — All aircraft in flight or operating on the manoeuvring area of an aerodrome.

AIR TRAFFIC CLEARANCE/ATC CLEARANCE — An authorization by air traffic control, for the purpose of preventing collision between known aircraft, for an aircraft to proceed under specified traffic conditions within controlled airspace. (See ATC Instructions)

ICAO—AIR TRAFFIC CONTROL CLEARANCE — Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

Note 1. — For convenience, the term *air traffic control clearance* is frequently abbreviated to *clearance* when used in appropriate contexts.

Note 2. — The abbreviated term *clearance* may be prefixed by the words *taxi, takeoff, departure, en route, approach* or *landing* to indicate the particular portion of flight to which the air traffic control clearance relates.

AIR TRAFFIC CONTROL/ATC — A service operated by appropriate authority to promote the safe, orderly and expeditious flow of air traffic.

ICAO—AIR TRAFFIC CONTROL SERVICE — A service provided for the purpose of:

- 1) Preventing collisions:
 - a) Between aircraft; and
 - b) On the maneuvering area between aircraft and obstructions; and
- 2) Expediting and maintaining an orderly flow of air traffic.

AIR TRAFFIC CONTROL COMMAND CENTER/ATCCC — An Air Traffic Operations Service facility consisting of four operational units.

- 1 Central Flow Control Function/CFCF—Responsible for coordination and approval of all major inter-center flow control restrictions on a system

basis in order to obtain maximum utilization of the airspace. (See Quota Flow Control)

2. **Central Altitude Reservation Function/CARF**—Responsible for coordinating, planning, and approving special user requirements under the Altitude Reservation (ALTRV) concept. (See Altitude Reservation)
3. **Airport Reservation Office/ARO**—Responsible for approving IFR flights at designated high density traffic airports (John F. Kennedy, LaGuardia, O'Hare, and Washington National) during specified hours. (Refer to FAR Part 93 and Airport/Facility Directory)
4. **ATC Contingency Command Post**—A facility which enables the FAA to manage the ATC system when significant portions of the system's capabilities have been lost or are threatened.

AIR TRAFFIC CONTROL SERVICE — (See Air Traffic Control)

AIR TRAFFIC CONTROL SPECIALIST/CONTROLLER — A person authorized to provide air traffic control service. (See Air Traffic Control, Flight Service Station)

ICAO—CONTROLLER — A person authorized to provide air traffic control services.

AIRWAY BEACON — Used to mark airway segments in remote mountain areas. The light flashes Morse Code to identify the beacon site. (Refer to AIM)

AIRWAY/FEDERAL AIRWAY — A control area or portion thereof established in the form of a corridor, the centerline of which is defined by radio navigational aids. (Refer to FAR Part 71, AIM)

ICAO—AIRWAY — A control area or portion thereof established in the form of corridor equipped with radio navigational aids.

ALERT AREA — (See Special Use Airspace)

ALERT NOTICE/ALNOT — A request originated by a flight service station (FSS) or an air route traffic control center (ARTCC) for an extensive communication search for overdue, unreported, or missing aircraft.

ALPHANUMERIC DISPLAY/DATA BLOCK — Letters and numerals used to show identification, altitude, beacon code, and other information concerning a target on a radar display. (See Automated Radar Terminal Systems, NAS Stage A)

ALTERNATE AIRPORT — An airport at which an aircraft may land if a landing at the intended airport becomes inadvisable.

ICAO—ALTERNATE AERODROME — An aerodrome specified in the flight plan to which a flight may proceed when it becomes inadvisable to land at the aerodrome of intended landing.

Note. — An alternate aerodrome may be the aerodrome of departure.

ALTITUDE SETTING — The barometric pressure reading used to adjust a pressure altimeter for variations in existing atmospheric pressure or to the

standard altimeter setting (29.92). (Refer to FAR Part 91, AIM)

ALTITUDE — The height of a level, point, or object measured in feet Above Ground Level (AGL) or from Mean Sea Level (MSL). (See Flight Level)

1. **MSL Altitude**—Altitude expressed in feet measured from mean sea level.
2. **AGL Altitude**—Altitude expressed in feet measured above ground level.
3. **Indicated Altitude**—The altitude as shown by an altimeter. On a pressure or barometric altimeter it is altitude as shown uncorrected for instrument error and uncompensated for variation from standard atmospheric conditions.

ICAO—ALTITUDE — The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

ALTITUDE READOUT/AUTOMATIC ALTITUDE REPORT — An aircraft's altitude, transmitted via the Mode C transponder feature, that is visually displayed in 100-foot increments on a radar scope having read-out capability. (See Automated Radar Terminal Systems, NAS Stage A, Alphanumeric Display) (Refer to AIM)

ALTITUDE RESERVATION/ALTRV — Airspace utilization under prescribed conditions normally employed for the mass movement of aircraft or other special user requirements which cannot otherwise be accomplished. ALTRVs are approved by the appropriate FAA facility. (See Air Traffic Control Command Center)

ALTITUDE RESTRICTION — An altitude or altitudes, stated in the order flown, which are to be maintained until reaching a specific point or time. Altitude restrictions may be issued by ATC due to traffic, terrain, or other airspace considerations.

ALTITUDE RESTRICTIONS ARE CANCELED — Adherence to previously imposed altitude restrictions is no longer required during a climb or descent.

APPROACH CLEARANCE — Authorization by ATC for a pilot to conduct an instrument approach. The type of instrument approach for which a clearance and other pertinent information is provided in the approach clearance when required. (See Instrument Approach Procedure, Cleared for Approach) (Refer to AIM and FAR Part 91)

APPROACH CONTROL FACILITY — A terminal ATC facility that provides approach control service in a terminal area. (See Approach Control Service, Radar Approach Control Facility)

APPROACH CONTROL SERVICE — Air traffic control service provided by an approach control facility for arriving and departing VFR/IFR aircraft and, on occasion, en route aircraft. At some airports not served by an approach control facility, the ARTCC provides limited approach control service. (Refer to AIM)

ICAO—APPROACH CONTROL SERVICE — Air traffic control service for arriving or departing controlled flights.

APPROACH GATE — An imaginary point used within ATC as a basis for vectoring aircraft to the final approach course. The gate will be established along the final approach course 1 mile from the outer marker (or the fix used in lieu of the outer marker) on the side away from the airport for precision approaches and 1 mile from the final approach fix on the side away from the airport for nonprecision approaches. In either case when measured along the final approach course, the gate will be no closer than 5 miles from the landing threshold.

APPROACH LIGHT SYSTEM — (See Airport Lighting)

APPROACH SEQUENCE — The order in which aircraft are positioned while on approach or awaiting approach clearance. (See Landing Sequence)

ICAO—APPROACH SEQUENCE — The order in which two or more aircraft are cleared to approach to land at the aerodrome.

APPROACH SPEED — The recommended speed contained in aircraft manuals used by pilots when making an approach to landing. This speed will vary for different segments of an approach as well as for aircraft weight and configuration.

APRON/RAMP — A defined area on an airport or heliport intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance. With regard to seaplanes, a ramp is used for access to the apron from the water.

ICAO—APRON — A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, refuelling, parking or maintenance.

ARC — The track over the ground of an aircraft flying at a constant distance from a navigational aid by reference to distance measuring equipment (DME).

AREA NAVIGATION/RNAV — A method of navigation that permits aircraft operation on any desired course within the coverage of station-referenced navigation signals or within the limits of a self-contained system capability. Random area navigation routes are direct routes, based on area navigation capability, between waypoints defined in terms of latitude/longitude coordinates, degree/distance fixes, or offsets from published or established routes/airways at a specified distance and direction. The major types of equipment are:

1. VORTAC referenced or Course Line Computer (CLC) systems, which account for the greatest number of RNAV units in use. To function, the CLC must be within the service range of a VORTAC.
2. OMEGA/VLF, although two separate systems, can be considered as one operationally. A long-range navigation system based upon Very Low Frequency radio signals transmitted from a total of 17 stations worldwide.

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

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

5. LORAN-C is a long-range radio navigation system that uses ground waves transmitted at low frequency to provide user position information at ranges of up to 600 to 1,200 nautical miles at both en route and approach altitudes. The useable signal coverage areas are determined by the signal-to-noise ratio, the envelope-to-cycle difference, and the geometric relationship between the positions of the user and the transmitting stations.

ICAO—AREA NAVIGATION/RNAV — A method of navigation which permits aircraft operation on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

ARMY AVIATION FLIGHT INFORMATION BULLETIN/USAFIB — A bulletin that provides air operation data covering Army, National Guard, and Army Reserve aviation activities.

ARRESTING SYSTEM — A safety device consisting of two major components, namely, engaging or catching devices and energy absorption devices for the purpose of arresting both tailhook and/or nontailhook-equipped aircraft. It is used to prevent aircraft from overrunning runways when the aircraft cannot be stopped after landing or during aborted takeoff. Arresting systems have various names; e.g., arresting gear, hook device, wire barrier cable. (See Abort) (Refer to AIM)

ARRIVAL TIME — The time an aircraft touches down on arrival.

ARTCC — (See Air Route Traffic Control Center)

ASR APPROACH — (See Surveillance Approach)

ATC ADVISES — Used to prefix a message of non-control information when it is relayed to an aircraft by other than an air traffic controller. (See Advisory)

ATC ASSIGNED AIRSPACE/ATCAA — Airspace of defined vertical/lateral limits, assigned by ATC, for the purpose of providing air traffic segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic. (See Military Operations Area, Alert Area)

ATC CLEARANCE — (See Air Traffic Clearance)

ATC CLEARS — Used to prefix an ATC clearance when it is relayed to an aircraft by other than an air traffic controller.

ATC INSTRUCTIONS — Directives issued by air traffic control for the purpose of requiring a pilot to take specific actions; e.g., "Turn left heading two five zero."

"Go around," "Clear the runway." (Refer to FAR Part 91)

ATCRBS — (See Radar)

ATC REQUESTS — Used to prefix an ATC request when it is relayed to an aircraft by other than an air traffic controller.

AUTOMATED RADAR TERMINAL SYSTEMS/ARTS — The generic term for the ultimate in functional capability afforded by several automation systems. Each differs in functional capabilities and equipment. ARTS plus a suffix roman numeral denotes a specific system. A following letter indicates a major modification to that system. In general, an ARTS displays for the terminal controller aircraft identification, flight plan data, other flight associated information; e.g., altitude, speed, and aircraft position symbols in conjunction with his radar presentation. Normal radar co-exists with the alphanumeric display. In addition to enhancing visualization of the air traffic situation, ARTS facilitate intra/inter-facility transfer and coordination of flight information. These capabilities are enabled by specially designed computers and subsystems tailored to the radar and communications equipments and operational requirements of each automated facility. Modular design permits adoption of improvements in computer software and electronic technologies as they become available while retaining the characteristics unique to each system.

1. **ARTS II**—A programmable nontracking, computer-aided display subsystem capable of modular expansion. ARTS II systems provide a level of automated air traffic control capability at terminals having low to medium activity. Flight identification and altitude may be associated with the display of secondary radar targets. The system has the capability of communicating with ARTCC's and other ARTS II, IIA, III, and IIIA facilities.
2. **ARTS IIA**—A programmable radar-tracking computer subsystem capable of modular expansion. The ARTS IIA detects, tracks, and predicts secondary radar targets. The targets are displayed by means of computer-generated symbols, ground speed, and flight plan data. Although it does not track primary radar targets, they are displayed coincident with the secondary radar as well as the symbols and alphanumerics. The system has the capability of communicating with ARTCC's and other ARTS II, IIA, III, and IIIA facilities.
3. **ARTS III**—The Beacon Tracking Level (BTL) of the modular programmable automated radar terminal system in use at medium to high activity terminals. ARTS III detects, tracks, and predicts secondary radar-derived 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 it does not track primary targets, they are displayed coincident with the secondary radar as well as the symbols and alphanumerics. The system has the capability of communicating with ARTCC's and other ARTS III facilities.

4. **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.

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/ACLS — 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 DIRECTION FINDER/ADF — 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, Nondirectional Beacon)

AUTOMATIC TERMINAL INFORMATION SERVICE/ATIS — 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 nine nine six. I-L-S Runway Two Five Left approach in use, Runway Two Five Right closed, advise you have Alfa." (Refer to AIM)

ICAO—AUTOMATIC TERMINAL INFORMATION SERVICE — 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.

1. **Autorotative Landing/Touchdown Autorotation**—Used by a pilot to indicate that he will be landing without applying power to the rotor.
2. **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.
3. **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.

AVIATION WEATHER SERVICE — A service provided by the National Weather Service (NWS) and FAA which collects and disseminates pertinent weather information for pilots, aircraft operators, and ATC. Available aviation weather reports and forecasts are displayed at each NWS office and FAA FSS. (See En Route Flight Advisory Service, Transcribed Weather Broadcast, Weather Advisory, Pilots Automatic Telephone Weather Answering Service) (Refer to AIM)

AZIMUTH, MLS — A magnetic bearing extending from an MLS navigation facility. Note: azimuth bearings are described as magnetic and are referred to as "azimuth" in radio telephone communications.

BASE LEG — (See Traffic Pattern)

BEACON — (See Radar, Nondirectional Beacon, Marker Beacon, Airport Rotating Beacon, Aeronautical Beacon, Airway Beacon)

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, take-off minimums.

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

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.

ICAO—BLIND VELOCITY — 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 SPOT/BLIND ZONE — 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.

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 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 "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." 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.

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

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

CALL UP — Initial voice contact between a facility and an aircraft, using the identification of the unit being called and the unit initiating the call. (Refer to AIM)

CARDINAL ALTITUDES OR FLIGHT LEVELS — "Odd" or "Even" thousand-foot altitudes or flight levels; e.g., 5,000, 6,000, 7,000, FL 250, FL 260, FL 270. (See Altitude, Flight Levels)

CEILING — The heights above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken," "overcast," or "obscuration," and not classified as "thin" or "partial".

ICAO—CEILING — The height above the ground or water of the base of the lowest layer of cloud below 6 000 metres (20 000 feet) covering more than half the sky.

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

CENTER — (See Air Route Traffic Control Center)

CENTER'S AREA — The specified airspace within which an air route traffic control center (ARTCC) provides air traffic control and advisory service. (See Air Route Traffic Control Center) (Refer to AIM)

CENTER WEATHER ADVISORY/CWA — An unscheduled weather advisory issued by Center Weather Service Unit meteorologists for ATC use to alert pilots of existing or anticipated adverse weather conditions within the next 2 hours. A CWA may modify or redefine a SIGMET. (See AWW, SIGMET, Convective SIGMET, and AIRMET) (Refer to AIM)

CHAFF — Thin, narrow metallic reflectors of various lengths and frequency responses, used to reflect radar energy. These reflectors when dropped from aircraft and allowed to drift downward result in large targets on the radar display.

CHARTED VFR FLYWAYS — Charted VFR Flyways are flight paths recommended for use to bypass areas heavily traversed by large turbine-powered aircraft. Pilot compliance with recommended flyways and associated altitudes is strictly voluntary. VFR Flyway Planning charts are published on the back of existing VFR Terminal Area charts.

CHARTED VISUAL FLIGHT PROCEDURE (CVFP) APPROACH — An approach wherein a radar-controlled aircraft on an IFR flight plan, operating in VFR conditions and having an ATC authorization, may proceed to the airport of intended landing via visual landmarks and altitudes depicted on a charted visual flight procedure.

CHASE/CHASE AIRCRAFT — An aircraft flown in proximity to another aircraft normally to observe its performance during training or testing.

CIRCLE-TO-LAND MANEUVER/CIRCLING MANEUVER — A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or is not desirable. This maneuver is made only after ATC authorization has been obtained and the pilot has established required visual reference to the airport (See Circle to Runway, Landing Minimums) (Refer to AIM)

CIRCLE TO RUNWAY (RUNWAY NUMBERED) — Used by ATC to inform the pilot that he must circle to land because the runway in use is other than the runway aligned with the instrument approach procedure. When the direction of the circling maneuver in relation to the airport/runway is required, the controller will state the direction (eight cardinal compass points) and specify a left or right downwind or base leg as appropriate; e.g., "Cleared VOR Runway Three Six Approach circle to Runway Two Two," or "Circle northwest of the airport for a right downwind to Runway Two Two." (See Circle-to-Land Maneuver, Landing Minimums) (Refer to AIM)

CIRCLING APPROACH — (See Circle-to-Land Maneuver)

CIRCLING MINIMA — (See Landing Minimums)

CLEAR-AIR TURBULENCE/CAT — Turbulence encountered in air where no clouds are present. This term is commonly applied to high-level turbulence associated with wind shear. CAT is often encountered in the vicinity of the jet stream. (See Wind Shear, Jet Stream)

CLEARANCE — (See Air Traffic Clearance)

CLEARANCE LIMIT — The fix, point, or location to which an aircraft is cleared when issued an air traffic clearance.

