

non-transient error

A hardware error for which it is determined that re-try (see re-triable error) is either not possible or not likely to be successful. This is an error whose cause must be found and corrected before error-free processing can be resumed.

non-uniform time update

An output message alerting the controller to significant time change caused by different time increments at each fix for a given flight.

non-validated beacon return

A beacon return that is considered invalid if, during the processing of a target, two consecutive replies to interrogations of the same Mode 3/A or C do not compare identically.

non-volatile storage

Computer storage such as magnetic tape, punch cards, etc., that retains information placed on it even in the absence of electric or electronic power.

no-op

To discontinue communications with a device with no notification of unsuccessful transmission.

NORAD command and control identifiers/CCI's

The method by which the NORAD air defense system reports command and control structure within the regions. CCI's include command location and tactical control source. The tactical control source is the facility/facilities providing tactical control.

NORAD region

A geographical subdivision of the area for which NORAD is responsible.

NORDO

See lost communications.

### normal

In meteorology, the value of an element averaged for a given location over a period of years and recognized as a standard.

### normal mode

The normal mode of operation of a sub-system performing all of its required allocated functions to the specified performance.

### north

A cardinal point located a 0°.

1. compass north -- The direction indicated by the north seeking end of a compass needle.
2. grid north/GN -- An arbitrarily selected direction of a rectangular grid. In grid navigation the direction of the 180° geographical meridian from the pole is almost universally used as standard grid north.
3. magnetic north/MN -- The direction towards the north magnetic pole from an observers position.
4. true north/TN -- The direction from an observers position to the geographical North Pole. The north direction of any geographical meridian.

### North American Route

A numerically coded route preplanned over existing airway and route systems to and from specified 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.

#### Notice to Airmen/NOTAM

A notice identified either as a NOTAM or AIRAD containing information concerning the establishment, condition, or change to any components of (or hazard in) the National Airspace System, the timely knowledge of which is essential to personnel concerned with flight operations.

1. NOTAM request -- A request made usually by a pilot (normally prior to a flight) to a flight service specialist or controller (during a flight) for any appropriate NOTAM information.
2. NOTAM changes and annotations -- Actions taken by NFDC U.S. NOTAM Office work station operators as part of the NOTAM editing process.
3. NOTAM summary/NOSUM -- A compilation of current NOTAMs in abbreviated plain language.
4. NOTAM (D) -- A NOTAM given (in addition to local dissemination) distant dissemination via teletypewriter beyond the area of responsibility of the FSS. These NOTAMs are stored and repeated hourly until canceled.
5. NOTAM (L) -- A NOTAM given local dissemination by voice, (Teletypewriter where applicable), and a wide variety of means such as : teleautograph, teleprinter, facsimile reproduction, hot line, telecopier, telegraph and telephone to satisfy local user requirements.
6. FDC NOTAM -- A notice to airman, regulatory in nature, transmitted by NFDC and given all circuit dissemination.

#### Notice to Airman/NOTAM (ICAO)

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

#### 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.

nuclear weapon accident/Broken Arrow

An unexpected event involving nuclear weapons or nuclear components which results in: accidental or unauthorized launching, firing or use by U. S. forces or U. S. supported Allied forces, or a nuclear capable weapon(s) system which could create the risk of war; nuclear detonation; non-nuclear detonation/burning of a nuclear weapon; radioactive contamination; seizure, theft or loss of a nuclear weapon or nuclear component, including jettisoning; or a public hazard, actual or implied.

nuisance alert

An unwarranted alert message to a specialist, warning of a present or predicted unsafe situation.

null

A term applied to weak portions of an antenna radiation pattern. Nulls, in general, are small typically subtending only a few square degrees.

numerical forecasting/numerical weather prediction

Forecasting by digital computers solving mathematical equations. It is used extensively in weather services throughout the world.

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.

NWS products

NWS products include all products that are generated by the NWS for use by the NAS. This includes all NWS charts and graphs; alphanumeric products such as various forecasts, observations, and summaries; and binary-grids products such as the aviation route forecast (ARF).

obscuration

Denotes sky hidden by surface based obscuring phenomena and vertical visibility restricted overhead.

obscuring phenomena

Any hydrometeor or lithometeor other than clouds. May be surface based or aloft.

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

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. For example, with reference to mobile objects, a moving vehicle 17 feet high is assumed to be on an Interstate highway, 15 feet high on other highways, and 25 feet high on a railroad track, except where limited to certain heights controlled by use or construction. The height of a ship's mast is assumed according to the type of ships known to use an anchorage.

1. obstruction clearance -- The vertical distance between the lowest authorized flight altitude and a prescribed plane within a specific area.
2. obstruction clearance boxes -- When used in figures which depict approach segments these boxes indicate the obstruction clearance requirements in feet.

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.

obstruction to vision

This would include various atmospheric phenomena, such as rain, hail, snow, fog, dust, smoke, smog, haze, etc.

occlusion/occluded front

A composite of two fronts as a cold front overtakes a warm front or quasi stationary front.

occupational exposure

Exposure to a hazard such as chemicals, toxins, ionizing radiation, etc., which occurs to a worker assigned to a controlled area.

oceanic conflict probe

A function which will determine from an aircraft's flight plan data as projected along its flight plan. flight path. profile if it will infringe upon any airspace reservation or another aircraft's projected flight plan.

oceanic FPA

A FPA within which great circle computations, oceanic posting and processing are performed.

oceanic route(s)

Routes generally depicted on position reporting charts to facilitate flight planning and position reporting while conducting flight in ICAO oceanic control areas.

octal digit

The numeric system of notation which uses 8 as the base or radix.

off-hook

The condition presented to the EVS System when the calling termination has requested service. This user request can either be initiated by a position or by a trunk circuit.

off-line

(1) That portion of a computer system that comprises the redundant elements for the on-line system, such as auxiliary equipment or output devices not under control of the central processing unit. (2) Not in the loop. Paper tapes frequently are punched "off-line" on an ASR and then transmitted using the TD. See status.

1. off-line storage -- Off line/archive storage pertains to voice/data information archive in a storage facility. This information is not immediately

available through an automated random access capability. Retrieval of off-line/archive storage information would require the aid of a specialist to locate, mount, and initiate a magnetic tape reel search.

#### off-line crypto-operations

Encryption or decryption performed as a self contained operation distinct from the transmission of the encrypted text, as by hand or by machines not electrically connected to a signal line.

#### off-line solenoid

An electrically controlled magnet used to prevent printing.

#### 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.

#### off-set parallel runways

Staggered runways having centerlines which are parallel.

#### off-set point

A point in space relative to a target's path toward which an interceptor is vectored or from which the final attack heading or turn is made.

#### off-shore controlled airspace

Designated airspace over the high seas within which the United States has accepted the responsibility of providing air traffic services. This service is provided in a manner consistent with that adopted for airspace under its domestic jurisdiction.

#### off-the-shelf items

Commercial items of equipment and/or test equipment, utilized in the NAS, which are sold in substantial quantities to the general public at established catalog or market prices.

#### office of primary interest/OPI

The organizational element primarily affected by decisions or actions of the OPR and held accountable for proper

responsiveness, coordination and feedback, prior to assumption of OPR status in the next sequence of events, is considered the office of primary interest.

office of primary responsibility/OPR

The organizational element held accountable for taking appropriate action or for making a decision between alternatives at a specific turn of events is considered the office of primary responsibility.

Official Airline Guide/OAG

A commercial product which contains commercial air carrier schedules, usually provided digitally four times a month to the TMP. These data provide a basis for estimation of future airspace demand.

official information

Information which is owned by, produced for or by, or subject to the control of the United States Government.

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.

on-line

(1) That portion of a computer system that is actively processing the NAS authorized program. (2) Pertains to I/O devices; interfaced with the operational program. In the loop. Implies direct input. See status.

1. on-line storage -- Storage facilities allowing immediate access to information (voice and/or data) recorded within the past 24 hours.

n-line crypto-operation

The use of crypto-equipment that is directly connected to a signal line, making single continuous processes of encryption and transmission or reception and decryption.

on-line high-speed printer

A high speed printer assigned to an operational program.

one(s)

The affirmative value of a binary bit.

one-way tone circuit

A telephone circuit carrying tone control signals in one direction only in addition to two-way speech signals. An example of this circuit is a channel between an ARTCC and an RCAG, with the transmitting direction being from the ARTCC toward the RCAG. Voice-frequency control signals are sent by a subsystem for the purpose of selecting main and standby equipment, changing frequencies and keying transmitters on. No control or status signals are received over the voice-grade receiving leg from the RCAG. If the one-way tone circuit involves a four wire transmission facility, the sending leg is the only one handling tones. The receiving leg will have the same 1000 Hz net loss as the transmitting leg.

open line

A signal line in which current has stopped for a period equal to, or more than, the time required to transmit one complete character.

operate

With respect to aircraft, means use, cause to use or authorize to use aircraft for the purpose of air navigation including the piloting of aircraft, with or without the right of legal control (as owner, lessee, or otherwise).

operation

With respect to communication systems, that process or series of events that result in either the printing of a character or the performance of a function.

operational equipment

Equipment that is in actual use for the control of air traffic.

operating agency

The individual (pilot-in-command) or group of individuals (ARTCC) who have operational control of the conduct of any particular flight.

operating stock

The quantity of material stored on-site to meet anticipated operating requirements during the interval between replenishment actions, based on the annual demand value of each item.

operating system/OS

An integrated collection of service routines for supervising the sequencing and processing of programs by a computer. Operating systems control the allocation of resources to users and their programs and play a central role in the operation of a computer system. Operating Systems may perform debugging, input-output, accounting, resource allocation, compilation, storage assignment tasks and other system related functions.

operating time

The length of the interval measured from the initiation to the completion of a process (e.g., the execution of a sub-program).

operating tolerance/limit

The maximum deviation from the standard value of a parameter, or the range within which normal functioning can continue without adjustment or corrective maintenance, and beyond which remedial action by maintenance personnel is mandatory.

operational advantage

An improvement which benefits the users of an instrument procedure. Achievement of lower minimums or authorization for a straight in approach with no derogation of safety are examples of an operational advantage. Many of the options in TERPS are specified for this purpose. For instance the flexible final approach course alignment criteria may permit

the ALS to be used for reduced visibility credit by selection of the proper optional course.

operational characteristic/OC curve

The quality curve which shows for a particular sampling plan the relationship between the fraction defective in a lot and the probability that the sampling plan will accept the lot.

operational computer program

(1) That set of computer sub-programs which provide the selected operational functions for NAS. (2) Computer programs for the control of air traffic which have reached Initial Operating Capability/IOC at the first field site.

operational control

With respect to a flight, means the exercise of authority over initiating, conducting, or terminating a flight.

operational control program

That set of computer sub-programs which provide the selected operational functions for the NAS.

operational control transmission

The transmission of operational control signals concerning the operational condition of a specific piece of equipment or sub-system. This would include such information as on/off status, channel selection, light intensity level selected, etc.

operational data security

The protection of data from either accidental, unauthorized, intentional modification, destruction or disclosure during input, processing or output operations.

operational hardware

Equipment that has reached an operational capability in the field, maintenance has been assumed by the agency, and ownership and responsibility have been transitioned to regional control.

operational readiness date/ORD

The date on which a new or improved facility or system satisfies JAI construction, installation, performance,

operation and maintenance criteria, and is ready to be placed into operational use.

#### operational shakedown

A series of tests conducted to verify the design capabilities of a Model with all hardware, software, operational personnel, and physical resources operating as a complete sub-system. See category, testing.

#### operational sub-system

That portion of the Central Computer complex (CCC) and the external I/O equipment on-line to it which is used to execute the operational programs.

#### operator

(1) Any person who causes or authorizes the operation of an aircraft, such as the owner, lessee or bailee of an aircraft. (2) Any person in control of, or having the responsibility for the daily operation of a fuel bulk storage system.

#### optical disk system

A configuration of electronically connected equipment that scans, records, stores, retrieves and prints documents or images.

1. optical disk -- A laser recorded medium that can electronically store up to 80,000 pages or images per disk in Write Once Read Many/WORM format or 300,000 pages per disk for the Compact Disk Read Only Memory.

#### optimum

(1) The best or most desirable condition or degree. (2) Most favorable. As used in TERPs, optimum identifies the value which should be used wherever a choice is available.

#### optimum flight plan

An adapted flight path or arrival normally will fly from a transition point to the adapted vortex.

#### 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)

rganized track system

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

original classification

An initial determination that information requires, in the interest of national security, a specific degree of protection against unauthorized disclosure together with a designation signifying that such a determination has been made.

orographic

Of, pertaining to, or caused by mountains as in orographic clouds, orographic lift, or orographic precipitation.

oscillating rail

A rail in a printer which moves about two fixed pivot points through a small arc to place the typebox.

other maintenance task

Any periodic scheduled task other than a performance check that is necessary to prevent deterioration and/or ensure reliable operation of the system, subsystem or equipment. These tasks are not performance checks. Periodic maintenance activities prescribed in maintenance technical directives are separated into "performance checks" and "other maintenance tasks."

out

The conversation is ended and no response is expected.

out of band signaling

Transmission of signals by frequencies outside the voice band.

outbound coordination fix

The coordination fix transmitted to an approach control or adjacent center.

### outbound fix

The first converted fix traversed by an aircraft after crossing the control area boundary upon leaving the control area.

### output

Information transferred from the computer to a disk/tape drive, video display, printer, peripheral device or another computer.

### output equipment

The equipment used to transfer information out of a computer.

### output level (composite picture signal)

In a video display, the peak-to-peak voltage of a composite picture signal is the difference between its most positive potential and its most negative potential expressed in volts.

### output printer

A device that prints computer messages or displays in hard copy form.

### outer area

Non-regulatory 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 NM 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/radic 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/ARSA, conflict resolution.

### outer fix

(1) A fix in the destination terminal area, other than an approach fix, to which aircraft are normally cleared by an air route traffic control center or a terminal area traffic control facility, and from which aircraft are cleared to the

approach fix or final approach course. (2) An adapted fix along the converted route of flight, prior to the meter fix, for which crossing times are calculated and displayed in the metering position list.

outer fix time/OFT

A calculated time to depart the outer fix in order to cross the vertex at the ACLT. The time reflects descent speed adjustments and any applicable delay time that must be absorbed prior to crossing the meter fix.

outer marker/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)

out-pulsing

The process of transmitting digital address information over a trunk from an EVS System to another switching center. The latter may be either another EVS System, FTS, AUTOVON or commercial facility.

output

(1) The information transferred from the internal storage of a computer to secondary or external storage; or to any device outside of the computer. (2) The routines which direct 1, (3) The device or collective set of devices necessary for 1, (4) To transfer from internal storage on to external media.

over

My transmission is ended; I expect a response.

over-flight

A flight traversing a given center or approach control area.

1. over-flight effects -- The effect of a passing aircraft on an ILS localizer signal.

overflow (over capacity)

The generation of a quantity beyond the capacity of the computer register or location which is to receive the result.

over-head 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: the radio contact required of the pilot, the speed to be maintained, an initial approach of 3 to 5 miles in length, an elliptical pattern of two 180° turns, a break point at which the first 180° turn is started, the direction of turns, altitude (at least 500 feet above the conventional pattern), and 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.

over-interrogation

Excessive ground interrogation of a transponder; the result is a loss of reliability of information delivered to the ground station because of a lack of time within which the transponder can completely respond to a given interrogation.

over-the-top

Above the layer of clouds or other obscuring phenomena forming the ceiling.

overlap condition

Exists whenever a radar datum falls in the primary search area of more than one track.

overlap factor

The total area of all PVD's in an ARTCC divided by the total radar sort box area of the center.

override

In an ARTCC controller environment it is the capability to inform a called party that he has an important call, even though he may have another call in progress.

overseas air commerce

The carriage by aircraft of persons or property for compensation or hire, or the carriage of mail by aircraft, or the operation or navigation of aircraft in the conduct or furtherance of a business or vocation, in commerce between a place in any State of the United States, or the District of Columbia, and any place in a territory or possession of the United States; or between a place in a territory or possession of the United States, and a place in any other territory or possession of the United States.

overseas air transportation

The carriage by aircraft of persons or property as a common carrier for compensation or hire, or the carriage of mail by aircraft, in commerce: between a place in a State or the District of Columbia and a place in a possession of the United States; or between a place in a possession of the United States and a place in another possession of the United States; whether that commerce moves wholly by aircraft or partly by aircraft and partly by other forms of transportation.

overseas SAR region

Overseas unified command areas, including the inland area of Alaska, which are not included within the Inland Region or Maritime Region as defined by the National SAR Plan.

overwriting

The obliteration of recorded data by recording different data on the same surface.

ozone

An unstable form of oxygen, with heavier concentrations are in the stratosphere. It is corrosive to some metals, and absorbs most ultraviolet solar radiation.

Pacific Island Air Defense Region/PIADR

A geographical subdivision of the USPACOM area for which the Air Component Commander is responsible for air defense.

Pacific Military Altitude Reservation Facility/PACMARK

A USAF facility established for the purpose of coordinating altitude reservations within their area of responsibility.

padding airport

An airport whose capacity can affect the NAS on a system-wide basis. There are currently 23 padding airports.

pad

The filling of the unused portion of a field (e.g., by a single depression of the space bar).

pairing factor

The average number of radar areas of coverage which a plan view display overlaps in an ARTCC.

pairing

A computer program process which identifies that certain stored track information and certain stored flight plan information, refer to the same flights.

1. paired flight -- A flight for which the computer has stored both a flight plan and a track that have been cross-referenced with the pairing process.
2. paired flight plan -- The flight plan of a paired flight. See flight plan.
3. paired track -- The track of a paired flight. See track.

pallet

(1) An extension on a die which, when struck by the printing hammer, will drive the die into an inked ribbon and apply the impression of the die character to the paper producing a printed character. (2) A portable platform on which material (usually a quantity of the same item) may be placed to facilitate stacking upon and under other pallets similarly loaded, as well as lifting and carrying by material-handling equipment.

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)

parachute

A device used or intended to be used to retard the fall of a body or object through the air.

parallel

A method of communicating digital information in which several data bits are transmitted simultaneously, each over its own line.

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 path/route

A parallel track to the left or right of the designated (established) or "parent" airway/route, specified in nautical miles of offset distance. Normally associated with area navigation (RNAV) operations. See area navigation.

parallel processing

A computer hardware/software technique in which each of two or more computing elements of a computer system is capable of simultaneously and independently operating on the same set of data or instructions stored in memory. See programming, multiple.

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).

parallel transmission

Simultaneous transmission of the bits composing a character, either over separate wires or channels or on different

carrier frequencies on one channel. Contrast with serial transmission.

### parameter

(1) A computer program constant or equipment adjustment which is set to a value that may be varied incrementally within a specified range according to operational requirements. (2) A quantity which specifies operating conditions or configurations. (3) The description of variable data and tables. (4) A quantity whose value varies with the circumstances of its application. Three types are defined:

1. system parameter -- A fixed parameter whose value is set only at source information assembly time and is not dynamically changeable.
2. center parameter -- A dynamic parameter valid for a specific operation on a center wide basis.
3. special parameter -- A dynamic or non-dynamic limited use parameter valid only for the airport or adjacent facility to which it is adapted.

### parameter testing

Parameter tests are tests run on sub-programs to uncover logic and arithmetic errors before attempting to mate two or more sub-programs for assembly testing. Each program parameter is varied to its limits, and each logical path through the program is checked.

### parcel

A small volume of air, small enough to contain uniform distribution of its meteorological properties, and large enough to remain relatively self contained and respond to all meteorological processes. No specific dimensions have been defined, however, the order of magnitude of one cubic foot has been suggested.

### parity

A method used to check the validity of data that is stored, transmitted or received.

### parity bit

An extra bit in data signaling, indicating either odd or even character or block combinations of binary elements for the purpose of detecting transmission errors. The check

bit indicates whether the total number of binary "1" digits in a character or word (excluding the parity bit) is odd or even. If a "1" parity bit indicates and odd number of "1" digits, then an "0" bit indicates an even number of them.

1. parity check -- Checking that tests whether the number of ones (or zeros) in an array of binary digits is odd or even.

#### part

(1) A one-piece element designed to perform a simple function in an assembly, module, component, unit, equipment or facility. (2) An element of a sub-assembly, or an assembly, of such construction that it is not practical to disassemble the element for maintenance purposes.

#### partial joint acceptance inspection

An intermediate step of the JAI process accomplished for a specific purpose prior to the final JAI. Partial JAI's provide for a manageable progression to the final JAI. See joint acceptance inspection.

#### partial obscuration

A designation of sky cover when part of the sky is hidden by surface based obscuring phenomena.

#### participating aircraft

Only those aircraft engaged in, and part of, the activity being conducted.

#### pass

One cycle of processing a body of data.

#### password

A protected word or string of characters that identifies or authenticates a user, a specific resource, or an access type. Synonymous with keyword.

1. password dialogue -- Synonym for handshaking procedure.

#### pawl

A mechanical unit which causes advancement of motion of another unit in only one direction. This is done by the pawl pushing, or sometimes pulling, on a tooth of the other unit.

### peak-to-average ratio/P/AR

A formula using the ratio of peak voltage of a signal to the full-wave rectified average voltage. P/AR is a test to measure a telephone line's bandwidth and non-linearity and, therefore, its ability to effectively pass data.

### penetration

(1) That portion of a published high altitude instrument approach procedure which prescribes a descent path from the fix on which the procedure is based to a fix or altitude from which an approach to the airport is made. (2) A successful unauthorized access to an AIS.

### penetration signature

(1) The description of a situation or set of conditions in which an AIS penetration could occur. (2) The description of usual or unusual system events which in conjunction can indicate the occurrence of a penetration in process.

1. penetration profile -- A delineation of the activities required to effect a penetration.
2. penetration testing -- The use of special programmer/analyst teams to attempt to penetrate a system for the purpose of identifying any security weaknesses.

### perceive

To become aware of an action as it evolves over time, such as an aircraft deviation or a tracking fault.

### percent break

The ratio of the open-circuit or tone OFF time to the time allocated to a single pulse in a digital address.

### percent defective

That proportion of a lot which is defective.

### perforator

A unit by which signalling code may be punched into a paper tape. The tape punch which is controlled mechanically is used for punching tape off-line.

### perform

Carry out a standard procedure or operation, such as logging on at the Sector Suite workstation.

### performance check

A periodic scheduled test, measurement or observation of normal operating controls and functions, which is necessary to determine whether a system, subsystem or equipment is operating within its established tolerances or limits (i.e., doing its job satisfactorily at a given time). Periodic maintenance activities prescribed in maintenance technical directives are separated into "performance checks" and "other maintenance tasks." This term is also used in maintenance technical handbooks to mean a procedure required to evaluate the performance of a system, subsystem or equipment rather than just the description of the activity. See other maintenance task.

### performance measures

Based on determined optimal parameters, a set of merit criteria established for the measurable functions under study. A quantitative indicator of how well a system (or unit) is functioning. Examples include capacity, accuracy, response time, etc.

### performance monitoring

A feature of the TCAS equipment that implements the function of measuring critical physical or software TCAS quantities to determine the operating capability of the TCAS equipment. The performance monitoring function is initiated routinely and automatically by the TCAS equipment; no flight crew or external stimulation is required. The performance monitor feature of the TCAS equipment also provides to the pilot an indication of the operating status of the equipment.

### performance standard

An established range of values of a system (or unit) performance measure within which the sub-system is required to operate.

### periodic

An occurrence or recurrence at regular intervals.

1. periodic maintenance -- Any scheduled preventative maintenance activities that include performance checks

and/or other maintenance tasks which occur on a regular basis.

peripheral

Any equipment which is connected to a computer, including video displays, printers, modems, etc,

peripheral adapter module/PAM

A CCC Element which is used for the control and transmission of data between the peripheral devices (excluding displays) and the I/O control elements.

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.

permanent tone

An information tone consisting of frequencies 350 Hz and 480 Hz used to indicate to a position that a permanent request for service has been detected by the EVS and for the position to go or-hook.

person

An individual, firm, partnership, corporation, company, association, joint-stock association or governmental entity. It includes a trustee, receiver, assignee or similar representative of any of them.

personal property

Any article with the exception of records and real property, that is tangible, movable and not permanently affixed to other items.

1. in-use personal property -- An item of personal property which is performing or serving its assigned operational function, is permanent in nature and does not lose its individual identity when placed in use.

personnel

The body of individuals employed by or active in an organization, business or service.

1. personnel error -- Any interruption of a facility/service caused by human error. This term is referred to as "skinware" in automation applications.
2. personnel record -- Information maintained in a system of records which is needed at any echelon of management for personnel actions such as staffing, employee development, retirement, grievance and appeals, etc.
3. personnel security -- The procedures established to ensure that all personnel who have access to any sensitive information have the required authorities as well as the appropriate clearances.

#### phantom

An arrangement of repeat coils whereby a third circuit may be connected by the center taps of the coils in a four wire system.

#### phantom replies

Radar returns which occur when any two pulses of two reply trains are one code train apart. Also called 'ghosts', 'pixies' and 'angels'.

#### phase hits

Rapid (4 ms duration) positive or negative phase angle changes which exceed a preset threshold.

#### phase jitter

Unwanted movement of the zero crossing of the voice-band signal. Phase jitter will appear as phase or frequency modulation.

#### 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 16 NM and altitude range of 1,500 feet to 10,000 feet AGL.

#### photoelectric emission

The phenomenon of emission of electrons by certain materials upon exposure to radiation in and near the visible region of the spectrum.

photon

A unit (quantum) of electromagnetic energy.

physical capacity

The capacity of an air traffic facility to accept a traffic density determined only by physical separation requirements, without including equipment or human error or procedural effects.

physical device

Any external I/O hardware which interfaces with a computer via a control unit. See I/O path.

physical inventory

The actual physical count of items of property to ascertain the total quantity on hand, to obtain an accurate description, and to verify location. This information is used to validate official records.

physical security

(1) The use of locks, guards, badges and similar administrative measures to control access to a computer or related equipment. (2) The measures required for the protection of structures and their contents from damage by accident, fire or environmental hazards.

picture signal

In a video display, the signal resulting from the scanning process.

1. polarity of picture signal -- The sense of the potential of a portion of the signal representing a dark area of a scene relative to the potential of the signal representing a light area. Polarity is stated as "black negative" or "black positive."

piggy-back entry

Unauthorized access that is gained to an AIS system via another user's legitimate connection.

pilot balloon

A small free lift balloon used to determine the speed and direction of winds in the upper air.

2. pilot balloon observation/PIBAL -- A method of winds aloft observation by visually tracking a pilot balloon.

pilot briefing

A service provided by the Flight Service Station to assist pilots in flight planning. Briefing items may include weather information, NOTAM's military activities, flow control information, and other items as requested.

pilot channel/pilot frequency

Usually a very narrow band channel over which a single frequency is transmitted to operate trouble alarms or automatic level regulators, or both.

pilot in command

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

pilotage

Navigation by visual reference to landmarks.

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.

PIREP (pilot weather report)

A report initiated by a pilot concerning meteorological phenomena encountered by the in flight aircraft or other pertinent aeronautical information.

1. PIREP request -- A request made by a pilot, or specialist for PIREP information.
2. PIREPs request/PIREPs transmission -- The transmission of PIREPs/PIREP request over an RF link that uses air (free space) as the communications medium.

### pitch

The angle between an aircraft's longitudinal axis and the horizontal ground plane.

1. pitch setting -- The propeller blade setting as determined by the blade angle measured in a manner, and at a radius specified by the instruction manual for the propeller.

### pitot

A cylindrical tube with an open end pointed up stream; used in measuring impact pressure, particularly in an airspeed indicator.

1. pitot static tube -- A parallel or coaxial combination of a pitot and static tube. The difference between the impact pressure and the static pressure is a function of the velocity of flow past the tube and may be used to indicate the airspeed of an aircraft in flight.

### plain text

Intelligible text or signals that have meaning and which can be read or acted upon without the application of any decryption.

### plan position indicator/PPI (scope)

A radar indicator scope displaying range and azimuth of targets in polar coordinates.

### plan view display/PVD

A cathode ray tube display that presents digitized video alphanumeric and special symbols in the computer display channel.

### planned air defense exercise

A properly coordinated air defense exercise conducted by an air division or higher echelon for training, evaluation and/or testing the air defense system.