ICAO—CLEARANCE LIMIT — The point of which an aircraft is granted an air traffic control clearance.

CLEARANCE VOID IF NOT OFF BY (TIME) — Used by ATC to advise an aircraft that the departure clearance is automatically cancelled if takeoff is not made prior to a specified time. The pilot must obtain a new clearance or cancel his IFR flight plan if not off by the specified time.

ICAO—CLEARANCE VOID TIME — A time specified by an air traffic control unit at which a clearance ceases to be valid unless the aircraft concerned has already taken action to comply therewith.

CLEARED AS FILED — Means the aircraft is cleared to proceed in accordance with the route of flight filed in the flight plan. This clearance does not include the

altitude, SID, or SID Transition. (See Request Full Route Clearance) (Refer to AIM)

CLEARED FOR (Type of) APPROACH — ATC authorization for an aircraft to execute a specific instrument approach procedure to an airport; e.g., "Cleared for ILS Runway Three Six Approach." (See Instrument Approach Procedure, Approach Clearance) (Refer to AIM, FAR Part 91)

CLEARED FOR APPROACH — ATC authorization for an aircraft to execute any standard or special instrument approach procedure for that airport. Normally, an aircraft will be cleared for a specific instrument approach procedure. (See Instrument Approach Procedure, Cleared for (Type of) Approach) (Refer to AIM, FAR Part 91)

CLEARED FOR TAKEOFF — ATC authorization for an aircraft to depart. It is predicated on known traffic and known physical airport conditions.

CLEARED FOR THE OPTION — ATC authorization for an aircraft to make a touch-and-go, low approach, missed approach, stop and go, or full stop landing at the discretion of the pilot. It is normally used in training so that an instructor can evaluate a student's performance under changing situations. (See Option Approach) (Refer to AIM)

CLEARED THROUGH — ATC authorization for an aircraft to make intermediate stops at specified airports without refiling a flight plan while en route to the clearance limit.

CLEARED TO LAND — ATC authorization for an aircraft to land. It is predicated on known traffic and known physical airport conditions.

CLEARWAY — An area beyond the takeoff runway under the control of airport authorities within which terrain or fixed obstacles may not extend above specified limits. These areas may be required for certain turbine-powered operations and the size and upward slope of the clearway will differ depending on when the aircraft was certificated. (Refer to FAR Part 1)

CLIMBOUT — That portion of flight operation between takeoff and the initial cruising altitude. In the event of two-way communication failure. It also provides altitude

CLIMB TO VFR — ATC authorization for an aircraft to climb to VFR conditions within a control zone when the only weather limitation is restricted visibility. The aircraft must remain clear of clouds while climbing to VFR. (See Special VFR) (Refer to AIM)

CLOSED RUNWAY — A runway that is unusable for aircraft operations. Only the airport management/military operations office can close a runway.

CLOSED TRAFFIC — Successive operations involving takeoffs and landings or low approaches where the aircraft does not exit the traffic pattern.

CLUTTER — In radar operations, clutter refers to the reception and visual display of radar returns caused by precipitation, chaff, terrain, numerous aircraft targets, or other phenomena. Such returns may limit or

preclude ATC from providing services based on radar. (See Ground Clutter, Chaff, Precipitation, Target)

ICAO—Radar Clutter — The visual indication on a radar display of unwanted signals.

COASTAL FIX — A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

CODES/TRANSPONDER CODES — The number assigned to a particular multiple pulse reply signal transmitted by a transponder. (See Discrete Code)

COMBINED CENTER-RAPCON/CERAP — An air traffic facility which combines the functions of an ARTCC and a radar approach control facility. (See Air Route Traffic Control Center/ARTCC, Radar Approach Control Facility)

COMMON ROUTE/COMMON PORTION — That segment of a North American Route between the inland navigation facility and the coastal fix.

COMMON TRAFFIC ADVISORY FREQUENCY/CTAF — A frequency designed for the purpose of carrying out airport advisory practices while operating to or from an uncontrolled airport. The CTAF may be a UNICOM, Multicom, FSS, or tower frequency and is identified in appropriate aeronautical publications. (Refer to AC—90-42C)

COMPASS LOCATOR — A low power, low or medium frequency (L/MF) radio beacon installed at the site of the outer or middle marker of an instrument landing system (ILS). It can be used for navigation at distances of approximately 15 miles or as authorized in the approach procedure.

1. Outer Compass Locator/LOM—A compass locator installed at the site of the outer marker of an instrument landing system. (See Outer Marker)
2. Middle Compass Locator/LMM—A compass locator installed at the site of the middle marker of an instrument landing system. (See Middle Marker)

ICAO—LOCATOR — 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).

COMPASS ROSE — A circle, graduated in degrees, printed on some charts or marked on the ground at an airport. It is used as a reference to either true or magnetic direction.

COMPOSITE FLIGHT PLAN — A flight plan which specifies VFR operation for one portion of flight and IFR for another portion. It is used primarily in military operations. (Refer to AIM)

COMPOSITE ROUTE SYSTEM — An organized oceanic route structure, incorporating reduced lateral spacing between routes, in which composite separation is authorized.

COMPOSITE SEPARATION — A method of separating aircraft in a composite route system where, by management of route and altitude assignments, a

combination of half the lateral minimum specified for the area concerned and half the vertical minimum is applied.

COMPULSORY REPORTING POINTS — Reporting points which must be reported to ATC. They are designated on aeronautical charts by solid triangles or filed in a flight plan as fixes selected to define direct routes. These points are geographical locations which are defined by navigation aids/fixes. Pilots should discontinue position reporting over compulsory reporting points when informed by ATC that their aircraft is in "radar contact."

CONFLICT ALERT — A function of certain air traffic control automated systems designed to alert radar controllers to existing or pending situations recognized by the program parameters that require his immediate attention/action.

CONFLICT RESOLUTION — The resolution of potential conflicts between IFR aircraft and VFR aircraft that are radar identified and in communication with ATC by ensuring that radar targets do not touch. Pertinent traffic advisories shall be issued when this procedure is applied. Note: This separation procedure will not be provided utilizing fully digitized radar systems. (See Controlled Airspace: Airport Radar Service Area/ARSA; Outer Area)

CONSOLAN — A low frequency, long-distance NAVAID used principally for transoceanic navigations.

CONTACT —

1. Establish communication with (followed by the name of the facility and, if appropriate, the frequency to be used).
2. A flight condition wherein the pilot ascertains the attitude of his aircraft and navigates by visual reference to the surface. (See Contact Approach, Radar Contact)

CONTACT APPROACH — An approach wherein an aircraft on an IFR flight plan, having an air traffic control authorization, operating clear of clouds with at least 1 mile flight visibility and a reasonable expectation of continuing to the destination airport in those conditions, may deviate from the instrument approach procedure and proceed to the destination airport by visual reference to the surface. This approach will only be authorized when requested by the pilot and the reported ground visibility at the destination airport is at least 1 statute mile. (Refer to AIM)

CONTERMINOUS U.S. — The 48 adjoining States and the District of Columbia.

CONTINENTAL CONTROL AREA — (See Controlled Airspace)

CONTINENTAL UNITED STATES — The 49 States located on the continent of North America and the District of Columbia.

CONTROL AREA — (See Controlled Airspace)

CONTROLLED AIRSPACE — Airspace designated as a control zone, airport radar service area, terminal control area, transition area, control area, continental

control area, and positive control area within which some or all aircraft may be subject to air traffic control. (Refer to AIM, FAR Part 71)

ICAO—CONTROLLED AIRSPACE — Airspace of defined dimensions within which air traffic control service is provided to controlled flights.

Types of U.S. Controlled Airspace:

1. **Control Zone**—Controlled airspace which extends upward from the surface of the earth and terminates at the base of the continental control area. Control zones that do not underlie the continental control area have no upper limit. A control zone may include one or more airports and is normally a circular area with a radius of 5 statute miles and any extensions necessary to include instrument approach and departure paths.

ICAO—Control Zone—A controlled airspace extending upwards from the surface of the earth to a specified upper limit.

2. **Airport Radar Service Area/ARSA**—Regulatory airspace surrounding designated airports wherein ATC provides radar vectoring and sequencing on a full-time basis for all IFR and VFR aircraft. The service provided in an ARSA is called ARSA service which includes: IFR/IFR—standard IFR separation; IFR/VFR—traffic advisories and conflict resolution; and VFR/VFR—traffic advisories and, as appropriate, safety alerts. The AIM contains an explanation of ARSA. The ARSA's are depicted on VFR aeronautical charts. (See Conflict Resolution, Outer Area) (Refer to AIM, Airport/Facility Directory, FAR Part 91)
3. **Terminal Control Area/TCA**—Controlled airspace extending upward from the surface or higher to specified altitudes, within which all aircraft are subject to operating rules and pilot and equipment requirements specified in FAR Part 91. TCA's are depicted on Sectional, World Aeronautical, En Route Low Altitude, DOD FLIP, and TCA charts. (Refer to FAR Part 91, AIM)

ICAO—Terminal Control Area—A control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.

4. **Transition Area**—Controlled airspace extending upward from 700 feet or more above the surface of the earth when designated in conjunction with an airport for which an approved instrument approach procedure has been prescribed; or from 1,200 feet or more above the surface of the earth when designated in conjunction with airway route structures or segments. Unless otherwise specified, transition areas terminate at the base of the overlying controlled airspace. Transition areas are designed to contain IFR operations in controlled airspace during portions of the terminal operation and while transiting between the terminal and en route environment.
5. **Control Area**—Airspace designated as Colored Federal airways, VOR Federal airways, control areas associated with jet routes outside the continental control area (FAR 71.161), additional con-

trol areas (FAR 71.163), control area extensions (FAR 71.165), and area low routes. Control areas do not include the continental control area, but unless otherwise designated, they do include the airspace between a segment of a main VOR Federal airway and its associated alternate segments with the vertical extent of the area corresponding to the vertical extent of the related segment of the main airway. The vertical extent of the various categories of airspace contained in control areas is defined in FAR Part 71.

ICAO—Control Area—A controlled airspace extending upward from a specified limit above the earth.

6. **Continental Control Area**—The airspace of the 48 contiguous States, the District of Columbia and Alaska, excluding the Alaska peninsula west of Long. 160° 00' 00"W, at and above 14,500 feet MSL, but does not include:
 - a. The airspace less than 1,500 feet above the surface of the earth; or
 - b. Prohibited and restricted areas, other than the restricted areas listed in FAR Part 71.
7. **Positive Control Area/PCA**—Airspace designated in FAR, Part 71 within which there is positive control of aircraft. Flight in PCA is normally conducted under instrument flight rules. PCA is designated throughout most of the conterminous United States and its vertical extent is from 18,000 feet MSL to and including flight level 600. In Alaska PCA does not include the airspace less than 1,500 feet above the surface of the earth nor the airspace over the Alaska Peninsula west of longitude 160 degrees West. Rules for operating in PCA are found in FARs 91.97 and 91.24.

CONTROLLED DEPARTURE TIME (CDT) PROGRAMS — These programs are the flow control process whereby aircraft are held on the ground at the departure airport when delays are projected to occur in either the en route system or the terminal of intended landing. The purpose of these programs is to reduce congestion in the air traffic system or to limit the duration of airborne holding in the arrival center or terminal area. A CDT is a specific departure slot shown on the flight plan as an expected departure clearance time (EDCT).

CONTROLLER — (See Air Traffic Control Specialist)

CONTROL SECTOR — An airspace area of defined horizontal and vertical dimensions for which a controller or group of controllers has air traffic control responsibility, normally within an air route traffic control center or an approach control facility. Sectors are established based on predominant traffic flows, altitude strata, and controller workload. Pilot-communications during operations within a sector are normally maintained on discrete frequencies assigned to the sector. (See Discrete Frequency)

CONTROL SLASH — A radar beacon slash representing the actual position of the associated aircraft. Normally, the control slash is the one closest to the interrogating radar beacon site. When ARTCC radar is operating in narrowband (digitized) mode, the control slash is converted to a target symbol.

CONTROL ZONE — (See Controlled Airspace)**CONVECTIVE SIGMET /WST/CONVECTIVE SIGNIFICANT METEOROLOGICAL INFORMATION —**

A weather advisory concerning convective weather significant to the safety of all aircraft. Convective SIGMET's are issued for tornadoes, lines of thunderstorms, embedded thunderstorms of any intensity level, areas of thunderstorms greater than or equal to VIP level 4 with an areal coverage of 4/10 (40%) or more, and hail 3/4 inch or greater. (See AWW, SIGMET, CWA, and AIRMET) (Refer to AIM)

COORDINATES — The intersection of lines of reference, usually expressed in degrees/minutes/seconds of latitude and longitude, used to determine position or location.

COORDINATION FIX — The fix in relation to which facilities will handoff, transfer control of an aircraft, or coordinate flight progress data. For terminal facilities, it may also serve as a clearance for arriving aircraft.

CORRECTION — An error has been made in the transmission and the correct version follows.

COURSE —

1. The intended direction of flight in the horizontal plane measured in degrees from north.
2. The ILS localizer signal pattern usually specified as the front course or the back course.
3. The intended track along a straight, curved, or segmented MLS path.

(See Bearing, Radial, Instrument Landing System, Microwave Landing System)

CRITICAL ENGINE — The engine which, upon failure, would most adversely affect the performance or handling qualities of an aircraft.

CROSS (FIX) AT (ALTITUDE) — Used by ATC when a specific altitude restriction at a specified fix is required.

CROSS (FIX) AT OR ABOVE (ALTITUDE) — Used by ATC when an altitude restriction at a specified fix is required. It does not prohibit the aircraft from crossing the fix at a higher altitude than specified; however, the higher altitude may not be one that will violate a succeeding altitude restriction or altitude assignment. (See Altitude Assignment, Altitude Restriction.) (Refer to AIM)

CROSS (FIX) AT OR BELOW (ALTITUDE) — Used by ATC when a maximum crossing altitude at a specific fix is required. It does not prohibit the aircraft from crossing the fix at a lower altitude; however, it must be at or above the minimum IFR altitude. (See Minimum IFR Altitude, Altitude Restriction) (Refer to FAR Part 91)

CROSSWIND —

1. When used concerning the traffic pattern, the word means "crosswind leg." (See Traffic Pattern)
2. When used concerning wind conditions, the word means a wind not parallel to the runway or the path of an aircraft. (See Crosswind Component)

CROSSWIND COMPONENT — The wind component measured in knots at 90 degrees to the longitudinal axis of the runway.

CRUISE — Used in an ATC clearance to authorize a pilot to conduct flight at any altitude from the minimum IFR altitude up to and including the altitude specified in the clearance. The pilot may level off at any intermediate altitude within this block of airspace. Climb/descent within the block is to be made at the discretion of the pilot. However, once the pilot starts descent and verbally reports leaving an altitude in the block, he may not return to that altitude without additional ATC clearance. Further, it is approval for the pilot to proceed to and make an approach at destination airport and can be used in conjunction with:

1. An airport clearance limit at locations with a standard/special instrument approach procedure. The FAR's require that if an instrument letdown to an airport is necessary, the pilot shall make the letdown in accordance with a standard/special instrument approach procedure for that airport, or
2. An airport clearance limit at locations that are within/below/outside controlled airspace and without a standard/special instrument approach procedure. Such a clearance is NOT AUTHORIZATION for the pilot to descend under IFR conditions below the applicable minimum IFR altitude nor does it imply that ATC is exercising control over aircraft in uncontrolled airspace; however, it provides a means for the aircraft to proceed to destination airport, descend, and land in accordance with applicable FAR's governing VFR flight operations. Also, this provides search and rescue protection until such time as the IFR flight plan is closed. (See Instrument Approach Procedure)

CRUISING ALTITUDE/LEVEL — An altitude or flight level maintained during en route level flight. This is a constant altitude and should not be confused with a cruise clearance. (See Altitude)

ICAO—CRUISING LEVEL — A level maintained during a significant portion of a flight.