### platen

The hard rubber roller which supports the paper during printing and advances it during line feed.

gust wind

The spreading downdraft of a thunderstorm; a strong, straight line wind in advance of the storm. See first gust.

gogo

The term describing short distance IFR flights from one airport to another of which control is exercised by the departure TRACON or tower and the destination TRACON or tower within low altitude airspace delegated to the two facilities for that purpose by the en route traffic control center having jurisdiction. See tower en route flight.

polar air

An air mass with characteristics over high latitudes, especially within the subpolar highs. Continental polar air/cP has cold surface temperatures, low moisture content, and especially in its source regions, has great stability in the lower layers. It is shallow in comparison with Arctic air. Maritime polar/mP initially possesses similar properties to those of continental polar air, but in passing over warmer water, it becomes unstable with a higher moisture content. Compare tropical air.

polar circuit

A teletypewriter circuit on which the polarity of applied voltage and resulting direction of current is reversed between marking and spacing impulses. Current flows in one direction on a marking impulse and in the opposite direction during a spacing impulse.

polar differential relay

A relay having two separate windings and an associated permanent magnet. Either the direction or magnitude of current may be used to cause its operation.

polar distance

Angular distance from a celestial pole to the arc of an hour circle between the celestial pole and a point on the celestial sphere. It is measured along an hour circle and may vary from  $0^{\circ}$  to  $180^{\circ}$ , since either pole may be used as the origin of measurement. It is usually considered the complement of declination, though it may be either  $90^{\circ} -$  declination or  $90^{\circ} +$  declination, depending upon the pole used.

polar front

The semipermanent, semicontinuous front separating air masses of tropical and polar origins.

polar relay

A teletypewriter line relay capable of high speed operation and used on both polar and neutral circuits.

polarential circuit

A teletypewriter circuit on which a reversal of current is obtained by differences in opposing voltages applied.

polarity

A reproduction term used to indicate the change or retention of a light (positive) or dark (negative) background image.

policy making

All first time public announcements of anticipated programs, policies and expenditures by a government agency; subjective evaluations of existing or future aviation policies and systems; and proposed rule making.

poll

The interrogation of a station on a multi-point teletype circuit. In Area B circuits, polling is accomplished by an APULS.

polling

A centrally controlled method of calling a number of points (on a multi-point network) to send information to the central point or to other stations on the network.

poly-chlorinated biphenyl/PCB

Any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of chemicals which contain such substances.

1. PCB article/equipment -- Any manufactured item which contains PCBs and whose surface has been in direct contact with PCBs. PCB article(s)/equipment include capacitors, transformers, electric motors, pumps, pipes and other manufactured items.

2. PCB container -- Any package, can, bottle, bag, barrel, drum, tank or other device which contains PCBs or PCB articles and whose surface(s) has been in direct contact with PCBs.
3. PCB item -- Any item which deliberately or unintentionally contains or has as a part of it any PCB or PCBs at a concentration of 50 parts per million (ppm) or greater.
4. PCB transformer -- Any transformer that contains PCBs at a concentration of 500 parts per million (ppm) or greater.

popeye

A term which indicates that an aircraft is in clouds or an area of reduced visibility.

port

The connector and associated circuitry through which information is transferred into and out of a computer.

position

A specific input/output source within a facility (e.g., the arrival position at an approach control facility, the radar position at a sector).

position data

Data provided by the ACCC concerning the position, speed and heading of aircraft within the ACCC's area of responsibility. This data is used to estimate current and future utilization of airspace.

1. position reports -- A report over a known location as transmitted by an aircraft to ATC (e.g., over a compulsory or on-request reporting point), or periodic messages derived from LORAN or other navigation systems on-board aircraft and forwarded automatically and/or semi-automatically to ATC for use in dependent surveillance or oceanic flight following.

position determination system

A system which determines an aircraft position in three dimensions.

position marker

A dot or square on the Plan View Display, moved in association with the track ball. See slew dot.

position symbol

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

positional entry device

A trackball unit.

positioning

Operations in a printer which cause movement of the typebox under the hammer so that the proper pallet is struck.

positive advisory

One of the following TCAS resolution advisories: CLIMB, DESCEND. A positive advisory can be either preventive or corrective.

positive control

The separation of all air traffic within designated airspace, by air traffic control, it is a concept which allows mixed VFR and IFR operations in a stated area but requires all aircraft to be in contact with and under control of, the ATC controllers.

Positive Controlled Airspace/PCA

Exists above 18,000 feet in the northeastern portion of the United States and above 24,000 feet in the remainder of the country. In PCA all aircraft are under IFR control and the ATC system provides separation service between all aircraft. Only IFR operations, with the required increased level of avionics and pilot proficiency (IFR rating), are allowed at these altitudes. See positive control and airport control zone.

Positive Control Area/PCA

See controlled airspace.

positive target control/PTC

The operation of faker aircraft transponders on discrete Mode A/3 codes to satisfy Air Defense faker monitor and ATC requirements.

positive vorticity

See vorticity.

postable fix

A fix for which a flight progress strip is to be outputted.

posted fix

A predetermined fix for which flight progress strips will be printed on the basis of altitude and proximity of the route of flight to that fix.

1. posted fix time -- The time printed on a flight progress strip for this fix.

power density

(1) The intensity of microwave/radio-frequency radiation at a given point. Power density is the average power per unit area expressed as milliwatts per square centimeter ( $mW/cm^2$ ). (2) In radar meteorology, the amount of radiated energy per unit cross sectional area in the radar beam.

practice instrument approach

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

precautionary approach

A procedure designed to afford a pilot experiencing flight difficulties a means of landing safely and expeditiously while providing a safe ejection altitude if he elects to discontinue the approach.

precession

A complex motion executed by a rotating body when subjected to the effects of torque, which has the tendency to change the axis of rotation.

1. apparent precession -- The apparent deflection of the gyro axis, relative to the earth, due to the rotating effects of the earth and not due to any applied forces.
2. induced (real) precession -- The movement of the axis of a spinning gyro when a force is applied. The gyro precesses 90° from the point of applied pressure in the direction of rotation.
3. precession of the equinox -- The average yearly apparent movement of the first point of Aries to the west.

precipitation

Any or all forms of water particles, whether liquid or solid, that fall from the atmosphere and reach the surface. It is a major class of hydrometeor, distinguished from cloud and virga in that it must reach the surface. This would include rain, snow, freezing rain, sleet, ice pellets, etc.

precipitation attenuation

See attenuation.

precipitous terrain

Terrain characterized by steep or abrupt slopes.

precision approach procedure(s)

(1) A standard instrument approach in which an electronic glide slope is provided, such as ILS, MLS or PAR. (2) A navigational facility which provides combined azimuth and glide slope guidance to a runway. (3) An instrument approach conducted in accordance with directions issued by a controller referring to the surveillance radar display until the aircraft is turned onto final approach and, thereafter, to a precision approach radar display. See non-precision approach.

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.

#### pre-commissioning certification

The technical verification by a qualified F&E (establishment) engineer or technician that a system/subsystem/equipment is capable of providing the required service. This is done following final alignment, tune-up and flight inspection and prior to the Joint Acceptance Inspection/JAI and commissioning. It affirms that the key performance parameters are operating within the standards and tolerances prescribed in the specifications and design criteria and includes official documentation of all necessary parameters affecting system operation and establishes system baseline data.

#### predicted

That which is expected at some future time, postulated on analysis of past experience and tests.

1. predicted track position -- A track position derived by extrapolating along the track velocity for a specified interval.
2. prediction techniques -- Methods for estimating future behavior of a system based on a knowledge of its parts, functions, operating environment and their interrelationship.

#### preferential routes

Preferential routes (IPDRs, PARs, and PDARs) are adapted in ARTCC computers to accomplish inter/intra facility controller coordination and to assure that flight data is posted at the proper control positions.

1. preferential arrival route/PAR -- (1) An adapted arrival route, program-induced to override, with a route amendment, a filed route from an adapted transition fix or arrival line to one or more adapted airports. (2) 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 preferred IPR route. The abbreviation PAR is used primarily within the ARTCC and should not

be confused with the abbreviation for Precision Approach Radar.

2. preferential departure-arrival route/PDAR -- (1) An adapted departure route and arrival route for airport to airport processing. In effect, the combination of a PDR and a PAR. (2) A route between two terminals which are within or immediately adjacent to one ARTCC's area. PDARs are not synonymous with preferred IFR routes but may be listed as such as they do accomplish essentially the same purpose. See preferred IFR routes, NAS Stage A.
3. preferential departure route/PDR -- (1) An adapted departure route, program-induced to override with a route amendment, a filed route from one or more adapted airports to an adapted transition fix or departure line. (2) 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 in a standard instrument departure or a preferred IFR route.

#### preferred coverage

The radar designated preferential coverage over a particular geographical area where coverage from two or more radars is available.

#### preferred routes

Routes established between busier airports to increase system efficiency and capacity.

1. 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.
2. preferred route message/data -- Information concerning the adding, deleting, modifying, activation or deactivation of a preferred route.

#### preferred site

A radar site whose primary/beacon radar data is processed in preference to data from the supplementary site for returns from a specified geographic region.

pre-filed flight plan

A flight plan on file in an FAA facility to provide for point-to-point operations of a recurring nature or quick reaction deployment missions. This type flight plan will normally include permanent type data, such as route, with a special mission designation when required.

pre-flight briefing

Voice/data information provided to the pilot including various weather, NOTAM, traffic flow, and flight plan information.

preliminary acceptance testing

A series of tests conducted to insure before FAA acceptance that the subject element (hardware/software) is completely free from significant errors and in conformance with the FAA designated design criteria.

premise

The property on which a service is furnished. An entire airport property is considered as one "premise," e.g., La Guardia Airport.

pressure

See atmospheric pressure.

pressure altimeter

An aneroid barometer with a scale graduated in altitude instead of pressure using standard atmospheric pressure height relationships. It shows indicated altitude (not necessarily true altitude), and may be set to measure altitude (indicated) from any arbitrarily chosen level. See altimeter setting, altitude.

pressure altitude

The atmospheric pressure at the level of the pressure sensing device expressed in feet and reference to the standard pressure datum of 29.9 inches of mercury. See altitude.

1. pressure altitude variation/PAV -- The pressure difference, in feet between mean sea level and the standard datum plane.

pressure correction

Validated Mode C radar data require corrections based on the barometric pressure in the vicinity of the transponding aircraft for those aircraft below the minimum assignable flight level for that sector.

pressure gradient

The rate of decrease of pressure per unit distance at a fixed time.

pressure jump

A sudden, significant increase in station pressure.

pressure line of position/PIOP

A line of position computed by the application of pressure pattern principles. Specifically, a line parallel to the effective air path and pressure pattern displacement/ZN distance from the air position for a given time.

pressure pattern displacement/ZN

With respect to pressure pattern flying, the displacement in nautical miles, at right angles to the effective airpath, due to the crosswind component of the geostrophic wind.

pressure tendency

See barometric tendency.

prevailing easterlies

The broad current or pattern of persistent easterly winds in the Tropics and in polar regions.

prevailing visibility

The greatest horizontal visibility which is equalled or exceeded throughout half of the horizon circle. It need not be a continuous half. In the case of rapidly varying conditions, it is the average of the prevailing visibility while the observation is being taken.

prevailing westerlies

The dominant west to east motion of the atmosphere, centered over middle latitudes of both hemispheres.

prevailing wind

The (local) direction from which the wind blows most frequently.

preventive advisory

A TCAS resolution advisory that instructs the pilot to avoid certain deviations from current vertical rate, as for example a DON'T CLIMB when the aircraft is level.

preventive maintenance

(1) A procedure in which a system is periodically checked and/or reconditioned in order to prevent or reduce the probability of failure or deterioration in subsequent service. Preventative maintenance may be used as a generic term in text discussing all kinds of tasks, including even non-scheduled tasks, the performance of which meets the general definition. (2) With respect to aircraft, it means the simple or minor preservation operations and the replacement of small standard parts not involving complex assembly operations.

preview

A display on a CRT which shows a message which will be entered into the CCC. A proof-reading capability of operator-inserted input messages.

1. preview area -- A defined area on the controllers computer readout device/CRD used to preview messages he has composed prior to entering the message to the Central Computer Complex.

previous posted fix

The posted fix along the route of flight preceding the fix referenced by a particular en route flight progress strip (Posted fix).

previously selected aircraft

The last designated aircraft identification that was included in a previous message to the computer.

primary aircraft

A proposed category of aircraft limited to a single engine of not more than 200 Hp and seating capacity of not more than four occupants.

primary area

The area within a segment in which full obstruction clearance is applied.

primary entry track

A flight track along which en route descent is made to the entry point of a MTR.

primary FPA

The FPA to which another FPA is assigned.

primary penetration fix

The fix from which the primary entry track of a MTR begins. This fix is described by reference to a ground based navigation aid.

primary radar

That form of radar that depends upon reception of reflected electromagnetic energy for the detection of objects in the area under surveillance. See radar.

1. primary radar report video -- Analog output of a search radar receiver containing pulses (which indicate radar targets) and noise.
2. primary radar return -- See radar, search and beacon.

primary search area/PSA

A circular area centered at the track position which circumscribes the large search area and is used as a processing filter.

prime function

The first function within a category. The prime function is selected automatically, by the computer, if no function button is depressed on the category/function panel.

principle of least privilege

The granting of the minimum access authorization for the performance of required tasks.

print

To transfer computer information to an output device; to copy from internal storage to external storage.

print positions

The horizontal positions across a flight progress strip that define where characters may be printed.

print suppress

To eliminate the printing of characters in order to preserve their secrecy; for example, the characters of a password as it is keyed by a user at an input terminal.

printer, high speed

A CCC peripheral device which operates at a speed of 1000 lines per minute, 132 characters per line (capacity).

printer keyboard/keypack

A CCC peripheral device which provides a two-way communication between an operator and the computer.

printer, line

A device capable of printing one line of characters across a page; i.e., 100 or more characters simultaneously as continuous paper advances line by line in one direction past type bars or a type cylinder that contains all characters in all positions.

priority

A scale of preference for correlation analysis assigned to all primary/beacon radar data. The highest priority data are stored for tracking. See correlation.

privacy

(1) The right of an individual to self-determination as to the degree to which the individual is willing to share with others information about himself/herself that may be compromised by unauthorized exchange of such information among other individuals or organizations. This concept embodies the desire by an individual to determine for himself/herself when, how and to what extent information of a personal nature shall be obtained or communicated to others. (2) The right of individuals and organizations to control the collection, storage and dissemination of their

information or information about themselves. (3) The right of individuals to know that recorded information is accurate, pertinent, complete, up-to-date and reasonably secure from unauthorized access, either accidentally or intentionally.

1. privacy protection -- The establishment of appropriate administrative, technical and physical safeguards to ensure the security and confidentiality of data records and to protect both security and confidentiality against any anticipated threats for hazards that could result in substantial harm, embarrassment, inconvenience or unfairness to any individual about whom such information is maintained.
2. privacy transformation -- Synonym for encryption algorithm.

#### private line circuit

A connection between two or more stations for the exclusive use of a telephone customer. The circuit may or may not have access to the nationwide telephone network.

#### privileged instructions

(1) A set of instructions generally executable only when an AIS is operating in an executive state; for example, the handling of interrupts. (2) Special computer instructions designed to control the protection features of an AIS system; for example the storage protection features.

#### probability

The likelihood of occurrence of a particular event, measured by the ratio of the number of ways an event actually occurs to the total number of possibilities.

#### probe data

Information generated for use by the controller that is the result of various probes performed by the common processor. These would include sector workload probe, severe weather probe, restricted airspace probe, etc.

1. probe request -- An input from the controller requesting a specific probe to be performed by the common processor.

#### procedural security

Synonym for administrative security.

Procedure(s)

See backup procedures, handshaking procedures, recovery procedures, system integrity procedures.

Procedure Turn/PT

(1) 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. (2) A constant rate turn of an aircraft in flight; used for computing the radius of turn and time required for its execution when very accurate navigation is required in controlling time or maintaining accurate, briefed tracks; usually associated with the turn made at the initial point of a bomb run to insure that the bombing run is made on the briefed axis of attack..

1. procedure turn inbound -- That point of a procedure turn maneuver where course reversal has been completed and an aircraft is established inbound on the immediate 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.

processed NOTAM

NOTAM that has been processed by the consolidated NOTAM system: i.e., edited, annotated, et al.

processed radar

Mosaicked search and beacon radar, tracked target, alphanumeric tags, maps, alerts and lists.

processed weather data

Weather data that has been combined, mosaicked, annotated, overlaid, zoomed, etc., in the CWP.

producer's decision risk

The risk that a batch of an item with an acceptable reliability will be rejected by a reliability test.

### proficiency

The level of technical competency necessary to control and operate an ATC position under moderate or greater workload.

### profile descent

An uninterrupted descent (except where level flight is required for speed adjustment; e.g., 250 knots at 10,000 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 non-precision instrument approach. The profile descent normally terminates at the approach gate or where the glide slope or other appropriate minimum altitude is intercepted.

### prognostic chart/PROG

A chart of expected or forecast weather conditions.

### program

A set of computer instructions which, when executed, causes the computer to perform an operation. See firmware, software.

1. program component -- A program component is a major division of the computer program sub-system which alone is capable of performing one of the major functions of the sub-system. The operational portion of the Computer Program Element, for example, is a "Program Component".
2. program control -- The regulation of some aspect of computer operation (e.g., the setting of configuration registers) by executing computer instructions rather than by manual means (such as switches or push buttons).
3. program interrupt -- A temporary break in the continuity of normal program operation; five classes of interruption conditions are processed by the CCC: I/O, program error, supervisor call, external, and machine check.
4. program module -- A program module is a portion of the operational computer program component that implements a broadly defined functional area. The surveillance portion of the operational program component would be a program module.

5. program segment -- A set of computer instructions which represent a portion of a computer program.
6. program task -- The results of the translation of a functional requirement to be performed by a sub-program or part thereof; e.g., generating flight displays.

#### program control

Descriptive of a system in which a computer is used to direct an operation or process and to hold automatically or to make changes in the operation or process on the basis of a prescribed sequence of events.

1. control coordination -- Control handoffs/acceptances, control metering/sequencing information and intersection clearance coordination.
2. control coordination data -- Data transferred between processors in order to accomplish control coordination.
3. control handoff/acceptance -- 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. Radio communication with the aircraft will also be transferred at this point.
4. control metering/sequencing information -- Information transferred between approach and tower control personnel discussing metering and sequencing plans. This would include the order and separation of incoming aircraft.

#### Programmable Indicator Data Processor/PIDP

The PIDP is a modification to an 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 alphanumerics. The system has the capability of interfacing with ARTCC's.

#### programmatic

An ASR teletypewriter modified for preparation of flight plan messages for Air Traffic Control. Permits message organization into concise format required for automatic

distribution over a circuit and/or subsequent processing computer. An additional feature is generation and transmission of parity check character whenever desired, usually after each message line.

programming

The act of planning, coding and debugging a computer program.

1. multi role programming -- The programming of a computer by allowing two or more arithmetical or logical operations to be executed simultaneously. Contrasted with programming, serial. See parallel processing.

progress report

A report made by a pilot when he/she reaches certain mandatory (or optional) reporting points along his/her route of flight. These reporting points are usually route or approach fixes, such as VORs and NDBs.

prohibited area

Airspace of defined dimensions identified by an area on the surface of the earth within which flight is prohibited.

project

Mentally extend the position and/or path of one or more aircraft in time and space.

Project Beacon

A scientific, engineering review of ATC conducted by the FAA at the request of President Kennedy in 1961. The review was also to prepare a practicable long-range plan to ensure efficient and safe ATC.

projection, chart/map

A process of mathematically constructing a representation of the surface of the earth on a flat plane.

prompt

A symbol or message indicating that a computer is ready for input.

## propeller

A device for propelling an aircraft which has blades on an engine driven shaft and that, when rotated, produces by its action on the air, a thrust approximately perpendicular to its plane of rotation. IT includes control components normally supplied by its manufacturer, but does not include main and auxiliary rotors or rotating airfoils of engines.

## property

Indicating legal right of ownership to both tangible and intangible articles.

1. property accountability -- The obligation imposed by law or regulation for keeping an accurate record of property assets. This includes establishing and maintaining capitalization and other financial data, performing record adjustments/reconciliations and maintaining an audit trail for applicable property/financial transactions.
2. property control -- The physical and administrative protection of property assets to include their security, location identity and recordation of property transactions. It also includes the care and protection of property, physical inventory, facility data maintenance and processing of property transactions.
3. property custodian -- The person formally designated by organizational position as being responsible for the management and control of property within a specified custodial area.
4. property identification number -- A unique number assigned to an itemized piece of in-use personal property.
5. property management -- The overall administration of property assets, data, systems and procedures needed to meet established management requirements and objectives. It includes the establishment and implementation of policy, systems and procedures for decision making and the accomplishment of property acquisition, use, transfer and disposal.
6. property manager -- The head of an organizational element which has as a primary function the management and control of property within a region/center.

property (adequate) interest in runway clear zone

As a minimum, an easement (or covenant running with the land) which conveys a right of flight above the approach surface and provides enough control to rid the clear zone of all obstructions (objects which project above the approach surfaces) and to prevent the creation of future obstructions, together with the right of entrance and exit for those purposes.

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 the airport adaptation specifies transmission regardless of PBCT.

proprietary software

Any computer software that would make an application vendor and/or machine dependent, or any software which has a surcharge.

protected wireline distribution system

A telecommunications system which has been approved by a legally designated authority and to which electromagnetic physical safeguards have been applied to permit safe electrical transmission of un-encrypted sensitive information. Synonymous with approved circuit.

protection

See data-dependent protection, fetch protection, file protection, lock and key protection system, privacy protection.

protection ring

One of a hierarchy of privileged modes of an AIS that gives a certain access right to the users, programs and processes authorized to operate in a given mode.

protector

A device used to prevent damage to lines or equipment by high voltage or currents, such as those induced by lightning discharge. The device may be a spark gap, varistor, thermistor, carbon block, gas tube, etc. It presents a very

high resistance to ground but usually conducts upon application of high voltage or current impulse.

protocol

A set of conventions between communicating processes on the formats and contents of messages to be exchanged.

proximity warning

A computer logical process which cyclically checks if violation of radar separation standards is imminent. The process uses the track position and track velocity of track pairs that are checked.

1. Proximity (Pilot) Warning Indicator/PWI -- A pilot warning instrument which, in its most simple form, is an airborne device whose function is to warn a pilot of the proximity of other aircraft. It may also provide other information to assist the pilot in evaluating the situation, such as relative bearing and bearing rate of other aircraft, relative altitude, range, or combinations of these parameters. After visually locating the intruding aircraft, the pilot must evaluate the threat and select and execute an appropriate evasive action. A proximity warning system utilizing existing transponders has been suggested.

pseudo adiabatic lapse rate

See saturated adiabatic lapse rate.

pseudo-flaw

An apparent loophole deliberately implanted in an operating systems program as a trap for intruders.

psychrometer

An instrument consisting of a wet bulb and a dry bulb thermometer for measuring wet bulb and dry bulb temperature. It is used to determine the water vapor content of the air.

public agency

A State, territory or any agency of them; a municipality or other political subdivision; a tax supported organization; or an Indian tribe or pueblo.

public aircraft

An aircraft used only in the service of a government, or apolitical subdivision. It does not include any government-owned aircraft engaged in carrying persons or property for commercial purposes.

public airport

Any airport which is used or to be used for public purposes, under the control of a public agency, the landing area of which is publicly owned.

public, general

All persons who are neither direct users nor consumers of NAS services, or considered members of a special public.

1. special public -- Elected officials, political appointees, and other employees of Federal, state and local governments; aviator constituents; trade and professional organizations; organizations and other influential groups with special interest in the NAS.

public information material

New releases, magazine articles, public use publications (brochures, pamphlets, journals, etc.) motion pictures, video and audio tapes, slide presentations, radio/television news features or public service copy and productions, speeches for public release, exhibits, posters, external recognition and awards, historical materials for public archives, advertising and all other material designed to inform the public.

publication

Printed material used to convey information.

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.

pulse

(1) Pertaining to radar, a brief burst (of very short time duration) of electromagnetic radiation emitted by the radar. See pulse length. (2) A signal having a rise and fall in voltage or current in time, representing one information element.

1. pulse, azimuth reference -- A pulse indicating Antenna North Position.
2. pulse duration/pulse width -- The duration, in microseconds, of each pulse in a radar transmission.
3. pulse length error -- A range distortion of a radar return caused by the duration of the pulse.
4. pulse recurrence time/PRT -- The interval of time, in microseconds, between the transmission of two successive radar or radio pulses.
5. pulse repetition frequency/PRF, pulse recurrence rate/PRR -- The frequency, or number of pulses, that a radar transmits per second of electrical energy of a predetermined width, e.g., 300 PRF means there are 300 pulses of energy transmitted in one second (sometimes referred to as pulses per second). The PRF is inversely proportion to the range of the radar.

#### pulse length

Pertaining to radar, the dimension of a radar pulse. It may be expressed as the time duration or the length in linear units. Linear dimension is equal to time duration multiplied by the speed of propagation (approximately the speed of light).

#### pulse, X

See X pulse.

#### punch card

A card of standard size and shape upon which data is stored in the form of holes and no holes. The hole positions are arranged in columns; a given pattern of holes in a column represents one character.

#### purging

(1) The orderly review of storage and removal of inactive or obsolete files. (2) The removal of obsolete data by erasure, by overwriting of storage or by resetting registers.

### Q-symbol

A location identifier assigned by the region when a location does not have an identifier in FAA Order 7350.5, Location Identifiers. These identifiers will always contain Q as the first letter.

### 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.

### quadrantal error

The error in a radio direction indication introduced by the bending of radio waves by electrical currents and structural metal in the aircraft. It may also refer to magnetic compass error resulting from the same causes.

### quadri-cycle

Four processing cycles (normally ten seconds).

### quantize

To restrict the possible values of a variable to a discrete number of values. See digitize.

### quantizer

A device that describes in what particular digital subdivision a given analog should be placed.

### quarterly

A scheduling term, meaning four times each calendar year, and at approximately three-month intervals (30-100 days).

### quasi stationary front/stationary front

A weather front which is stationary or nearly so. Conventionally, a front which is moving at a speed of less than five knots is generally considered to be quasi stationary.

### query

To inquire of another person or machine to remove doubt, as in querying about some element of a flight plan.

quick access

The capability of reaching preselected locations in an ARTCC without dialing on a Dial Pad. This is to be distinguished from Direct Access because Direct Access has been defined to include the capability of reaching preselected locations with reduced dialing, as well as no dialing. The Quick Access Capability may utilize Direct Access keys.

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/OFLOW

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)

R-data

The portion of the flight plan which designates the route of the flight. It consists of: fixes, airways, prefiled routes, and time.

R.O.

Abbreviation for "receive only," as applied to a teletypewriter. It consists of only a hard copy printer, with no keyboard or paper tape capability.

R.T.

Abbreviation for "reperforator-transmitter," as applied to a data handling set used for receive, storage and send in a message switching center. It consists of a reperforator, large tape reels for storage, and a transmitter distributor. Characters punched into the tape by the reperforator include address information that is read in parallel by the tape reader. The message is punched and stored on reels until the switching processor finds the circuit to the address, connects to it, and signals the transmitter-distributor to start of message.

rack

A framework or stand used to hold or mount a piece of equipment or machine parts.

rad

The unit of absorbed dose of ionizing radiation which is 0.01 Joules/kilogram or 100 ergs/gram in any medium.

RADAR (Radio Detection and Ranging)

A device which, by measuring the time interval between transmission and reception of radio pulses and correlating the angular orientation of the radiated antenna beam or beams in azimuth and/or elevation, provides information on range, azimuth and/or elevation of objects in the path of the transmitted plans.

1. Airport Surface Detection Equipment/ASDE -- Radar equipment specifically designed to detect all principal features on the surface of an airport, including vehicular traffic, and to present the entire picture on a radar indicator console in the control tower.

2. Airport Surveillance Radar/ASR -- FAA short-range radar for terminal air traffic control. See short range radar.
3. beacon radar -- See secondary radar.
4. gapfiller radar -- In the NAS it is normally a short range radar used to cover "gaps" in the en route surveillance coverage area.
5. long range radar -- In the NAS it is a surveillance radar capable of detecting targets at a range of 250 NM and normally utilized in the en route environment.
6. primary radar -- A radar that detects a target by transmitting an RF signal and detecting the reflected RF signal (non-cooperative system).
7. secondary radar (beacon radar) -- A radar system in which the object to be detected is fitted with cooperative equipment in the form of a radio receiver/transmitter (transponder). Radio 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 latter transmission rather than a reflected signal, is then received back at the transmitter/receiver site. (cooperative system).
8. short range-radar -- In the NAS, a surveillance radar capable of detecting targets at ranges out to 60 NM, and normally utilized for terminal surveillance, but may be used as an en route gap-filler radar.

#### RADAR (ICAO)

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

1. primary radar (ICAO) -- A radar system which uses reflected radio signals.
2. secondary radar (ICAO) -- 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 term used to indicate that the provision of advise and information is based on radar observation. See advisory service.

Radar Air Traffic Control Facility/RATCF

An air traffic control facility, located at U.S. Navy or Marine Corps Air Stations, utilizing surveillance and, normally, precision approach radar and air/ground communications equipment to provide approach control services to aircraft arriving, departing or transiting the airspace controlled by the facility. The facility may be operated by FAA, the USN, or USMC and service may be provided to both civil and military airports.

radar approach

An instrument approach procedure which utilizes Precision Approach Radar/PAR or Airport Surveillance Radar/ASR.

radar approach (ICAO)

An approach, executed by an aircraft, under the direction of a radar controller.