DECISION HEIGHT/DH — With respect to the operation of aircraft, means the height at which a decision must be made during an ILS, MLS, or PAR instrument approach to either continue the approach or to execute a missed approach.

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

Note 1. — Decision altitude (DA) is referenced to mean sea level (MSL) and decision height (DH) is referenced to the threshold elevation.

Note 2. — The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assess-

ment of the aircraft position and rate of change of position, in relation to the desired flight path.

DECODER — The device used to decipher signals received from ATCRBS transponders to effect their display as select codes. (See Codes, Radar)

DEFENSE VISUAL FLIGHT RULES/DVFR — Rules applicable to flights within an ADIZ conducted under the visual flight rules in FAR, Part 91. (See Air Defense Identification Zone) (Refer to FAR, Part 99)

DEPARTURE CONTROL — A function of an approach control facility providing air traffic control service for departing IFR and, under certain conditions, VFR aircraft. (See Approach Control) (Refer to AIM)

DEPARTURE TIME — The time an aircraft becomes airborne.

DEVIATIONS —

1. A departure from a current clearance, such as an off course maneuver to avoid weather or turbulence.
2. Where specifically authorized in the FAR's and requested by the pilot, ATC may permit pilots to deviate from certain regulations. (Refer to AIM)

DF APPROACH PROCEDURE — Used under emergency conditions where another instrument approach procedure cannot be executed. DF guidance for an instrument approach is given by ATC facilities with DF capability. (See DF Guidance, Direction Finder) (Refer to AIM)

DF FIX — The geographical location of an aircraft obtained by one or more direction finders. (See Direction Finder)

DF GUIDANCE/DF STEER — Headings provided to aircraft by facilities equipped with direction finding equipment. These headings, if followed, will lead the aircraft to a predetermined point such as the DF station or an airport. DF guidance is given to aircraft in distress or to other aircraft which request the service. Practice DF guidance is provided when workload permits. (See Direction Finder, DF Fix) (Refer to AIM)

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

DIRECT ALTITUDE AND IDENTITY READOUT/DAIR — The DAIR System is a modification to the AN/TPX-42 Interrogator System. The Navy has two adaptations of the DAIR System — Carrier Air Traffic Control Direct Altitude and Identification Readout System for Aircraft Carriers and Radar Air Traffic Control Facility Direct Altitude and Identity Readout System for land-based terminal operations. The DAIR detects, tracks, and predicts secondary radar aircraft targets. Targets are displayed by means of computer-generated symbols and alphanumeric characters depicting flight identification, altitude, ground speed, and flight plan data. The DAIR System is capable of interfacing with ARTCC's.

DIRECTION FINDER/DF/UDF/VDF/UVDF — A radio receiver equipped with a directional sensing antenna used to take bearings on a radio transmitter. Specialized radio direction finders are used in aircraft as air navigation aids. Others are ground-based, primarily to obtain a "fix" on a pilot requesting orientation assistance or to locate downed aircraft. A location "fix" is established by the intersection of two or more bearing lines plotted on a navigational chart using either two separately located Direction Finders to obtain a fix on an aircraft or by a pilot plotting the bearing indications of his DF on two separately located ground-based transmitters, both of which can be identified on his chart. UDF's receive signals in the ultra high frequency radio broadcast band; VDF's in the very high frequency band; and UVDF's in both bands. ATC provides DF service at those air traffic control towers and flight service stations listed in the Airport/Facility Directory and the DOD FLIP IFR En Route Supplement. (See DF Guidance, DF Fix)

DISCRETE CODE/DISCRETE BEACON CODE — As used in the Air Traffic Control Radar Beacon System (ATCRBS), any one of the 4096 selectable Mode 3/A aircraft transponder codes except those ending in zero zero; e.g., discrete codes: 0010, 1201, 2317, 7777; non-discrete codes: 0100, 1200, 7700. Non-discrete codes are normally reserved for radar facilities that are not equipped with discrete decoding capability and for other purposes such as emergencies (7700), VFR aircraft (1200), etc. (See Radar) (Refer to AIM)

DISCRETE FREQUENCY — A separate radio frequency for use in direct pilot-controller communications in air traffic control which reduces frequency congestion by controlling the number of aircraft operating on a particular frequency at one time. Discrete frequencies are normally designated for each control sector in en route/terminal ATC facilities. Discrete frequencies are listed in the Airport/Facility Directory and the DOD FLIP IFR En Route Supplement. (See Control Sector)

DISPLACED THRESHOLD — A threshold that is located at a point on the runway other than the designated beginning of the runway. (See Threshold) (Refer to AIM)

DISTANCE MEASURING EQUIPMENT/DME — Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid. (See TACAN, VORTAC, Microwave Landing System)

DISTRESS — A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.

DIVERSE VECTOR AREA/DVA — In a radar environment, that area in which a prescribed departure route is not required as the only suitable route to avoid obstacles. The area in which random radar vectors below the MVA/MIA, established in accordance with the TERPS criteria for diverse departures obstacles and terrain avoidance, may be issued to departing aircraft.

DME FIX — A geographical position determined by reference to a navigational aid which provides distance and azimuth information. It is defined by a specific distance in nautical miles and a radial, azimuth, or course (i.e., localizer) in degrees magnetic from that aid. (See Distance Measuring Equipment/DME, Fix, Microwave Landing System)

DME SEPARATION — Spacing of aircraft in terms of distances (nautical miles) determined by reference to distance measuring equipment (DME). (See Distance Measuring Equipment)

DOD FLIP — Department of Defense Flight Information Publications used for flight planning, en route, and terminal operations. FLIP is produced by the Defense Mapping Agency for world-wide use. United States Government Flight Information Publications (en route charts and instrument approach procedure charts) are incorporated in DOD FLIP for use in the National Airspace System (NAS).

DOWNWIND LEG — (See Traffic Pattern)

DRAG CHUTE — A parachute device installed on certain aircraft which is deployed on landing roll to assist in deceleration of the aircraft.

EMERGENCY — A distress or an urgency condition.

EMERGENCY LOCATOR TRANSMITTER/ELT — A radio transmitter attached to the aircraft structure which operates from its own power source on 121.5 MHz and 243.0 MHz. It aids in locating downed aircraft by radiating a downward sweeping audio tone, 2-4 times per second. It is designed to function without human action after an accident. (Refer to FAR, Part 91, AIM)

EMERGENCY SAFE ALTITUDE — (See Minimum Safe Altitude)

E-MSAW — (See En Route Minimum Safe Altitude Warning)

EN ROUTE AIR TRAFFIC CONTROL SERVICES — Air traffic control service provided aircraft on IFR flight plans, generally by centers, when these aircraft are operating between departure and destination terminal areas. When equipment, capabilities, and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft. (See NAS Stage A, Air Route Traffic Control Center) (Refer to AIM)

EN ROUTE AUTOMATED RADAR TRACKING SYSTEM/EARTS — An automated radar and radar beacon tracking system. Its functional capabilities and design are essentially the same as the terminal ARTS IIIA system except for the EARTS capability of employing both short range (ASR) and long-range (ARSR) radars, use of full digital radar displays, and fail-safe design. (See Automated Radar Terminal Systems/ARTS)

EN ROUTE CHARTS — (See Aeronautical Charts)

EN ROUTE DESCENT — Descent from the en route cruising altitude which takes place along the route of flight.

EN ROUTE FLIGHT ADVISORY SERVICE/FLIGHT WATCH — A service specifically designed to

provide, upon pilot request, timely weather information pertinent to his type of flight, intended route of flight, and altitude. The FSS's providing this service are listed in the Airport/Facility Directory. (Refer to AIM)

EN ROUTE MINIMUM SAFE ALTITUDE WARNING/E-MSAW — A function of the NAS Stage A en route computer that aids the controller by alerting him when a tracked aircraft is below or predicted by the computer to go below a predetermined minimum IFR altitude (MIA).

ICAO—ESTIMATED ELAPSED TIME — The estimated time required to proceed from one significant point to another. (See Total Estimated Elapsed Time)

ICAO—ESTIMATED OFF-BLOCK TIME — The estimated time at which the aircraft will commence movement associated with departure.

EXECUTE MISSED APPROACH — Instructions issued to a pilot making an instrument approach which means continue inbound to the missed approach point and execute the missed approach procedure as described on the Instrument Approach Procedure Chart or as previously assigned by ATC. The pilot may climb immediately to the altitude specified in the missed approach procedure upon making a missed approach. No turns should be initiated prior to reaching the missed approach point. When conducting an ASR or PAR approach, execute the assigned missed approach procedure immediately upon receiving instructions to "execute missed approach." (Refer to AIM)

EXPECT (ALTITUDE) AT (TIME) or (FIX) — Used under certain conditions to provide a pilot with an altitude to be used in the event of two-way communications failure. It also provides altitude information to assist the pilot in planning. (Refer to AIM)

EXPECTED DEPARTURE CLEARANCE TIME/EDCT — The runway release time assigned to an aircraft in a controlled departure time program and shown on the flight progress strip as an EDCT.

EXPECT FURTHER CLEARANCE (TIME)/EFC — The time a pilot can expect to receive clearance beyond a clearance limit.

EXPECT FURTHER CLEARANCE VIA (AIRWAYS, ROUTES OR FIXES) — Used to inform a pilot of the routing he can expect if any part of the route beyond a short range clearance limit differs from that filed.

EXPEDITE — Used by ATC when prompt compliance is required to avoid the development of an imminent situation.

FAST FILE — A system whereby a pilot files a flight plan via telephone that is tape recorded and then transcribed for transmission to the appropriate air traffic facility. Locations having a fast file capability are contained in the Airport/Facility Directory. (Refer to AIM)

FEATHERED PROPELLER — A propeller whose blades have been rotated so that the leading and trailing edges are nearly parallel with the aircraft flight path to stop or minimize drag and engine rotation.

Normally used to indicate shutdown of a reciprocating or turboprop engine due to malfunction.

FEEDER ROUTE — A route depicted on instrument approach procedure charts to designate routes for aircraft to proceed from the en route structure to the initial approach fix (IAF). (See Instrument Approach Procedure)

FERRY FLIGHT — A flight for the purpose of:

1. Returning an aircraft to base.
2. Delivering an aircraft from one location to another.
3. Moving an aircraft to and from a maintenance base.

Ferry flights, under certain conditions, may be conducted under terms of a special flight permit.

FILED — Normally used in conjunction with flight plans, meaning a flight plan has been submitted to ATC.

FILED EN ROUTE DELAY — Any of the following preplanned delays at points/areas along the route of flight which require special flight plan filing and handling techniques.

1. Terminal Area Delay—A delay within a terminal area for touch-and-go, low approach, or other terminal area activity.
2. Special Use Airspace Delay—A delay within a Military Operating Area, Restricted Area, Warning Area, or ATC Assigned Airspace.
3. Aerial Refueling Delay—A delay within an Aerial Refueling Track or Anchor.

FINAL — Commonly used to mean that an aircraft is on the final approach course or is aligned with a landing area. (See Final Approach Course, Final Approach—IFR, Traffic Pattern, Segments of an Instrument Approach Procedure)

FINAL APPROACH COURSE — A published MLS course, a straight line extension of a localizer, a final approach radial/bearing, or a runway centerline all without regard to distance. (See Final Approach—IFR, Traffic Pattern)

FINAL APPROACH FIX/FAF — The fix from which the final approach (IFR) to an airport is executed and which identifies the beginning of the final approach segment. It is designated on Government charts by the Maltese Cross symbol for nonprecision approaches and the lightning bolt symbol for precision approaches; or when ATC directs a lower-than-published Glideslope/path Intercept Altitude, it is the resultant actual point of the glideslope/path intercept. (See Final Approach Point, Glideslope/path Intercept Altitude, Segments of an Instrument Approach Procedure)

FINAL APPROACH-IFR — The flight path of an aircraft which is inbound to an airport on a final instrument approach course, beginning at the final approach fix or point and extending to the airport or the point where a circle-to-land maneuver or a missed approach is executed. (See Segments of an Instrument

Approach Procedure, Final Approach Fix, Final Approach Course, Final Approach Point)

ICAO—FINAL APPROACH — That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified,

- a) At the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or
- b) At the point of interception of the last track specified in the approach procedure; and ends at a point in the vicinity of an aerodrome from which:
 - 1) A landing can be made; or
 - 2) A missed approach procedure is initiated.

FINAL APPROACH POINT/FAP — The point, applicable only to a nonprecision approach with no depicted FAF (such as an on-airport VOR), where the aircraft is established inbound on the final approach course from the procedure turn and where the final approach descent may be commenced. The FAP serves as the FAF and identifies the beginning of the final approach segment. (See Final Approach Fix, Segments of an Instrument Approach Procedure)

FINAL APPROACH SEGMENT — (See Segments of an Instrument Approach Procedure)

FINAL APPROACH-VFR — (See Traffic Pattern)

FINAL CONTROLLER — The controller providing information and final approach guidance during PAR and ASR approaches utilizing radar equipment. (See Radar Approach)

FIX — A geographical position determined by visual reference to the surface, by reference to one or more radio NAVAIDS, by celestial plotting, or by another navigational device.

FLAG/FLAG ALARM — A warning device incorporated in certain airborne navigation and flight instruments indicating that:

1. Instruments are inoperative or otherwise not operating satisfactorily, or
2. Signal strength or quality of the received signal falls below acceptable values.

FLAMEOUT — Unintended loss of combustion in turbine engines resulting in the loss of engine power.

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

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

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

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

FLIGHT INSPECTION/FLIGHT CHECK — Inflight investigation and evaluation of a navigational aid to determine whether it meets established tolerances. (See Navigational Aid)

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

ICAO—FLIGHT LEVEL — A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hPa (1013.2 mb), and is separated from other such surfaces by specific pressure intervals.

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

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

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

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

FLIGHT PATH — A line, course, or track along which an aircraft is flying or intended to be flown. (See Track, Course)

FLIGHT PLAN — Specified information relating to the intended flight of an aircraft that is filed orally or in writing with an FSS or an ATC facility. (See Fast File, Filed) (Refer to AIM)

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

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

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

FLIGHT SERVICE STATION/FSS — Air traffic facilities which provide pilot briefing, en route communications and VFR search and rescue services, assist lost aircraft and aircraft in emergency situations, relay ATC clearances, originate Notices to Airmen,

broadcast aviation weather and NAS information, receive and process IFR flight plans, and monitor NAVAID's. In addition, at selected locations FSS's provide Enroute Flight Advisory Service (Flight Watch), take weather observations, issue airport advisories, and advise Customs and Immigration of trans-border flights. (Refer to AIM)

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

FLIGHT TEST — A flight for the purpose of:

1. Investigating the operation/flight characteristics of an aircraft or aircraft component.
2. Evaluating an applicant for a pilot certificate or rating.

FLIGHT VISIBILITY — (See Visibility)

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

FLIP — (See DOD FLIP)

FLOW CONTROL — Measures designed to adjust the flow of traffic into a given airspace, along a given route, or bound for a given aerodrome (airport) so as to ensure the most effective utilization of the airspace. (See Quota Flow Control) (Refer to Airport/Facility Directory)

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

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

1. A standard formation is one in which a proximity of no more than 1 mile laterally or longitudinally and within 100 feet vertically from the flight leader is maintained by each wingman.
2. Nonstandard formations are those operating under any of the following conditions:
 - a. When the flight leader has requested and ATC has approved other than standard formation dimensions.

- b. When operating within an authorized altitude reservation (ALTRV) or under the provisions of a letter of agreement.
- c. When the operations are conducted in airspace specifically designed for a special activity. (See Altitude Reservation) (Refer to FAR Part 91)

FSS — (See Flight Service Station)

FUEL DUMPING — Airborne release of usable fuel. This does not include the dropping of fuel tanks. (See Jettisoning of External Stores)

FUEL SIPHONING/FUEL VENTING — Unintentional release of fuel caused by overflow, puncture, loose cap, etc.

GATE HOLD PROCEDURES — Procedures at selected airports to hold aircraft at the gate or other ground location whenever departure delays exceed or are anticipated to exceed 15 minutes. The sequence for departure will be maintained in accordance with initial call-up unless modified by flow control restrictions. Pilots should monitor the ground control/clearance delivery frequency for engine startup advisories or new proposed start time if the delay changes. (See Flow Control)

GENERAL AVIATION — That portion of civil aviation which encompasses all facets of aviation except air carriers holding a certificate of public convenience and necessity from the Civil Aeronautics Board and large aircraft commercial operators.

ICAO—GENERAL AVIATION — All civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire.

GENERAL AVIATION DISTRICT OFFICE/GADO — An FAA field office serving a designated geographical area and staffed with Flight Standards personnel who have the responsibility for serving the aviation industry and the general public on all matters relating to the certification and operation of general aviation aircraft.

GLIDESLOPE/GLIDEPATH — Provides vertical guidance for aircraft during approach and landing. The glide slope/glidepath is based on the following:

1. Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS/MLS, or
2. Visual ground aids, such as VASI, which provide vertical guidance for a VFR approach or for the visual portion of an instrument approach and landing.
3. PAR. Used by ATC to inform an aircraft making a PAR approach of its vertical position (elevation) relative to the descent profile.

ICAO—GLIDEPATH — A descent profile determined for vertical guidance during a final approach.

GLIDESLOPE/GLIDEPATH INTERCEPT ALTITUDE — The minimum altitude to intercept the glide slope/path on a precision approach. The intersec-

tion of the published intercept altitude with the glide slope/path, designated on Government charts by the lightning bolt symbol, is the precision FAF; however, when ATC directs a lower altitude, the resultant lower intercept position is then the FAF. (See Final Approach Fix, Segments of an Instrument Approach Procedure)

GO AHEAD — Proceed with your message. Not to be used for any other purpose.

GO AROUND — Instructions for a pilot to abandon his approach to landing. Additional instructions may follow. Unless otherwise advised by ATC, a VFR aircraft or an aircraft conducting visual approach should overfly the runway while climbing to traffic pattern altitude and enter the traffic pattern via the crosswind leg. A pilot on an IFR flight plan making an instrument approach should execute the published missed approach procedure or proceed as instructed by ATC; e.g., "Go around" (additional instructions if required). (See Low Approach, Missed Approach)

GROUND CLUTTER — A pattern produced on the radar scope by ground returns which may degrade other radar returns in the affected area. The effect of ground clutter is minimized by the use of moving target indicator (MTI) circuits in the radar equipment resulting in a radar presentation which displays only targets which are in motion. (See Clutter)

GROUND CONTROLLED APPROACH/GCA — A radar approach system operated from the ground by air traffic control personnel transmitting instructions to the pilot by radio. The approach may be conducted with surveillance radar (ASR) only or with both surveillance and precision approach radar (PAR). Usage of the term "GCA" by pilots is discouraged except when referring to a GCA facility. Pilots should specifically request a "PAR" approach when a precision radar approach is desired or request an "ASR" or "surveillance" approach when a nonprecision radar approach is desired. (See Radar Approach)

GROUND DELAY — The amount of delay attributed to ATC, encountered prior to departure, usually associated with a CDT program.

GROUND SPEED — The speed of an aircraft relative to the surface of the earth.

GROUND VISIBILITY — (See Visibility)

HANDOFF — An action taken to transfer the radar identification of an aircraft from one controller to another if the aircraft will enter the receiving controller's airspace and radio communications with the aircraft will be transferred.

HAVE NUMBERS — Used by pilots to inform ATC that they have received runway, wind, and altimeter information only.

HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE/HI-WAS — A program for broadcasting hazardous weather information (AWW's, SIGMET's, Convective SIGMET's, CWA's, AIRMET's, and Urgent PIREP's) on a continuous basis over selected VOR's. (Refer to AIM)

HEAVY (AIRCRAFT) — (See Aircraft Classes)

HEIGHT ABOVE AIRPORT/HAA — The height of the Minimum Descent Altitude above the published airport elevation. This is published in conjunction with circling minimums. (See Minimum Descent Altitude)

HEIGHT ABOVE LANDING/HAL — The height above a designated helicopter landing area used for helicopter instrument approach procedures. (Refer to FAR Part 97)

HEIGHT ABOVE TOUCHDOWN/HAT — The height of the Decision Height or Minimum Descent Altitude above the highest runway elevation in the touchdown zone (first 3,000 feet of the runway). HAT is published on instrument approach charts in conjunction with all straight-in minimums. (See Decision Height, Minimum Descent Altitude)

HELICOPTER/COPTER — Rotorcraft that, for its horizontal motion, depends principally on its engine-driven rotors.

ICAO—HELICOPTER — A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.

HELIPAD — A small, designated area, usually with a prepared surface, on a heliport, airport, landing/take-off area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters.

HELIPORT — An area of land, water, or structure used or intended to be used for the landing and take-off of helicopters and includes its buildings and facilities if any.

HERTZ/HZ — The standard radio equivalent of frequency in cycles per second of an electromagnetic wave. Kilohertz (kHz) is a frequency of one thousand cycles per second. Megahertz (MHz) is a frequency of one million cycles per second.

HIGH FREQUENCY/HF — The frequency band between 3 and 30 MHz. (See High Frequency Communications)

HIGH FREQUENCY COMMUNICATIONS/HF COMMUNICATIONS — High radio frequencies (HF) between 3 and 30 MHz used for air-to-ground voice communication in overseas operations.

HIGH SPEED TAXIWAY/EXIT/TURNOFF — A long radius taxiway designed and provided with lighting or marking to define the path of aircraft, traveling at high speed (up to 60 knots), from the runway center to a point on the center of a taxiway. Also referred to as long radius exit or turn-off taxiway. The high speed taxiway is designed to expedite aircraft turning off the runway after landing, thus reducing runway occupancy time.

HOLD/HOLDING PROCEDURE — A predetermined maneuver which keeps aircraft within a specified airspace while awaiting further clearance from air traffic control. Also used during ground operations to keep aircraft within a specified area or at a specified point while awaiting further clearance from air traffic control. (See Holding Fix) (Refer to AIM)

HOLDING FIX — A specified fix identifiable to a pilot by NAVAID's or visual reference to the ground used as a reference point in establishing and maintaining the position of an aircraft while holding. (See Fix, Hold, Visual Holding) (Refer to AIM)

HOLD FOR RELEASE — Used by ATC to delay an aircraft for traffic management reasons; i.e., weather, traffic volume, etc. Hold for release instructions (including departure delay information) are used to inform a pilot or a controller (either directly or through an authorized relay) that a departure clearance is not valid until a release time or additional instructions have been received.

ICAO—HOLDING POINT — A specified location, identified by visual or other means, in the vicinity of which the position of an aircraft in flight is maintained in accordance with air traffic control clearances.

HOMING — Flight toward a NAVAID, without correcting for wind, by adjusting the aircraft heading to maintain a relative bearing of zero degrees. (See Bearing)

ICAO—HOMING — The procedure of using the direction-finding equipment of one radio station with the emission of another radio station, where at least one of the stations is mobile, and whereby the mobile station proceeds continuously towards the other station.

HOVER CHECK — Used to describe when a helicopter/VTOL aircraft requires a stabilized hover to conduct a performance/power check prior to hover taxi, air taxi, or takeoff. Altitude of the hover will vary based on the purpose of the check.

HOVER TAXI — Used to describe a helicopter/VTOL aircraft movement conducted above the surface and in ground effect at airspeeds less than approximately 20 knots. The actual height may vary, and some helicopters may require hover taxi above 25 feet AGL to reduce ground effect turbulence or provide clearance for cargo slingloads. (See Air Taxi, Hover Check) (Refer to AIM)

HOW DO YOU HEAR ME? — A question relating to the quality of the transmission or to determine how well the transmission is being received.

IDENT — A request for a pilot to activate the aircraft transponder identification feature. This will help the controller to confirm an aircraft identity or to identify an aircraft. (Refer to AIM)

IDENT FEATURE — The special feature in the Air Traffic Control Radar Beacon System (ATCRBS) equipment. It is used to immediately distinguish one displayed beacon target from other beacon targets. (See Ident)

IF FEASIBLE, REDUCE SPEED TO (SPEED) — (See Speed Adjustment)

IF NO TRANSMISSION RECEIVED FOR (TIME) — Used by ATC in radar approaches to prefix procedures which should be followed by the pilot in event of lost communications. (See Lost Communications)

IFR AIRCRAFT/IFR FLIGHT — An aircraft conducting flight in accordance with instrument flight rules.

IFR CONDITIONS — Weather conditions below the minimum for flight under visual flight rules. (See Instrument Meteorological Conditions)

IFR DEPARTURE PROCEDURE — (See IFR Takeoff Minimums and Departure Procedures) (Refer to AIM)

IFR MILITARY TRAINING ROUTES (IR) — Routes used by the Department of Defense and associated Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training in both IFR and VFR weather conditions below 10,000 feet MSL at airspeeds in excess of 250 knots IAS.

IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES — FAR, Part 91, prescribes standard takeoff rules for certain civil users. At some airports, obstructions or other factors require the establishment of nonstandard takeoff minimums, departure procedures, or both to assist pilots in avoiding obstacles during climb to the minimum en route altitude. Those airports are listed in NOS/DOD Instrument Approach Charts (IAP's) under a section entitled "IFR Takeoff Minimums and Departure Procedures." The NOS/DOD IAP chart legend illustrates the symbol used to alert the pilot to nonstandard takeoff minimums and departure procedures. When departing IFR from such airports or from any airports where there are no departure procedures, SID's, or ATC facilities available, pilots should advise ATC of any departure limitations. Controllers may query a pilot to determine acceptable departure directions, turns, or headings after takeoff. Pilots should be familiar with the departure procedures and must assure that their aircraft can meet or exceed any specified climb gradients.

ILS CATEGORIES —

1. **ILS Category I**—An ILS approach procedure which provides for approach to a height above touchdown of not less than 200 feet and with runway visual range of not less than 1,800 feet.
2. **ILS Category II**—An ILS approach procedure which provides for approach to a height above touchdown of not less than 100 feet and with runway visual range of not less than 1,200 feet.
3. **ILS Category III**.
 - a. **IIIA**—An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 700 feet.
 - b. **IIIB**—An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 150 feet.
 - c. **IIIC**—An ILS approach procedure which provides for approach without a decision height minimum and without runway visual range minimum.

IMMEDIATELY — Used by ATC when such action compliance is required to avoid an imminent situation.

INCREASE SPEED TO (SPEED) — (See Speed Adjustment)

INFORMATION REQUEST/INREQ — A request originated by an FSS for information concerning an overdue VFR aircraft.

INITIAL APPROACH FIX/IAF — The fixes depicted on instrument approach procedure charts that identify the beginning of the initial approach segment(s). (See Fix, Segments of an Instrument Approach Procedure)

INITIAL APPROACH SEGMENT — (See Segments of an Instrument Approach Procedure)

INNER MARKER/IM/INNER MARKER BEACON — A marker beacon used with an ILS (CAT II) precision approach located between the middle marker and the end of the ILS runway, transmitting a radiation pattern keyed at six dots per second and indicating to the pilot, both aurally and visually, that he is at the designated decision height (DH), normally 100 feet above the touchdown zone elevation, on the ILS CAT II approach. It also marks progress during a CAT III approach. (See Instrument Landing System) (Refer to AIM)

INSTRUMENT APPROACH PROCEDURE/IAP/INSTRUMENT APPROACH — A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority. (See Segments of an Instrument Approach Procedure) (Refer to FAR, Part 91, AIM)

1. U. S. civil standard instrument approach procedures are approved by the FAA as prescribed under FAR, Part 97 and are available for public use.
2. U.S. military standard instrument approach procedures are approved and published by the Department of Defense.
3. Special instrument approach procedures are approved by the FAA for individual operators but are not published in FAR, Part 97 for public use.

ICAO—INSTRUMENT APPROACH PROCEDURE — A series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en route obstacle clearance criteria apply.

INSTRUMENT FLIGHT RULES/IFR — Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan. (See Visual Flight Rules, Instrument Meteorological Conditions, Visual Meteorological Conditions) (Refer to AIM)

ICAO—INSTRUMENT FLIGHT RULES — A set of rules governing the conduct of flight under instrument meteorological conditions.

INSTRUMENT LANDING SYSTEM/ILS — A precision instrument approach system which normally consists of the following electronic components and visual aids:

1. Localizer. (See Localizer)
2. Glideslope. (See Glideslope)
3. Outer Marker. (See Outer Marker)
4. Middle Marker. (See Middle Marker)
5. Approach Lights. (See Airport Lighting)

(Refer to FAR Part 91, AIM)

INSTRUMENT METEOROLOGICAL CONDITIONS/IMC — Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling less than the minima specified for visual meteorological conditions. (See Visual Meteorological Conditions, Instrument Flight Rules, Visual Flight Rules)

INSTRUMENT RUNWAY — A runway equipped with electronic and visual navigation aids for which a precision or nonprecision approach procedure having straight-in landing minimums has been approved.

ICAO—INSTRUMENT RUNWAY — One of the following types of runways intended for the operation of aircraft using instrument approach procedures:

- a) *Non-precision Approach Runway.* An instrument runway served by visual aids and a nonvisual aid providing at least directional guidance adequate for a straight-in approach.
- b) *Precision Approach Runway, Category I.* An instrument runway served by ILS and visual aids intended for operations down to 60 m (200 feet) decision height and down to an RVR of the order of 800 m.
- c) *Precision Approach Runway, Category II.* An instrument runway served by ILS and visual aids intended for operations down to 30 m (100 feet) decision height and down to an RVR of the order of 400 m.
- d) *Precision Approach Runway, Category III.* An instrument runway served by ILS to and along the surface of the runway and:
 - A — Intended for operations down to an RVR of the order of 200 m (no decision height being applicable) using visual aids during the final phase of landing;
 - B — Intended for operations down to an RVR of the order of 50 m (no decision height being applicable) using visual aids for taxiing;
 - C — Intended for operations without reliance on visual reference for landing or taxiing.

Note 1. — See Annex 10, Volume I, Part I Chapter 3, for related ILS specifications.

Note 2. — Visual aids need not necessarily be matched to the scale of non-visual aids provided. The criterion for the selection of visual aids is the conditions in which operations are intended to be conducted.

INTERMEDIATE APPROACH SEGMENT — (See Segments of an Instrument Approach Procedure)

INTERMEDIATE FIX/IF — The fix that identifies the beginning of the intermediate approach segment of an instrument approach procedure. The fix is not normally identified on the instrument approach chart as an intermediate fix (IF). (See Segments of an Instrument Approach Procedure)

INTERNATIONAL AIRPORT — Relating to international flight, it means:

1. An airport of entry which has been designated by the Secretary of Treasury or Commissioner of Customs as an international airport for customs service.
2. A landing rights airport at which specific permission to land must be obtained from customs authorities in advance of contemplated use.
3. Airports designated under the Convention on International Civil Aviation as an airport for use by international commercial air transport and/or international general aviation. (Refer to Airport/Facility Directory and IFIM).

ICAO—INTERNATIONAL AIRPORT — Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

INTERNATIONAL CIVIL AVIATION ORGANIZATION/ICAO — A specialized agency of the United Nations whose objective is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport.

INTERNATIONAL FLIGHT INFORMATION MANUAL/IFIM — A publication designed primarily as a pilot's preflight planning guide for flights into foreign airspace and for flights returning to the U.S. from foreign locations.

INTERROGATOR — The ground-based surveillance radar beacon transmitter-receiver, which normally scans in synchronism with a primary radar, transmitting discrete radio signals which repetitiously request all transponders on the mode being used to reply. The replies received are mixed with the primary radar returns and displayed on the same plan position indicator (radar scope). Also, applied to the airborne element of the TACAN/DME system. (See Transponder) (Refer to AIM)

INTERSECTING RUNWAYS — Two or more runways which cross or meet within their lengths. (See Intersection)

INTERSECTION —

1. A point defined by any combination of courses, radials, or bearings of two or more navigational aids.

2. Used to describe the point where two runways, a runway and a taxiway, or two taxiways cross or meet.

INTERSECTION DEPARTURE/INTERSECTION TAKEOFF — A takeoff or proposed takeoff on a runway from an intersection. (See Intersection)

/ SAY AGAIN — The message will be repeated.

JAMMING — Electronic or mechanical interference which may disrupt the display of aircraft on radar or the transmission/reception of radio communications/navigation.

JET BLAST — Jet engine exhaust (thrust stream turbulence). (See Wake Turbulence)

JET ROUTE — A route designed to serve aircraft operations from 18,000 feet MSL up to and including flight level 450. The routes are referred to as "J" routes with numbering to identify the designated route; e.g., J105. (See Route) (Refer to FAR Part 71)

JET STREAM — A migrating stream of high-speed winds present at high altitudes.