Radar Approach Control Facility/RAPCON

An air traffic facility, located at a U.S. Air Force base, utilizing surveillance and, normally, precision approach radar and air/ground communications equipment to provide approach control services to aircraft arriving, departing or transiting the airspace controlled by the facility. The facility may be operated by the FAA or USAF and services may be provided to both civil and military airports.

radar approach control facility

A terminal ATC facility that uses radar and non-radar capabilities to provide approach control service 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 control 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 the 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.

### radar arrival

An aircraft arriving at an airport served by a radar facility and in radar contact with the facility. See non-radar arrival.

### radar, artificial

Provides additional filtering of Natural Radar Site data on a PVD basis. Each PVD display area is defined as a certain array of Radar Sort Boxes. In the CCC, natural radar data is selectively rejected for display at a PVD based on PVD/Artificial Radar pairing. This decreases the number of radar messages sent to the CDC's High Speed Filter, thus improving throughput. See compartmentalized radars.

### radar beacon/RACON

A radar receiver-transmitter that transmits a strong coded signal whenever its receiver is triggered by an airborne interrogating radar. The coded reply can be used to determine position in terms of range and bearing from the beacon. Also called beacon, radar, and radar transponder. See beacon antenna.

### radar beam

A directional concentration of radio energy.

### 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 services may also be provided within the limits of necessity and capability. When a pilot is informed of "radar contact" he/she automatically discontinues reporting over compulsory reporting points. See radar flight following, radar contact lost, 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 airspace.

### radar contact (ICAO)

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

### radar contact lost

Used by ATC to inform a pilot that radar identification of his/her 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 data

When used without qualification, "radar" or "radar data" generally include both primary radar and beacon radar information received by an interrogator site. See radar messages.

### radar echo

See echo.

### 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.

### radar handoff

That action whereby radar identification of, radio communications with and, unless otherwise specified, control responsibility for an aircraft is transferred from one controller to another without interruption of radar flight following.

### radar identification

In ATC, radar identification is the process of ascertaining that a radar target is the radar return from a particular aircraft already in the ATC system or about to enter it. See radar contact.

1. radar identified aircraft -- An aircraft, the position of which has been correlated with an observed target or symbol on the radar display. See radar contact, radar contact lost.

radar identification (ICAO)

The process of correlating a particular radar blip or radar position symbol with a specific aircraft.

radar input B/S

The ratio of the number of radar scans in which a beacon or search message is reported for an aircraft to the total number of radar scans during the period in which the aircraft is in the range of coverage of the radar. See blip/scan ratio.

radar messages

Radar data from the DRG's are accepted into the Computer storage for multiple radar data processing. The following message types are included among those processed by the computer program: (a) Beacon radar data, (b) Search radar data, (c) System status, (d) Test, (e) Map, (g) Strobe and (h) Weather.

radar monitoring

See radar service.

radar nautical mile

The time required for a radar pulse to travel out one nautical mile and the echo pulse return (12.4 ms)

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 where additional coordination is required.

radar precipitation returns

Radar energy acquired by a radar receiver which has been reflected off of airborne precipitation.

radar pulse

Pulses of RF (microwave) energy transmitted in a narrow beam into the air (free space) from a radar transmitter.

radar required

A term displayed on charts and approach plates and included in PDC NOTAMs to alert pilots that segments of either an instrument approach or a route are not navigable because of either the absence or usability of a NAVAID. The pilot can expect to be provided radar navigational guidance while transiting segments labeled with this term. See radar service.

radar route

A flight or route over which an aircraft is vectored. Navigational guidance and altitude assignments are provided by ATC. See flight path, route.

radar scan

See scan, radar.

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 radar-identified aircraft.

1. radar separation -- Radar spacing of aircraft in accordance with established minima.
2. radar navigational guidance -- Vectoring aircraft to provide course guidance.
3. radar monitoring -- The radar flight-following of an aircraft whose primary navigation is being performed by its pilot, to observe and note deviations from its authorized flight path, airway, or route. This includes noting the aircraft's position relative to approach fixes.

radar service (ICAO)

A term used to indicate a service provided directly by means of radar.

1. radar monitoring (ICAO) -- 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 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. Also, the use of radar for the purpose of providing aircraft with information and advice relative to significant deviations from the nominal flight path.

a. radar navigational guidance -- Vectoring aircraft to provide course guidance.

2. radar separation

Radar spacing of aircraft in accordance with established minima. Also the separation used when aircraft position information is derived from radar sources.

radar services terminated

A term used by ATC to inform a pilot that he/she will no longer be provided any of the services that could be received while in radar contact. Radar service is automatically terminated and the pilot is not advised when: an aircraft cancel its IFR flight plan, except within a TCA, TRSA, ARSA or where Stage II service is provided; an aircraft conducting an instrument, visual or contact approach has landed or has been instructed to change to advisory frequency; 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 or; an aircraft completes a radar approach.

radial signal error

The difference between the nominal magnetic bearing to a point of measurement from the ground component and the bearing indicated by the ground component at the same point.

radar sort box/RSB

A rectangular box specified in adaptation which is used for the selective rejection of redundant radar data and to simplify correlation. A grid of identical RSB's covers the entire control area.

### radar surveillance

The radar observation of a given geographical area for the purpose of performing some radar function.

### radar tracking

The observation of the movement of specific radar targets.

1. radar signals for emergency bearing -- Normal aircraft radio signals that are received by direction finders to determine the location of an aircraft in an emergency.

### radar traffic advisories

Advisories issued to alert pilots to known or observed radar traffic which may affect the intended route of flight of their aircraft See traffic advisories.

### radar vector

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

### 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.

Level 1 (WEAK) and Level 2 (MODERATE). Light to moderate turbulence.

Level 3 (STRONG). Severe turbulence possible, lighting.

Level 4 (VERY STRONG). Severe turbulence likely, lighting.

Level 5 (INTENSE). Severe turbulence, large hail, lighting and extensive wind gusts.

Level 6 (EXTREME). Severe turbulence, large hail, lighting and extreme wind gusts.

radarsonde observation

A rawinsonde observation in which winds are determined by radar tracking of a balloon borne target.

radial

A magnetic bearing extending from a VOR/VORTAC/TACAN navigational facility.

radiation

The emission of energy by a medium, transferred, either through free space or another medium, in the form of electromagnetic waves.

radiation fog

Fog characteristically resulting when radiational cooling of the earth's surface lowers the air temperature near the ground to or below its initial dew point on calm, clear nights.

radio

(1) A device used for communications. (2) Used as a reference to Flight Service Stations; e.g., "Seattle Radio" is used to call Seattle PSS.

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

A nondirectional radio transmitting station in a fixed geographical location, emitting a characteristic signal from which bearing information can be obtained by a radio direction finder on an aircraft. See beacon antenna.

radio compass/ADF

A radio receiver equipped with a rotatable loop antenna which is used to measure the bearing to a radio transmitter.

radio file

The procedure of filing a flight plan or flight intent with an air traffic service facility via radio while the aircraft is on the ground or in flight. See airfiled flight plan.

radio frequency/RF

Any frequency of electrical energy above the audio range which is capable of being radiated into space.

1. radio frequency/RF radiation -- Electromagnetic radiation ranging in frequency from 300 kHz to 300 GHz with corresponding wavelengths ranging from  $10^3$  m to 0.1 cm. The microwave region is included in the RF range.

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.

radio navigation

See navigation aids.

radio telecommunications/RTTY

A method of teletypewriter communication using a radio link.

radiosonde

A balloon borne instrument fused for measuring pressure, temperature, and humidity aloft. Radiosonde observation - a sounding made by the instrument.

radius of action

The maximum distance that an aircraft can fly from its base before returning to the same or alternate base and still have a designated margin of safety with respect to fuel.

radome

A bubble type cover for a radar antenna.

rail

A bar having a smooth surface upon which another component may slide freely.

## AILS

Integrated helicopter landing system; employs a radar interrogation unit on the aircraft and a special transponder at the landing area. The airborne unit automatically locks onto the ground-based transponder to effect transmission of elevation, azimuth, and distance information.

## rain

A form of precipitation. The drops are larger than drizzle and fall in relatively straight, although not necessarily vertical, paths as compared to drizzle which falls in irregular paths.

## ramp

See apron.

## range height indicator/RHI

A radar indicator scope displaying a vertical cross section of targets along a selected azimuth.

## RAOB/rawin

A radiosonde observation.

## rawinsonde observation

A combined winds aloft and radiosonde observation. Winds are determined by tracking the radiosonde by radio detection finder or radar.

## random access memory/RAM

Computer memory which acts a temporary storage for information or data or for other work which is in progress. It is possible to change the information stored in this type of computer memory, but the contents of RAM are lost when power to the computer has been disrupted or discontinued.

## random sample

A sample in which each item in the lot has an equal chance of being selected in the sample.

## range

(1) The maximum or effective distance which can be traveled. (2) An area used for testing purposes. (3) Receiving margin of a teletypewriter receiver.

range cell

One quarter (1/4) or one-half (1/2) mile in range (depth) from radar range zero (0). There are 1000 range cells in the PCD; the width of which depends on how fast the radar emits pulses (PRF) and the rotational speed of the antenna.

range control

(1) The operation of an aircraft to obtain the optimum flying time. (2) A facility used to control test operations.

range finder

(1) A device used to determine distance. (2) An adjustable mechanism on a teletypewriter receiver which allows the receiver-distributor face to be moved through an arc corresponding to the length of a unit segment. It is adjusted normally for best results under operating line conditions.

range, maximum

The maximum distance a given aircraft can cover under given conditions by flying at the economical speed and altitude at all stages of flight.

range ordering

A system used in digitizing whereby transponder signals are ordered in cells on the basis of range.

range splitting

Characteristic of data received from radars. The data is split into 2 or more segments (targets) rather than being detected as one piece of data (similar to target-splitting).

raster

A predetermined pattern of scanning lines which provides substantially uniform coverage of a video display area.

rate center

The term rate center for private line communication services is a specified geographical location from which mileage measurements are determined for the application of inter-exchange mileage rates.

rated maximum continuous power

With respect to reciprocating turbo-propeller, and turbo-shaft engines, means the approved brake horsepower that is developed statically or in flight, in standard atmosphere at a specified altitude, within the engine operating limitations.

rated maximum continuous thrust

With respect to a turbojet engine type certification, means, the approved jet thrust that is developed statically or in flight, in standard atmosphere at a specified altitude, without fluid injection and without the burning of fuel in a separate combustion chamber, within the engine operating limitations.

1. rated maximum continuous augmented thrust -- With respect to turbojet engine type certification, means the approved jet thrust that is developed statically or in flight, in standard atmosphere at a specified altitude, with fluid injection or with the burning of fuel in a separate combustion chamber, within the engine operating limitations.

rated takeoff power

With respect to reciprocating, turbo-propeller and turbo-shaft engine type certification, means the approved brake horsepower that is developed statically under standard sea level conditions, within the engine operating limitations, and limited to a period of not more than 5 minutes for takeoff power.

rated takeoff thrust

With respect to turbojet engine type certification, means the approved jet thrust that is developed statically under standard sea level conditions without fluid injection and without burning of fuel in a separate combustion chamber, within the engine operating limitations, and limited in use to periods of not over 5 minutes for takeoff operation.

1. rated takeoff augmented thrust -- With respect to turbojet engine type certification, means the approved jet thrust that is developed statically under standard sea level conditions, with fluid injection or with the burning of fuel in a separate combustion chamber, within the engine operating limitations.

rated 30-minute power

With respect to helicopter turbine engines, means the maximum brake horsepower, developed under static conditions at specified altitudes and atmospheric temperatures, under the maximum conditions of rotor shaft rotational speed and gas temperatures, and limited in use to periods of not over 30 minutes as shown on the engine data sheet.

1. rated 2.5-minute power -- With respect to helicopter turbine engines, means the brake horsepower, developed statically in standard atmosphere at sea level, or at a specified altitude, for one-engine-out operation of multi-engine helicopters for 2.5 minutes at rotor shaft rotation speed and gas temperature established for this rating.

rating

A statement that, as part of a certificate, sets forth special conditions, privileges or limitations.

ratio, cancellation

A measure of the sweep-to-sweep cancellation of fixed radar echo signals. Utilized to recognize moving targets from non-moving targets.

read back

A term which means "repeat my message back to me."

read only memory/ROM

Computer memory which can be read but not altered. The contents of ROM are not lost when power is interrupted or discontinued to the computer.

read out

- (1) To acquire information from the computer on a specified item, such as range/bearing/time for an aircraft to a fix.
- (2) Output from a computer on a read out device, flight strip printer, input/output typewriter, etc.

read/write head

That part of a computer disk/tape drive which transfers information to and from a disk/tape.

## reader

A projection device for viewing an enlarged microfilm image with the unaided eye.

1. reader/printer -- A machine which combines the function of a reader with a paper enlargement capability.

## real-time airport data

Essential dynamic data relative to a given airport required by the approach controllers serving that airport which includes wind, wind shear, runway visibility, runway light settings, runway configuration, AWCS data, etc.

## real-time operation

Processing data in synchronism with a physical process in such a fashion that the results of the data processing are useful to the physical operation and relate to the passage of real time.

## real-time programs

Programs that operate on dynamic data, generated by a live environment, during the actual time that the data is generated in order that results of the operation are useful in guiding the live environment.

## real-time reaction

A response to a penetration attempt which is detected and diagnosed in real time to prevent the actual penetration.

## receive

To acquire transmitted information by seeing or listening, without necessarily taking action to express approval.

## receiving controller/facility

A controller/facility receiving control of an aircraft from another controller/facility.

## receiving margin

Sometimes referred to as range or operating range. The usable range over which the range finder may be adjusted. The normal range for a properly adjusted machine is approximately 75 points on a 120-point scale.

receiving path side lobe suppression/RSLS

Equipment that cancels replies received on the side lobes of the ground interrogator antenna.

recommended collision avoidance maneuvers

Information generated as an output from a TCAS II collision avoidance system that is displayed to the flight crew.

reconfiguration (automatic or manual)

(1) Automatic reconfiguration is the ability of the computer program to recognize a failure and switch the failed element, or device, out of the operational system and replace it with a stand-by unit. Manual reconfiguration is the same automatic reconfiguration except that an input from a supervisory position is required to make the transfer of one element, or device, to a stand-by unit. (2) The reassignment of airspace responsibility. This change is usually brought about by the need to either create additional sectors or to reduce the quantity of sectors in an ARTCC. See re-sectorization, back-up device.

record

A collection or grouping of information. The term record includes not only paper documentation but also other record media such as microfilm, sound recordings, magnetic tape or any other machine readable device.

1. records management -- The planning, controlling, directing, organizing, promoting and other managerial activities involved with respect to records creation, records maintenance and use, and records disposition.
2. records material -- All books, maps, photographs, papers or other documentary material, regardless of physical form or characteristics preserved or appropriate for preservation by an organization, because of the value associated with the information.

recording control table

Pre-specified blocks of data which contain an identification of the data block, a time of recording, a frequency of recording, and the recording level. It is assembled initially in non-real time and may be changed at start-up/start-over time by either reading in a new system master tape or reading in binary (tape or cards) revisions.

recovery

Penetration and approach of aircraft.

recovery data

That portion of the total data base, utilized by the operational computer program, which is required to reconstruct the program environment necessary for effective resumption of operational program data processing activities after a halt in system operation which causes partial or complete destruction of the contents of memory.

recovery procedures

The actions necessary to restore a system's computational capability and data files after a system failure or penetration.

red-black areas

Designation for classified (red) and unclassified (black) enclosures housing circuits, equipment, or information. The plain text of a classified message is processed in the black area; the secure or encrypted version of that message is processed in the red area of a crypto center. Restricted access for personnel applies to any red area.

reduce speed to

See speed adjustment.

reduced facility/service operation

When a facility or service is in use but is not capable of fulfilling its complete intended mission and the AT personnel in charge declares an operational impact such as: necessity to combine positions, delay of air traffic and loss of essential air traffic control functions.

reduced mode

Reduced mode is defined when a sub-system experiences a failure within the system which causes some services to be temporarily interrupted, provided that the minimum level of functional performance is maintained (e.g., surveillance, automatic tracking, automatic handoff, flight plan processing).

### reduction ratio

A measure of the number of times a given linear dimension of an object is reduced when photographed, expressed as 24X, 48X, etc.

### redundancy

The existence of more than one means of accomplishing a given task, where all means must fail before there is an overall failure to the system.

1. active redundancy -- That redundancy where in all redundant items are operating simultaneously rather than being switched on when needed.
2. standby redundancy -- That redundancy wherein the alternative means of performing the function is inoperative until needed and is switched on upon failure of the primary means of performing the function.

### redundant route

With respect to communications, a duplicate route of another, both routes being used for the same purpose and transmitting the same intelligence. If transmissions occur over different geographical routes, these are called diverse routes.

### re-entry track

An associated track commencing at the end of an MTR maneuver area on which low-level re-entry can be achieved for the purpose of executing an additional run through the area.

### reference fix

A flight plan's earliest unexpired fix.

### reference noise

Usually refers to a noise power of  $10^{-12}$  watts (-90 dBm) at 1000 Hz. This amount of power is used as a reference in noise meters where noise power is measured in dBm. If an F1A weighting is used, reference noise is  $10^{-11.5}$  (-85 dBm). If C-message weighting is used, reference noise is  $10^{-12}$  watts (-90 dBm).

### reference time

The time associated with a flight plan's reference fix.

referent flight plan/RFP

A flight plan in computer storage with which the operator wishes to identify a sim flight. Such identification is made to obtain initial command parameters and/or starting point for a sim flight.

referred

Output to other sources rather than the input source (pertains to error or rejection messages).

refraction

In radar, bending of the radar beam by variations in atmospheric density, water vapor content, and temperature.

1. normal refraction -- Refraction of the radar beam under normal atmospheric conditions. The normal radius of curvature of the beam is about 4 times the radius of curvature of the Earth.
2. superrefraction -- More than normal bending of the radar beam resulting from abnormal vertical gradients and/or water vapor.
3. subrefraction -- Less than normal bending of the radar beam resulting from abnormal vertical gradients of temperature and/or water vapor.

refresh, display

A periodic updating of a display system. The display update is usually performed at a flicker-free rate.

reflections

Spurious signals caused by interrogation or reply pulses which are reflected to the receivers from extraneous objects such as buildings, hills or other aircraft.

refueling level

A block of consecutive cardinal altitudes from ARIP to egress point within which entry into the refueling track, maneuver to rendezvous and transfer of fuel is accomplished.

Regional Operations Control Center/ROCC

A military radar facility which has the capability to conduct air defense operations in a designated area.

registration error

Errors in the radar reported p and 0 that result in several radars reporting the same target at the same time at different positions in the system plane.

regrade

A determination that classified information requires a different degree of protection against unauthorized disclosure than currently provided, together with a change of classification designation that reflects such different degree of protection.

reimbursable

The mean under which the FAA maintains someone else's equipment/facilities and receives a reimbursement for this service.

reject

To refuse to accept an action which is normally accepted, e.g., a handoff.

related facility/service interruption

An interruption of a facility/service caused or necessitated by an interruption of another facility/service.

relative envelope delay

The maximum range or difference in delay values in a channel. It is measured at various frequencies with a specific frequency selected as a reference point for all other frequencies. The envelope delay at the reference frequency is considered to be 0 microseconds, and all other frequencies will have more (+) or less (-) envelope delay than will the frequency of reference.

relative time(s)

See stored fix time(s).

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.

### release time (ICAO)

Time prior to which an aircraft should be given further clearance or prior to which it should not proceed in case of radio failure.

### reliability

(1) The characteristic of an item expressed by the probability that it will perform a required function under stated conditions for a stated period of time. See availability.

1. inherent reliability -- The potential reliability of an item as defined by its design configuration.
2. predicted reliability -- The reliability of a piece of equipment, computed from its design considerations and from the reliability of its parts in the intended conditions of use.

### reliability engineering

The engineering discipline which formulates an acceptable combination of design features, repair philosophy and maintenance resources to achieve a specified level of reliability as an operational requirement, at optimum life cycle costs.

### reliability requirement

A level of reliability expressed in an equipment specification as a design requirement and supported with a reliability acceptance test.

1. reliability demonstration tests -- Acceptance tests (performed by a contractor) usually at the equipment or sub-system level for the major items which will comprise the integrated system to demonstrate conformance to specified quantitative reliability requirements.

### rem

A unit of radiation dosage. It is the measure of the dose of any ionizing radiation to body tissue in terms of its estimated biological effects relative to a dose of 1 rad of 250 kv x-rays. The relation of the rem to other dose units depends upon the biological effect under consideration and upon the conditions of irradiation. The following are considered to be equivalent to a dose of 1 rem: a dose of 1 R due to x or gamma radiation; a dose of 1 rad due to x,

gamma or beta radiation, a dose of 0.1 rad due to neutrons, or a dose of 0.05 rad due to alpha radiation (intentional exposure).

remanence

The residual magnetism that remains on magnetic storage media after degaussing.

remote

Relating to the acquisition of information about a distant object without coming into physical contact with it.

Remote Communications Air/Ground Facility/RCAG

An unmanned VHF/UHF transmitter/receiver 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. The facilities are dispersed geographically in order to achieve effective radio coverage.

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 0 facilities are non-protected outlets subject to undetected and prolonged outages. RCO (0's) and RTR (0's) were established for the express purpose of providing ground-to-ground communications between air traffic control specialists and pilots located at satellite airports 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 device

A device which is external to the ARTCC and has input/output capability to/from the CCC (TTY or FDEP). Examples include other NAS facilities, FDEP-equipped facilities and service B facilities.

remote error referral interval/RERI

An interval after computer receipt of a message from a remote source (TTY or FDEP) during which the source may respond with correction message.

Remote Maintenance Monitoring System/RMMS

The entire monitoring system including sensors, remote microprocessors, communication links, MPS and terminals.

Remote Monitoring Subsystem/RMS

That equipment at a remote site used to monitor the operational status and determine failures of NAS equipment.

remote scope

In radar meteorology, a "slave" scope remoted from weather radar.

remote terminal room

An enclosed area or room which houses one or more remote terminals or remote job entry devices. Synonymous with terminal cluster room.

remotely piloted vehicle/RPV

A pilotless aircraft, including drones, which is remotely controlled by an external source, either airborne or on the surface.

remove

To cancel information in the computer. Comparable to delete.

rendezvous

A planned arrival of two or more aircraft over a predetermined point terminating in a visual contact prior to effecting a refueling hook-up or conducting other activities requiring proximate operations.

renewable energy source

Resources such as sunlight, wind, geothermal, bio-mass, solid waste or other regenerating sources. See solar energy.

### repeater

A device which amplifies or reshapes and/or re-times an input signal for further transmission. Some repeaters are separate amplifiers for each direction of transmission, while others use one amplifier for both directions.

### repeating coil

A transformer. There are numerous impedance ratios available to match a variety of telephone cable and equipment impedances. A repeating coil is sometimes called a repeat coil, or coil.

### repel

To push away; to present any opposing force.

### reperforator

A paper tape punch which is controlled electrically. It is used for punching tape on-line. Reperforators, when installed in ASR Teletypewriters, may be used as perforators, for manually punching tape, as well as for producing a tape from on-line traffic.

1. reperforator transmitter/RT -- A teletypewriter receiver-transmitter consisting of a reperforator and a tape distributor, each of which is independent of the other. It is used as a relaying device and is especially suitable for transforming the incoming speed to a different outgoing speed.

### replaceable spare part

A part interchangeable with a part being used in equipment, but furnished separately and not required for operation except as a replacement (often called spare part).

### reply efficiency

The percentage of interrogations from a specific interrogator to which the transponder replies within a given time interval when the transponder is under specific load conditions.

### report

- (1) Used to instruct pilots to advise ATC of specified information; e.g., "Report passing Hamilton VOR."
- (2) A message containing surveillance data on a target aircraft.
- (3) Data or information requested by one organization from

another to be used in determining policy; planning, controlling and evaluating operations and performance; making administrative determinations, and establishing and maintaining official records or preparing documents.

1. ADP report -- Information obtained by manipulating and withdrawing data already contained in a computer data base.
2. feeder report -- Information collected from sub-elements in response to an internal recurring information request.
3. issued report -- A report which is prepared and released by an organization from data available within its own organization.
4. one time reports -- Information requested only once, as opposed to a recurring report.
5. recurring report -- Any information collection activities conducted at regular intervals or on an as required basis whenever certain criteria are met.

report date/time of an interruption

When referring to an interruption incident, the report date/time will always be the time when the interruption first occurred. If interruption time is not available, the time when the FAA is first made aware will be used. All times are entered as Greenwich Mean Time/GMT.

report identification symbol/RIS

A group of letters and numbers which identifies an approved internal recurring report.

report period

A method for identifying the time interval associated with a particular recurring reporting system.

reportable facility

Any commissioned facility, including reimbursable facilities for which reporting of interruptions has been designed. Commissioned facilities are those listed in the Facilities Master File/FMF under status codes D, E, F, and G and responsibility codes A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, 1, 2, 3, 9.

reportable service

Any service for which reporting of interruptions has been designated. Services are listed in the FMP under Status Code 2.

reported altitude

The last altitude/flight level at which a flight has reported.

reporting point

A geographical location in relation to which the position of an aircraft is reported. See compulsory reporting point. (Refer to AIM)

reporting point (ICAO)

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

reposition/update

To re-associate or collocate a data block and a target and provide current data on the data block.

request

To ask another for information on or approval of an item, e.g., to request a beacon code for assignment to an aircraft.

request for access

A request by an individual or other authorized person to see a record which is in a particular system of records.

request full route clearance

Used by pilots to request that the entire route of flight be read verbatim in an ATC clearance. Such request should be made to preclude receiving an ATC clearance based on the original filed flight plan when a filed IFR flight plan has been revised by the pilot, company or operations prior to departure.

requirement

A specified capability which must be provided by the NAS.

1. functional requirement -- Type of requirement that describes what the system must do to satisfy the operational requirements. A functional requirement must have an action verb and should have well defined inputs and outputs.
2. general requirement -- Type of requirement that relates the characteristics of the operational requirements.
3. operational requirement -- Type of requirement that qualifies and quantifies the services and products which must be provided to users and specialists. Operational requirements should be directly related to the NAS mission.
4. specific requirements -- Type of requirement that describes how well a function or service must be performed and may be either qualitative or quantitative.

#### reroute

A programmed procedure which delivers an output to a physical device other than the intended physical device. It is performed at program option when an output to the intended device was unsuccessful.

#### rescue

Used for system recovery (in the re-establish mode) necessitated by data base invalidity or operator request. This mode is effected by utilization of recovery data to recreate the data base which existed before detection of the start-over requirement.

#### Rescue Coordination Center/RCC

A primary search and rescue (SAR) facility suitably staffed by supervisory personnel and equipped for coordinating and controlling SAR operations in a region, sub-region, or sector as defined by the National SAR Plan. The U.S. Coast Guard and the U.S. Air Force have responsibility for the operation of RCC's.

#### Rescue Co-ordination Center (ICAO)

A unit responsible for promoting efficient organization of search and rescue service and for coordinating the conduct of search and rescue operations within a search and rescue region.

### re-sequence

To rearrange the order of flight plans.

### reset

(1) The state of equipment in an at-rest, un-operated or idle-line condition. Synonymous with cleared in digital logic. (2) The process of restoring equipment to its initial state.

### residue

Data left in storage after processing operations, and before degaussing or rewriting has taken place.

### resolution

(1) The sharpness of the display on a video monitor. (2) The number of units or digits to which a measured or calculated value is expressed and used. As an example, the distance 15.2 NM is expressed to a resolution of one tenth of a nautical mile. (3) The ability of radar to show discrete targets, i.e., the better the resolution, the closer two targets can be to each other, and still be detected as separate targets.

1. beam resolution -- The ability of radar to distinguish between targets at approximately the same range but at different azimuths.
2. range resolution -- The ability of radar to distinguish between targets on the same azimuth but at different ranges.

### resolution advisory

A TCAS display indication given to the pilot recommending a maneuver to increase vertical separation relative to an intruding aircraft. Positive, negative and vertical speed limit/VSL advisories constitute the resolution advisories. A resolution advisory is also classified as corrective or preventive.

### resource

In an AIS, any function, device or data collection that may be allocated to users or programs.