JETTISONING OF EXTERNAL STORES — Airborne release of external stores; e.g., tip tanks, ordnance. (See Fuel Dumping) (Refer to FAR Part 91)

JOINT USE RESTRICTED AREA — (See Restricted Area)

KNOWN TRAFFIC — With respect to ATC clearances, means aircraft whose altitude, position, and intentions are known to ATC.

LANDING/TAKEOFF 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

ICAO—LANDING AREA — That part of a movement area intended for the landing or takeoff 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 MINIMUMS/IFR 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 FAR Part 91 with respect to the Minimum Descent Altitude (MDA) or Decision Height (DH) prescribed in the instrument approach procedures as follows:

1. 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
2. Circling minimums—A statement of MDA and visibility required for the circle-to-land maneuver.

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 Straight-in Landing, Circle-to-Land Maneuver, Decision Height, Minimum Descent Altitude, Visibility, Instrument Approach Procedure) (Refer to FAR 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 FAR Part 91)

LATERAL SEPARATION — The lateral spacing of aircraft at the same altitude by requiring operation on different routes or in different geographical locations. (See Separation)

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)

LOCALIZER — The component of an ILS which provides course guidance to the runway. (See Instrument Landing System) (Refer to AIM)

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

LOCALIZER TYPE DIRECTIONAL AID/LDA — 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)

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)

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/LONG RANGE NAVIGATION — An electronic navigational system by which hyperbolic lines of position are determined by measuring the differ-

ence 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/TWO-WAY RADIO COMMUNICATIONS FAILURE — Loss of the ability to communicate by radio. Aircraft are sometimes referred to as **NORDO** (No Radio). Standard pilot procedures are specified in FAR 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 FAR Part 91, AIM)

LOW ALTITUDE AIRWAY STRUCTURE/FEDERAL AIRWAYS — The network of airways serving aircraft operations up to but not including 18,000 feet MSL. (See Airway) (Refer to AIM)

LOW ALTITUDE ALERT, CHECK YOUR ALTITUDE IMMEDIATELY — (See Safety Alert)

LOW ALTITUDE ALERT SYSTEM/LAAS — An automated function of the TPX-42 that alerts the controller when a Mode C transponder-equipped aircraft on an IFR flight plan is below a predetermined minimum safe altitude. If requested by the pilot, LAAS monitoring is also available to VFR Mode C transponder-equipped aircraft.

LOW APPROACH — An approach over an airport or runway following an instrument approach or a VFR approach including the go-around maneuver where the pilot intentionally does not make contact with the runway. (Refer to AIM)

LOW FREQUENCY/LF — The frequency band between 30 and 300 kHz. (Refer to AIM)

MACH NUMBER — The ratio of true airspeed to the speed of sound; e.g., MACH .82, MACH 1.6. (See Airspeed)

MAINTAIN —

1. Concerning altitude/flight level, the term means to remain at the altitude/flight level specified. The phrase "climb and" or "descend and" normally precedes "maintain" and the altitude assignment; e.g., "descend and maintain 5,000."
2. Concerning other ATC instructions, the term is used in its literal sense; e.g., maintain VFR.

MAKE SHORT APPROACH — Used by ATC to inform a pilot to alter his traffic pattern so as to make a short final approach. (See Traffic Pattern)

MANDATORY ALTITUDE — An altitude depicted on an instrument Approach Procedure Chart requiring the aircraft to maintain altitude at the depicted value.

MARKER BEACON — An electronic navigation facility transmitting a 75 MHz vertical fan or boneshaped radiation pattern. Marker beacons are identified by their modulation frequency and keying code, and when received by compatible airborne equipment, indicate to the pilot, both aurally and visually, that he

is passing over the facility. (See Outer Marker, Middle Marker, Inner Marker) (Refer to AIM)

MAXIMUM AUTHORIZED ALTITUDE/MAA — A published altitude representing the maximum usable altitude or flight level for an airspace structure or route segment. It is the highest altitude on a Federal airway, jet route, area navigation low or high route, or other direct route for which an MEA is designated in FAR Part 95 at which adequate reception of navigation aid signals is assured.

MAYDAY — The international radiotelephony distress signal. When repeated three times, it indicates imminent and grave danger and that immediate assistance is requested. (See Pan-Pan) (Refer to AIM)

METEOROLOGICAL IMPACT STATEMENT/MIS — An unscheduled planning forecast describing conditions expected to begin within 4 to 12 hours which may impact the flow of air traffic in a specific center's (ARTCC) area.

METERING — A method of time-regulating arrival traffic flow into a terminal area so as not to exceed a predetermined terminal acceptance rate.

METERING FIX — A fix along an established route from over which aircraft will be metered prior to entering terminal airspace. Normally, this fix should be established at a distance from the airport which will facilitate a profile descent 10,000 feet above airport elevation (AAE) or above.

MIA — (See Minimum IFR Altitudes)

MICROWAVE LANDING SYSTEM/MLS — A precision instrument approach system operating in the microwave spectrum which normally consists of the following components:

1. Azimuth Station.
2. Elevation Station.
3. Precision Distance Measuring Equipment. (See MLS Categories)

MIDDLE COMPASS LOCATOR — (See Compass Locator)

MIDDLE MARKER/MM — A marker beacon that defines a point along the glide slope of an ILS normally located at or near the point of decision height (ILS Category I). It is keyed to transmit alternate dots and dashes, with the alternate dots and dashes keyed at the rate of 95 dot/dash combinations per minute on a 1300 Hz tone, which is received aurally and visually by compatible airborne equipment. (See Marker Beacon, Instrument Landing System) (Refer to AIM)

MID RVR — (See Visibility)

MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT/MARSA — A condition whereby the military services involved assume responsibility for separation between participating military aircraft in the ATC system. It is used only for required IFR operations which are specified in letters of agreement or other appropriate FAA or military documents.

MILITARY OPERATIONS AREA/MOA — (See Special Use Airspace)

MILITARY TRAINING ROUTES/MTR — Airspace of defined vertical and lateral dimensions established for the conduct of military flight training at airspeeds in excess of 250 knots IAS. (See IFR (IR) and VFR (VR) Military Training Routes)

MINIMUM CROSSING ALTITUDE/MCA — The lowest altitude at certain fixes at which an aircraft must cross when proceeding in the direction of a higher minimum en route IFR altitude (MEA). (See Minimum En Route IFR Altitude)

MINIMUM DESCENT ALTITUDE/MDA — The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided. (See Nonprecision Approach Procedure)

MINIMUM EN ROUTE IFR ALTITUDE/MEA — The lowest published altitude between radio fixes which assures acceptable navigational signal coverage and meets obstacle clearance requirements between those fixes. The MEA prescribed for a Federal airway or segment thereof, area navigation low or high route, or other direct route applies to the entire width of the airway, segment, or route between the radio fixes defining the airway, segment, or route. (Refer to FAR Parts 91 and 95; AIM)

MINIMUM FUEL — Indicates that an aircraft's fuel supply has reached a state where, upon reaching the destination, it can accept little or no delay. This is not an emergency situation but merely indicates an emergency situation is possible should any undue delay occur. (Refer to AIM)

MINIMUM HOLDING ALTITUDE/MHA — The lowest altitude prescribed for a holding pattern which assures navigational signal coverage, communications, and meets obstacle clearance requirements.

MINIMUM IFR ALTITUDES/MIA — Minimum altitudes for IFR operations as prescribed in FAR Part 91. These altitudes are published on aeronautical charts and prescribed in FAR Part 95 for airways and routes, and in FAR Part 97 for standard instrument approach procedures. If no applicable minimum altitude is prescribed in FAR Parts 95 or 97, the following minimum IFR altitude applies:

1. In designated mountainous areas, 2,000 feet above the highest obstacle within a horizontal distance of 5 statute miles from the course to be flown; or
2. Other than mountainous areas, 1,000 feet above the highest obstacle within a horizontal distance of 5 statute miles from the course to be flown; or
3. As otherwise authorized by the Administrator or assigned by ATC. (See Minimum En Route IFR Altitude, Minimum Obstruction Clearance Altitude, Minimum Crossing Altitude, Minimum Safe Altitude, Minimum Vectoring Altitude) (Refer to FAR Part 91)

MINIMUM OBSTRUCTION CLEARANCE ALTITUDE/MOCA — The lowest published altitude in effect between radio fixes on VOR airways, off-airway routes, or route segments which meets obstacle clearance requirements for the entire route segment and which assures acceptable navigational signal coverage only within 25 statute (22 nautical) miles of a VOR. (Refer to FAR Part 91 and 95)

MINIMUM RECEPTION ALTITUDE/MRA — The lowest altitude at which an intersection can be determined. (Refer to FAR Part 95)

MINIMUM SAFE ALTITUDE/MSA —

1. The minimum altitude specified in FAR Part 91 for various aircraft operations.
2. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes will be identified as Minimum Sector Altitudes or Emergency Safe Altitudes and are established as follows:

- a. **Minimum Sector Altitudes**—Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance within a 25-mile radius of the navigation facility upon which the procedure is predicated. Sectors depicted on approach charts must be at least 90 degrees in scope. These altitudes are for emergency use only and do not necessarily assure acceptable navigational signal coverage.

ICAO—Minimum Sector Altitude—The lowest altitude which may be used under emergency conditions which will provide a minimum clearance of 300 m (1 000 feet) above all obstacles located in an area contained within a sector of a circle of 46 km (25 NM) radius centered on a radio aid to navigation.

- b. **Emergency Safe Altitudes**—Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance in nonmountainous areas and 2,000 feet of obstacle clearance in designated mountainous areas within a 100-mile radius of the navigation facility upon which the procedure is predicated and normally used only in military procedures. These altitudes are identified on published procedures as "Emergency Safe Altitudes."

MINIMUM SAFE ALTITUDE WARNING/MSAW — A function of the ARTS III computer that aids the controller by alerting him when a tracked Mode C-equipped aircraft is below or is predicted by the computer to go below a predetermined minimum safe altitude. (Refer to AIM)

MINIMUMS/MINIMA— Weather condition requirements established for a particular operation or type of operation; e.g., IFR takeoff or landing, alternate airport for IFR flight plans, VFR flight, etc. (See Landing Minimums, IFR Takeoff Minimums, VFR Conditions, IFR Conditions) (Refer to FAR Part 91, AIM)

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

MISSED APPROACH —

1. A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. The route of flight and altitude are shown on instrument approach procedure charts. A pilot executing a missed approach prior to the Missed Approach Point (MAP) must continue along the final approach to the MAP. The pilot may climb immediately to the altitude specified in the missed approach procedure.
2. A term used by the pilot to inform ATC that he is executing the missed approach.
3. At locations where ATC radar service is provided, the pilot should conform to radar vectors when provided by ATC in lieu of the published missed approach procedure. (See Missed Approach Point) (Refer to AIM)

ICAO—MISSED APPROACH PROCEDURE — The procedure to be followed if the approach cannot be continued.

MISSED APPROACH POINT/MAP — A point prescribed in each instrument approach procedure at which a missed approach procedure shall be executed if the required visual reference does not exist. (See Missed Approach, Segments of an Instrument Approach Procedure)

MISSED APPROACH SEGMENT — (See Segments of an Instrument Approach Procedure)

MLS — (See Microwave Landing System)

MLS CATEGORIES —

1. **MLS Category I**—An MLS approach procedure which provides for an approach to a height above touchdown of not less than 200 feet and a runway visual range of not less than 1,800 feet.
2. **MLS Category II**—Undefined until data gathering/analysis completion.
3. **MLS Category III**—Undefined until data gathering/analysis completion.

MODE — The letter or number assigned to a specific pulse spacing of radio signals transmitted or received by ground interrogator or airborne transponder components of the Air Traffic Control Radar Beacon System (ATCRBS). Mode A (military Mode 3) and Mode C (altitude reporting) are used in air traffic control. (See Transponder, Interrogator, Radar) (Refer to AIM)

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

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

ICAO—MOVEMENT AREA — That part of an aerodrome to be used for the takeoff, landing and taxiing of aircraft, consisting of the manoeuvring area and the aprons).

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

MSAW — (See Minimum Safe Altitude Warning)

MULTICOM — A mobile service not open to public correspondence used to provide communications essential to conduct the activities being performed by or directed from private aircraft (FAR 87.277).

NAS STAGE A — The en route ATC system's radar, computers and computer programs, controller plan view displays (PVDs/Radar Scopes), input/output devices, and the related communications equipment which are integrated to form the heart of the automated IFR air traffic control system. This equipment performs Flight Data Processing (FDP) and Radar Data Processing (RDP). It interfaces with automated terminal systems and is used in the control of en route IFR aircraft. (Refer to AIM)

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

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

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

NATIONAL FLIGHT DATA DIGEST/NFDD — A daily (except weekends and Federal holidays) publica-

tion of flight information appropriate to aeronautical charts, aeronautical publications, Notices to Airmen, or other media serving the purpose of providing operational flight data essential to safe and efficient aircraft operations.

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

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

T—Terminal.

L—Low altitude.

H—High altitude.

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

NAVIGABLE AIRSPACE — Airspace at and above the minimum flight altitudes prescribed in the FAR's including airspace needed for safe takeoff and landing. (Refer to FAR Part 91)

NAVIGATIONAL AID/NAVAID — Any visual or electronic device airborne or on the surface which provides point-to-point guidance information or position data to aircraft in flight. (See Air Navigation Facility)

NDB — (See Nondirectional Beacon)

NEGATIVE — "No," or "permission not granted," or "that is not correct."

NEGATIVE CONTACT — Used by pilots to inform ATC that:

1. Previously issued traffic is not in sight. It may be followed by the pilot's request for the controller to provide assistance in avoiding the traffic.
2. They were unable to contact ATC on a particular frequency.

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

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

Note. — Civil twilight ends in the evening when the centre of the sun's disk is 6 degrees below the horizon and begins in the morning when the centre of the sun's disk is 6 degrees below the horizon.

NO GYRO APPROACH/VECTOR — A radar approach/vector provided in case of a malfunctioning

gyro-compass or directional gyro. Instead of providing the pilot with headings to be flown, the controller observes the radar track and issues control instructions "turn right/left" or "stop turn" as appropriate. (Refer to AIM)

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

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

NONDIRECTIONAL BEACON/RADIO BEACON/NDB — An L/MF or UHF radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the radio beacon and "home" on or track to or from the station. When the radio beacon is installed in conjunction with the Instrument Landing System marker, it is normally called a Compass Locator. (See Compass Locator, Automatic Direction Finder)

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

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

1. Nonradar Approach—Used to describe instrument approaches for which course guidance on final approach is not provided by ground-based precision or surveillance radar. Radar vectors to the final approach course may or may not be provided by ATC. Examples of nonradar approaches are VOR, NDB, TACAN, and ILS/MLS approaches. (See Final Approach—IFR, Final Approach Course, Radar Approach, Instrument Approach Procedure)
2. Nonradar Approach Control—An ATC facility providing approach control service without the use of radar. (See Approach Control, Approach Control Service)
3. Nonradar Arrival—An aircraft arriving at an airport without radar service, or at an airport served by a radar facility but without radar services being provided. (See Radar Arrival, Radar Service)
4. Nonradar Route—A flight path or route over which the pilot is performing his own navigation. The pilot may be receiving radar separation, radar monitoring, or other ATC services while on a nonradar route. (See Radar Route)

5. **Nonradar Separation**—The spacing of aircraft in accordance with established minima without the use of radar, e.g., vertical, lateral, or longitudinal separation. (See Radar Separation)

ICAO—Nonradar Separation—The separation used when aircraft position information is derived from sources other than radar.

NORDO — (See Lost Communications)

NORTH AMERICAN ROUTE — A numerically coded route preplanned over existing airway and route systems to and from specific coastal fixes serving the North Atlantic. North American Routes consist of the following:

1. **Common Route/Portion**—That segment of a North American Route between the inland navigation facility and the coastal fix.
2. **Non-Common Route/Portion**—That segment of a North American Route between the inland navigation facility and a designated North American terminal.
3. **Inland Navigation Facility**—A navigation aid on a North American Route at which the common route and/or the non-common route begins or ends.
4. **Coastal Fix**—A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

NOTICES TO AIRMEN PUBLICATION — A publication designed primarily as a pilot's operational manual containing current NOTAM information considered essential to the safety of flight as well as supplemental data to other aeronautical publications. (See Notice to Airmen/NOTAM)

NOTICE TO AIRMEN/NOTAM — A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the National Airspace System) the timely knowledge of which is essential to personnel concerned with flight operations.