1. resource sharing -- In an AIS, the concurrent use of a resource by more than one user, job or program.

respondent

Any person, agency or organization from which information is requested or to which information is made available.

response time

The time from the start of an operation until the time the output of the operation results.

rest (at)

The condition from which a mechanical operation begins. Spring action or other mechanical action may cause the parts to assume this condition for each cycle of operation.

restoration

All hardware or software activities required to return a service, facility, system, subsystem or equipment to operational status following a facility/service interruption, equipment failure or out-of-tolerance/limit condition.

restore

To bring back into being, e.g., remove an inhibit of a function such as MSAW.

restrict

To provide limits to an activity, such as air traffic in a defined area.

restricted area

(1) A room, area or facility having critical activities, equipment or information to which unrestricted access cannot be allowed for reasons of safety, operational necessity or the need to protect the data processed or stored within the area. (2) See special use airspace.

restricted area (ICAO)

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

### restricted data

All data concerning their design, manufacture or utilization of atomic weapons; the production of special nuclear material; or the use of special nuclear materials in the production of energy.

### restrictions relating to flight procedures

Any requirement, limitation or other action affecting the operation of aircraft, in the air or on the ground.

### re-sectorization

The splitting or rearrangements of geographic sectors including sector stratification. This is usually the result of rearrangement of center boundaries, shifting of traffic load geographically, implementation of major system changes such as the Long Range Radar Program, NAS Stage A, or similar items. This term is strictly a paper re-sectoring and in itself does not involve position or console changes. See combining/de-combining.

### re-sequencing

The process of reordering the schedule by changing the position in the schedule of an aircraft that is excessively late or has executed a missed approach.

### response time

In telephone switching it is defined as the maximum time required for a call to be completed, from the completion to the time the position or trunk is reached. The time includes only the switching time through the system; specifically, it does not include dialing on a trunk after the trunk has been accessed. This definition also assumes that there is not blocking to obstruct the call. The amount of blocking permitted, if any, is another factor.

### restricted area

Airspace of defined dimensions identified by an area on the surface of the earth within which the flight of aircraft, while not wholly prohibited, is subject to restrictions.

### resume own navigation

Used by ATC to advise a pilot to resume his/her own navigation 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.

resume transmission

To resume transmission of information to a specific facility or FDEP device in a manner that provides notification to affected sectors/facilities via strip coordination indicator.

retract

To take back, negate or withdraw the start of an action such as a handoff.

re-triable error

A hardware error for which it is determined that a repeat attempt at the unsuccessful task which produced the error is both possible and is likely to be successful. See non-transient error, transient error.

retrofit

(1) As applied to planes or air terminals, retrofit is the installation of new or improved systems designed to improve performance; e.g., retrofit of fan jet engines to a non-fan-jet aircraft, or the construction of a new runway pattern at an air terminal. (2) To install an alternative building space-conditioning system in an existing building.

retry

A programmed procedure which will attempt to re-execute the instruction which produced a hardware error. Generally, this involves the 'N Times Retry' of a start I/O instruction (where  $N \geq 0$ ) via all (either 1 or 2) available paths to the intended device. See non re-triable I/O error, unsuccessful I/O operation.

return loss

A ratio, expressed in dB, of the reflected wave to the incident wave. Return loss is encountered when converting a circuit from four wire to two wire and is the result of impedance mismatches, which create a path to return some of the receive signal to the originating end. If the return loss ratio is too low, conditions such as loud echo, hollow, singing, etc., may be heard on a circuit.

1. return loss measurement -- A measurement of mismatch between the actual transmission circuit impedance and nominal circuit impedance.

returned

Pertaining to program responses to an input message, outputted at the source position.

revenue (air carrier)

1. revenue passenger enplanements -- The total number of passengers boarding aircraft (domestic, territorial and international scheduled and non-scheduled service of air carrier and foreign air carriers in intra-state and inter-state commerce). This includes both originating and connecting passengers.
2. revenue passenger load factor -- Revenue passenger-miles as a percent of available seat-miles in revenue passenger services, i.e., the proportion of aircraft seating capacity that is actually sold and utilized.
3. revenue passenger mile/PRM -- One revenue passenger transported one mile in revenue service. Revenue passenger miles are computed by summation of the products of the revenue aircraft miles flown on each inter-airport hop multiplied by the number of revenue passengers carried on that hop.

revision indicator

A number printed on a reprinted flight strip resulting from an amendment (message).

revert

To go to the use of another procedure, such as backup operations.

review

To look over and study conditions or situations, or examine something again, as in reviewing the completeness of a flight plan.

revolution (of the earth)

The earth's elliptical path about the sun which determines the length of the year and causes the seasons.

RGB (red-green-blue)

A set of separate video signals used by color video monitors to produce a color display and by monochrome monitors to produce different shades of one color. The addition of an intensity signal allows many more colors or shades to be displayed.

rho-theta

A term used to describe distance (rho) and direction (theta) from a fixed point.

1. rho-theta system -- A navigation system based on azimuth (theta) and range (rho) relative to a properly equipped radar center.

rhumb line

(1) A line on the surface of a sphere which makes equal oblique angles with all meridians. (2) A loxodromic curve.

ridge/ridge line

In meteorology, an elongated area of relatively high atmospheric pressure; usually associated with and most clearly identified as an area of maximum anticyclonic curvature of the wind flow (isobars, contours, or streamlines).

rime icing

The formation of a white or milky and opaque granular deposit of ice. It is formed by the rapid freezing of supercooled water droplets as they impinge upon an exposed aircraft.

ring-around-the-rosie

A condition where an intermediate EVS System associated with a tandem connection will attempt to establish a through-connection with the originating EVS System.

ring back

An audible information tone that is returned to the calling party when the VF circuit connection has been established and a visual and/ or audible alert indication is presented to the called party.

### ringdown

The type of telephone signaling used in manual operations, as differentiated from dial signaling. Ringdown signaling uses a continuous or pulsing ac transmitted over the line. The term ringdown originated in magneto telephone operation, where cranking the magneto of a subscriber set would "ring" its bell and cause a signal to fall "down" at the central switchboard.

### risk

(1) The probability of occurrence of a specified deleterious consequence with a specific dimension; e.g., number of fatalities. (2) The probability or likelihood of a given loss or damage to a particular system, facility or major application.

### risk analysis

The process of evaluating identified threats to determine their impact upon a facility, operation, organization or other users. The objectives of a risk analysis is to assess the severity of risk and weigh the expected losses that they may be ranked according to degree of acceptability or unacceptability. There are three types of risk analysis that may be conducted simultaneously or independently.

1. comprehensive assessment -- A risk analysis that includes both facility and system/application reviews.
2. facility assessment -- This type of risk analysis is oriented towards the threats against structures or property.
3. system/application assessment -- This category of risk analysis is directed at the threats against sensitive and/or critical files and/or applications.

### risk management

An element of management science concerned with identifying, measuring and minimizing the effects of untoward events. The objective of the risk management process is to enable operations to be conducted within an environment of acceptable risk to losses through destruction, delay, disclosure and modification. When applied to the security of computer operations, risk management encompasses: risk analysis; management decision; control implementation; and effectiveness control.

See Area Navigation.

1. RNAV approach -- An instrument approach procedure which relies on aircraft area navigation equipment for navigational guidance. See instrument approach procedure.
2. RNAV route -- An en route segment, arrival or departure route (including RNAV SIDs and STARs). It may also include en route segments established with gaps in station coverage for use by RNAV equipped aircraft capable of automatic dead reckoning. The en route phase is normally construed as operations either on RNAV routes designated as high/low altitude routes, or direct point-to-point operations between designated waypoints. The terminal phase is considered as the transition from the departure runway to the first en route waypoint, or the transition from the en route phase of the last en route waypoint until the initial approach fix/waypoint. A nominal value for the extent of the terminal phase would be the airspace extending approximately 50 miles from the departure or arrival airport. The approach phase is that portion of the flight starting at the initial approach fix/waypoint and terminating at the missed approach point. Normally, the final approach fix/waypoint is located within 10 miles from the runway threshold. The missed approach area is included in the approach phase in order to define accuracy requirements.
  - a. RNAV low routes -- An area navigation route within the airspace extending upward from 1,200 feet above the surface of the earth to, but not including 18,000 feet MSL.
  - b. RNAV high routes -- An area navigation route within the airspace extending upward from and including 18,000 feet MSL to flight level 450.
  - c. random RNAV routes -- Direct routes, based on area navigation capability, between waypoints defined in terms of latitude/longitude coordinates, degree/distance fixes, or offset from published or established routes/airways at a specified distance and direction.
3. RNAV waypoint -- A predetermined geographical position for route or instrument approach definition or progress reporting purposes that is defined relative to a VORTAC

station position or in terms of latitude/longitude coordinates.

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 10 NM to 30 NM and an altitude range of 500 feet to 10,000 feet AGL.

rocker

A component which swings back and forth usually less than 180°. One which oscillates.

rocket

An aircraft propelled by ejected expanding gasses generated in the engine from self-contained propellants and not dependent on the intake of outside substances. It includes any part which becomes separated during the operation.

rocketsonde

A type of radiosonde launched by a rocket and making its measurements during a parachute descent. It is capable of obtaining soundings to a much greater height than is possible by balloon or aircraft.

roentgen/R

A unit of exposure dose. It is that quantity of x or gamma radiation which produces one electrostatic unit of positive or negative electricity per cubic centimeter of air at standard temperature and pressure or  $2.083 \times 10^9$  ion pairs per cubic centimeter of dry air.

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.

roll

The angle between the lateral axis and horizontal axis of an aircraft.

roll call

A sequential interrogation of approaching aircraft.

### roll cloud

A dense and horizontal roll shaped accessory cloud located on the lower leading edge of a cumulonimbus or less often, a rapidly developing cumulus. It is indicative of turbulence. It should not be confused with a rotor cloud.

### rollout RVR

The RVR readout values obtained from RVR equipment located nearest the runway end.

### rotation (of the earth)

The spinning of the earth from west to east on its own axis which determines the days.

### rotor cloud

A turbulent cloud formation found in the lee of some large mountain barriers. The air in the cloud rotates around an axis parallel to the range. This type of cloud indicates possible violent turbulence. It should not be confused with a roll cloud.

### rotorcraft

A heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors.

### rotorcraft-load combination

The combination of a rotorcraft and external load, including the external load attaching means. Rotorcraft load combinations are designated as follows: Class A is one in which the external load cannot be moved freely, cannot be jettisoned, and does not extend below the landing gear; Class B is one in which the external load is jettisonable and is lifted free of land or water during the rotorcraft operation; and Class C is one in which the external load is jettisonable and remains in contact with land or water during rotorcraft operation.

### round-robin

A flight whose destination fix is the same as the departure point.

### route/route of flight

(1) A defined path, consisting of one or more courses, which an aircraft traverses in a horizontal plane over the surface of the earth. (2) A series of route segments. See airway, jet route, published route, track.

### route segment

(1) A continental or insular geographical location. (2) A point at which a definite radio fix can be established. (3) As used in air traffic control, a part of a route that can be defined by two navigational fixes, two NAVAIDs or a fix and a NAVAID. (see fix, route). A portion of Route of Flight as follows:

1. Direct -- A line determined by two successive converted fixes on the route of flight.
2. Airway -- A line determined by an airway filed in the flight plan route.
3. Area -- Area segments are non-direct portions of a route such as: hold or delay, maneuvers. Area segments are route segments of specified dimensions (usually circular) within which a flight will operate for a predetermined interval of time.

### route segment (ICAO)

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

### route match

The process will operate on all tracks and their respective paired flight plans whether active or pending. First a flight plan route segment check; and second, a flight plan fix check.

### route overlap

The substitution of all or part of a preferential route for a filed route during route conversion.

### route tailoring

The systematic elimination of non-pertinent previous route elements from succeeding strips as a flight progresses along its route.

route truncation

The exclusion of non-pertinent succeeding route elements from flight strips.

routine

Functions or services that, if lost, would not significantly degrade the capability of the NAS to exercise safe separation and control over aircraft.

routine, diagnostic

A computer subroutine used to locate a malfunction in a computer, or to aid in locating mistakes in a computer program, in general, any routine specifically designed to aid in debugging or trouble shooting.

routine test

Tests performed at specified intervals of time to check the performance of a circuit. The circuit may be "routined" quarterly (four times a year) at which time specific transmission and supervisory tests may be performed. Routine tests do not, as a rule, include all the tests performed on a circuit order.

routine use

Use which is compatible with the purpose for which a record was collected.

row

A horizontal series of data.

running fix

A fix determined from a series of lines of position, based on the same object or body and resolved for a common time.

running open

(1) An absence of loop current due to line malfunction or other cause. (2) A term used to describe a teletypewriter machine connected to an open line or a line without a battery. (3) A steady spacing signal on the data loop or circuit, causing the receiving equipment to cycle continuously without printing characters. A teletypewriter receiver under such a condition appears to be running, as

the type hammer continually strikes the type box but does not move across the page.

#### 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°; e.g., Runway 01, Runway 25. See parallel runways.

#### 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 configuration (RWY) in use

A selectable adapted item which specifies the landing runway configuration or direction of traffic flow. The adapted optimum flight plan from each transition fix to the vertex is determined by the runway configuration for arrival metering processing purposes.

#### runway environment

The runway threshold or approved lighting aids or other markings identifiable with the runway.

#### 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.

1. runway light intensity setting -- An indication of the intensity level of the runway edge and centerline lights. This information is needed by the controller and RVR equipment.

### runway markings

See airport marking aids.

### runway number designation

Numerical designation of runways - e.g., 4/22 runways - denotes the compass heading of a runway to the nearest 10°. For example, 4/22 stands for 40° and 220°, where the 4 would designate the southwesterly approach to the runway (heading of 40°), and the 22 would designate the northeasterly approach (heading of 220°). Further designations of L and R indicate the left or right sides of dual runway systems.

### runway profile descent

An 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 altitude, 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 temperature

The temperature of the air just above the runway, ideally at engine and/or wing height. It is used in the determination of density altitude, and is useful at airports when critical values of density altitude prevail.

### runway threshold

The physical beginning of a runway.

### 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 either 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 between Flight Operations, Air Traffic Service, the airport proprietor, and the users. Once established, participation in the program is mandatory for aircraft operations 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

(1) This is the distance down the runway the pilot can see unlighted objects or un-focused lights of moderate intensity. (2) The meteorological visibility along an identified runway determined from a specified point on the runway. It is determined by a transmissometer or by an observer.

### runway visibility range/RVR

An instrumentally derived horizontal distance a pilot should see down the runway from the approach end. It is based on either the sighting of high intensity runway lights or on the visual contrast of other objects, whichever yields the greatest visual range. See visibility.

1. RVR threshold -- Runway visual range (RVR) is the distance down a runway that a pilot can see high intensity runway lights. The RVR threshold is a controller-specified visual limit. When the visibility drops below this threshold, the controller is alerted.

line

Forces a posting in a FPA for direct route processing.

safe stored data

Data stored in such a manner that a power failure will not cause the stored data to be lost; non-volatile storage.

safety

(1) The quality of being devoid of whatever exposes one to danger or harm. (2) Freedom from conditions that can cause death, injury, occupational illness or damage to or loss of equipment or property.

1. safety advisory/alert -- A safety advisory is issued by ATC to aircraft under their control if ATC is aware the aircraft is at an altitude which, in the controller's judgement, places the aircraft in unsafe proximity to terrain, obstructions or other aircraft. The issuance of a safety advisory is contingent upon the capability of the controller to have an awareness of an unsafe condition. 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.
  - a. terrain/obstruction alert -- A safety alert issued by ATC to aircraft under their control if ATC is aware the aircraft is at an altitude which in the controller's judgement, places the aircraft in unsafe proximity to terrain/obstacles; e.g., "Low Altitude Alert, check your altitude immediately."
  - b. aircraft conflict alert -- A safety alert issued by ATC to aircraft under their control if ATC is aware of an aircraft that is not under their control at an altitude which, in the controller's judgement, 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 nine 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/she will take.

sail back

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

Saint Elmo's Fire (corposant)

A luminous brush discharge of electricity from protruding objects, such as masts and yardarms of ships, aircraft, lightning rods, steeples, etc., occurring during stormy weather.

sanitizing

The degaussing or overwriting of sensitive information in magnetic or other storage media. Synonymous with scrubbing.

Santa Ana

A hot, dry, foehn wind, generally from the northeast or east, occurring west of the Sierra Nevada Mountains, especially in the pass and river valley near Santa Ana, California.

satellite airport

(1) An airport that is associated with another airport and uses all of the airport-adapted data of the airport it is associated with except for name, location, and the satellite FDEP name, if any. (2) In many instances a community is served by several airports, one of which serves a significant volume of air carrier and/or high performance military aircraft, while the others serve general aviation aircraft. These latter airports are "satellite airports".

saturated adiabatic lapse rate

The rate of decrease of temperature with height as saturated air is lifted with no gain or loss of heat from outside sources. It varies with temperature, being greater at low temperatures. See adiabatic process and dry adiabatic lapse rate.

saturation

The condition of the atmosphere when actual water vapor present is the maximum possible at existing temperature.

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.

scan

(1) The motion of a beam of RF energy caused by rotating or displacing the reflecting element or the antenna in relation to the reflecting element. (2) The search pattern of an antenna. (3) One complete circular, up-and-down, or side-to-side sweep of the radar, light, or other beam or device used in making a scan. See sweep.

1. scan, radar -- Time (in seconds) for one complete rotation of a radar antenna.
2. scan, tracking -- Two successive operations of the Automatic Tracking Program.

scan oriented quality control

A software program which operates once every radar scan and whose major task is to monitor status messages, test messages, and radar data counts from the radar site digitizer.

scanning

In a video display, the process of analyzing or synthesizing successively, according to a predetermined method, the light values of picture elements constituting a picture area.

1. scanning line -- A continuous narrow strip of a the picture area containing highlights, shadows and halftones, determined by the process of scanning.

### scatter interrupt

A class 2 interrupt which is the highest priority interrupt in the ARTS, usually indicative of a failure condition within the data processing subsystem or a manual recovery.

### scevenqing

Searching through residue for the purpose of unauthorized data acquisition.

### schedule/scheduled

A program or listing of events or actions.

1. scheduled interruption -- A term used to indicate that a facility or service interruption was coordinated for a predetermined period of time with prior approval from the facilities manager, assistant facilities manager or other appropriate AT personnel.
2. scheduled corrective -- This is the interruption of a facility/service from the NAS for required corrective maintenance. It is a planned action to correct a facility/service performance deterioration, and applies only when the facility/service is operating within hardware/software operational requirements (tolerance/limits) prior to the scheduled interruption.
3. scheduled routine -- This is the interruption of a facility/service from the NAS for planned maintenance activities and includes activities such as: periodic maintenance per directive; planned hardware modifications, improvements, projects and associated testing; software program updates and associated testing (new version/level, chart update, national patch release, etc.); flight inspection; and planned administrative actions (evaluations, military activities, certification exams, training, etc.).

### scheduling

The process of deriving the order and time at which arrivals are scheduled to arrive at the runway and other control points. Scheduling usually implies the use of a profile path and profile speed over which an aircraft is expected to fly in order that it arrives at specific control points in accordance with a desired touchdown time. Most known systems and studies do not tightly schedule departures. See sequencing.

scramble

Departure of an aircraft, training for the purpose of participating in an air defense mission.

1. scramble order -- A command and authorization for flight requiring time, if not more than five minutes, to become airborne.

screening

A process or combination of processes for the purpose of identifying and eliminating defective, abnormal or marginal parts and manufacturing defects.

1. screening test -- A test or combination of tests, intended to remove unsatisfactory items which are likely to exhibit early failure.

scrubbing

Synonym for sanitizing.

scud

Small detached masses of stratus fractus clouds below a layer of higher clouds, usually nimbostratus.

sea breeze

A coastal breeze blowing from sea to land, caused by the temperature difference when the land surface is warmer than the sea surface. Compare land breeze.

sea fog

A type of advection fog formed when air that has been lying over a warm surface is transported over a colder water surface.

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.

sea level engine

A reciprocating aircraft engine having a rated takeoff power that is producible only at sea level.

sea level pressure

The atmospheric pressure at mean sea level, either directly measured by stations at sea level or empirically determined from the station pressure and temperature by stations not at sea level. Sea level pressure is used as a common reference for analysis of surface pressure patterns.

sea smoke

See steam fog.

search

To scan/look over a display to find something, such as a particular flight plan.

search and rescue/SAR

(1) Employment of available personnel and facilities in rendering aid to persons and property in distress. (2) 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 Inland Region. Information pertinent to search and rescue can be passed through any air traffic facility or be transmitted directly to the Rescue Coordination Center by telephone.

1. search and rescue facility -- A facility responsible for maintaining and operating a search and rescue 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.

seasonal variation

Changes in attenuation due to ambient temperature changes. The net loss of a circuit is computed at 68° F. If the temperature is higher than this, the loss will increase and the circuit will be "long." If the temperature is lower, the circuit will be "short."

second in command

A pilot who is designated to be the second in command (co-pilot) of an aircraft during flight time.

### second order message

A transmitted message referencing a previously transmitted flight plan. See first order message.

1. second order transmission -- The TI message is considered a second order message when flight plan information has previously been transferred to the adjacent center on the same flight.

### secondary area

The area within a segment in which ROC is reduced as distance from the prescribed course is increased.

### secondary radar

See radar.

### sector

An FAA sector is a geographic area limited to altitude, assigned to a controller to exercise control and advisory responsibilities. An Air Defense Center Sector is a geographical area under surveillance of a unit of the Air Defense Command. An Air Defense Sector is much larger than an FAA sector. An ARTCC geographic area is of approximately the same size as an ADC Sector. See active sector, inactive sector.

1. sector air space -- One or more contiguous fix posting areas controlled from a single control sector (i.e., the FPAs assigned to a sector). A sector's air space may overlie or underlie air space controlled by another sector or by an approach control facility.
2. sector area -- Synonymous with sector air space.
3. sector list drop interval/SLDI -- A parameter number of minutes after the meter fix time when arrival aircraft will be deleted from the arrival sector list.
4. sector saturation levels -- A predetermined maximum number of aircraft that can be handled within a particular sector. At any given time, this number will vary depending on weather, personnel, etc.

### sector plan

An adapted set of sector/FPA assignments which may be implemented by reference to a unique plan name. The Basic

Sector Plan is the plan in which each FPA is assigned to the sector whose 2-digit identification is the same as the first two digits of the FPA identification.

sector visibility

Meteorological visibility within a specified sector of the horizon circle.

sectorization

See re-sectorization.

1. sectorization plan -- A statement of which WSEC is paired with each adapted GSEC according to this plan. There are five sectorization plans (normally): peak, normal, light, midnight, alternate midnight. See adapted sectorization plan, current sectorization plan.

secure configuration management

The use of procedures appropriate for controlling changes to a system's hardware and software structure for the purpose of ensuring that such changes will not lead to a decreased data security.

secure operating system

An operating system that effectively controls hardware and software function in order to provide the level of protection appropriate to the value of the data and resources managed by the operating system.

security

The protection afforded information from accidental or intentional, but unauthorized modification, destruction or disclosure. See add-on-security, administrative security, communications security, data security, emanation security, personnel security, physical security, procedural security, teleprocessing security, traffic flow security.

security audit

An examination of data security processes and measures for the purpose of evaluating their adequacy and compliance with established policy.

security control point

An individual or office having primary responsibility for receiving, controlling, disseminating and disposing of classified documents received by an activity.

security filter

A set of software routines and techniques employed in AIS to prevent automatic forwarding of specified data over unprotected links or to unauthorized persons.

security incidents

Any incident involving the penetration, user subversion, compromise of classified or sensitive information, unauthorized use access or storage of information which is a violation of the requirements, procedures or directives of Government agencies (e.g. fraudulent use of systems or information, inadvertent disclosure, unauthorized access to a Central Computer Room or computer system from a remote terminal).

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.

segment

The basic functional division on an instrument approach procedure. The segment is oriented with respect to the course to be flown. Specific values for determining course alignment, obstruction clearance areas, descent gradients, and obstruction clearance requirements are associated with each segment according to its functional purpose.

1. segment heading -- The azimuth, relative to true north, from one converted fix to the next converted fix along a route.

segmented airway

An airway that is non-continuous.

segmented circle

A system of visual indicators designed to provide traffic pattern information at airports without operating control towers. (Refer to AIM)

select

To single out an item in preference to others, or pick one from several available options or items, such as a flight plan sorting priority scheme.

select code

That code displayed when the ground interrogator and the airborne transponder are operating on the same mode and code simultaneously.

selective calling

A form of teletypewriter communications system. One teletypewriter loop may include several machines but, with selective calling, only the machine selected will respond. Control of an individual machine in response to a selective call (CDC) is enabled by a stunt box.

selective rejection

The process which accepts selected radar data for correlation and display, using adapted radar sort boxes to determine whether the datum is from a preferred or supplemental site.

selectively managed and controlled items

Items which do not meet the capitalization criteria, but which are individually recorded in the property record solely for management and item control purposes. Examples include: borrowed, leased, or loaned property, special interest items and sensitive items.

selector channel

A high speed data communication path contained in the I/O control element of the CDC, which is used for the attachment of tape drives, display devices.

self-test

Tests of the TCAS equipment and displays which are initiated by the flight crew and are used to determine the operational status of the equipment. Self-test differs from performance

monitoring in that it is initiated by the flight crew, may use external stimuli and is not performed continually or automatically.

semidiameter/SD

The value in minutes of arc of the radius of the sun or the moon.

sense

(1) To detect or perceive. (2) A direction that a TCAS resolution advisory may take: either CLIMB or DESCEND.

sensing

In a teletype system, mechanically reading to determine which condition exists for each unit of code.

sensitive application

A computer application which requires a degree of protection because it involves the processing of sensitive data or because of the risk and magnitude of loss or harm which could result from improper operation or deliberate manipulation of the application.

sensitive data/information

Data which requires a degree of protection due to the risk and magnitude of loss or harm which could result from inadvertent or deliberate disclosure, alteration or destruction. The term includes data whose improper use or disclosure could adversely affect the ability of an agency to accomplish its mission, proprietary data, records about individuals requiring protection under the Privacy Act, and data not releasable under the Freedom of Information Act.

1. sensitive compartmented information -- All information and material that requires special controls for restricted handling within compartmented intelligence systems and for which compartmentalizing is established.

sensitive information system

A system that processes sensitive data.

### sensitive items

Selectively managed and controlled items of in-use personal property which are especially susceptible to loss, pilferage or misappropriation.

### sensitivity time control/STC

A radar circuit designed to correct for range attenuation so that echo intensity on the scope is proportional to reflectivity of the target regardless of range. See gain time control.

### sensor

Synonym for interrogator.

### separation

Spacing of aircraft to achieve their safe and orderly movement in flight and while landing and taking off.

1. separation minima -- The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

### separation filter

A filter, or more accurately a combination of filters, used to separate one band of frequencies from another. Often used to separate carrier and voice frequencies for transmission over individual paths.

### sequence tracking/SEOTRAC

A form of tracking in which computer generated sequencing vector and speed data are used to aid in the tracking process.

### sequence parameters

A set of central tables utilized by the executive control program to control the sequence of input/output transfers and sub-program operations.

### sequencing

The generic term including both scheduling and spacing of aircraft along a common path. The process of ordering the aircraft in the schedule. Sequencing is normally either first come, first served or by speed class. The term

"sequencing" is sometimes loosely used to include the arrival control process.

sequential test

A test of a sequence of samples in which it is decided at each step in the sequence whether to accept or reject the hypothesis, or to take an additional sample and continue the test.

serial

A method of communicating digital information in which the data bits are transmitted sequentially over a single line.

serial transmission

Information transfer in which the bits composing a character are transmitted sequentially.

service

(1) The end product which is delivered to a user (Air Traffic personnel, the aviation public, military, etc.) that results from an appropriate combination of systems, subsystems, equipment and facilities. Examples might include a chain of facilities consisting of an Air Route Surveillance Radar/ARSR, Common Digitizer/CD, Radar Microwave Link Terminals/RMLT, Radar Microwave Link Repeater/RMLR and associated Air Route Traffic Control Center/ARTCC equipment used to provide Air Traffic personnel with en route digitized data. Air Traffic personnel in turn utilize that data to provide separation services to aircraft operating in the NAS. (2) A communications interface.

1. service A -- A teletype network used primarily to collect and disseminate weather reports, forecasts and NOTAM's. There are 15 area circuits (comprising over 450 send-receive stations), 14 supplemental and 10 local receive-only circuits, all operating at 100 wpm. These circuits are interconnected by a transcontinental express teletype circuit which interconnects the Automatic Data Interchange System (ADVIS) centers.
2. service B -- A series of low speed (100 wpm) multi-point teletype communication systems whose primary purpose is to handle flight movement and control messages. These circuits interconnect ARTCC's with selected FMA facilities, BASOPS and airspace carrier operations offices located within the geographic area of each ARTCC, and also connect all ARTCCs within the

U.S. See area B, military B, air carrier B, and center B.

- a. Service B Interchange System/BDIS -- A high speed (1071 wpm) teletype circuit which enables communications between all Area B circuits via 10 BDIS Relay Centers.
3. service C -- A low speed (100 wpm) teletype system used primarily to collect and disseminate domestic synoptic weather information and general service forecasts. Consists of 208 send-receive terminals and 216 receive-only "drops".
4. service circuits -- Those time-shared circuits of the system which achieve a desired grade of service. The failure of one (1) or several will not make the system inoperative but may degrade the service during peak load.
5. service F -- A communications service comprised of dedicated circuits, leased by the FAA.
6. service, full duplex -- A type of channel which is capable of simultaneous and independent transmittal and reception of communications signals.
7. service, half duplex -- A type of communication channel which is capable of transmitting and receiving signals, but is not capable for simultaneous and independent transmission and reception.
8. service, simplex -- A type of communication channel which is capable only of either transmitting or receiving signals. These types of circuits do not exist any longer. If one way communication is specified, the line will be half-duplex.

service volume(s)

1. standard service volumes/SSV -- Ground stations are classified according to their intended use. These stations are available for use within their service volume. Outside the service volume, reliable service may not be available. For standard use, the airspace boundaries are called standard service volumes.
2. expanded service volumes/ESV -- When operational needs require facilities to be used beyond their standard service volumes, the same signal standards/tolerances and ground/flight check certification procedures will

be met. Expanded service volumes (ESVs) will only be authorized when conditions permit.

3. operational service volume/OSV -- The airspace available for operational use includes: (a) The SSV excluding any portion of the SSV which has been restricted, and (b) expanded service volumes (ESVs).

#### service (zero) 0

A low speed (100 wpm) teletype system used primarily to collect and disseminate international synoptic and aviation weather information. The continental U.S. network consists of 25 send-receive terminals and 75 receive-only terminals.

#### service channel

A band of frequencies, on each side of the carrier frequency, produced by modulation.

#### service fault location

The location of the inoperable segment of a chain of facilities and/or equipment causing a service interruption. Three service fault locations are designated as follows:

1. control site -- The control site, such as an ARTCC or an Airport Traffic Control Tower/ATCT, is the controlling point of the service. The control site encompasses all necessary control, decoding, display or other equipment associated with the control point of the particular service, exclusive of link terminals.
2. line/link -- That portion in a chain of facilities which provides the point-to-point media transmission between the control and remote site. Included in this portion are FAA or commercial telephone company/TELCO transmission lines, link terminals and line repeaters.
3. remote site -- A remote site, such as an ASR, remote center air/ground communications facility or ARSR, is the remote end of a service. A remote site encompasses all transmitting, receiving, control, and ancillary equipment associated with the remote end of a particular service, exclusive of link terminals. In the case of flight data entry and printout and inter-facility data services, the terminal facility ARTCC, ATCT and/or TRACON facility is considered the remote site for the ARTCC. For the Remote Tower Radar Display Service/RTRDS and the remote tower alphanumeric display service, and in some cases the terminal radar/secondary radar, the remote site may include the equipment from

the radar site up to the last point of transmission to the satellite tower location, exclusive of link terminals.

#### servicing

The performance of any act (other than preventive or corrective maintenance) required to keep an item of equipment in operating condition, such as lubricating, fueling, oiling, cleaning, etc. Servicing does not include the periodic replacement of parts or of any corrective maintenance tasks.

#### servicing company

(1) A leasing company. (2) Circuits consisting of landline or radio link segments which interconnect facilities and are managed and maintained by a telephone company. Interstate circuits are governed under Federal Communications Commission/FCC tariffs.

#### Servicing Test Center/STC

The telephone company office which customers contact on matters pertaining to service.

#### set up

(1) To adjust equipment for proper functioning. (2) In a video display, the ratio between reference black level and reference white level, both measured from blanking level. It usually is expressed in percent.

1. reference black level -- The light level at the point of observation corresponding to the specific maximum excursion of the picture signal in the black direction.
2. reference white level -- The light level at the point of observation corresponding to the maximum excursion of the picture signal in the white direction.

#### 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 AIC system when flight through portions of the airspace is difficult or impossible due to severe weather.

severe weather forecast alerts/AKW

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 Center.

sextant

An optical instrument whose prism moves in an arc of 60°, enabling it to measure the altitude of a celestial body up to 120°. The term is commonly applied to all instruments measuring the altitude of a celestial body.

shading

In a televised display, a brightness gradient in the reproduced picture, not present in the original scene, which is caused by the camera tube.

shall

"Shall" denotes compulsory or mandatory action that the person being directed is obliged to take. For example; equipment "shall" be adjusted to operate in accordance with directive tolerances. See should, will, and may.

shall not

"Shall not" means that an action is prohibited.

shear

See wind shear.

short

In communications, when the net loss of a circuit is less than the limits allow. This may create "singing."

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 take off and landing/STOL aircraft

An aircraft which, at some weight within its approved operating weight, is capable of operating from a STOL runway

in compliance with applicable STOL characteristics, airworthiness, operations, noise and pollution standards.

short take off and landing/STOL runway

A runway specifically designated and marked for STOL operations.

short title

An identifying combination of letters and numbers assigned to material for purposes of brevity.

should

"Should" denotes an action that is desirable but not mandatory. For example: equipment "should" be shut down if, in the opinion of the operator, failure is imminent. See shall, will, and may.

show

Unless the context otherwise requires, "show" means to demonstrate or prove to the satisfaction of the Administrator.

shower

Precipitation from cumuliform clouds; characterized by the suddenness of beginning and ending, the rapid change of intensity, and by rapid changes in the appearance of the sky. Showery precipitation may be in the form of rain, ice pellets, or snow.

side effects

Terrain (or building) influences (reflections) on an ILS glide slope or localizer signals.

side lobe

A portion of a radar antenna beam pattern resulting when small amounts of power are unavoidably radiated in undesired directions.

1. side lobe suppression/SLS -- A radar beacon feature which inhibits response to side lobe interrogations.

sideband(s)

The band(s) of frequencies, on each side of the carrier frequency, produced by modulation.

Closest 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)

signal plate

See mosaic.

signal-to-noise ratio

The ratio of the field intensity of a radio wave to the radio noise field intensity at some point. It may also be considered as the ratio, at any point of a circuit, of signal power to total circuit-noise power.

single drift correction

A technique used in pressure pattern flying wherein a net drift is determined and the correction applied to the course.

significant change

To determine the need for conducting or revising a risk analysis, this term is defined as follows:

1. significant physical facility change -- (1) Introducing new construction, remodeling or new activities in building areas contiguous to rooms containing AIS hardware or supporting functions that potentially increases the hazards of accidental or natural disasters. (2) Making any modifications to the physical operating environment of an AIS that removes or relaxes existing physical security controls.
2. significant hardware change -- (1) Adding or replacing any AIS hardware or other supporting equipment that increases the AIS tangible assets of the facility by more than \$500,000 in a single fiscal year. (2) A condition that causes an item of AIS hardware or other supporting equipment necessary for the continued operation of the facility to be irreplaceable if destroyed. Also, the condition is met if replacement is likely to take longer than current contingency planning can tolerate. (3) Any hardware modification, replacement or addition that relaxes or removes controls over existing system access, over operational

or administrative procedures or over input/output media.

3. significant system software change -- (1) Adding, modifying or replacing any system software, utility, data base management system or other similar program or module not part of a routine system maintenance or scheduled vendor relapses that involve over \$50,000 or 1 person-year of effort in a single fiscal year. (2) Adding, modifying or replacing any system software, utility data base management system or other similar program or module that relaxes or removes identification, authentication, system access, procedural or other data security controls. (3) Adding, modifying or replacing any system software, utility, data base management system or other similar program or module that increases the system capabilities of users, programmers or other individuals previously not possessing those capabilities on the AIS system to access, modify or delete.
4. significant application change -- (1) Adding, modifying or replacing any application system software or related program that consumes more than 1 person-year of effort or costs more than \$50,000 in a single fiscal year, other than routine or scheduled maintenance. (2) Adding, modifying or replacing any application system software or related program that relaxes or removes identification, authentication, system access, procedural or other application system controls. (3) Increasing the volume of input, output or distribution by 30 percent or more, or increasing the dollar value of the assets controlled in the application by \$100 million within a single fiscal year.

significant exposure

Any exposure of a human being or the environment to any hazard as measured by any scientifically acceptable analytical method.

significant meteorological information/SIGMET/WA

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 sand storms that reduce visibility to less than 3 miles. See AIRMET.

### SIGMET information (ICAO)

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

### sim flights/simulated flights

Flights which are simulations of real aircraft and are moved through the control area by the computer program in accordance with the performance instructions entered by the operator. The extrapolated positions of the simulated flight are the basis for the generation of simulated radar data.

1. simulated tracks -- Simulated aircraft tracks generated, for training purposes, in the common processor used in the sector suite .

### simplex

A communication circuit which transmits intelligence in only one direction at a time. A "simplex" circuit is one in which repeat coils are arranged to provide an additional communication path via their center taps and a ground return path. See service, simplex.

### Simplified Direction Facility/SDF

A NAVAID used for non-precision 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°, and the course may be wider than the localizer, resulting in a lower degree of accuracy. (Refer to AIM)

### simulated flame out/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 contain on a relatively high and wide downwind leg with a 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.

### simulation

A process of using synthetic information in a system for training, evaluation and testing purposes.

### simulation models

See modeling.

### 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)

### singing

A circuit oscillating because it has too much gain. It can sing at any frequency, but the effect is worse at those frequencies within the useable band.

1. singing point/S.F. -- The threshold at which a circuit goes into oscillation. The singing point is a measure of stability and is a function of return loss. It is measured in dB, and the larger the number the greater the stability.

### single failure point

A single item of hardware, the failure of which would lead directly to the total loss of hardware system performance.

### single direction routes

Preferred IFR routes which are sometimes depicted on high altitude en route charts 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.

### single-piloted aircraft

A military turbojet aircraft possessing one set of flight controls, tandem cockpits, or two sets of flight controls

which are operated by one pilot is considered single piloted by ATC when determining the appropriate air traffic service to be applied. See single frequency approach.

single-sideband-suppressed carrier

Modulation resulting from the partial or complete elimination of the carrier and all components of one sideband from an amplitude modulated wave.

sink rate

The vertical component of the velocity of an aircraft along a flight path.

site

The source of surveillance radar data. Either primary data or both primary and beacon data can be generated from one site.

site/system acceptance

The formal acceptance by the FAA of system or equipment from an installation, construction or turnkey contractor. Site/system acceptance is accomplished within the terms of a contract.

1. site/system acceptance testing -- The testing, checkout and documentation which an installation contractor is required to accomplish and demonstrate to the FAA that systems/equipment installed by the contractor meet contract specifications for installation and operation of hardware and software and, where applicable, integration with other systems. Acceptance testing may be accomplished in phases and will usually include a demonstration that the system or equipment are capable of operating a specified period without failure or error. The agency representative (COR/TOR) participates in the testing, checkout, documentation and demonstration activities as stipulated in the contract.

sky wave(s)

A radio signal reflected one or more times from the ionosphere.

slant range

(1) Measurements of range along the line of sight. (2) The actual straight line distance between an aircraft in flight

and a ground location (radar, DME). This distance is greater than the geographical surface range because of the altitude of the aircraft.

1. slant range correction -- A correction which translates the radar ranges into the system plane, i.e., removes the range error contributed by altitude.
2. slant range error/SRE -- The difference between the distance of an aircraft to a radar or DME station on the surface and the distance from the station to a point directly beneath the aircraft. The error magnitude is a function of aircraft altitude above the station and the distance to the station.

slant visibility

For an airborne observer, the distance at which he/she can see and distinguish objects on the ground.

slash

A radar beacon reply displayed as a elongated target.

slave station

The station of a network which is controlled or triggered by the signal from the master station.

sleet

See ice pellets.

slew dot

A video symbol (dot) that can be positioned by the trackball control to any point on the face of the Display. The dot provides a means for the controller to define a location on the display when communicating with the Centra Computer Complex. See position marker.

slide

A bar or flat piece of metal free to be moved within limits, usually in a back and forth manner which affects the operation of associated components.

slope equalizer

A device or circuit used to change the gain and/or attenuation of an amplifier circuit to make the attenuation

of a section of transmission line constant over the frequency band.

slot

An elongated cut; an opening which permits only lengthwise motion of a post or stud extending into it.

slow taxi

To taxi a float plane at low power or low RPM.

small aircraft

An aircraft of 12,500 pounds or less, maximum certificated takeoff weight.

small scale ECM mission

ECM performed by one to six aircraft working as a unit.

small search area

A small circular region centered about the predicted track position. Data falling within this region may be correlated with the track.

hcg

A mixture of smoke and fcg.

smoke

A restriction to visibility resulting from combustion.

smoothed track velocity

The adjusted track velocity (in the free tracking mode) that is obtained by adding to the previously calculated velocity a fixed position of the Deviation for a specified interval.

smoothing

Procedures that decrease or eliminate rapid fluctuations in data. Used by the computer tracking program in determining the future position of an aircraft.

snow

Precipitation composed of white or translucent ice crystals, chiefly in complex branched hexagonal form.

1. snow flurry - A popular term for snow shower, particularly of a very light and brief nature.
2. snow grain(s) - Precipitation of very small, white opaque grains of ice, similar in structure to snow crystals. The grains are fairly flat or elongated, with diameters generally less than 0.04 inch (1 mm).
3. snow pellet(s) - Precipitation consisting of white, opaque approximately round (sometimes conical) ice particles having a snow like structure, and about 0.08 to 0.2 inch in diameter; crisp and easily crushed. Snow pellets differ from snow grains because they rebound from hard surfaces and often break up.
4. snow shower(s) - See shower.

#### soft copy

A temporary (volatile) printout of a data-handling terminal, for example, on a CRT display.

#### software

All instructions, diagrams and step-by-step routines, exclusive of hardware, required to utilize computer capabilities. Software also consists of all computer programs and related documentation. Card decks, magnetic tapes containing computer program information, and computer-generated listings.

#### software release

An identifiable point in the production of software, supported by formal documentation, in which the supplier formally approves the product(s) for general use and will provide broad user support.

#### software reliability

From a system user or "macroscopic" viewpoint, the probability that the use of the software does not result in failure of the system to perform as expected by more than a specified frequency. From a subsystem developer or "macroscopic" viewpoint, the probability that the software is fault-free.

#### software security

Those computer programs and routines which protect data or information processed by an AIS system and its resources.

### solar energy

Energy derived from the sun directly through the solar heating of air, water or other fluids, by electricity produced from solar photovoltaic or solar thermal processes, or indirectly from the use of wind, bio-mass or small scale water power.

### solar radiation

The total electromagnetic radiation emitted by the sun. See insolation.

### solstice

Those points on the ecliptic where the sun reaches its greatest northern or southern declination. Also the times when these phenomena occur.

1. summer solstice -- That point on the ecliptic where the sun reaches its greatest declination having the opposite name as the latitude.
2. winter solstice -- That point on the ecliptic where the sun reaches its greatest declination having the opposite name as the latitude.

### sort box

An area around a radar return display. Used to eliminate from correlation consideration all tracks whose positions are outside the sort box limits. This rectangular subdivision of the total area of the system is used to simplify the processing of large amounts of geographically oriented data. See radar sort box.

1. sort box grid -- A projection of identical rectangular boxes called sort boxes projected onto a system plane of the ARTCC area. The boxes will be aligned with the system's axis.

### sound pressure level

An acoustical intensity expressed in dB above a reference level of 0.0002 dynes/cm<sup>2</sup>.

### sounding

In meteorology, an upper air observation; a radiosonde observation.

### source

An official document containing air navigation information, facilities, rules and services published and disseminated by an aeronautical information authority. For example, an Aeronautical Information Publication/AIP, a Class II NOTAM, a U.S. Airway Docket, etc.

### source information

Data collected and assembled for the purpose of developing adaptation.

### source region

An extensive area of the earth's surface characterized by relatively uniform surface conditions where large masses of air remain long enough to take on characteristic temperature and moisture properties imparted by that surface.

### space

(1) A no-signal pulse on the line. (2) The movement of the type box the width of a character without printing taking place. (3) An impulse, which in a TTY neutral circuit, causes the loop to open; or in a polar circuit, causes the loop current to flow in a direction opposite to that for a mark impulse.

1. space-to-mark transition -- The transition, or switching, from a spacing impulse to a marking impulse in TTY.

### space vehicle/SV

A Global Positioning System (GPS) satellite.

1. SV location data -- Data transmitted by SV (GPS satellite) which contains the SV ephemeris data.
2. SV status -- Operational status of individual SV (GPS satellite) as determined by the SV self monitor, the GPS monitor or the DOD GPS Master Control Station.

### spacing

The separation of aircraft in a series of a predetermined distance or time criteria. See sequencing.

1. spacing bias distortion -- Bias distortion which lengthens the spacing impulse by delaying the space-to-mark transition in TTY.

Speak slower

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

special access program

Any program imposing "need-to-know" or access controls beyond those normally provided for access to Confidential, Secret, or Top secret information. Such a program includes, but is not limited to, special clearances, adjudication or investigation requirements, special designation of officials authorized to determine "need-to-know," or special lists of persons determined to have a "need-to-know."

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 handling

A term which mean to clear an aircraft according to pilot request as soon as practicable. Given such handling, a controller will not ask the pilot to deviate from his/her planned action except to preclude an emergency situation.

special interest item

An item determined to warrant selective management and control such as hazardous or critical items, or items with special material content.

special maintenance procedure

The prescribed procedures for doing incidental, non-scheduled tasks. This may include repair, adjustments, calibration, alignment and other procedures.

special position identification/SPI

A special pulse used in ATCRBS located 4.35 ns following the last framing pulse.

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 part of those activities. Special use airspace includes:

1. prohibited areas -- prohibited areas contain airspace of defined dimensions identified by an area on the surface of the earth within which the flight of aircraft is prohibited. Such areas are established for security or other reasons associated with the national welfare. These areas are published in the Federal Register and are depicted on aeronautical charts.
2. restricted area -- restricted areas contain airspace identified by an area on the surface of the earth within which the flight of aircraft, while not wholly prohibited, is subject to restrictions. Activities within these areas must be confined because of their nature or limitations imposed upon aircraft operations that are not part of those activities or both. Restricted areas denote the existence of unusual, often invisible hazards to aircraft such as artillery firing, aerial gunnery, or guided missiles. Penetration of restricted areas without authorization from the using or controlling agency may be extremely hazardous to the aircraft and its occupants. Restricted airspace is depicted on the en route chart appropriate for use at the altitude or flight level being flown. For joint-use restricted areas, the name of the controlling agency is shown on these charts.
3. warning area -- warning areas are airspace which may contain hazards to nonparticipating aircraft in international airspace. Warning areas are established beyond the 3 mile limit. Though the activities conducted within warning areas may be as hazardous as those in restricted areas, warning areas cannot be legally designated as restricted areas because they are over international waters. Penetration of warning areas during periods of activity may be hazardous to the aircraft and its occupants.
4. military operations areas/MOA -- MOAs consist of airspace of defined vertical and lateral limits established for the purpose of separating certain military training activities from IFR traffic. Whenever a MOA is being used, non participating IFR traffic may be cleared through a MOA if IFR separation can be provided by ATC. Otherwise, ATC will reroute or restrict non participating IFR traffic. MOA's are depicted on Sectional, VFR Terminal, Area and Low Altitude En Route Charts. Most training activities necessitate acrobatic or abrupt flight maneuvers. Military pilots conducting flight in Department of

Defense aircraft within a designated and active military operations area are exempt from the provisions of FAR-91 which prohibit acrobatic flight within Federal airways and control zones.

5. alert areas: Alert areas are depicted on aeronautical charts to inform non participating pilots of area that may contain a high volume of pilot training or an unusual type of aerial activity. Pilots of participating aircraft as well as pilots transiting the area are equally responsible for collision avoidance within Alert Areas.
6. controlled firing areas: Controlled firing areas contain activities which, if not conducted in a controlled environment, could be hazardous to nonparticipating aircraft. The distinguishing feature of the controlled firing area, as compared to other special use airspace, is that its activities are suspended immediately when spotter aircraft, radar, or ground lookout positions indicate an aircraft might be approaching the area. There is no need to chart Controlled Firing Areas since they do not cause non participating aircraft to change to alter flight paths.

special VFR conditions/special VFR minimum weather conditions

Weather conditions in a control zone which are less than basic VFR weather conditions and which permit flight under Visual Flight Rules. (Refer to FAR Part 91)

1. 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.

specialist

A person authorized to provide air traffic control service. The individual that interacts directly with the sub-systems that comprise the NAS (e.g. air traffic controller, flight service station specialist, traffic management specialist, air traffic supervisor, weather specialist, etc.).

specially selected standard part(s)

Replaceable parts readily available from commercial sources, which have been selected on the basis of special treatment, reliability tests and/or high performance validation.

specific absorption rate/SAR

The rate at which RF energy is absorbed in irradiated tissue, expressed in watts per kilogram (W/kg).

specific humidity

The ratio by weight of water vapor in a sample of air to the combined weight of water vapor and dry air. Compare mixing ratio.

specification

(1) A document intended primarily for use in procurement which describes the essential technical requirements for items, materials and services including the procedures by which it will be determined that the requirements will be met. (2) A detailed description of the characteristics of a product and of the criteria which must be used to determine whether the product is in conformity with the description.

speech plus signaling/telegraph

An arrangement of equipment that permits the use of part of a speech band for transmission of signaling or telegraph.

speed

See airspeed, groundspeed.

speed adjustments

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.

speed brakes/dive brakes

Moveable aerodynamic devices on aircraft that reduce airspeed during descent and landing.

speed line

A line of position that intersects the track at an angle great enough to be used as an aid in determining groundspeed.

### speed segments

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

### spherics

An abbreviated form of atmospheric, it includes the radio-frequency electromagnetic radiation originating principally in the irregular surges of charge in thunderstorm lightning discharges. Spherics are heard as a background of crackling noise (static) in AM receivers. It is also called atmospheric interference, and is more prevalent and troublesome at lower frequencies.

### splits

See range splitting.

### spoofing

The deliberate inducement of a user or resource to take an incorrect action.

### spot size error

A distortion of a radar return caused by the size of the electron spot in the cathode ray tube.

### spur gear

A gear having teeth parallel to the axis of rotation of the shaft or axle.

### squall

A sudden increase in wind speed by at least 15 knots to a peak of 20 knots or more and lasting for at least one minute. The essential difference between a gust and a squall is the duration of the peak speed.

1. squall line - Any non-frontal line or narrow band of active thunderstorms (with or without squalls).

### squawk

Activate specific modes/codes/functions on the aircraft transponder; e.g. "Squawk three/alpha, two one zero five, low." See transponder.

### squitter

- (1) Random triggering of a transponder by extraneous noise.
- (2) The transmission of a specified reply format at a minimum rate without the need to be interrogated.

### SS-1

A two-digit code, selective signaling system. SS-1 is used by the FAA between ARTCC's and RCAG's to exchange telephone circuit pairs. A spare circuit may be switched to replace a defective circuit, thereby reducing the line outage.

### stability

A state of the atmosphere in which the vertical distribution of temperature is such that a parcel will resist displacement from its initial level. See instability.

### standard atmosphere

A hypothetical atmosphere based on climatological averages comprised of numerous physical constraints of which the most important are: a surface temperature of 59°F (15°C) and a surface pressure of 29.92 inches of mercury (1013.2 millibars) at sea level; a lapse rate in the troposphere of 6.5°C per kilometer (approximately 2°C per 1,000 feet); a tropopause of 11 kilometers (approximately 36,000 feet) with a temperature of -56.5°C; and an isothermal lapse rate in the stratosphere to an altitude of 24 kilometers (approximately 80,000 feet).

### Stage A

The first generation of the NAS en route implementation. NAS Stage A contained the automated flight and radar data processing features of the most immediate concerns to air traffic control.

### stage development

Airport development to be accomplished over two or more years where the sponsor assures that any development not funded under an initial grant agreement will be completed with or without Federal funds.

### Stage I/II/III service

See terminal radar program.

standard

(1) A document which establishes technical limitations and applications for items, material, processes, methods, design and engineering practices. (2) The optimum value (on which the initial and operating tolerances are based) assigned to an essential parameter of a system, subsystem or equipment. This value is usually established by design plans and specifications.

standard allowance

This term is applicable to two categories of logistic support items; working equipment and test equipment. These are documented by facility type in tabular format, listing each line item by type designation or description and quantities required as officially approved to implement maintenance operations for facilities in the NAS.

standard atmosphere

The atmosphere as defined in U. S. Standard Atmosphere, 1962 Geopotential altitude tables.

standard correlation

The process whereby radar data are uniquely identified (correlated) with a given track. It is performed on primary and non-discrete beacon returns, as well as discrete returns which are not correlated in discrete correlation. See correlation.

standard datum plane

An imaginary surface containing all points having a barometric pressure of 29.92 inches of mercury at a temperature of 15° centigrade. See altitude, density.

standard instrument approach procedure/SIAP

See instrument approach procedure.

standard instrument departure/SID

A preplanned coded air traffic control IFR departure routing, pre-printed for pilot use in graphic and textual or textual form only. A departure route identified by a unique name, originating at one or more airports and ending at a specific adapted fix, called an exit fix. A SID may have a transition route adapted with it.

standard lapse rate

1. temperature -- A temperature decrease of approximately 2° centigrade for each 1,000 feet increase in altitude.
2. A decrease in pressure of approximately 1 inch of mercury for each 1,000 feet.

standard rate turn

A turn of three degrees per second.

standard spare part(s)

Replaceable parts readily available from commercial sources (often called parts common).

standard terminal arrival route/STAR

A preplanned coded air traffic control IFR arrival routing, pre-printed for pilot use graphic and textual or textual form only. An arrival route identified by a unique name, originating at a specific adapted airport.

standards and tolerances

Values and allowable deviations (tolerances/limits) for system/equipment technical parameters. A tabulation of standards and tolerances is contained in applicable maintenance technical handbooks. The standards and tolerances listed in manufacturer's instruction books may, when authorized, be used on an interim basis until the issuance of the applicable maintenance technical handbook.

stand by

(1) Means the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority. (2) "stand by for clearance." If the delay is lengthy, the caller should reestablish contact.

standing cloud (standing lenticular altocumulus)

See lenticular cloud.

standing wave

An wave which remains stationary in a moving fluid. In aviation operations it is most commonly used to describe a lee wave or mountain wave.

star magnitude

A measure of the relative apparent brightness of a star.

start

Controller terminology in the task "start track," to begin the display of the track of a target on a situation display.

start-of-message code/SOM

A teletypewriter code sequence (or byte) signifying the start of a message.

start-over

An instance of execution of the start-up/start-over subfunction initiated by an element or sub-program malfunction or operator request. The Display system sends messages to the CCC at start-over requesting certain steps in the loading of the Display System operational program. If an error occurs during this process, an error message is sent to the CCC indicating a bad load, which will instigate a retry. Start-over is performed in one of two modes, resume or re-establish.

1. resume mode -- The capability of starting over without restoring to stored recovery data. It is used to recover from those errors and malfunction types which do not invalidate the data base. Its advantages are the minimization of data recovery time and the positive retention of all input received before the error.
2. re-establish mode -- The mode used for system recovery necessitated by data base invalidity or operator request. This mode is effected by utilization of recovery data to re-create the data base which existed before detection of the start-over requirement.

start-up

An instance of execution of the start-up/start-over subfunction precipitated by the system or subsystem IPL procedure. Start-up is performed in one or two modes.

1. establish mode -- Used for initiating the operational program for system data processing activities, for program testing or normal ATC operations. This mode is also used when a start-over is required and recovery data to re-create the system data base cannot be accessed or is unusable. When this happens it is called a cold start.

2. re-establish mode -- Used for initiating the operational program at an instance of previous data processing activity. This mode is effected by utilization of recovery data to re-create the system data base which existed at the desired instance of data processing activity. This is sometimes referred to as a rescue.

state

- (1) One of a sub-set of mutually exclusive descriptors of some aspect of module's operation. See status.
- (2) An ICAO term referring to a country of origin such as Brazil or the United States.

station

- (1) A Flight Service Station or Weather Reporting Station.
- (2) A broadly used term referring to the end of a communications circuit.
- (3) A radio navigation aid.

station declination

The alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated. Sometimes referred to as "slaved variation."

station - direction code

A unique FTY code identifying the transmitting station.

station equipment

A broad term used to denote telephone/communications equipment located at a customer's premises. The equipment may be owned by the telephone company or the customer. If the equipment is owned by the customer, it is referred to as Customer-Provided Equipment/CPE.

station keeping

Capability of an aircraft to maintain a particular position in space relative to other aircraft near and around it. Station keeping helps maintain order in a structured aircraft population, as in military formation or pattern flying, and can do the same in high density landing and take-off conditions at busy civilian airports, or en route in transatlantic air lanes. The station keeping display is either a plan presentation of the relative positions of all aircraft or a flight director display indicating how to fly

in order to maintain proper longitudinal, lateral, and vertical position relative selected reference aircraft. The use of airborne station keepers enables aircraft to maintain safe relative positions and flight direction without visual contact; VFR spacings can be maintained more precisely with proper station keeping equipment than without. Station keeping can also be provided from a control group station.

station pressure

The actual atmospheric pressure at the observing station.

station select code/SSC

See select code.

stationary front

See quasi-stationary front.

stationary reservations

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

statistical record

A record in a system of records maintained for statistical research or reporting purposes only and not used in whole or in part in making any determinations about an identifiable individual or entity.

status

A set of descriptors, each chosen from a different sub-set of mutually exclusive descriptors, which simultaneously specify several aspects of a module's operation at any point in time. Status is a vector quantity whose entries are states; one descriptor from each sub-set forms the status of the module. In a more general sense, status can be used to uncommittally refer to one or more states, as in: "update status monitors", or to conceptually group one or more states from one or more sub-sets of mutually exclusive descriptors, as in "on-line status".