1. **NOTAM(D)**—A NOTAM given (in addition to local dissemination) distant dissemination beyond the area of responsibility of the Flight Service Station. These NOTAM's will be stored and available until canceled.
2. **NOTAM(L)**—A NOTAM given local dissemination by voice and other means, such as telautograph and telephone, to satisfy local user requirements.
3. **FDC NOTAM**—A NOTAM regulatory in nature, transmitted by USNOF and given system wide dissemination.

ICAO—NOTAM — A notice containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

Class I Distribution. Distribution by means of telecommunication.

Class II Distribution. Distribution by means other than telecommunications.

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

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.

OBSTRUCTION — Any object/obstacle exceeding the obstruction standards specified by FAR 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.

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.

ON COURSE —

1. Used to indicate that an aircraft is established on the route centerline.
2. Used by ATC to advise a pilot making a radar approach that his 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.

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 moveable system of oceanic tracks that traverses the North Atlantic between Europe and North America the physical position of which is determined twice daily taking the best advantage of the winds aloft.

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

OUTER AREA (associated with ARSA) — Nonregulatory airspace surrounding designated ARSA airports wherein ATC provides radar vectoring and sequencing on a full-time basis for all IFR and participating VFR aircraft. The service provided in the outer area is called ARSA service which includes: IFR/IFR—standard IFR separation; IFR/VFR—traffic advisories and conflict resolution; and VFR/VFR—traffic advisories and, as appropriate, safety alerts. The normal radius

will be 20 nautical miles with some variations based on site-specific requirements. The outer area extends outward from the primary ARSA airport and extends from the lower limits of radar/radio coverage up to the ceiling of the approach control's delegated airspace excluding the ARSA and other airspace as appropriate. (See Controlled Airspace—Airport Radar Service Area / ARSA, Conflict Resolution)

OUTER COMPASS LOCATOR — (See Compass Locator)

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

OUTER MARKER/OM — A marker beacon at or near the glide slope intercept altitude of an ILS approach. It is keyed to transmit two dashes per second on a 400 Hz tone, which is received aurally and visually by compatible airborne equipment. The OM is normally located four to seven miles from the runway threshold on the extended centerline of the runway. (See Marker Beacon, Instrument Landing System) (Refer to AIM)

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

OVERHEAD APPROACH/360 OVERHEAD — A series of predetermined maneuvers prescribed for VFR arrival of military aircraft (often in formation) for entry into the VFR traffic pattern and to proceed to a landing. The pattern usually specifies the following:

1. The radio contact required of the pilot.
2. The speed to be maintained.
3. An initial approach 3 to 5 miles in length.
4. An elliptical pattern consisting of two 180 degree turns.
5. A break point at which the first 180 degree turn is started.
6. The direction of turns.
7. Altitude (at least 500 feet above the conventional pattern).
8. A "Roll-out" on final approach not less than 1/4 mile from the landing threshold and not less than 300 feet above the ground.

PAN-PAN — The international radio-telephony urgency signal. When repeated three times, indicates uncertainty or alert followed by the nature of the urgency. (See MAYDAY) (Refer to AIM)

PARALLEL ILS/MLS APPROACHES — Approaches to parallel runways by IFR aircraft which, when established inbound toward the airport on the adjacent final approach courses, are radar-separated by at least 2 miles. (See Final Approach Course, Simultaneous ILS/MLS Approaches).

PARALLEL OFFSET ROUTE — A parallel track to the left or right of the designated or established airway/route. Normally associated with Area Navigation (RNAV) operations. (See Area Navigation)

PARALLEL RUNWAYS — Two or more runways at the same airport whose centerlines are parallel. In addition to runway number, parallel runways are designated as L (left) and R (right) or, if three parallel runways exist, L (left), C (center), and R (right).

PERMANENT ECHO — Radar signals reflected from fixed objects on the earth's surface; e.g., buildings, towers, terrain. Permanent echoes are distinguished from "ground clutter" by being definable locations rather than large areas. Under certain conditions they may be used to check radar alignment.

PHOTO RECONNAISSANCE (PR) — Military activity that requires locating individual photo targets and navigating to the targets at a preplanned angle and altitude. The activity normally requires a lateral route width of 16NM and altitude range of 1,500 feet to 10,000 feet AGL.

PILOT BRIEFING/PRE-FLIGHT PILOT BRIEFING — A service provided by the FSS to assist pilots in flight planning. Briefing items may include weather information, NOTAMS, military activities, flow control information, and other items as requested. (Refer to AIM)

PILOT IN COMMAND — The pilot responsible for the operation and safety of an aircraft during flight time. (Refer to FAR Part 91)

PILOTS AUTOMATIC TELEPHONE WEATHER ANSWERING SERVICE/PATWAS — A continuous telephone recording containing current and forecast weather information for pilots. (See Flight Service Station) (Refer to AIM)

PILOT'S DISCRETION — When used in conjunction with altitude assignments, means that ATC has offered the pilot the option of starting climb or descent whenever he wishes and conducting the climb or descent at any rate he wishes. He may temporarily level off at any intermediate altitude. However, once he has vacated an altitude, he may not return to that altitude.

PILOT WEATHER REPORT/PIREP — A report of meteorological phenomena encountered by aircraft in flight. (Refer to AIM)

POSITION REPORT/PROGRESS REPORT — A report over a known location as transmitted by an aircraft to ATC. (Refer to AIM)

POSITION SYMBOL — A computer-generated indication shown on a radar display to indicate the mode of tracking.

POSITIVE CONTROL — The separation of all air traffic within designated airspace by air traffic control. (See Positive Control Area)

POSITIVE CONTROL AREA/PCA — (See Controlled Airspace)

PRACTICE INSTRUMENT APPROACH — An instrument approach procedure conducted by a VFR or an IFR aircraft for the purpose of pilot training or proficiency demonstrations.

PRECIPITATION — Any or all forms of water particles (rain, sleet, hail, or snow) that fall from the atmosphere and reach the surface.

PRECISION APPROACH PROCEDURE/PRECISION APPROACH — A standard instrument approach procedure in which an electronic glideslope/glidepath is provided; e.g., ILS/MLS and PAR. (See Instrument Landing System, Microwave Landing System, Precision Approach Radar)

PRECISION APPROACH RADAR/PAR — 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 non-radar 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. (See Glidepath, PAR) (Refer to AIM)

The abbreviation "PAR" is also used to denote preferential arrival routes in ARTCC computers. (See Preferential Routes)

ICAO—PRECISION APPROACH RADAR (PAR) — 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 radiocommunication during the final stages of the approach to land.

PREFERENTIAL ROUTES — Preferential routes (PDR's, PAR's, and PDAR's) 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:

1. **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 a Standard Instrument Departure (SID) or a Preferred IFR Route.
2. **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.

3. **Preferential Departure and Arrival Route/PDAR**—A route between two terminals which are within or immediately adjacent to one ARTCC's area. PDAR's 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, NAS Stage A)

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 SID's and STAR's and may be defined by airways, jet routes, direct routes between NAVAID's, Waypoints, NAVAID radials/DME, or any combinations thereof. (See Standard Instrument Departure, Standard Terminal Arrival, Preferential Routes, Center's Area) (Refer to Airport/Facility Directory and Notices to Airmen Publication)

PREVAILING VISIBILITY — (See Visibility)

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, Procedure Turn, Segments of an Instrument Approach Procedure)

PROCEDURE TURN/PT — 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.

ICAO—PROCEDURE TURN — A manoeuvre 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.

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 glide slope 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 glide slope or other appropriate minimum altitude is intercepted.

PROGRAMMABLE INDICATOR DATA PROCESSOR/PIDP — The PIDP is a modification to the AN/TPX-42 interrogator system currently installed in fixed RAPCON's. 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 alphanumeric characters. The system has the capability of interfacing with ARTCC's.

PROHIBITED AREA — (See Special Use Airspace).

ICAO—PROHIBITED AREA — 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/PBCT — 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.

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.

QUADRANT — A quarter part of a circle, centered on a NAVAID, oriented clockwise from magnetic north as follows: NE quadrant 000-089, SE quadrant 090-179, SW quadrant 180-269, NW quadrant 270-359.

QUICK LOOK — A feature of NAS Stage A and ARTS which provides the controller the capability to display full data blocks of tracked aircraft from other control positions.

QUOTA FLOW CONTROL/QFLOW — A flow control procedure by which the Central Flow Control Function (CFCF) restricts traffic to the ARTC Center area having an impacted airport, thereby avoiding sector/area saturation. (See Air Traffic Control Systems Command Center) (Refer to Airport/Facility Directory)

RADAR/RADIO DETECTION AND RANGING — A device which, by measuring the time interval between transmission and reception of radio pulses and corre-

lating the angular orientation of the radiated antenna beam or beams in azimuth and/or elevation, provides information on range, azimuth, and/or elevation of objects in the path of the transmitted pulses.

ICAO—RADAR — A radio detection device which provides information on range, azimuth and/or elevation of objects.

1. **Primary Radar**—A radar system in which a minute portion of a radio pulse transmitted from a site is reflected by an object and then received back at that site for processing and display at an air traffic control facility.

ICAO—Primary Radar—A radar system which uses reflected radio signals.

2. **Secondary Radar/Radar Beacon/ATCRBS**—A radar system in which the object to be detected is fitted with cooperative equipment in the form of a radio receiver/transmitter (transponder). Radar pulses transmitted from the searching transmitter/receiver (interrogator) site are received in the cooperative equipment and used to trigger a distinctive transmission from the transponder. This reply transmission, rather than a reflected signal, is then received back at the transmitter/receiver site for processing and display at an air traffic control facility. (See Transponder, Interrogator) (Refer to AIM)

ICAO—Secondary Radar—A radar system wherein a radio signal transmitted from a radar station initiates the transmission of a radio signal from another station.

RADAR ADVISORY — The provision of advice and information based on radar observations. (See Advisory Service)

RADAR APPROACH — An instrument approach procedure which utilizes Precision Approach Radar (PAR) or Airport Surveillance Radar (ASR). (See PAR Approach, Surveillance Approach, Airport Surveillance Radar, Precision Approach Radar, Instrument Approach Procedure) (Refer to AIM)

ICAO—RADAR APPROACH — An approach, executed by an aircraft, under the direction of a radar controller.

RADAR APPROACH CONTROL FACILITY — A terminal ATC facility that uses radar and nonradar capabilities to provide approach control services to aircraft arriving, departing, or transiting airspace controlled by the facility (see Approach Control Service). Provides radar ATC services to aircraft operating in the vicinity of one or more civil and/or military airports in a terminal area. The facility may provide services of a ground controlled approach (GCA); i.e., ASR and PAR approaches. A radar approach control facility may be operated by FAA, USAF, US Army, USN, USMC, or jointly by FAA and a military service. Specific facility nomenclatures are used for administrative purposes only and are related to the physical location of the facility and the operating service generally as follows:

Army Radar Approach Control/ARAC (Army).

Radar Air Traffic Control Facility/ RATCF (Navy/FAA).

Radar Approach Control/RAPCON (Air Force/FAA).

Terminal Radar Approach Control/TRACON (FAA).

Tower/Airport Traffic Control Tower/ATCT (FAA). (Only those towers delegated approach control authority.)

RADAR ARRIVAL — An aircraft arriving at an airport served by a radar facility, in radar contact with the facility, and receiving radar service. (See Nonradar Arrival, Radar Service)

RADAR BEACON — (See Radar)

RADAR CONTACT —

1. Used by ATC to inform an aircraft that it is identified on the radar display and radar flight following will be provided until radar identification is terminated. Radar service may also be provided within the limits of necessity and capability. When a pilot is informed of "radar contact," he automatically discontinues reporting over compulsory reporting points. (See Radar Flight Following, Radar Contact Lost, Radar Service, Radar Service Terminated). (Refer to AIM)
2. The term used to inform the controller that the aircraft is identified and approval is granted for the aircraft to enter the receiving controllers airspace.

ICAO—RADAR CONTACT — The situation which exists when the radar blip or radar position symbol of a particular aircraft is seen and identified on a radar display.

RADAR CONTACT LOST — Used by ATC to inform a pilot that radar identification of his aircraft has been lost. The loss may be attributed to several things including the aircraft's merging with weather or ground clutter, the aircraft's flying below radar line of sight, the aircraft's entering an area of poor radar return, or a failure of the aircraft transponder or the ground radar equipment. (See Clutter, Radar Contact)

RADAR ENVIRONMENT — An area in which radar service may be provided. (See Radar Contact, Radar Service, Additional Services, Traffic Advisories)

RADAR FLIGHT FOLLOWING — The observation of the progress of radar identified aircraft, whose primary navigation is being provided by the pilot, wherein the controller retains and correlates the aircraft identity with the appropriate target or target symbol displayed on the radar scope. (See Radar Contact, Radar Service) (Refer to AIM)

RADAR IDENTIFICATION — The process of ascertaining that an observed radar target is the radar return from a particular aircraft. (See Radar Contact, Radar Service)

ICAO—RADAR IDENTIFICATION — The process of correlating a particular radar blip or radar position symbol with a specific aircraft.

RADAR IDENTIFIED AIRCRAFT — An aircraft, the position of which has been correlated with an observed target or symbol on the radar display. (See Radar Contract, Radar Contact Lost)

RADAR MONITORING — (See Radar Service)

RADAR NAVIGATIONAL GUIDANCE — (See Radar Service)

RADAR POINT OUT/POINT OUT — Used between controllers to indicate radar handoff action where the initiating controller plans to retain communications with an aircraft penetrating the other controller's airspace and additional coordination is required.

RADAR ROUTE — A flight path or route over which an aircraft is vectored. Navigational guidance and altitude assignments are provided by ATC. (See Flight Path, Route)

RADAR SEPARATION — (See Radar Service)

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

ICAO—RADAR SERVICE — Term used to indicate a service provided directly by means of radar.

1. 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, Traffic Advisories)

ICAO—Radar Monitoring—The use of radar for the purpose of providing aircraft with information and advice relative to significant deviations from nominal flight path.

2. Radar Navigational Guidance—Vectoring aircraft to provide course guidance.
3. Radar Separation—Radar spacing of aircraft in accordance with established minima.

ICAO—Radar 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 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:

1. An aircraft cancels its IFR flight plan, except within a TCA, TRSA, ARSA, or where Stage II service is provided.
2. An aircraft conducting an instrument, visual, or contact approach has landed or has been instructed to change to advisory frequency.

3. An arriving VFR aircraft, receiving radar service to a tower-controlled airport within a TCA, TRSA, ARSA, or where Stage II service is provided, has landed; or to all other airports, is instructed to change to tower or advisory frequency.

4. 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 — (See Traffic Advisories)

RADAR TRAFFIC INFORMATION SERVICE — (See Traffic Advisories)

RADAR WEATHER ECHO INTENSITY LEVELS — Existing radar systems cannot detect turbulence. However, there is a direct correlation between the degree of turbulence and other weather features associated with thunderstorms and the radar weather echo intensity. The National Weather Service has categorized six levels of radar weather echo intensity. The levels are sometimes expressed during communications as "VIP LEVEL" 1 through 6 (derived from the component of the weather radar that produces the information—Video Integrator and Processor). The following list gives the weather features likely to be associated with these levels during thunderstorm weather situations:

1. Level 1 (WEAK) and Level 2 (MODERATE). Light to moderate turbulence is possible with lightning.
2. Level 3 (STRONG). Severe turbulence possible, lightning.
3. Level 4 (VERY STRONG). Severe turbulence likely, lightning.
4. Level 5 (INTENSE). Severe turbulence, lightning, organized wind gusts, hail likely.
5. Level 6 (EXTREME). Severe turbulence, large hail, lightning, extensive wind gusts, and turbulence.

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

RADIO —

1. A device used for communication.
2. Used to refer to a flight service station; e.g., "Seattle Radio" is used to call Seattle FSS.

RADIO ALTIMETER/RADAR 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 MAGNETIC INDICATOR/RMI — 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.

RAMP — (See Apron)

READ BACK — Repeat my message back to me.

RECEIVING CONTROLLER/FACILITY — A controller/facility receiving control of an aircraft from another controller/facility.

REDUCE SPEED TO (SPEED) — (See Speed Adjustment)

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.