The following terms are herein defined and also used to illustrate the general use of the word status:

1. on-line -- Modules whose configuration assignments are under the control of the operational executive program; modules in the operational or redundant states.
2. off-line -- Modules whose configuration assignments are not under the control of the operational executive program; modules in the test or inactive states. Such modules usually have their states changed manually.

statute mile

5,280 feet or .867 nautical miles.

steam fog

Fog formed when cold air moves over relatively warm water or wet ground.

stepdown fix

A fix permitting additional descent within a segment of an instrument approach procedure by identifying a point at which a controlling obstacle has been safely overflown.

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 is only used at the pilots request.

stereo message/SP

An input which supplies the aircraft identification and other necessary fields to a specified stereo record, the combination of which produces a valid flight plan.

1. stereo record -- A record in adaptation with a unique adapted name containing flight plan-related data stored with permissible missing fields.
2. 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.
3. stereo tag -- A unique name that can be entered as the only element of field 10 of a flight plan.

stereographic projection

Made by placing a plane tangent to the surface of the earth and projecting this surface onto this plane by line drawn from the point diametrically opposite to the point of tangency through the points on the earth's surface to be projected.

stereotype route

A pre-recorded route of flight which may be stored in the ARTCC computer.

stop

A mechanical obstruction to prevent further motion of some component.

stop altitude squawk

Used by ATC to inform an aircraft to turn off the automatic altitude reporting feature of its transponder. It is used when the verbally reported altitude varies 300 feet or more from the automatic altitude report. See altitude readout, transponder.

stop and go

A procedure where in an aircraft will land, make a complete stop on the runway, and then commence a takeoff from that point. See option approach.

stop pulse

A continuous current on the line, lasting any length of time until a start (no current) pulse is sent.

stop squawk (mode or code)

Used by ATC to tell the pilot to turn specified functions of the aircraft transponder off.

stop stream/burst/buzzer

Used by ATC to request a pilot to suspend electronic countermeasure activity. See jamming.

stopover flight plan

A flight plan which permits in a single submission the filing of a sequence of flight plans through interim full stop destinations to a final destination.

stopway

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

storage

Components or devices in which data can be stored and retrieved by a computer.

stored program computer

A computer that can alter its own instructions in storage as though they were data and subsequently execute the altered instructions.

storm detection radar

A weather radar designed to detect hydrometeors of precipitation size; used primarily to detect storms with large drops or hailstones as opposed to clouds and light precipitation of small drop size.

straight-in-approach (IFR)

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

straight-in-approach (VFR)

Entry of the traffic pattern by interception of the extended runway centerline 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.

straight in landing minimums/straight in minimums

See landing minimums.

stratiform

Descriptive of clouds of extensive horizontal development, as contrasted to vertically developed cumuliform clouds; characteristic of stable air and, therefore, composed of small water droplets.

stratocumulus

A low cloud, predominantly stratiform in gray and/or whitish patches or layers, which may or may not merge. The elements are tessellated, rounded, or roll shaped with relatively flat tops.

stratosphere

The atmospheric layer above the tropopause, with an average altitude base of 7 miles and an average top of 22 miles. Characterized by a slight average increase of temperature from base to top, it is very stable having a low moisture content and an absence of clouds.

stratus

A low, gray cloud layer or sheet with a fairly uniform base, which sometimes appears in ragged patches. It seldom produces precipitation but may produce drizzle or snow grains (stratiform cloud).

stratus fractus

See fractus.

streamline

In meteorology, a line whose tangent is the wind direction at any point along the line. A flowline.

stress analysis

The evaluation of stress conditions (electrical, thermal, vibration, shock, humidity, etc.) applied to the design of a system or equipment. On the basis of a stress analysis, failure rates are appropriately adjusted to reflect the deleterious effects of the stresses on the reliability of the parts involved.

### strike force aircraft

All offensive attack and support forces, participating in an exercise.

### strike route

That portion of an exercise route from IP/HHCL to ground target, bomb release line, end of exercise point, as appropriate.

### storage

(1) The term preferred to memory. (2) Pertaining to a device in which data can be stored and from which it can be obtained at a later time. The means of storing data may be chemical, electrical, or mechanical. (3) A device consisting of electronic, electrostatic, electrical, hardware or other elements into which data may be entered, and from which data may be obtained as desired. (4) The storage in any given computer, synonymous with memory.

1. magnetic core -- A storage device in which binary data are represented by the direction of magnetization in each unit of an array of magnetic material, usually in the shape of toroidal rings.
2. magnetic disk -- A storage device or system consisting of magnetically coated disks, on the surface of which information is stored in the form of magnetic spots arranged in a manner to represent binary data. These data are arranged in circular tracks around the disks and are accessible to reading and writing heads on an arm which can be moved mechanically to the desired disk and then to the desired track on that disk. Data from a given track are read or written sequentially as the disk rotates.
3. magnetic drum -- The storage of data on the surface of magnetic drums.
4. magnetic tape -- A storage device in which data are stored in the form of magnetic spots on metal or coated plastic tape. Binary data are stored as small magnetized spots arranged in column form across the width of the tape. A read-write head is usually associated with each row of magnetized spots so that one column can be read or written at a time as the tape traverses the head.

5. main -- Usually the fastest storage device of a computer and the one from which instructions are executed.
6. nonvolatile -- A storage medium which retains information in the absence of power and which may be made available upon restoration of power; e.g., magnetic tapes, cores, drums, and discs. Contrasted with storage, volatile.
7. volatile -- A storage medium in which information cannot be retained without continuous power dissipation. Contrasted with storage, nonvolatile.

#### stored fix times/SFT

In the NAS En Route System it is item information associated with stored fixes in route tables. These times include:

1. computed times of arrival/CTA -- An arrival time at a given fix computed by the fix time determination process. It is stored as a clock time.
2. computed delay intervals -- A time interval stored for a given fix to indicate a delay at that fix.
3. relative times -- Time increments computed for route segments on the basis of the fix locations and filed (wind corrected) speed when no actual or estimated times are entered for the flight plan. The first converted fix has a stored zero time; the appropriate time increments relative to the first converted fix are stored for subsequent fixes.

#### stored flight plans

Same as bulk-store flight plans.

#### strip coordination indicator

The identifier of the adjacent center or approach control facility which has received or should receive flight plan information.

#### strobe

An area in which electronic jamming has affected target detection.

1. strobe message -- A message generated by a CD or TCD indicating the azimuthal center of an area in which electronic jamming has affected target detection.

stud

A machine screw or bolt which fits into threads in some component. A nut is not used. Studs frequently have an unthreaded, smooth area between the bottom of the head and the threads.

stunt box

The function and selector mechanism of a teletypewriter set. It actuates the receiver portion of the set when matching selective calling codes are received. It also suppresses locally non-printing functions such as figures/letters shift, line feed, carriage return and the like. Control characters can be sent to it over the communications channel.

sub-assembly

(1) A part of an assembly; a number of electrical components. (2) Two or more parts which form a portion of an assembly, or form a unit replaceable as a whole, but having a part or parts which are replaceable as individuals.

subpoint

That point on the earths surface directly beneath an object or celestial body.

subjugate FPA

A FPA which is assigned to a primary FPA.

sublimation

See change of state.

sub-list

A departure, inbound, or hold list divided by its appropriate fix.

sub-module

A common grouping of logic within a module.

subpoint

That point on the earths surface directly beneath an object or celestial body.

sub-program

A predefined sequence of computer instructions which the computer uses to perform one or more program tasks.

subrefraction

See refraction.

sub-scan

One operation of the automatic tracking program.

subsidence

A descending motion of air in the atmosphere over a rather broad area; usually associated with divergence.

substitute airways

New or revised en route segments as identified by Airway/route number.

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: substitute routes which are shown on U.S. Government charts; routes defined by ATC as specific NAVAID radials or courses; or routes defined by ATC as direct to or between NAVAIDS.

sub-system

(1) A major sub-division of a system that performs a specified function, which is a portion of, or contributes to, the overall system output or product, or aids in the overall operation of a system. (2) An essential, functional part of a system which supports a data processing operation.

successful transmission

Reproduction by a remote or local device of transmitted output without detectable error.

suggest

To offer for consideration another course of action, when a request is not feasible, such as clearance alternatives to a clearance request.

summation principle

The principle states that the cover assigned to a layer is equal to the summation of the sky cover of the lowest layer plus the additional coverage at all successively higher layers up to and including the layer in question. Thus, no layer can be assigned a sky cover less than a lower layer, and no sky cover can be greater than 1.0 (10/10).

sun line

A line of position obtained by computation based on observation of the altitude of the sun for a specific time.

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 5031 MHz to 5091 MHz in this spectrum.

super-adiabatic lapse rate

A lapse rate greater than the dry-adiabatic lapse rate. See absolute instability.

super-cooled water

Liquid water at temperatures colder than freezing.

super-refraction

See refraction.

supervisor state

Synonym for executive state.

supervisory

Having authority to effect dynamic change to the operational nature of the NAS system.

### supplemental B

This system connects overseas relay stations at New York, Miami and San Francisco with certain other FAA facilities and Regional Offices in the United States. Supplemental B circuits are also being connected to BDIS to provide read-only service to certain area B drops at which traffic is unusually heavy.

### supplementary coverage

Radar having overlap coverage over a particular area, but not classified as preferred coverage.

### supplementary site

A radar site whose primary/beacon radar data is processed only in the absence of data from the preferred site for returns from a specified geographic region.

### supplier, aeronautical information

An agency, public or private, other than a publisher of government source documents, who compiles official document information into charts or electronic formats for cockpit use.

### support equipment

Items that are necessary for the operation and/or maintenance of the system but are not physically part of the system.

### suppress

To curtail or inhibit the display of an item, for a parameter time such as a full data block after a point out.

### surface inversion

As inversion with its base at the surface, often caused by cooling of the air near the surface as a result of terrestrial radiation, especially at night.

### surface observation

Report of current surface weather at an observation point at an airport. May be made up of manually observed and entered weather, automatically sensed weather, or a combination of both. This information is contained in a surface aviation weather report/SA.

surface visibility

Visibility observed from eye-level above the ground.

surveillance

(1) The service through which a sensor(s) external to an airborne platform determines the position of the platform, either using navigation or airborne compatible equipment (e.g. ATCRBS, Mode S) position information from the aircraft (dependent surveillance) or without the use of position information from the aircraft or airborne compatible equipment (independent surveillance). (2) A system which detects and reports the location of aircraft and/or objects. For air traffic control purposes surveillance systems are electronic in nature and exclude visual independent or dependent systems.

1. full service surveillance -- Required within a given airspace, without prior arrangements, to continuously satisfy the most stringent accuracy requirements for the surveillance of properly equipped users of the airspace.
2. limited service surveillance -- Required within a given airspace, which is continuous with an accuracy less than that of full service; or which is intermittently available at the same accuracy as full service.

surveillance (terms):

1. azimuth change pulses/ACP -- A series of pulses used to measure the rotation of a radar antenna with respect to a particular reference point. Normally, there are 4,096 pulses per revolution of the antenna.
2. cooperative aircraft -- An aircraft detected by a reply from a transponder (on board the aircraft) to an interrogation from a beacon (secondary) radar.
3. down link -- Aircraft-to-ground digital data link.
4. non-cooperative aircraft -- An aircraft detected by reflected RF energy from a primary radar.
5. nose of the beam -- The point of maximum power in the radar antenna beam. This occurs at the intersection of the principle azimuth plane with the principle elevation plane.

6. principle azimuth plane -- The principal azimuth plane is a plane which includes the line of maximum radiation from the antenna and an intersecting horizontal line which is normal to the line of maximum radiation. This definition assumes the antenna to be in the normal operating position.
7. principal elevation plane -- The principal elevation plane is a vertical plane passing through the center of the reflector and including the line of maximum radiation from the antenna in its normal operating position.
8. probability of detection -- The probability that the signal will be detected by exceeding a predetermined threshold level.
9. pulse repetition frequency/PRF -- The number of radar pulses transmitted per second. This determines the maximum unambiguous range of the radar.
10. radar cross section/RCS -- A quantitative measure of the ratio of power density in vector signal scattered in the direction of the receiver to the power density of the radar wave incident on the target.
11. radar merge -- The correlation of primary and beacon target reports from the same target.
12. resolution -- The ability to separate or differentiate two radar targets.
13. response time -- The time interval from receipt of a target signal at the radar antenna until the time the target position and data are displayed at a specialist's position.
14. round reliability -- The probability of success that a given interrogation (transmission) will elicit (obtain) a response from a transponder (target). The probability is less than unity due to antenna shading, transponder lockout from over interrogations, aircraft maneuvers, dead-time because of another interrogation, etc.
15. scan -- As currently used in the NAS, a scan is one 360° rotation of a radar antenna.
16. scan-to-track correlation -- The correlation of real-time surveillance data with stored positional data on the same target.

17. signal/noise/S/N -- A ratio of peak signal to average noise power, expressed in decibels (dB).
18. Swerling case I -- A particular distribution of radar cross sections (RCS) of a target, of importance in predicting detectability.
19. up link -- Ground-to-aircraft digital data link.

#### 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 provides recommended altitudes on final approach if requested by the pilot. (Refer to AIM)

#### survivable (aircraft) accident

Any accident in which the cabin is found relatively intact, and if occupied by adequately restrained occupants, would not result in fatal injuries.

#### survival radio equipment

A self-buoyant, water resistant, portable emergency radio signaling device which operates from its own power source on 121.5 and/or 243 MHz, preferably on both emergency frequencies, transmitting a distinctive downward swept audio tone for homing purposes, which may or may not have voice capability, and which is capable of operation by unskilled persons. This type equipment is agreed upon internationally for extended over water operations and is presently required for air carriers engaged in extended over water operations.

#### suspend

To stop the display of an item for an indefinite period, until recalled, such as in suspended track.

#### suspension statistics

The average number of program elements that were suspended during the "run" and the average time per suspension.

#### suspension time

The total amount of time that a sub-program spends waiting for requested resources to become available; or for an I/O operation to be completed.

swap

See track swap.

sweep

(1) One complete cycle of a radar system designed to cover or survey a certain area or volume of space, where the scan is accomplished by electronic means, rather than by mechanical motion of an antenna system, as in scanning radar. See scan, interlace. (2) The luminous line produced on the screen of a cathode ray tube by deflection of the electron beam. Also called the time base line. See trace.

1. sweep delay -- The electronic delay of the start of the sweep used to select a particular segment of the total range.

switch

To change a given system condition to another available condition, as when switching communications to a backup frequency.

sync code

TTY code which immediately follows each select code and serves to synchronize the receiving equipment with the text which follows. This code prevents the next impulse from garbling.

synchronization

The maintenance of one operation in step with another.

asynchronous garble

Aircraft operating within approximately 1.65 n.m. slant range of each other and who are within the azimuth beam width of the interrogator can cause garble. During a garble situation, the individual pulses in the reply pulse trains from the two aircraft overlap, making it difficult (if not impossible) to determine which pulses belong in which code train.

synchronous system

A system in which the transmitting and receiving modems are operating at essentially the same frequency. Their synchronism is maintained by phase correction or pattern detection circuitry.

### synoptic chart

A chart, such as a weather map, which depicts the distribution of meteorological conditions over an area at a given time.

### system

(1) Equipment, hardware, and/or software, which fulfills a performance requirement from design through operation. (2) An integrated combination of complete operating sub-systems, equipment, assemblies, sub-assemblies, components, parts or accessories interconnected, in which their independent technical functions are combined to produce a particular operating entity or perform a specific operational function. (3) An assembly of elements used to fulfill an application requirement. See cipher system, code system, concealment system, cryptographic system, lock-and-key protection system, protected wireline distribution system, secure operating system.

1. system component/element -- A major operating element, active or passive, which would affect the overall performance or characteristics of the system if removed or maladjusted.
2. complex system -- A system which requires the highest technical skills and knowledge for analyzing, testing, diagnosing and correcting defects or ensuring continuous and reliable operation. An example of a complex system is an air route surveillance radar.

### system coordinates

Refers to the two-dimensional (X, Y) coordinate system for a NAS En Route ARTCC. The system X Y cartesian axis is located at the lower left hand corner of the plane that is tangent to the earth's surface at the origin of the stereographic axis. The positive Y axis has the direction of true north at the point of tangency.

### system effectiveness

The probability that a system can successfully meet its specified operational requirements within a given period of time when operated under specified conditions.

### system error

Error value as a function of the error values associated with the ground and airborne components.

### System integrity

The state that exists when there is complete assurance that under all conditions an computer system is based on the logical correctness and reliability of the operating system, the logical completeness of the hardware and software that implements the protection mechanisms, and data integrity.

1. system integrity procedures -- Procedures established for assuring that the hardware, software and data in an AFS maintain their state of original integrity and are not tampered with by program changes.

### system inventory directory

A listing of all systems used at a facility or DPI to include software systems and hardware systems.

### system life cycle cost

The total cost of a time-sharing application over its anticipated life span. Elements include the cost of design, development, operation, and maintenance as well as equipment and supply costs calculated in terms of present value.

### Systems Maintenance Monitor Console/SMMC

The Systems Maintenance Monitor Console is provided as part of NAS Stage A to support the centralized maintenance and monitoring role of the Systems Maintenance Engineering/SME and his assistant (ASME). This console provides status/performance monitoring and failure isolation data to the SME. In addition to the status and error indicators, the console includes two CRT displays, a CCC I/O typewriter, and two positions of appropriate communications equipment.

### system manager

The person responsible for the collection, use, maintenance and dissemination of information pertaining to a system of records. A system manager does not have physical custody of records; he or she must, however, be in a position to exercise effective control over a system of records.

### system of records

A group of any records under the control of an agency/organization from which information is retrieved by some identifying number, symbol, name or other identifier.

### system reconfiguration command

A manually executed command from the en route MPS that results in a reconfiguration of processor elements located in the computer center.

### system shakedown

The critical period of testing which is accomplished after the FAA takes full responsibility for a system and software from a contractor. System shakedown begins after completion of the site/system acceptance testing by a contractor and ends when JAI activities begin. Synonymous with operational shakedown.

### system status indicator

Indicator lights are provided at each radar controller's console to indicate when certain system elements have failed.

1. system status data -- Data generated by the common processor that indicates the status of various sub-systems in the NAS, particularly equipment in the ACP.

### system strategic navigation/SN

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

### system testing

A generic term denoting the testing activities that are intended to further verify functional compatibilities of the hardware and software components after they have integrated into a sub-program. Two such test activities under this heading are program shakedown, testing and operational shakedown.

### systems engineer/SE

The authorized representative of the Airway Facilities Sector Chief concerning systems/subsystems located at an ARTCC facility.

Table

An organized collection of data stored in a form suitable for ready reference.

tabular data

Data presented in list displays and on a computer readout device.

TACSCAN

A helicopter version of the AILS aircraft landing system; a microwave scanning beam, provides both lateral and vertical guidance as well as range (DME). Provides accurate indication of aircraft elevation and azimuth angles relative to the touchdown point.

Tactical Air Navigation/TACAN

A system of navigation in which a single UHF transmitter send out signals that actuate airborne equipment and provides range and bearing indications with respect to the transmitter location when interrogated by another transmitter on the aircraft. Each TACAN station broadcasts a location-identifying Morse code signal at regular intervals.

1. TACAN-only aircraft -- An aircraft possessing TACAN but no VOR navigational system capability.

tactical phase

That portion of a mission which includes the positioning of aircraft and execution of an actual or practice flight against hostile aircraft or targets.

tailoring

The process of removing route elements from the route of flight when those route elements are, or will be, no longer significant to the route field or a flight progress strip because they will have been expired at the fix posting.

takeoff power

(1) With respect to reciprocating engines, means the brake horsepower that is developed under standard sea level conditions, and under the maximum conditions of crankshaft rotational speed and engine manifold pressure approved for the normal takeoff and limited in continuous use to the period of time shown in the approved engine specification.

(2) With respect to turbine engines, means the brake horsepower that is developed under static conditions at a specified altitude and atmospheric temperature, and under the maximum conditions of rotor-shaft rotational speed and gas temperature appropriate for the normal takeoff, and limited in continuous use to the period of time shown in the appropriate engine specification.

takeoff threshold

The beginning of that portion of a runway usable for takeoff.

takeoff thrust

With respect to turbine engines, means the jet thrust that is developed under static conditions at a specific altitude and atmospheric temperature under the maximum conditions of rotor-shaft rotational speed and gas temperature approved for the normal takeoff, and limited in continuous use to the period of time shown in the approved engine specification.

TALAR

A microwave instrument approach system configured in one box, provides both lateral and vertical guidance with limited coverage. No distance information is provided.

talker volume

A universe of talker volumes, as measured at the transmit terminals of the telephone end instrument, will be log-normal with a mean of approximately -10VU into a 600 ohm load, with a standard deviation of approximately 5dB. To convert volume of an analog signal, from volume units (VU) to dBm, 3.9dB must be subtracted from the volume reading (i.e., 0VU = -3dBm).

time navigation/TNAV

A function of RNAV equipment that provides the capability to arrive/depart at a waypoint at a specified time. When added to a 3D system TNAV is called 4D.

tangent point/TP

The point from which a line perpendicular to a RNAV route centerline passes through a specified VOR/DME.

1. tangent point distance/TPD -- The distance from a VOR/DME to a tangent point.

tanker orbit point

A geographical location along the planned refueling track where the tanker may hold prior to effecting rendezvous with the receiver aircraft,

tape

A specially prepared paper strip (usually 7/16 inch wide) which may be perforated with coded representations of various characters. It is used in a transmitter distributor to transmit messages.

tape control unit

A CCC element which connects the magnetic tape units to the I/O Control Element.

tape drive

See transport, tape.

target

(1) An aircraft within the surveillance range of TCAS. (2) The indication shown on a radar display resulting from a primary radar return or a radar beacon reply. See radar, radar contact.

1. target symbol -- A computer generated indication shown on a display resulting from a primary return or a radar beacon reply.

target (ICAO)

(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, camera tubes

A structure employing a storage surface which is scanned by an electron beam to generate a signal output current corresponding to a charge density pattern stored thereon. The structure may include the storage surface which is scanned by an electron beam, the backplate and the intervening dielectric.

1. target capacitance -- The capacitance between the scanned area of the target and the backplate.

target history

A display of stored past and present positions of an aircraft target.

target position symbol(s)

Symbols presented on a plan view display representing the actual aircraft position and indicating the target status.

target timing wind

A wind determined from a series of ranges and bearings on the same target taken within a relatively short time period.

taxi

The movement of an aircraft under its own power on the surface of an airport (FAR Part 135.100 - note). It also describes the surface movement of helicopters equipped with wheels. (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.

technical acknowledgment

Acknowledgment by the recipient that a message was received without error, with no inference of the recipient's intended reaction to that message.

technical performance record(s)

A series of forms providing technical data showing how a system/equipment performs over a period of time. The system/equipment parameters measured during periodic maintenance activities usually are included on this record.

1. technical reference data record -- Records of facility/equipment reference parameter data at the time of commissioning. The data is required for

accomplishing maintenance or engineering analysis of equipment/system performance and for conducting evaluations.

### technological attack

An attack which can be penetrated by circumventing or nullifying hardware and software access control mechanisms, other than by subverting system personnel or other users.

### telecommunications

Any transmission, emission or reception of signs, signals, writing, images, sound or other information by wire, radio, visual or any electromagnetic system.

### telegraph

Originally a term for Morse code communication, it represents any direct-current signaling with closed-circuit (current) and open-circuit (no-current) conditions representing binary mark and space elements.

### telephone information briefing service

A continuous recording of meteorological and/or aeronautical information (Refer to AIM)

### telephone position circuit

All circuitry required to permit the telephone instrument or headset to access all voice transmission paths terminating at the position.

### teleprocessing

Pertaining to an information transmission system that combines telecommunications, AIS and man-machine interface equipment for the purpose of interacting and functioning as an integrated whole.

1. teleprocessing security -- The protection that results from all measures designed to prevent deliberate, inadvertent or unauthorized disclosure, acquisition, manipulation or modification of information in a teleprocessing system.

### teletypewriter service

1. service A -- A transcontinental express circuit (857 wpm) which interconnects the ADIS Automatic Data Interchange System) centers. There are over 450 send-

receive stations on 75-100 wpm supplemental circuits 8021 through 8035. There are 14-100 wpm supplemental circuits 8036 through 8049. There are local receive only circuits (70100 wpm) between ADIS Centers, U. S. Weather Bureau Flight Advisory Weather Service (FAWS) offices, other local meteorological offices, military installations, etc...

2. service B

- a. area B - A low speed (100 wpm) multi-point teletypewriter communication system, interconnecting selected FAA facilities located within the geographic area of an ARTCC.
- b. military B - A low speed (100 wpm) multi-point teletypewriter communication system, interconnecting an ARTCC with selected military base operations offices (BASOPS) located within the geographic area of the ARTCC.
- c. air carrier B - A low speed (100 wpm) multi-point teletypewriter communication system, interconnecting an ARTCC with air carrier operations offices located within the geographic area of the ARTCC.
- d. center B - Consists of two circuits (Eastern and Western) connecting all ARTCCs within the U.S. Traffic can be relayed between the Eastern and Western circuits by means of automatic equipment in Kansas City. This service is used primarily for handling emergency messages. The data transfer rate over these circuits is at 100 wpm.
- e. service C -- Contains 208 send-receive terminals, 216 receive only "drops", each 5-100 wpm circuits, 30 through 35.
- f. service 0 -- Contains 25 send-receive terminals, 75 receive only terminals, each 6-100 wpm circuits, 8273 through 8280 (8277, 8278 not used). This is what is in service in the continental U.S. only. The overseas circuits and terminals are not included.

telpak

Bulk service by the telephone company to a specific area at reduced rates.

## temperature

In general, the degree of hotness or coldness as measured on some definite temperature scale by means of any of various types of thermometers.

1. temperature inversion - See inversion.

## Tempest

A short name for the study or investigation of compromising emanations (e.g., in crypto-systems). See COMSEC.

## temporary file

A computer file that exists only for the duration of process execution. Temporary files, for example, do not include those files created by an operating system or files created during a sort process.

## temporary modification

A non-permanently installed modification. The term, as used informally, is usually intended to apply to either a "test modification" or an "emergency modification," but may also apply to a "training modification."

## tension

The force exerted by a spring or other elastic medium.

## Relative calculated landing Time/TCLT

A projected time calculated for adapted vertex for each arrival aircraft base on runway configuration, airport acceptance rate, airport arrival delay period, and other metered arrival aircraft. This time is either VTA of the aircraft or the TCLT/ACLT of the previous aircraft plus the AAI, whichever is later. This time will be updated in response to an aircraft's progress and its current relationship to other arrivals.

## tentative flight plan storage

Storage allocated, on a temporary basis, to minimal flight plan information on a flight for which there is no filed flight plan in storage.

### tentative scheduling

The process of deciding a temporary schedule for the purpose of metering the flow through the transition area. See transition control.

### terminal

(1) The end of a wire or winding or a contact, whether a solder lug or a screw connection, to which connections are made to some external circuit. (2) That area within the boundaries of an airport which is directly related to the servicing and movement of passengers and baggage in air commerce.

1. (on airport) terminal area -- That area used or intended to be used for such facilities as terminal and cargo buildings, gates, hangars, shops and other service buildings, automobile parking, airport motels, restaurants, garages, and other service facilities used in connection with the airport (as well as entrance and service roads within the airport boundaries).
2. non-revenue producing public areas -- Baggage claim delivery areas, automated baggage handling equipment, corridors, connecting boarding areas, vehicles for the movement of passengers between terminal buildings and/or aircraft, central waiting rooms, rest rooms, holding areas, foyers and entryway.

### terminal area

(1) An area that may consist of one or more terminals connected to a computer either by use of a modem or hard wire. If microcomputers are used for terminals, when the microcomputer is used as a stand alone device it is considered a data processing activity. (2) Airspace and surface area, including airports, within a predesignated boundary and up to a predesignated altitude above the surface. See tube.

1. terminal area facility -- A facility (RAPCON, RATCC, or tower) providing air traffic control service for arriving and departing IFR aircraft and, on occasion, tower en route control service.

### terminal area, NAS

See ARTS.