ICAO—RELEASE TIME — 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 COMMUNICATIONS AIR/GROUND FACILITY/RCAG — 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/RCO AND REMOTE TRANSMITTER/RECEIVER/RTR — An unmanned communications facility remotely controlled by air traffic personnel. RCO's serve FSS's. RTR's 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 RCO's and RTR's. 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/RTR — (See Remote Communications Outlet)

REPORT — Used to instruct pilots to advise ATC of specified information; e.g., "Report passing Hamilton VOR."

REPORTING POINT — A geographical location in relation to which the position of an aircraft is reported. (See Compulsory Reporting Point) (Refer to AIM)

ICAO—REPORTING POINT — A specified geographical location in relation to which the position of an aircraft can be reported.

REQUEST FULL ROUTE CLEARANCE/FRC — Used by pilots to request that the entire route of flight be read verbatim in an ATC clearance. Such request should be made to preclude receiving an ATC clearance based on the original filed flight plan when a

filed IFR flight plan has been revised by the pilot, company, or operations prior to departure.

RESCUE COORDINATION CENTER/RCC — A search and rescue (SAR) facility equipped and manned to coordinate and control SAR operations in an area designated by the SAR plan. The U.S. Coast Guard and the U.S. Air Force have responsibility for the operation of RCC's.

ICAO—RESCUE CO-ORDINATION CENTRE — A unit responsible for promoting efficient organization of search and rescue service and for co-ordinating the conduct of search and rescue operations within a search and rescue region.

RESTRICTED AREA — (See Special Use Airspace).

ICAO—RESTRICTED AREA — An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

RESUME OWN NAVIGATION — Used by ATC to advise a pilot to resume his own navigational responsibility. It is issued after completion of a radar vector or when radar contact is lost while the aircraft is being radar vectored. (See Radar Contact Lost, Radar Service Terminated)

RNAV — (See Area Navigation)

RNAV APPROACH — An instrument approach procedure which relies on aircraft area navigation equipment for navigational guidance. (See Instrument Approach Procedure, Area Navigation)

ROAD RECONNAISSANCE (RC) — Military activity requiring navigation along roads, railroads, and rivers. Reconnaissance route/route segments are seldom along a straight line and normally require a lateral route width of 10NM to 30NM and an altitude range of 500 feet to 10,000 feet AGL.

ROGER — I have received all of your last transmission. It should not be used to answer a question requiring a yes or a no answer. (See Affirmative, Negative)

ROLLOUT RVR — (See Visibility)

ROUTE — A defined path, consisting of one or more courses in a horizontal plane, which aircraft traverse over the surface of the earth. (See Airway, Jet Route, Published Route, Unpublished Route)

ROUTE SEGMENT — As used in Air Traffic Control, a part of a route that can be defined by two navigational fixes, two NAVAID's, or a fix and a NAVAID. (See Fix, Route)

ICAO—ROUTE SEGMENT — A portion of a route to be flown, as defined by two consecutive significant points specified in a flight plan.

RUNWAY — A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees; e.g., Runway 01, Runway 25. (See Parallel Runways)

ICAO—RUNWAY — A defined rectangular area on a land aerodrome prepared for the landing and takeoff of aircraft.

RUNWAY CENTERLINE LIGHTING — (See Airport Lighting)

RUNWAY CONDITION READING/RCR — Numerical decelerometer readings relayed by air traffic controllers at USAF and certain civil bases for use by the pilot in determining runway braking action. These readings are routinely relayed only to USAF and Air National Guard Aircraft. (See Braking Action)

RUNWAY END IDENTIFIER LIGHTS — (See Airport Lighting)

RUNWAY GRADIENT — The average slope, measured in percent, between two ends or points on a runway. Runway gradient is depicted on Government aerodrome sketches when total runway gradient exceeds 0.3%.

RUNWAY HEADING — The magnetic direction indicated by the runway number. When cleared to "fly/maintain runway heading," pilots are expected to comply with the ATC clearance by flying the heading indicated by the runway number without applying any drift correction; e.g., Runway 4, 040° magnetic heading; Runway 20, 200° magnetic heading.

RUNWAY IN USE/ACTIVE RUNWAY/DUTY RUNWAY — Any runway or runways currently being used for takeoff or landing. When multiple runways are used, they are all considered active runways.

RUNWAY LIGHTS — (See Airport Lighting)

RUNWAY MARKINGS — (See Airport Marking Aids.)

RUNWAY PROFILE DESCENT — An instrument flight rules (IFR) air traffic control arrival procedure to a runway published for pilot use in graphic and/or textual form and may be associated with a STAR. Runway Profile Descents provide routing and may depict crossing altitudes, speed restrictions, and headings to be flown from the en route structure to the point where the pilot will receive clearance for and execute an instrument approach procedure. A Runway Profile Descent may apply to more than one runway if so stated on the chart. (Refer to AIM)

RUNWAY USE PROGRAM — A noise abatement runway selection plan designed to enhance noise abatement efforts with regard to airport communities for arriving and departing aircraft. These plans are developed into runway use programs and apply to all turbojet aircraft 12,500 pounds or heavier; turbojet aircraft less than 12,500 pounds are included only if the airport proprietor determines that the aircraft creates a noise problem. Runway use programs are coordinated with FAA offices, and safety criteria used in these programs are developed by the Office of Flight Operations. Runway use programs are administered by the Air Traffic Service as "Formal" or "Informal" programs.

1. Formal Runway Use Program—An approved noise abatement program which is defined and acknowledged in a Letter of Understanding be-

tween Flight Operations, Air Traffic Service, the airport proprietor, and the users. Once established, participation in the program is mandatory for aircraft operators and pilots as provided for in FAR 91.87.

2. Informal Runway Use Program—An approved noise abatement program which does not require a Letter of Understanding, and participation in the program is voluntary for aircraft operators/pilots.

RUNWAY VISIBILITY VALUE — (See Visibility)

RUNWAY VISUAL RANGE — (See Visibility)

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 is taking action to correct the situation or has the other aircraft in sight.

1. 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."
2. 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."

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 will take.

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.

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.

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 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)

SEARCH AND RESCUE/SAR — 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, Rescue Coordination Center) (Refer to AIM)

SEE AND AVOID — A visual procedure wherein pilots of aircraft flying in visual meteorological conditions (VMC), regardless of type of flight plan, are charged with the responsibility to observe the presence of other aircraft and to maneuver their aircraft as required to avoid the other aircraft. Right-of-way rules are contained in FAR, Part 91. (See Instrument Flight Rules, Visual Flight Rules, Visual Meteorological Conditions, Instrument Meteorological Conditions)

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.

1. 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.

ICAO—Initial Approach Segment—That segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point.

2. Intermediate Approach—The segment between the intermediate fix or point and the final approach fix.

ICAO—Intermediate Approach Segment—That segment of an instrument approach procedure between either the intermediate approach fix and the final approach fix or point, or between the end of a reversal, race track or dead reckoning track procedure and the final approach fix or point, as appropriate.

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

ICAO—Final Approach Segment—That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.

4. **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 FAR, Part 97)

ICAO—Missed Approach Procedure—The procedure to be followed if the approach cannot be continued.

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)

ICAO—SEPARATION — 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)

SEVERE WEATHER AVOIDANCE PLAN/SWAP — 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/AWW — 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 National Severe Storm Forecast Center at Kansas City, Missouri. (See SIGMET, Convective SIGMET, CWA, and AIRMET)

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/STOL AIRCRAFT — An aircraft which, at some weight within its approved operating weight, is capable of operating from a STOL runway in compliance with the applicable STOL characteristics, airworthiness, operations, noise, and pollution standards. (See Vertical Takeoff and Landing Aircraft)

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/WS/SIGNIFICANT METEOROLOGICAL INFORMATION — 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 AWW, Convective SIGMET, CWA, and AIRMET) (Refer to AIM)

ICAO—SIGMET INFORMATION — 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.

SIMPLIFIED DIRECTIONAL FACILITY/SDF — 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/SFO — A practice approach by a jet aircraft (normally military) at idle thrust to a runway. The approach may start at a relatively high altitude over a runway (high key) and may continue on a relatively high and wide downwind leg with a high rate of descent and a continuous turn to final. It terminates in a landing or low approach. The purpose of this approach is to simulate a flameout. (See Flameout)

SIMULTANEOUS ILS/MLS 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)

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 Route) (Refer to Airport/Facility Directory)

SINGLE FREQUENCY APPROACH/SFA — 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)

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

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

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

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 IFR — (See Fixed-Wing Special IFR)

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:

1. **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.
2. **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.
3. **Military Operations Area (MOA)**—An MOA is an airspace assignment of defined vertical and lateral dimensions established outside positive control areas to separate/segregate certain military activities from IFR traffic and to identify for VFR traffic where these activities are conducted. (Refer to AIM).
4. **Prohibited Area**—Designated airspace within which the flight of aircraft is prohibited. (Refer to En Route Charts, AIM).
5. **Restricted Area**—Airspace designated under FAR, 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 FAR, Part 73 and AIM).
6. **Warning Area**—Airspace which may contain hazards to nonparticipating aircraft in international airspace.

SPECIAL VFR CONDITIONS — Weather conditions in a control zone which are less than basic VFR and in which some aircraft are permitted flight under Visual Flight Rules. (See Special VFR Operations) (Refer to FAR, Part 91)

SPECIAL VFR OPERATIONS — Aircraft operating in accordance with clearances within control zones 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)

ICAO—SPECIAL VFR FLIGHT — A controlled VFR flight authorized by air traffic control to operate within a control zone under meteorological conditions below the visual meteorological conditions.

SPEED — (See Airspeed, Groundspeed)

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:

1. "Increase/reduce speed to mach point (number)."
2. "Increase/reduce speed to (speed in knots)" or "Increase/reduce speed (number of knots) knots."
3. "If practical, reduce speed to (speed);" or "If practical, reduce speed (number of) knots."

SPEED BRAKES/DIVE BRAKES — Moveable aerodynamic devices on aircraft that reduce airspeed during descent and landing.

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)

STAGE I/II/III SERVICE — (See Terminal Radar Program)

STANDARD INSTRUMENT APPROACH PROCEDURE/SIAP — (See Instrument Approach Procedure)

STANDARD INSTRUMENT DEPARTURE/SID — A preplanned instrument flight rule (IFR) air traffic control departure procedure printed for pilot use in graphic and/or textual form. SID's provide transition from the terminal to the appropriate en route structure. (See IFR Takeoff Minima and Departure Procedures) (Refer to AIM)

STANDARD RATE TURN — A turn of three degrees per second.

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

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." If a delay is lengthy, the caller should reestablish contact.

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 oper-

ations, rocket, missile and drone operations, and certain aerial refueling or similar operations.

STEPPDOWN 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.

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.

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

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, 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, Option Approach)

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.

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, Transponder)

STOP STREAM/BURST/BUZZER — Used by ATC to request a pilot to suspend electronic countermeasure activity. (See Jamming)

STOPWAY — An area beyond the takeoff runway designated by the airport authorities as able to support an airplane during an aborted takeoff. (Refer to FAR, Part 1)

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 Straight-in Landing, Landing Minimums, Straight-in Approach-VFR)

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/STRAIGHT-IN MINIMUMS — (See Landing Minimums)

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:

1. Substitute routes which are shown on U.S. Government charts.
2. Routes defined by ATC as specific NAVAID radials or courses.
3. Routes defined by ATC as direct to or between NAVAID's.

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/SHF — The frequency band between 3 and 30 gigahertz (GHz). The elevation and azimuth stations of the microwave landing system operate from 5031MHz to 5091MHz in this spectrum.

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. (See PAR Approach) (Refer to AIM)

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

TACAN-ONLY AIRCRAFT — An aircraft, normally military, possessing TACAN with DME but no VOR navigational system capability. Clearances must specify TACAN or VORTAC fixes and approaches.

TACTICAL AIR NAVIGATION/TACAN — An ultra-high frequency electronic rho-theta air navigation aid which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station. (See VORTAC) (Refer to AIM)

TARGET — The indication shown on a radar display resulting from a primary radar return or a radar beacon reply. (See Radar, Target Symbol)

ICAO—TARGET — In radar:

1. Generally, any discrete object which reflects or retransmits energy back to the radar equipment.
2. Specifically, an object of radar search or surveillance.

TARGET SYMBOL — A computer-generated indication shown on a radar display resulting from a primary radar return or a radar beacon reply.

TAXI — The movement of an airplane under its own power on the surface of an airport (FAR Part 135.100-Note). Also, it describes the surface movement of heli-

copters equipped with wheels. (See Air Taxi, Hover Taxi) (Refer to AIM)

TAXI INTO POSITION AND HOLD — Used by ATC to inform a pilot to taxi onto the departure runway in takeoff position and hold. It is not authorization for takeoff. It is used when takeoff clearance cannot immediately be issued because of traffic or other reasons. (See Hold, Cleared for Takeoff)

TAXI PATTERNS — Patterns established to illustrate the desired flow of ground traffic for the different runways or airport areas available for use.

TERMINAL AREA — A general term used to describe airspace in which approach control service or airport traffic control service is provided.

TERMINAL AREA FACILITY — A facility providing air traffic control service for arriving and departing IFR, VFR, Special VFR, and on occasion en route aircraft. (See Approach Control, Tower)

TERMINAL CONTROL AREA — (See Controlled Airspace)

TERMINAL RADAR PROGRAM — A national program instituted to extend the terminal radar services provided IFR aircraft to VFR aircraft. Pilot participation in the program is urged but is not mandatory. The program is divided into two parts and referred to as Stage II and Stage III. The Stage service provided at a particular location is contained in the Airport/Facility Directory.

1. Stage I originally comprised two basic radar services (traffic advisories and limited vectoring to VFR aircraft). These services are provided by all commissioned terminal radar facilities, but the term "Stage I" has been deleted from use.
2. Stage II/Radar Advisory and Sequencing for VFR Aircraft—Provides, in addition to the basic radar services, vectoring and sequencing on a full-time basis to arriving VFR aircraft. The purpose is to adjust the flow of arriving IFR and VFR aircraft into the traffic pattern in a safe and orderly manner and to provide traffic advisories to departing VFR aircraft.
3. Stage III/Radar Sequencing and Separation Service for VFR Aircraft—Provides, in addition to the basic radar services and Stage II, separation between all participating VFR aircraft. The purpose is to provide separation between all participating VFR aircraft and all IFR aircraft operating within the airspace defined as a Terminal Radar Service Area (TRSA) or Terminal Control Area (TCA). (See Controlled Airspace, Terminal Radar Service Area) (Refer to AIM, Airport/Facility Directory)

TERMINAL RADAR SERVICE AREA/TRSA — Airspace surrounding designated airports wherein ATC provides radar vectoring, sequencing, and separation on a full-time basis for all IFR and participating VFR aircraft. Service provided in a TRSA is called Stage III Service. The AIM contains an explanation of TRSA. TRSA's are depicted on VFR aeronautical charts. Pilot participation is urged but is not mandatory. (See

Terminal Radar Program) (Refer to AIM, Airport/Facility Directory)

TERRAIN FOLLOWING/TF — 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)

THAT IS CORRECT — The understanding you have is right.

THRESHOLD — The beginning of that portion of the runway usable for landing. (See Airport Lighting, Displaced Threshold)

THRESHOLD CROSSING HEIGHT/TCH — 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 Glide Slope, Threshold)

THRESHOLD LIGHTS — (See Airport Lighting)

TIME GROUP — Four digits representing the hour and minutes from the 24-hour clock. Time groups without time zone indicators are understood to be UTC (Coordinated Universal Time); e.g., "0205." The term "Zulu" is used when ATC procedures require a reference to UTC. A time zone designator is used to indicate local time; e.g., "0205M." The end and the beginning of the day are shown by "2400" and "0000," respectively.

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.

ICAO—TOTAL ESTIMATED ELAPSED TIME — 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 takeoff to arrive over the destination aerodrome. (See Estimated Elapsed Time)

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

TOUCHDOWN —

1. The point at which an aircraft first makes contact with the landing surface.
2. Concerning a precision radar approach (PAR), it is the point where the glide path intercepts the landing surface.

ICAO—TOUCHDOWN — 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.

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

TOUCHDOWN ZONE ELEVATION/TDZE — 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/AIRPORT TRAFFIC CONTROL TOWER/ATCT — 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 airport traffic 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 Area, Airport Traffic Control Service, Approach Control/Approach Control Facility, Approach Control Service, Movement Area, Tower En Route Control Service/Tower to Tower) (Refer to AIM)

ICAO—AERODROME CONTROL TOWER — A unit established to provide air traffic control service to aerodrome traffic.