### Terminal Control Area/TCA

See controlled airspace.

### terminal common digitizer/TCD

The terminal radar form of a common digitizer/CD.

### terminal identification

The means used to establish the unique identification of a terminal by an AIS system.

### Terminal Radar Approach Control/TRACON

An air traffic control facility using radar and air ground communications to provide approach control services to aircraft arriving, departing or transiting the airspace controlled by the facility. Services may be provided to both civil and military airports. An FAA TRACON is similar to a USAF RAPCON, USN RATCF or U.S. Army ARAC.

### 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.

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. Pilot participation is urged but is not mandatory. See controlled VFR, terminal radar program. (Refer to AIM, Airport/Facility Directory)

terminal system NAS

See ARTS.

Terminal Very High Frequency Omnidirectional Range Station/T-VOR

A very high frequency terminal omnirange station located on or near an airport and used as an approach aid. See navigation aid.

terminate

A controller term used with pilots, comparable to "cancel," it indicates an activity is being brought to an end, as in terminating radar service to an aircraft.

terminating equipment

The handset, loudspeaker, key equipment or teleprinter which is the outlet for communication services.

terminating set

Used at the terminals of an equivalent four wire circuit for converting to two wire operation. The transformer arrangement is similar to a hybrid coil. The set is sometimes referred to as a four wire term set or term set.

terrain

The earth's surface.

1. terrain angle -- The difference between the slope of the terrain and the horizon.

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 obstructions.

terrestrial radiation

The total infrared radiation emitted by the Earth and it's atmosphere.

test modification

An experimental modification, installed in the most limited scale practical (e.g., normally on a single piece of equipment; a single channel; a single site; a single chain of sites, as in an RML system), for the development and/or evaluation of a proposed modification.

test set

A 1004 Hz sinusoidal signal used in most voice-band communications circuits for testing, level setting, and equipment adjustment. (note: the FAA test tone is 1000 Hz).

testing

See categories, testing.

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, is disregarded because tower instructions supersede the indicator. See segmented circle. (Refer to AIM)

that is correct

The understanding you have is right.

theodolite

An optical instrument which, in meteorology, is used principally to observe the motion of a pilot balloon.

thermal cutout

A thermal (heat) operated switch which opens an electrical circuit when excessive current flows through the switch and/or when the equipment exceeds safe operating temperature. See klixon.

thermal design

All the aspects of the system design which affect the temperature of a piece of equipment.

thermal environment

The environmental factors which affects the temperature of equipment.

thermal evaluation

Evaluation of the adequacy, from a thermal standpoint, of the design of hardware.

thermal management

The process, during a military equipment development program, for ensuring that the equipment will be adequate from a thermal standpoint.

thermal program

The program for implementing thermal management during all the phases of a military electronic program.

thermally sensitive part

A part whose failure rate is sensitive to temperature and whose failure would have significant impact on the mission.

thermograph

A continuous recording thermometer.

thermometer

An instrument for measuring temperature.

threat

(1) A target that has satisfied the TCAS threat detection logic and thus requires a resolution advisory. (2) The source of an adverse event that can cause a loss. Threats are categorized into natural hazards, accidents and intentional acts.

threat monitoring

The analysis, assessment and review of audit trails and other data collected for the purpose of searching out system

events which may constitute violations or precipitate incidents involving data privacy matters.

this fix

The posted fix for which a particular en route strip is printed.

threshold

The beginning of that portion of the runway usable for landing.

Threshold Control Unit/TCU

A military unit for detecting and locating sources of electronic jamming.

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.

threshold lights

See airport lighting.

throughput

A measure of the time required to process a specified amount of data through all or some specified portion of a data processing system. A response time to obtain a specified output resulting from specified inputs.

thunderstorm

In general, a local storm invariably produced by a cumulonimbus cloud, and always accompanied by lightning and thunder.

tiering

Refers to the coverage of general matters in broader environmental impact statements (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basin wide program statements or ultimately site specific statements) incorporating by reference the general discussion and concentrating solely on the issues specific to the statement subsequently prepared.

time

1. apparent time -- Time measured with reference to the true sun. The interval which has elapsed since the last lower transit of a given meridian by the true sun.
2. Greenwich apparent time/GAT -- Local time at the Greenwich meridian measured by reference to the true sun. The angle measured at the pole or along the equator or equinoctial (and converted to time) from the lower branch of the Greenwich meridian westward through  $360^\circ$  to the upper branch of the hour circle passing through the true (apparent) sun.
3. Greenwich sidereal time/GST -- Local sidereal time at Greenwich. It is equivalent to the Greenwich hour angle of Aries converted to time.
4. local apparent time/LAT -- Local time at the observers meridian measured by reference to the true sun. The angle measured at the pole or along the equator or equinoctial (and converted to time) from the lower branch of the observers meridian westward through  $360^\circ$  to the upper branch of the hour circle passing through the true (apparent) sun.
5. local mean time/LMT -- Local time at the observers meridian measured by reference to the mean sun. It is the angle measured at the pole or along the equator or equinoctial (and converted to time) from the lower branch of the observers meridian westward through  $360^\circ$  to the upper branch of the hour circle through the mean (or average) sun.
6. local sidereal time/LST -- Local time at the observers meridian measured by reference to the first point of Aries. It is equivalent to the local hour angle of Aries converted to time.
7. mean time -- Time measured by reference to the mean sun.
8. sidereal time -- Time measured by reference to the upper branch of the first point of Aries.
9. standard time -- An arbitrary time, usually fixed by the local mean time of the central meridian of the time zone.

10. zone time -- The time used throughout a 15° band of longitude. The time is based on the local mean time for the center meridian of the zone.
11. zulu time/Z -- A expression indicating Greenwich mean time. Usually expressed in four numerals (0001 through 2400).

time, adjustment/calibration

That element of maintenance time during which the needed adjustment of calibrations are made.

time correction

Correction of a track position to agree with predicted track positions to account for system processing delays and the asynchronous relationship between radar target detection and tracking calculations.

time-dependent password

A password which is valid only at certain times of the day or during a specific interval of time.

time element suffix

The time suffixed to the destination fix of a flight plan. If the flight plan is proposed, the time is the estimated time en route (ETE); if the flight plan is active, the time is the estimated time of arrival (ETA). A delay time element may also be suffixed to fix elements of Field 10 other than the destination. A delay time element is preceded by a D (e.g., D1+45). The ETE and ETA consist of four digits (e.g., 1425; 0115).

time group

Four digits representing the hour and minutes from the 24-hour clock (e.g., 0905). Time groups are understood to be GMT unless a time zone designator is used to indicate local time (e.g., "0205M"). 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.

time-in-service

With respect to maintenance time records, means the time from the moment an aircraft leaves the surface of the earth until it touches it at the next point of landing.

### time preparation

That element of maintenance time needed to obtain the necessary test equipment and maintenance manuals, and set up the necessary equipment to initiate fault location.

### time record

Denotes all data which is written for a one second ATC simulation. It in no way implies that the data written on the simulation tape is in a single physical tape record.

### time sharing

A form of automated data services in which multiple users have access to a remotely located computer by means of on-site terminals and telecommunications equipment.

### time zone

A band on the earth approximately 15° of longitude wide, the central MERIDIAN OF EACH ZONE GENERALLY BEING 15° or a multiple removed from the Greenwich meridian so that the standard time of successive zones differs by one hour.

### Tip and ring

Tip/T and ring/R are terms used to identify the two conductors of a circuit. They originate from switchboard terminology pertaining to cord circuits. A four wire circuit is designated T<sub>1</sub>, T<sub>2</sub>, and R<sub>1</sub>, and R<sub>2</sub>.

### "TO-FROM" equipment

RNAV equipment in which the desired path over the ground is defined as a specific (input quantity) course emanating either to or from a particular waypoint. In this equipment, the aircraft may fly either "TO" or "FROM" any single designated waypoint.

### "TO-TO" equipment

RNAV equipment in which a path is computed which connects two waypoints. In this equipment, two waypoints must always be available, and the aircraft is usually flying between the two waypoints and "TO" the active waypoint.

### toll office/T.O.

A telephone office serving one or more central offices. It contains the equipment necessary to establish connections

between remote central offices. It is sometimes called a toll center.

torching

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

torn tape system

An older manual message routing system in which teletypewriter messages were relayed by reperforated paper tape hand carried from the receiver - the reperforator of an incoming tributary - to the transmitter distributor of an outgoing tributary.

tornado (cyclone, twister)

A violently rotating column of air, pendant from a cumulonimbus cloud, and nearly always observed as "funnel shaped." It is the most destructive of all small scale atmospheric phenomena..

total estimated elapsed time (ICAO)

For IFR flight, the estimated time required from takeoff to arrive over that designated point, defined by reference to navigational 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.

total flight services

The sum of flight plans originated and pilot briefs, multiplied by two, plus the number of aircraft contacted. No credit is allowed for airport advisories.

total radiated power/TRP

The effect of TCAS transmissions on the beacon environment is measured in terms of the total radiated power. For a lossless antenna, the TRP is equal to the net power delivered to the antenna input terminals. If the antenna is not lossless but has a vertical pattern that is similar to that of a matched quarter-wave stub, the TRP may be approximated as:  $TRP = P * G * (BW/360)$ , where P is the net power delivered to the antenna input terminals, G is the peak antenna gain relative to a matched quarter-wave stub,

and BW is the 3 dB azimuth beamwidth in degrees (BW = 360° for an omnidirectional antenna).

total scheduled interruption time

Total scheduled facility/service down time.

1. facility reporting -- Time begins when the facility is released by appropriate personnel (Air Traffic, military) and ends when the facility is restored by appropriate Airway Facilities personnel.
2. service reporting -- Time begins when the service is released by appropriate personnel (Air Traffic, military) and ends when the service is restored and accepted by the user. Should Air Traffic personnel not require or desire the service at the time of acceptance, the time ends upon acceptance. For example, an en route communications frequency that was restored but AT did not require its use.

total unscheduled interruption time

The amount of unscheduled time a facility/service is not available for normal operations. When applicable, the time from a computer printout may be used for the start time of an unscheduled interruption.

1. facility reporting -- Time begins with initial FAA awareness of the interruption and ends when the facility is restored by appropriate Airway Facilities personnel.
2. service reporting -- Time begins with initial FAA awareness of the interruption and ends when the service is restored and accepted by the user (Air Traffic, military).

totally enclosed manner

Any containment that will ensure that any exposure of human beings or the environment to any level of a hazard, will be insignificant; that is, not measurable or detectable by any scientifically acceptable analytical method.

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, it is the point where the glide path intercepts the landing surface.

## touchdown (ICAO)

The point where the nominal glide path intercepts the runway. This is a datum and not necessarily the actual point at which the aircraft will touch the runway.

## touchdown RVR

The RVR readout values obtained from RVR equipment serving the runway threshold. See visibility.

## touchdown zone

The first 3000 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.

## touchdown zone (ICAO)

The portion of the runway, beyond the threshold, where it is intended landing aircraft first contact the runway.

## touchdown zone elevation/TDZE

The highest elevation in the first 3000 feet of the landing surface. TDZE is indicated on the instrument approach procedures chart when straight in landing minimums are authorized.

## tower

See Airport Traffic Control Tower.

1. tower categories -- Includes those with approach control/AC and non-approach control. This same category breakdown applies for combined station/tower/CS/T.

## tower bright display

A radar-scope system designed to be viewed in a normally lighted room. See hi-bright display.

### tower control graphic display

Digitized search, beacon, and weather radar display;  
processed search and beacon radar display; CWSU products.

1. tower control tabular display -- IFR flight data display, time, altimeter setting, center field winds, runway configuration, landing facilities status, approach light settings, RVR, RVR thresholds, wind shear, weather messages, vortex advisory safe approach distance (when available), NOTAMS, NAVAID status, satellite airport weather, special messages, telephone numbers, reconfiguration sequences, indexes.

### 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 communications requirements.

### tower en route flight

A flight which is not controlled (at any time) by an ARTCC. In general, it is a flight which is provided departure and arrival service by one or more terminal area facilities. In the high density NAS Terminal area there are two types: (a) intra-facility (arrives and departs within the NAS Terminal area), (b) inter-facility (arrives from, or departs to, an airport outside the NAS Terminal area)- See pogo.

### tower visibility

Prevailing visibility determined from the control tower.

### towering cumulus

A rapidly growing cumulus in which the height of the cloud exceeds the width.

### TPX-42

A numeric beacon decoder equipment/system. It is designed to be added to terminal radar systems for beacon decoding. It provides rapid target identification, reinforcement of the primary radar target, and altitude information from Mode C. See Automated Radar Terminal System, transponder.

### track/Tr

(1) The actual flight path of an aircraft over the surface of the earth, or its graphic representation; also called

track made good. (2) In a TCAS system, the estimated position and velocity of a single aircraft based on correlated surveillance data reports. (3) A smooth edge-like surface over which slides or carriage rollers are to travel. Also known as a rail. (4) Dynamic data stored in the computer which describes the position and velocity of a flight as determined by the tracking process from primary/beacon radar data and flight plan information, if paired. See also paired track, tracking mode, and route.

1. along-track distance/ATD -- The distance along the desired track from a waypoint to a perpendicular line from the desired track to the aircraft.
2. along-track error/ATRK -- A fix error along the flight track resulting from the total error contributions of the airborne equipment only.
3. cross-track deviation -- The perpendicular deviation that an aircraft is to the left or right of a desired track as displayed on an indicator such that deflection is to the left when the aircraft is to the right of the desired track.
4. cross-track distance -- The perpendicular distance that an aircraft is to the left or right of a desired track.
5. desired track -- The planned or intended track between two waypoints. Measured from either magnetic or true north, the instantaneous angle may change from point to point along the great circle track between two waypoints.
  - a. desired track intercept point -- The point at which the aircraft's current track/TK crosses the desired track.
6. track angle/TKA -- Instantaneous angle measured from either true or magnetic north to the aircraft's track.
  - a. track angle error/TAE -- The difference in degrees (clockwise or counter-clockwise) that the track is to the desired track.
7. track bearing -- In a TCAS system, the direction of another aircraft as seen from the intruder aircraft, measured in degrees clockwise (as viewed from above) from the flight vector of the intruder aircraft.
8. track class -- A Mode 3/A beacon transponder capability, based on the airborne equipment qualifier

which indicates if the track class will be beacon or primary.

9. track disassociation -- whenever a track fails to correlate or a target for a successive scans, it is removed from the tab coast list.
10. track display -- An alphanumeric plan position display based on the track position and velocity.
11. track life -- The reference period during which a tracked aircraft was in the area of double radar coverage. See automatic track life.
12. track loss probability -- Describes the system's susceptibility to loss of track. Track loss is caused by poor radar data continuity and/or stringent maneuvers on the part of the target being tracked.
13. track maneuver status/TMS -- To aid the setting of the tracking modes, a track maneuver status (TMS) will be defined to the conditions below:
  - a. en route - The track has been matched to a flight plan and has not been assigned any other status.
  - b. small turn - The turn size indicator is set to SMALL.
  - c. large turn - The turn size indicator is set to LARGE.
  - d. hold - The track has been detected past a hold fix.
  - e. delay - The Start Delay action has been entered.
  - f. none - The track is not matched.
  - g. crosstell - The data (position and velocity) is being crosstold from an adjacent center. (TMS set to CROSSTELL in receiving center only.)
14. track merit -- A dash in the automatic tracking function that represents the type (preferred or supplementary) of radar returns used in computing a track, and sets a track merit designator (TMD). The TMD is utilized for supplementary site acceptance control, tracking node analysis and the decision process for automatic termination of tracks.

15. track next fix -- That fix of the flight plan route which the computer program expects the track to reach next.
16. track overlap -- The condition when the Primary Search Areas of two or more tracks overlap at any point.
17. track sort box/TSB -- An area specified in adaptation which is used for the simplified correlation of radar data with system tracks. A grid of identical TSB's are aligned with the system axis, are of the same dimension as radar sort boxes, and are offset from the radar sort boxes by 1/2 the length and width of the radar sort box.
18. track swap probability -- A measure of how well the system can differentiate between data trails in close proximity.
19. track velocity -- The speed and heading of a flight as determined by the tracking process.
20. track-while-scan -- See tracking.

#### track (ICAO)

The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid).

#### trackball

Positional identification device available to the controller for identifying an X, Y position on the PVD.

1. trackball unit - An input device mounted on a radar equipment display console with an associated position marker on the plan view display. Manipulation of the trackball moves the marker on the display.

#### Tracking

A computer logical process which uses primary/beacon radar data and paired flight data (if any) to determine the actual position and velocity of a flight. Radar target identification through manual or automatic means; positional agreement of a radar target and the computer predicted position; computation of the difference between the predicted position and the actual position of the radar target.

1. track initiation (automatic) -- Tracking started as the result of a received discrete beacon code matching an assigned beacon code in computer storage.
2. track initiation (manual) -- Tracking started as the result of a controller action and identifying the radar data to the computer.
3. tracking B/S -- The ratio of the number of tracking scans in which either a correct beacon or search datum is correlated to the total number of tracking scans for a given track. Two correlations in one scan (i.e., one each sub-scan) are counted as one.
4. tracking jitter -- The variation in the distance between successive predicted track positions for an aircraft in straight line flight and flying at constant ground speed.
5. tracking mode -- Methods of obtaining track position and velocity are:
  - a. flight plan aided straight line/FLAT -- A method of automatic tracking when flight plan velocity is used for track velocity in computing predicted track position.
  - b. flight plan aided turn/FLAT TURN -- A method of tracking where primary/beacon radar data falling in the direction of a flight plan indicated turn is given priority.
  - c. flight plan aided coast/FLAT COAST -- A method of tracking where only flight plan velocity and no primary/ beacon data are used for track position prediction.
  - d. free track/FREE -- A method of tracking where track velocity and position are derived from primary/beacon radar data.
  - e. free coast -- A method of tracking where track position is predicted on the basis of dead reckoning without recourse to primary/beacon radar data. See track.
6. tracking mode indicator -- Indicates the mode in which the system is maintaining a track. The following tracking modes are provided: Free Track (FREE), Free Coast (COAST), Flight Plan Aided Straight Line (FLAT), Flight Plan Aided Turn (FLAT TURN) and Flight Plan Aided Coast (FLAT COAST).

7. tracking scan -- The period involving two successive operations of TRATK (nominally 10 - 12 seconds).
8. tracking sub-scan -- The period (nominally five seconds) between successive operations of Tracking Sub-program (RATK). Defines the frequency at which track smoothing and prediction are done.
9. tracking trouble -- Any difficulty experienced by the computer in tracking a flight that is serious enough to compromise confidence in the identity of the primary/beacon radar data.
10. tracking trouble detection -- A computer logical process which attempts to identify tracking trouble automatically.
11. tracking trouble status -- The trouble condition which results in a track merit of "unreliable".

#### trade off

The process by which a designer can evaluate one or more proposed design considerations in terms of possible effects in other areas and make an intelligent decision based upon these evaluations.

#### trade winds

Prevailing, almost continuous winds blowing with an easterly component from the subtropical high pressure belts toward the intertropical convergence zone; northeast in the Northern Hemisphere, southeast in the Southern Hemisphere.

#### traffic

(1) A term used by a specialist to transfer radar identification of an aircraft to another controller for the purpose of coordinating separation action. Traffic is normally used in response to a handoff or point out, in anticipation of a handoff or point out, or in conjunction with a request for control of an aircraft. (2) A term used by ATC to refer to one or more aircraft.

1. 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 attention. Such advisories are based on; visual observation, observation of radar identified and non identified aircraft targets on an ATC radar display and verbal

reports from pilots or other facilities. The word "traffic" followed by additional information, if known is used to provide such advisory; e.g., "Traffic, two O'clock, one zero miles, southbound, eight thousand." Traffic advisory service is 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/non radar 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 other traffic in the aircraft's proximity. When a pilot requests or is receiving traffic advisories, he/she should not assume that all traffic will be issued. (Refer to AIM)

#### Traffic Alert 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 capacity

1. traffic capacity negotiations -- Discussions between various ATC facilities and the traffic management system to determine traffic capacity levels.
2. traffic capacity report -- Airport acceptance rates, sector saturation levels, fix loading thresholds.
3. traffic capacity report request -- A request by the traffic management system for a traffic capacity report from the ATC facility.

#### traffic control

Clearances and advisories by the appropriate ATC authority to promote the safe, orderly, and expeditious flow of air traffic.

1. traffic control transmission -- The transmission of an air traffic control message from a controller to a pilot over an RF link which uses air (free space) as the communications medium.

### traffic demand/density

Specific number of aircraft expected to be over a particular area or at a particular airport, as estimated by an ACF traffic management coordinator.

### traffic diversion message

Messages from an ACF identifying aircraft that have been diverted from their planned route of flight because of a build up of traffic in a particular area.

### traffic flow

1. traffic flow data -- Flow advisories and directives, traffic status and projections, and delay forecasts.
2. traffic flow data request -- a request for traffic flow data.
3. traffic flow negotiations -- Discussions between various ATC facilities and traffic management system to determine the most efficient traffic flow.
3. traffic flow strategy -- The selected flow control technique to be used by an ACF in a particular traffic situation.

### traffic information (radar)

Information issued to alert an aircraft to any radar targets observed on the radar display which may be in such proximity to its position or intended route of flight to warrant its attention.

### traffic management advisories

Air traffic system problems disseminated to users and field facilities which will enable them to plan aircraft movements in a safe, orderly and efficient manner.

### traffic pattern

The traffic flow that is prescribed for aircraft landing at, taxiing on, and taking off from an airport. The usual components of a traffic pattern are upwind leg, cross-wind leg, downwind leg, base leg, and final approach.

### traffic restrictions

Specific actions being taken at an ACF as a result of a traffic flow problem.

traffic situation report

Free flow messages that contain all or part of the following information; traffic demand/density, traffic flow strategy, delay forecast, traffic restrictions, or traffic diversion messages.

traffic status and projections

The present traffic situation in a particular sector or area and what is expected to be the situation in the near future.

traffic density

The number of aircraft per square nautical mile. In a TCAS system, this value is calculated by taking the number of transponder equipped aircraft within R NM of own aircraft, divided by  $3.14 * (R \text{ NM})^2$ . Transponder equipped aircraft include Mode S and ATCRBS Mode A and Mode C, and exclude own aircraft.

traffic flow security

The protection that results from those features in some crypto-equipment that conceals the presence of valid messages on a communications circuit, usually by causing the circuit to appear busy at all times or by encrypting the source and destination addresses of valid messages.

traffic information

See traffic advisories.

traffic in sight

Used by pilots to inform a controller that previously issued traffic is in sight.

traffic no longer a factor

Indicates that the traffic described in a previously issued traffic advisory is no longer a factor.

traffic management coordinator

A traffic management specialist resident at the ARTCC traffic management unit who provides coordination between the national level central flow control function of the ATCCC and the local ARTCC controllers.

## Traffic Management Unit/TMU

A non-control, coordination position at ARTCCs connected to the central flow control function at the ATCC and responsible for dissemination of flow control information at the local level.

### traffic pattern

The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are:

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 it's upwind end.
3. downwind leg -- A flight path parallel to the landing runway in a 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 VFR straight in approach is also considered to be on final approach.

### train

Aircraft controlled in groups flowing only in one direction on a route. A train has a lead aircraft and 5 - 10 members.

### training modification

A temporary modification installed to facilitate the use of a system, subsystem or equipment for training purposes. The modification can be readily removed in the event the system, subsystem or equipment is placed in use in an operational environment.

### training time

The on-position ATC instructional time not including performance evaluations.

### trajectory

A time-ordered sequence of all converted fixes and route segments for a flight plan or trial plan. A trajectory associates time with the converted fixes.

### transaction

The process of accepting and processing a radar interrogation and generating a corresponding reply.

### 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

(1) The conveyance of control from one mode to another by means of instructions or signals. (2) The conveyance of data from one place to another. (3) An instruction for transfer. (4) To copy, exchange, read, record, store, transmit, transport, or write data. (5) An instruction which provides the ability to break the normal sequential flow of control.

1. transfer, parallel -- A method of data transfer in which the characters of an element of information are transferred simultaneously over a set of paths.
2. transfer, serial -- A method of data transfer in which the characters of an element are transferred in sequence over a signal path in consecutive time positions.

### transfer characteristics

That function which, when multiplied by an input magnitude, will give a resulting output magnitude. For example, in camera tubes, a relation between the illumination on the tube and the corresponding output signal current, under specified conditions of illumination.

### transfer functions

A set of statements which aid in describing the logical operation of a sub-program by indicating the results of certain logical paths in the sub-program.

transfer lever

The lever which positions the six code bar shift bars of a teletype printer.

transfer of control

The action whereby control responsibility for an aircraft is transferred from one controller to another.

1. transferring controller/facility -- A controller/facility transferring control of an aircraft to another controller/facility.

transfer of control (ICAO)

Transfer of responsibility for providing air traffic control service.

transferring unit/controller (ICAO)

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

transient error

A hardware error which has disappeared upon re-try. See re-  
triable error.

1. transient I/O error -- Any hardware error which does not recur when an I/O operation is retried. See I/O error.
2. transient fault -- An intermittent failure or a temporary interference.

transit time

The time required for a transition.

transiting flight

A flight which traverses NAS terminal airspace.

transition

(1) The general term that describes the change from one phase of flight or condition to another; e.g., transition from en route flight to the approach or transition, or the transition from IFR to VFR. (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. (3) A change in state of a teletypewriter line. The act of a line going from a marking state to a spacing state, or vice versa, is known as a transition. (4) The change in electrical current from one steady state or condition to another steady state or condition.

1. transition airspace -- The boundary within which exists terminal airspace. Transit on airspace lies 40 to 60 miles from the terminal and is the area where an en route controlled aircraft will normally be held, when necessary, prior to commencing approach. It is the area of transition from en route ATC to approach ATC.
2. transition altitude -- A mode C altitude determined by the program to be a reported altitude for a descending or ascending flight.
3. transition area -- See controlled airspace.
4. transition control -- The control process which brings arrival aircraft down from en route or intermediate altitudes and feeds the Approach Controller or Final Spacing Controller. Transition control usually provides the flow metering function of adjusting the arrival rate to the acceptance rate. It is often an en route function in the present system. See tentative scheduling.
5. transition fix -- For preferential routes: An adapted fix that determines the application of a PDR, PDAR, or PAR. For SIDs and coded routes: An adapted fix that determines the route to be used between a fix on the SID or coded route and the transition fix. For a STAR: A filed fix from which an adapted arrival route is applied.
6. transition level -- The flight level below which heights are expressed in feet MSL and are based on an approved station altimeter setting.
7. transition lines -- Described by two or more modes and/or fixes. They indicate the application of PARs or PDRs or in the absence of an associated PAR or PDR, control the altitude strata in which the flight is posted between the arrival-line (A/line) and/or departure-line (D/line) and the associated arrival/departure airport.

8. transition point -- A point at an adapted number of mile from the vertex at which an arrival aircraft would normally come descent from its en route altitude. This is the first fix adapted on the arrival speed segments.
9. transition route -- An adapted route to be inserted between the exit fix of a SID or coded route and an adapted transition fix filed in the flight plan.

transmissometer

An apparatus used to determine visibility by measuring the transmissivity of light through the atmosphere. It is the measurement source for determining runway visual range and runway visibility value. 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.

translate

To change information from one form of representation to another without significantly affecting the meaning.

transmitter-distributor/TD

A tape reader and distributor which senses code combinations perforated in a paper tape and converts them into electrical code pulses for distribution over a signal circuit. In multi-point Service B usage, these devices are connected to Model 28 stunt boxes so as to automatically transmit to the circuit when certain "start" functions are received (e.g., a TSC via an APULS poll).

1. transmitter-distribute unit/T/D -- Connected to Model 28 stunt boxes so as to automatically transmit to the circuit when certain "start" functions are received. See APULS.

transmitter start code/TSC

Usually a two or three letter call that is sent to an outlying teletypewriter which automatically turns its tape transmitter (TD) on.

transponder

(1) A general term for any device which provides a reply when interrogated. (2) The airborne radar beacon receiver/transmitter portion of the ATCRBS which automatically receives radio signals from all interrogators on the ground and which 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 bracket decoding, beacon.

transponder (ICAO)

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

transport, tape

The mechanism which moves magnetic or paper tape past sensing and recording heads and usually associated with data processing equipment.

transposition

The interchanging of the positions of conductors to reduce crosstalk and noise.

trap door

A breach created intentionally in an AIS for the purpose of collecting, altering or destroying data.

trial modification

A Synonym for test modification.

trial plan

A modified form of an active flight plan that is proposed as a possible replacement for that active flight plan. A trial plan is processed by route processing and advanced automation functions before entry as an active flight plan or amendment.

tributary circuits

These are special off-net teletype circuits, sometimes used for manual relay operation of service B.

tributary facility

An aeronautical fixed facility that may receive or transmit messages but does not relay except for the purpose of serving similar facilities connected through it to a communications center.

trigger level

The threshold at which the transponder replies to 90 percent or more of the interrogation.

trilateration

A system by which an aircraft is located by DME relative to two separate known locations between which the distance is known. The resultant triangle precisely locates the aircraft.

trip lever

A lever which will cause some latch or catch to be released.

trojan horse

A computer program that is apparently or actually useful that contains a trap door.

tropical air

An air mass with characteristics developed over low latitudes. Maritime tropical air (mT), the principal type, is produced over the tropical and subtropical seas; very warm and humid. Continental tropical (cT) is produced over subtropical arid regions and is hot and very dry. Compare polar air.

tropical cyclone

A general term for a cyclone that originates over tropical oceans. By international agreement, tropical cyclones have been classified according to their intensity.