TOWER EN ROUTE CONTROL SERVICE/TOWER TO TOWER — 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.

TPX-12 — 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, Transponder)

TRACK — The actual flight path of an aircraft over the surface of the earth. (See Course, Route, Flight Path)

ICAO—TRACK — 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).

TRAFFIC —

1. A term used by a controller to transfer radar identification of an aircraft to another controller for the purpose of coordinating separation action. Traffic is normally issued (a) in response to a handoff or point out, (b) in anticipation of a handoff or point out, or (c) in conjunction with a request for control of an aircraft.

2. A term used by ATC to refer to one or more aircraft.

TRAFFIC ADVISORIES — Advisories issued to alert pilots to other known or observed air traffic which may be in such proximity to the position or intended route of flight of their aircraft to warrant their attention. Such advisories may be based on:

1. Visual observation.
2. Observation of radar identified and nonidentified aircraft targets on an ATC radar display, or
3. Verbal reports from pilots or other facilities.

The word "traffic" followed by additional information, if known, is used to provide such advisories; e.g., "Traffic, 2 o'clock, one zero miles, southbound, eight thousand."

Traffic advisory service will be provided to the extent possible depending on higher priority duties of the controller or other limitations; e.g., radar limitations, volume of traffic, frequency congestion, or controller workload. Radar/nonradar traffic advisories do not relieve the pilot of his responsibility to see and avoid other aircraft. Pilots are cautioned that there are many times when the controller is not able to give traffic advisories concerning all traffic in the aircraft's proximity; in other words, when a pilot requests or is receiving traffic advisories, he should not assume that all traffic will be issued. (Refer to AIM, Radar Traffic Information Service)

(Identification), TRAFFIC ALERT. ADVISE YOU TURN LEFT/RIGHT (specific heading if appropriate), AND/OR CLIMB/DESCEND (specific altitude if appropriate) IMMEDIATELY. (See Safety Alert)

TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM/TCAS — An airborne collision avoidance system based on radar beacon signals which operates independent of ground-based equipment. TCAS-I generates traffic advisories only. TCAS-II generates traffic advisories, and resolution (collision avoidance) advisories in the vertical plane.

TRAFFIC INFORMATION — (See Traffic Advisories)

TRAFFIC IN SIGHT — Used by pilots to inform a controller that previously issued traffic is in sight. (See Negative Contact, Traffic Advisories)

TRAFFIC NO LONGER A FACTOR — Indicates that the traffic described in a previously issued traffic advisory is no longer a factor.

TRAFFIC PATTERN — The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traf-

fic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

1. **Upwind Leg**—A flight path parallel to the landing runway in the direction of landing.
2. **Crosswind Leg**—A flight path at right angles to the landing runway off its upwind end.
3. **Downwind Leg**—A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.
4. **Base Leg**—A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.
5. **Final Approach**—A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway. An aircraft making a straight-in approach VFR is also considered to be on final approach.

(See Straight-In Approach—VFR, Taxi Patterns) (Refer to AIM, FAR Part 91)

ICAO—AERODROME TRAFFIC CIRCUIT — The specified path to be flown by aircraft operating in the vicinity of an aerodrome.

TRANSCRIBED WEATHER BROADCAST/TWEB — A continuous recording of meteorological and aeronautical information that is broadcast on L/MF and VOR facilities for pilots. (Refer to AIM)

TRANSFER OF CONTROL — That action whereby the responsibility for the separation of an aircraft is transferred from one controller to another.

ICAO—TRANSFER OF CONTROL — Transfer of responsibility for providing air traffic control service.

TRANSFERRING CONTROLLER/FACILITY — A controller/facility transferring control of an aircraft to another controller/facility.

ICAO—TRANSFERRING UNIT/CONTROLLER — Air traffic control unit/air traffic controller in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit/air traffic controller along the route of flight.

Note. — See definition of *accepting unit/controller*.

TRANSITION —

1. The general term that describes the change from one phase of flight or flight condition to another; e.g., transition from en route flight to the approach or transition from instrument flight to visual flight.
2. A published procedure (SID Transition) used to connect the basic SID to one of several en route airways/jet routes, or a published procedure (STAR Transition) used to connect one of several

en route airways/jet routes to the basic STAR. (Refer to SID/STAR Charts)

TRANSITION AREA — (See Controlled Airspace)

TRANSMISSOMETER — An apparatus used to determine visibility by measuring the transmission of light through the atmosphere. It is the measurement source for determining runway visual range (RVR) and runway visibility value (RVV). (See Visibility)

TRANSMITTING IN THE BLIND/BLIND TRANSMISSION — A transmission from one station to other stations in circumstances where two-way communication cannot be established, but where it is believed that the called stations may be able to receive the transmission.

TRANSPONDER — The airborne radar beacon receiver/transmitter portion of the Air Traffic Control Radar Beacon System (ATCRBS) which automatically receives radio signals from interrogators on the ground, and selectively replies with a specific reply pulse or pulse group only to those interrogations being received on the mode to which it is set to respond. (See Interrogator) (Refer to AIM)

ICAO—TRANSPONDER — A receiver/transmitter which will generate a reply signal upon proper interrogation; the interrogation and reply being on different frequencies.

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

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

T-VOR/TERMINAL-VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION — A very high frequency terminal omnirange station located on or near an airport and used as an approach aid. (See Navigational Aid, VOR)

TWO WAY RADIO COMMUNICATIONS FAILURE — (See Lost Communications)

ULTRAHIGH FREQUENCY/UHF — The frequency band between 300 and 3,000 MHz. The bank of radio frequencies used for military air/ground voice communications. In some instances this may go as low as 225 MHz and still be referred to as UHF.

ULTRALIGHT VEHICLE — An aeronautical vehicle operated for sport or recreational purposes which does not require FAA registration, an airworthiness certificate, nor pilot certification. They are primarily single occupant vehicles, although some two-place vehicles are authorized for training purposes. Operation of an ultralight vehicle in certain airspace requires authorization from ATC. (See FAR 103)

UNABLE — Indicates inability to comply with a specific instruction, request, or clearance.

UNCONTROLLED AIRSPACE — Uncontrolled airspace is that portion of the airspace that has not been designated as continental control area, control area, control zone, terminal control area, or transition area and within which ATC has neither the authority nor

the responsibility for exercising control over air traffic. (See Controlled Airspace)

UNDER THE HOOD — Indicates that the pilot is using a hood to restrict visibility outside the cockpit while simulating instrument flight. An appropriately rated pilot is required in the other control seat while this operation is being conducted. (Refer to FAR, Part 91)

UNICOM — A nongovernment communication facility which may provide airport information at certain airports. Locations and frequencies of UNICOMs are shown on aeronautical charts and publications. (Refer to AIM, Airport/Facility Directory)

UNPUBLISHED ROUTE — A route for which no minimum altitude is published or charted for pilot use. It may include a direct route between NAVAIDS, a radial, a radar vector, or a final approach course beyond the segments of an instrument approach procedure. (See Published Route, Route)

UPWIND LEG — (See Traffic Pattern)

URGENCY — A condition of being concerned about safety and of requiring timely but not immediate assistance; a potential *distress* condition.

ICAO—URGENCY — A condition concerning the safety of an aircraft or other vehicle, or of person on board or in sight, but which does not require immediate assistance.

VECTOR — A heading issued to an aircraft to provide navigational guidance by radar.

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

VERIFY — Request confirmation of information; e.g., "verify assigned altitude."

VERIFY SPECIFIC DIRECTION OF TAKEOFF (OR TURNS AFTER TAKEOFF) — Used by ATC to ascertain an aircraft's direction of takeoff and/or direction of turn after takeoff. It is normally used for IFR departures from an airport not having a control tower. When direct communication with the pilot is not possible, the request and information may be relayed through an FSS, dispatcher, or by other means. (See IFR Takeoff Minimums and Departure Procedures)

VERTICAL SEPARATION — Separation established by assignment of different altitudes or flight levels. (See Separation)

ICAO—VERTICAL SEPARATION — Separation between aircraft expressed in units of vertical distance.

VERTICAL TAKEOFF AND LANDING AIRCRAFT/VTOL AIRCRAFT — Aircraft capable of vertical climbs and/or descents and of using very short runways or small areas for takeoff and landings. These aircraft include, but are not limited to, helicopters. (See Short Takeoff and Landing Aircraft)

VERY HIGH FREQUENCY/VHF — The frequency band between 30 and 300 MHz. Portions of this band, 108 to 118 MHz, are used for certain NAVAIDS; 118 to 136 MHz are used for civil air/ground voice com-

munications. Other frequencies in this band are used for purposes not related to air traffic control.

VERY LOW FREQUENCY/VLF — The frequency band between 3 and 30 kHz.

VFR AIRCRAFT/VFR FLIGHT — An aircraft conducting flight in accordance with visual flight rules. (See Visual Flight Rules)

VFR CONDITIONS — Weather conditions equal to or better than the minimum for flight under visual flight rules. The term may be used as an ATC clearance/instruction only when:

1. An IFR aircraft requests a climb/descent in VFR conditions.
2. The clearance will result in noise abatement benefits where part of the IFR departure route does not conform to an FAA approved noise abatement route or altitude.
3. A pilot has requested a practice instrument approach and is not on an IFR flight plan.

All pilots receiving this authorization must comply with the VFR visibility and distance from cloud criteria in FAR Part 91. Use of the term does not relieve controllers of their responsibility to separate aircraft in TCAs/TRSAs as required by FAA Handbook 7110.65. When used as an ATC clearance/instruction, the term may be abbreviated "VFR," e.g., "MAIN-TAIN VFR," "CLIMB/DESCEND VFR," etc.

VFR-ON-TOP — ATC authorization for an IFR aircraft to operate in VFR conditions at any appropriate VFR altitude (as specified in FAR and as restricted by ATC). A pilot receiving this authorization must comply with the VFR visibility, distance from cloud criteria, and the minimum IFR altitudes specified in FAR Part 91. The use of this term does not relieve controllers of their responsibility to separate aircraft in TCA's/TRSA's as required by FAA Handbook 7110.65.

VFR MILITARY TRAINING ROUTES/VR — Routes used by the Department of Defense and associated Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training under VFR below 10,000 feet MSL at airspeeds in excess of 250 knots IAS.

VFR NOT RECOMMENDED — An advisory provided by a flight service station to a pilot during a preflight or inflight weather briefing that flight under visual flight rules is not recommended. To be given when the current and/or forecast weather conditions are at or below VFR minimums. It does not abrogate the pilot's authority to make his own decision.

VIDEO MAP — An electronically displayed map on the radar display that may depict data such as airports, heliports, runway centerline extensions, hospital emergency landing areas, NAVAID's and fixes, reporting points, airway/route centerlines, boundaries, handoff points, special use tracks, obstructions, prominent geographic features, map alignment indicators, range accuracy marks, minimum vectoring altitudes.

VISIBILITY — The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night. Visibility is reported as statute miles, hundreds of feet or meters. (Refer to FAR Part 91, AIM)

ICAO—VISIBILITY — The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night.

1. **Flight Visibility**—The average forward horizontal distance, from the cockpit of an aircraft in flight, at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night.

ICAO—Flight Visibility—The visibility forward from the cockpit of an aircraft in flight.

2. **Ground Visibility**—Prevailing horizontal visibility near the earth's surface as reported by the United States National Weather Service or an accredited observer.

ICAO—Ground Visibility—The visibility at an aerodrome as reported by an accredited observer.

3. **Prevailing Visibility**—The greatest horizontal visibility equaled or exceeded throughout at least half the horizon circle which need not necessarily be continuous.
4. **Runway Visibility Value/RVV**—The visibility determined for a particular runway by a transmissometer. A meter provides a continuous indication of the visibility (reported in miles or fractions of miles) for the runway. RVV is used in lieu of prevailing visibility in determining minimums for a particular runway.
5. **Runway Visual Range/RVR**—An instrumentally derived value, based on standard calibrations, that represents the horizontal distance a pilot will see down the runway from the approach end. It is based on the sighting of either high intensity runway lights or on the visual contrast of other targets whichever yields the greater visual range. RVR, in contrast to prevailing or runway visibility, is based on what a pilot in a moving aircraft should see looking down the runway. RVR is horizontal visual range, not slant visual range. It is based on the measurement of a transmissometer made near the touchdown point of the instrument runway and is reported in hundreds of feet. RVR is used in lieu of RVV and/or prevailing visibility in determining minimums for a particular runway.

- a. **Touchdown RVR**—The RVR visibility readout values obtained from RVR equipment serving the runway touchdown zone.
- b. **Mid-RVR**—The RVR readout values obtained from RVR equipment located midfield of the runway.
- c. **Rollout RVR**—The RVR readout values obtained from RVR equipment located nearest the rollout end of the runway.

ICAO—Runway Visual Range (RVR)—The range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line.

VISUAL APPROACH — An approach wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of an air traffic control facility and having an air traffic control authorization, may proceed to the airport of destination in VFR conditions.

ICAO—VISUAL APPROACH — An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

VISUAL APPROACH SLOPE INDICATOR — (See Airport Lighting)

VISUAL DESCENT POINT/VDP — A defined point on the final approach course of a nonprecision straight-in approach procedure from which normal descent from the MDA to the runway touchdown point may be commenced, provided the approach threshold of that runway, or approach lights, or other markings identifiable with the approach end of that runway are clearly visible to the pilot.

VISUAL FLIGHT RULES/VFR — Rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan. (See Instrument Flight Rules, Instrument Meteorological Conditions, Visual Meteorological Conditions) (Refer to FAR, Part 91 and AIM)

VISUAL HOLDING — The holding of aircraft at selected, prominent geographical fixes which can be easily recognized from the air. (See Hold, Holding Fixes)

VISUAL METEOROLOGICAL CONDITIONS/VMC — Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima. (See Instrument Flight Rules, Instrument Meteorological Conditions, Visual Flight Rules)

VISUAL SEPARATION — A means employed by ATC to separate aircraft in terminal areas. There are two ways to effect this separation:

1. The tower controller sees the aircraft involved and issues instructions, as necessary, to ensure that the aircraft avoid each other.
2. A pilot sees the other aircraft involved and upon instructions from the controller provides his own separation by maneuvering his aircraft as necessary to avoid it. This may involve following another aircraft or keeping it in sight until it is no longer a factor. (See See and Avoid) (Refer to FAR, Part 91)

VORTAC/VHF OMNIDIRECTIONAL RANGE/TACTICAL AIR NAVIGATION — A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN

distance measuring equipment (DME) at one site. (See Distance Measuring Equipment, Navigational Aid TACAN, VOR) (Refer to AIM)

VORTICES/WING TIP VORTICES — Circular patterns of air created by the movement of an airfoil through the air when generating lift. As an airfoil moves through the atmosphere in sustained flight, an area of area of low pressure is created above it. The air flowing from the high pressure area to the low pressure area around and about the tips of the airfoil tends to roll up into two rapidly rotating vortices, cylindrical in shape. These vortices are the most predominant parts of aircraft wake turbulence and their rotational force is dependent upon the wing loading, gross weight, and speed of the generating aircraft. The vortices from medium to heavy aircraft can be of extremely high velocity and hazardous to smaller aircraft. (See Aircraft Classes Wake Turbulence) (Refer to AIM)

VOR/VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION — A ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the National Airspace System. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature. Voice features may be used by ATC or FSS for transmitting instructions/information to pilots. (See Navigational Aid) (Refer to AIM)

VOT/VOR TEST SIGNAL — A ground facility which emits a test signal to check VOR receiver accuracy. Some VOT's are available to the user while airborne, and others are limited to ground use only. (Refer to FAR, Part 91, AIM, Airport/Facility Directory)

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, Jet Blast, Vortices) (Refer to AIM)

WARNING AREA — (See Special Use Airspace)

WAYPOINT — A predetermined geographical position used for route/instrument approach definition, or progress reporting purposes, that is defined relative to a VORTAC station or in terms of latitude/longitude coordinates.

WEATHER ADVISORY/INFLIGHT WEATHER ADVISORY — (See SIGMET, AIRMET)

WEATHER ADVISORY/WS/WST/WA/CWA — 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.

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.

WILCO — I have received your message, understand it, and will comply with it.

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.

WORDS TWICE —

1. As a request: "Communication is difficult. Please say every phrase twice."
2. As information: "Since communications are difficult, every phrase in this message will be spoken twice."

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