1. tropical depression - Wind up to 34 knots (64 km/h).
2. tropical storm - Winds of 35 to 64 knots (65 to 119 km/h).
3. hurricane (typhoon) - Winds of 65 knots or higher (120 k/hr).

tropopause

The transition zone between the troposphere and stratosphere, usually characterized by an abrupt change of lapse rate.

troposphere

That portion of the earth's surface to the tropopause; that is, the lowest 10 to 20 kilometers of the atmosphere. The troposphere is characterized by decreasing temperature with height, and by appreciable water vapor.

trouble-hunting tests

Tests made on circuits reported to be inoperative or malfunctioning. These tests may consist of all the checks made on a circuit order, plus additional tests, if necessary.

trough (trough line)

In meteorology, an elongated area of relatively low atmospheric pressure; usually associated with and most clearly identified as an area of maximum cyclonic curvature of the wind flow (isobars, contours, or streamlines). Compare with ridge.

true airspeed

The airspeed of an aircraft relative to undisturbed air. True airspeed is equal to equivalent airspeed multiplied by  $(P_0/P)^{1/2}$ .

true altitude

See altitude.

true azimuth/Zn

The angle at the zenith measured clockwise from true north to the vertical circle passing through the body.

true wind direction

The direction, with respect to true north, from which the wind is blowing.

truncation

The process of removing route elements from the route of flight (for strip printing purposes) when these route

elements are beyond the first external filed route element for the facility.

### trunk

(1) A communications path generally between items of equipment within a building (two switchboards, for example). A trunk may also be used between central offices, cities, etc. (2) A two-wire or four-wire circuit which can be a leased or Government owned facility connecting the EVS System with external or remote equipment. Normally, these facilities will be terminated at either the ARTCC or RCAG Main Distribution From (MDF) of the EVS System. The trunk will normally include the protection and isolation equipment when leased facilities are used. The trunk can be switch connected at one (1) or both ends.

1. trunk circuit -- The circuitry required to terminate, convert, condition and provide transmission, supervisory and control signals between the trunk side of the interconnection network(s) and MDF. This circuitry can be divided between actual network terminations and equipment groupings that terminate at the MDF.
2. trunk group -- One (1) or more trunks between the same end MDF terminations. Trunks within a trunk group may be geographically diversified between end terminations.

### tube

Predesignated three-dimensional path through airspace, normally assigned under high density and instrument flight conditions to aircraft having maximum equipment.

### turbojet aircraft

An aircraft having jet engines in which the energy of the jet operates a turbine which in turn operates an air compressor.

### turbojet en route descent

A procedure for effecting the descent of military jet aircraft from an en route altitude to the final approach without execution of the maneuvers prescribed in a published high altitude instrument approach procedure. Its purpose is to expedite the movement of air traffic.

turboprop aircraft

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

turbulence

In meteorology, any irregular or disturbed flow in the atmosphere.

turn indicator

A turn indicator will be set to on for each matched track when a flight plan predicted turn is detected. A turn will be detected when the calculated inequality is satisfied and the angle between the two intersecting flight plan route segments is greater than the flight plan segment heading difference.

turn point(s)/TP

A waypoint which identifies a track change from one desired track to another along a given route.

turned-up

An expression used to indicate that a circuit has been restored to service. It is turned-up after circuit order routine or trouble-hunting tests have been completed. A circuit is turned-up when it meets all its transmission and signaling requirements.

turnkey

Complete single prime contractor responsibility from start of contract to the point of turning over the final system, ready for operational use.

1. turnkey project -- A project in which the installation of a facility, system or equipment is accomplished by a contractor.

twice weekly

A scheduling term, meaning twice each calendar week, and at three or four day intervals. Sometimes, the term semi-weekly is used instead.

twilight

- (1) The intervals of incomplete darkness following sunset and preceding sunrise. The time at which evening twilight

ends or morning twilight begins is determined by arbitrary convention. (2) That period of day, after sunset or before sunrise, when the observer receives sunlight reflected from the atmosphere.

1. astronomical twilight -- That period which ends in the evening and begins in the morning when the sun reaches 18° below the horizon.
2. civil twilight -- That period which ends in the evening and begins in the morning when the sun reaches 6° below the horizon.
3. nautical twilight -- That period which end in the evening and begins in the morning when the sun reaches 12° below the horizon.

#### twister

A colloquial term for a tornado.

#### two-hour(s)

A scheduling term, meaning twelve times each calendar day, four times each shift or watch, and at approximately two-hour intervals.

#### two way radio communications failure

See lost communications.

#### two-way tone circuit

A telephone circuit carrying control and/or monitoring voice-frequency signals at discrete audio frequencies in both sending and receiving directions. An example is a TACAN control circuit wherein facility control tones are transmitted from the control station to the TACAN, and facility status monitoring tones are transmitted from the TACAN to the control station. Another example of a two-way tone circuit is a BUEC voice grade circuit that handles channel access and transmitter keying signals toward the remote outlet and also handles status signals in the reverse direction. A two-way tone circuit may be used over either two wire or four wire transmission facilities.

#### Two wire circuit

A circuit basically consisting of a pair of wires handling information in two directions. Normally, communications circuit of this type terminate at the customer's premises in two wires, however, they may contain some facilities that

are four wire, such as a repeater or carrier. The use of hybrids at each end allows for converting the circuit into separate transmitter and receiver termination (two wire line to four wire equipment).

type

(1) As used with respect to the certification, ratings, privileges, and limitations of airmen, means a specific make and basic model of aircraft, including modifications thereto that do not change its handling or flight characteristics. Examples include: DC-7, 1049, and F-27. (2) AS used with respect to the certification of aircraft, means those aircraft which are similar in design. Examples include: DC-7 and DC-7C; 1049G and 1049H; and F-27 and F-27P. (3) AS used with respect to the certification of aircraft engines, means those engines which are similar in design. For example, JT8D and JT8D-7 or JT9D-3A and JT9D-7 are engines of the same type. (4) The casting (die) for a letter, character or figure that, when pressed against an inked ribbon onto a paper, will leave an impression upon the paper.

type box

The holder for the type pallets in a teletypewriter machine.

type designation

An assigned combination of alphanumeric characters used to identify specific custom-built production equipment. The identification is normally imprinted on the equipment nameplate. For example: CA-1660, FAA-7201, RBT-2, TU-6 etc.

type E crosstell message

A crosstell message used to forward data between two computer equipped facilities (Phase I and NAS ARTCC) on an active aircraft (as opposed to a proposed flight plan).

type N crosstell message

A crosstell message used to forward a proposed flight plan to an adjacent computer equipped facility (Phase I and NAS ARTCC) whenever such data are required for coordination purposes.

type pallets

A short metal bar which is the mounting for a type casting (die). It is mounted, along with a compression spring in a type box.



zyper

The complete printer equipment that transcribes a telegraph message that has been received in proper form.

typhoon

A tropical cyclone in the Eastern Hemisphere with winds in excess of 65 knots (120 km/h).

typing unit

In a teletype system, the unit which does the actual printing, including the type box, codebars and similar components which may all be removed as a single assembly.

U.L. listed

An item included in a current list or report of approved equipment, materials or methods published by Underwriters Laboratories, Inc.

U. S. Pacific Command/USPACOM

A unified command whose area of responsibility extends from the west coast of America to the east coast of Africa and from the Arctic to the Antarctic.

ultimate sink

The final destination of heat.

Ultra High 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.

unable

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

unacceptable input

An input which fails the acceptance checking logic at the front end of an input processing function. Usually, this is an input which has suffered no detectable hardware or programmed errors, but which contains content or format errors.

unanswerable

Adapted not to receive responses; pertains only to Service B TTY stations.

unauthorized person

Any individual who has not established a need, in the performance of his or her duties, for access to any record within a system of records. The system manager of the concerned system of records determines whether the criteria for access is met.

unauthorized release

Any spilling, leaking, emitting, discharge, escaping, leaching or disposing from an underground storage tank into groundwater, surface water or subsurface soil.

unconditional output

Any change to a display, to a printout, or other response, which is functionally required as a direct result of an input under consideration, and which is not dependent upon any other external inputs which have not already occurred. (For example, disappearance of a PVD data block as a direct result of "Drop FP" input.)

uncontrolled aircraft

Those aircraft not participating in or receiving traffic separation service from the ATC system. This term does not include those flights receiving control service from control towers having only visual surveillance in performing control service.

uncontrolled airspace

That portion of the airspace which underlies controlled or mixed airspace. Aircraft operating solely in uncontrolled airspace are not presently required to carry navigation, communications, or transponder equipment; however, communications equipment meeting a limited channel capability requirements is needed for operations conducted at a tower equipped field. ATC has neither the responsibility nor the authority for exercising control over air traffic in this 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)

undercast

A cloud layer of ten tenths (1.0) coverage (to the nearest tenth) as viewed from an observation point above the layer.

underground storage tank/DST

Any one or combination of tanks, including connecting underground pipes, which is used for storage of petroleum fuel products and waste oil, the volume of which is 10 percent or more beneath the surface of the ground. Tanks used for heating purposes, septic tanks, surface impoundments and storm water or waste water collection systems are not included.

unexpired converted fix

A converted fix that is still retained by the program; an expired fix is dropped.

UNICOM

A non government communications 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)

uniform time update

An output message alerting the controller that a significant time change by the same time increment at each fix has occurred for a given flight.

unit

A major building block for a group, set, or system consisting of a collection of basic parts, sub-assemblies and assemblies mounted together on a single chassis, or packaged together as a physically independent entity, and normally capable of independent operation in a variety of situations. See module.

1. unit, arithmetic -- That portion of computer hardware in which arithmetic and logical operations are performed. The arithmetic unit generally consists of an accumulator, some special registers for the storage of operands and results supplemented by shifting and sequencing circuitry for implementing multiplication, division, and other desired operations.
2. unit, control -- The portion of a computer which directs the sequence of operations, interprets the

coded instructions, and initiates the proper commands to the computer circuits preparatory to execution.

3. unit, magnetic tape -- The mechanism, normally used with a computer, which handles magnetic tape and usually consists of a tape transport, reading or sensing and writing or recording heads, and associated electrical and electronic equipments. Most units may provide for tape to be wound and stored on reels; however, some units provide for the tape to be stored loosely in closed bins.
4. unit, state -- See state.
5. unit, status -- See status.
6. unit, tape -- A device consisting of a tape transport, controls, a set of reels and a length of tape which is capable of recording and reading information on and from the tape, at the request of the computer under the influence of a program.

#### United States

In a geographical sense means, the 48 contiguous states, Alaska, Hawaii, the District of Columbia, Puerto Rico and the possessions, including the territorial waters and the airspace of those areas.

#### United States air carrier

A citizen of the United States who undertakes directly by lease, or other arrangement, to engage in air transportation.

#### unlimited ceiling

A clear sky or sky cover that does not meet the criteria for a ceiling.

#### unmanned facility

A facility which is normally not occupied by personnel for the conduct or support of MAS operations. Such facilities normally contain equipment which is operated, controlled and monitored from a manned facility.

#### unpaired flight

A flight for which the computer has stored only a flight plan or only a track. See flight.

1. unpaired flight plan -- A flight plan for which the computer program is not maintaining a track (for instance when a flight is below radar coverage). See flight plan.
2. unpaired track -- A track for which the computer program has no stored flight plan information.

#### unpublished route

A route for which no minimum altitude is published or charted for pilot usage. It may include a direct route between NAVAIDs, a radial, a vector or a final approach course beyond the segment of an instrument approach procedure.

#### unscheduled interruption

(1) Any unanticipated interruption regardless of duration of a facility or service. (2) Any out-of-tolerance/out-of-limit condition, which results in the removal of a facility/service from the NAS. (3) A facility that is reported out-of-tolerance by flight inspection. (4) A hardware out-of-tolerance/out-of-limit condition which results from an equipment failure and/or malfunction and which prevents the restoration of a facility/service following a scheduled interruption. The unscheduled interruption starts immediately following the end of the original schedule shutdown, for this situation. (5) A software out of tolerance (specification) condition which prevents the restoration of a facility/service following a scheduled interruption.

#### unsuccessful I/O operation

An I/O operation for which retry procedures have failed for all available paths to the intended device. Also, any I/O operation which suffered a hardware error for which retry procedures are not practical. See retry, non-reliable I/O error

#### unselected

The state or condition of those levers and/or bars (in a teletype system) which are in a space position when a character has been read into the printer mechanism.

#### unshift

The repositioning of a printer mechanism from figures to letters category.

unstable

See instability.

update

(1) To bring data into agreement with the most recent information available. (2) To change or modify text, as in revise. (3) To change a mental model or "picture." (4) A change of the fix times stored for a flight plan as a result of an entry of a new time data. See also automatic update and flight plan modification.

updraft

A localized upward current of air.

Upgrade

A determination by competent authority that certain classified information requires, in the interest of national security, a higher degree of protection against unauthorized disclosure than currently provided, together with a changing of the classification designation to reflect that higher degree.

uplink

Signals propagated toward a transponder.

upper front

A front aloft not extending to the earth's surface.

upper horizontal motion stop slide

A part of the teletype mechanism which is connected to the number four code bar which, when in the space position, will stop the oscillating rail shift slide in the second column to the right or left of a category center line.

upslope fog

Fog formed when air flows upward over rising terrain and is, consequently, adiabatically cooled to or below its initial dew point.

urgency

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

urgency (ICAO)

A condition concerning the safety of a aircraft or other vehicle, or of persons on board or in sight, but which does not require immediate assistance.

utilization

The demand placed on a particular sector, fix, or airport as it relates to the sector, fix or airport capacity.

user

(1) The external individual or group that receives service from the NAS (e.g. pilot, air carrier, general aviation, military, law enforcement agency, etc.). (2) Air Traffic personnel, military personnel, or the aviation public. (3) Any authorized person, office or facility that may directly enter into or receive information from a computer system.

user organization

An organizational element which defines its need for information to be produced by a data system and which continues to supply the input and/or output after the system has been implemented. Usually referred to as the Office of Primary Interest/OPI.

utility

A computer program which accomplishes a specific function.

vadoze zone

A geological term meaning the soil found or located directly beneath an underground storage tank and above the water table.

validation

The performance of tests and evaluations in order to determine compliance with security specifications and requirements.

vapor pressure

In meteorology, the pressure of water vapor in the atmosphere. Vapor pressure is that part of the total atmospheric pressure due to water vapor and is independent of other atmospheric gases or vapor.

vapor trail

See condensation trail.

variable length field

A group of characters or symbols necessary to form a specific data group and which may be composed of a variable number of characters or symbols up to a fixed maximum length for each data group. See field.

variable range marker/VRM

An electronic marker, variable in range, displayed on a CRT, for purposes of accurate ranging; sometimes called a bomb release pip.

variation/var

The angle difference at a given point between true north and magnetic north expressed as the number of degrees which magnetic north is displaced east or west from true north. The angle to be added algebraically to true directions to obtain magnetic directions.

varley

Made with a Wheatstone bridge and used to detect a difference (unbalance) in the dc resistance of the tip and ring conductors.

vector

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

vectoring, radar (ICAO)

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

veering

Shifting of the wind in a clockwise direction with respect to either space or time; opposite of backing. Commonly used by meteorologists to refer to an anticyclonic shift (clockwise in the Northern Hemisphere and counterclockwise in the Southern Hemisphere).

verify

(1) Request confirmation of information; e.g., "verify assigned altitude." (2) To provide the truth of an activity or matter by confirmation, as in verifying communication contact with an aircraft.

1. verify specific direction of takeoff (or turns after takeoff)

Used by ATC to ascertain an aircraft's direction of takeoff and/or direction of turn after takeoff. It is normally used for IFR departures from an airport not having a control tower. When direct communication with the pilot is not possible, the request and information may be relayed through an FSS, dispatcher or by other means. See IFR takeoff minimums and departure procedures.

vertex

The last fix adapted on the arrival speed segments. Normally, it will be the outer marker of the runway in use. However, it may be the actual threshold or other suitable common point on the approach path for the particular runway configuration.

1. vertex time of arrival/VTA -- A calculated time of aircraft arrival over the adapted vertex for the runway configuration in use. The time is calculated via the optimum flight path using adapted speed segments.

### vertical visibility

The distance one can see upward into a surface based obscuration. (2) The maximum height from which a pilot in flight can recognize the ground through a surface based obscuration.

### vehicle

All conveyances, except aircraft, used on the ground to transport persons, cargo or equipment.

1. airfield service vehicles -- Those vehicles operated by airport management, on the aircraft movement area, routinely used for service, maintenance and construction.
2. aircraft support vehicles -- Those vehicles routinely used on the aircraft aprons or parking areas in support of aircraft operations.

### velocity vector

A straight line emanating from a radar track symbol (on a PVD) indicating the anticipated path of tracked aircraft in terms of flying time.

### verification

Substantiation that an individual possesses the technical knowledge and proficiency to determine the adequacy of the performance of a system/subsystem/equipment and the ability to correct malfunctions.

1. verification credentials -- Written affirmation that an individual possesses the technical knowledge and proficiency to assume responsibility for a system/subsystem/equipment.

### vertical deviation/VDEV

The deviation of the aircraft above or below the vertical profile as displayed on an indicator such that deflection is up when the aircraft is below the vertical profile.

### vertical navigation/VNAV

A function of RNAV equipment which calculates, displays and provides guidance to a vertical profile or path.

### vertical profile/VP

A line or curve, or series of connected lines and/or curves in the vertical plane, defining an ascending or descending flight path either emanating from or terminating at a specified waypoint and altitude, or connecting two or more specified waypoints and altitudes. In this sense, a curve may be defined by performance of the airplanes relative to the air mass.

1. vertical profile angle error/VPAE -- The difference in degrees that current aircraft flight path angle makes with the vertical profile.
2. vertical profile intercept point/VPIP -- The point at which the current aircraft flight path angle intercepts the vertical profile.

### vertical positioning

The sequence of actions involved in positioning of the type box to select printing in one of the four horizontal rows of the type box.

### vertical separation

Separation established by assignment of different altitude or flight levels.

### vertical speed limit/VSL advisory

One of the following PCAS resolution advisories: DON'T CLIMB FASTER THAN 500 FPM, DON'T CLIMB FASTER THAN 1,000 FPM, DON'T CLIMB FASTER THAN 2,000 FPM, DON'T DESCEND FASTER THAN 500 FPM, DON'T DESCEND FASTER THAN 1,000 FPM, DON'T DESCEND FASTER THAN 2,000 FPM. A VSL advisory may be preventive or corrective.

### vertical takeoff and landing/VTOL

Aircraft which have performance characteristics permitting vertical or almost vertical takeoffs, landings, and climb and descent angles.

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

Very High Frequency Omnidirectional Range/VOR

A ground based radio station that propagates an unlimited number of "radials". On board an aircraft, the signals are converted to visual direction indications expressed as magnetic compass courses to and from the transmitter station.

very low frequency/VLF

A frequency band between 3 and 30 kHz.

video gating

Electronic switching of video inputs.

video map

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

vidicom

A camera tube in which a charged density pattern is formed by photo-conduction and stored on that surface of the photo-conductor which is scanned by an electron beam, usually of low-velocity electrons.

virga

Water or ice particles falling from a cloud, usually in wisps or streaks, and evaporating before reaching the ground.

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.

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.

2. ground visibility -- Prevailing horizontal visibility near the earth's surface as reported by the U.S. National Weather Service or an accredited observer.
3. prevailing visibility -- The greatest horizontal visibility equaled or exceeded throughout at least half the horizontal 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 represent 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.

#### visibility, prevailing

The horizontal distance at which targets of known distance are visible over at least half of the horizon. It is normally determined by an observer on or close to the ground viewing buildings or other similar objects during the day and ordinary city lights at night. Under low visibility conditions the observations are usually made at the control tower. Visibility is REPORTED IN MILES AND FRACTIONS OF MILES in the Aviation Weather Report. If a single value does not adequately describe the visibility, additional information is reported in the "Remarks" section of the report.

#### visibility, runway

The horizontal distance at which a stationary observer near the end of the runway can see an ordinary light (about 25 candlepower) at night or a dark object against the horizon sky in the daytime. In practice the human observance is used very little for this observation. Instead, runway visibility is normally determined by a transmissometer (a

photoelectric device calibrated in terms of human observer). It is reported in miles and fractions of miles in the "Remarks" section of the Aviation Weather Report. A meter in the control tower gives the FAA traffic controller a continuous indication of the runway visibility at transmissometer locations. Runway visibility, where available, is used in place of prevailing visibility for the determination of minimums on a transmissometer runway. This program is gradually being replaced by RVR at transmissometer locations.

#### visibility, 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, and not slant, visual range. It is based on the measurement of a transmissometer made near the touchdown point of the instrument runway and is reported in hundreds of feet. RVR is used in lieu of RVV and/or prevailing visibility in determining minimums for a particular runway.

1. touchdown RVR -- The RVR visibility readout values obtained from RVR equipment serving the runway touchdown zone.
2. mid RVR -- The RVR readout values obtained from RVR equipment located mid field of the runway.
3. roll out RVR -- The RVR readout obtained from RVR equipment located nearest the roll out end of the runway.

#### visibility (ICAO)

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

1. flight visibility (ICAO) -- The visibility forward from the cockpit of an aircraft in flight.
2. ground visibility (ICAO) -- The visibility at an aerodrome as reported by an accredited observer.

3. runway visual range/RVR (ICAO) -- The range over which the pilot of an aircraft on the center line of a runway can see the runway surface markings or the lights delineating the runway or identifying its center 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 VMC conditions.

#### visual approach (ICAO)

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

#### Visual Approach Slope Indicator/VASI

See airport lighting.

#### visual descent point

A defined point on the final approach course of a non precision straight in approach procedure from which normal descent from the MDA to the runway touchdown point may be commenced, providing the approach threshold of the 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

(1) 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. (2) Visual flight in which avoidance of collision with other aircraft is dependent upon every pilot seeing other aircraft and avoiding them. To enable pilots to perform the collision avoidance function, the rules take certain weather conditions into account, and specify basic "rules of the air". See categories under VFR.

1. VFR aircraft/VFR flight -- An aircraft conducting flight in accordance with Visual Flight Rules.
2. VFR conditions -- Weather conditions equal to or better than the minimums for flight under visual flight rules. The term may be used as an ATC clearance/instruction

only when: an IFR aircraft requests a climb/descent in VFR conditions, the clearance will result in noise abatement benefits where part of the IFR departure route does not conform to an approved noise abatement route or altitude or when pilot has requested a practice instrument approach and is not on an IFR flight plans.

3. VFR highway -- Predesignated route/altitude path through airspace used under visual flight conditions, by aircraft having minimum equipment.
4. VFR military training routes -- Routes used by the DOD 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 (Visual Flight Rules) 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/TRSA airspace.

#### VFR (Visual Flight Rules) over-the-top

With respect to the operation of aircraft, means the operation of an aircraft over-the-top under VFR when it is not being operated on an IFR flight plan.

#### VFR (Visual Flight Rules) 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 rules below 10,000 feet MSL at airspeeds in excess of 250 KTS IAS.

#### visual guidance

Function provided by lights, visual markers, et al., at an airport to the pilot to help guide him along a safe path to touchdown and beyond.

#### visual holding

The holding of aircraft at selected prominent geographical fixes which can be easily recognized from the air.

## Visual Meteorological Conditions/VMC

Meteorological conditions expressed in terms of visibility, distance from clouds and ceiling equal to or better than specified minima.

### visual separation

A means employed by ATC to separate aircraft in terminal areas. There are two ways to effect this separation; either the tower specialist sees the aircraft involved and issues instructions, as necessary, to ensure that the aircraft avoid each other, or a pilot sees other aircraft involved and upon instructions from the specialist 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.

### voice call

The capability of connecting to the loudspeaker of a called party, even though he is busy when called. The called party cannot reply without switching the connection to his headset.

### voice information

Information conveyed through spoken or computer generated words.

1. voice input -- Information that is input into the system by means of an operator speaking into a microphone or other similar transducer.

### voice-page hot line communications

Point-to-point landline communications, terminating in monitor speakers, so that direct voice access is available without the need for dial-up action.

### volume

The intensity or loudness of sound. In a telephone or other audio frequency circuit, a measure of the power corresponding to an audio frequency wave at that point (expressed in dB) is considered volume.

### VORTAC (VHF Omnidirectional Range/Tactical Air Navigation)

An air navigation system combining VHF omnidirectional range (VOR) and TACAN equipment. This navigational aid provides

VOR azimuth, TACAN azimuth and TACAN distance ensuring equipment/DME at one site.

1. VOT (Very High Frequency Omnitest) - A ground originating test signal used to check the accurate alignment of a VOR receiver.

#### vortex

In meteorology, any rotary flow in the atmosphere.

#### vorticity

Turning of the atmosphere. Vorticity may be imbedded in the total flow and not readily identified by a flow pattern.

1. absolute vorticity - The rotation of the Earth imparts vorticity to the atmosphere; absolute vorticity is the combined vorticity due to this rotation and vorticity due to circulation relative to the Earth (relative vorticity).
2. negative vorticity - Vorticity caused by anticyclonic turning; it is associated with downward motion of the air.
3. positive vorticity - Vorticity caused by cyclonic turning; it is associated with the upward motion of the air.
4. relative vorticity - Vorticity of the air relative to the Earth, disregarding the component of vorticity resulting from the Earth's rotation.

#### vulnerability

(1) Any weakness or flaw existing in the protective mechanism provided for an AIS, DPA or operation. (2) The relative potential within a program or function for waste, loss or other abuse.

1. vulnerability assessment -- A review of the susceptibility of a program or function to waste, loss, unauthorized use or misappropriation.

wake turbulence

(1) Turbulence found to the rear of a solid body in motion relative to a fluid. (2) 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. (Refer to AIM)

wall cloud

The well defined bank of vertically developed clouds having a wall like appearance which forms the outer boundary of the eye of a well developed tropical cyclone.

warm front

Any non occluded front which moves in such a way that warmer air replaces colder air.

warm sector

The area covered by warm air at the surface and bounded by the warm front and cold front of a wave cyclone.

warning area

Airspace which may contain hazards to nonparticipating aircraft in international airspace. See special use airspace.

waste oil

Any used products primarily derived from petroleum, which include, but are not limited to, fuel oils, motor oils, gear oils, cutting oils, transmission fluids, hydraulic fluids and dielectric fluids.

water equivalent

The depth of water that would result from melting snow or ice.

water vapor

Water in the invisible gaseous form.

waterspout

See tornado.

### wave cyclone

A cyclone which forms and moves along a front. The circulation about the cyclone center tends to produce a wavelike deformation of the front.

### wave off

A signal from the ground controller to the pilot that the landing should be aborted. Reasons for wave off may include runway congestion or poor separation of approaching aircraft.

### waver

Written permission authorizing non-compliance with established facility/system/subsystem/equipment installation instructions, standards/tolerances/limits, maintenance procedures or maintenance schedules contained in documents issued by various levels of management.

### waypoint/W/P

(1) A significant navigational position normally not marked by the site of a radio navigational aid. When used with respect to RNAV, it is a pre-determined geographical position, used for route or instrument approach definition or progress reporting purposes, that is defined relative to a VORTAC station position. Two subsequently related waypoints defined a route segment. This predetermined geographical position can be defined by latitude and longitude and/or relative to a VORTAC or VOR/DME reference facility by magnetic radial bearing and range in nautical MILES.

1. active waypoint -- A waypoint to or from which navigational guidance is being provided. For a parallel offset, the active waypoint may or may not be at the same geographical position as the parent waypoint. When operating on the parent route, the active and parent waypoints are at the same geographical position.
2. instrument approach waypoint(s) -- position fixes which may be used in defining RNAV procedures. They include: initial approach waypoint/IAWP; intermediate waypoint/INWP; final approach waypoint/FAWP; missed approach waypoint/MAWP; runway waypoint/RWY WP; and the holding waypoint.
3. lat/long reference waypoint -- A waypoint, defined using latitude/longitude, from which routes may be

described, or from which other waypoints may be defined using range and radial. It is the point from which angle errors originate when routes are described using a course in degrees or when subsequent waypoints are defined using radials.

4. parent waypoint -- A waypoint used for route definition and/or progress reporting. The geographical position of a parent waypoint is not altered when RNAV equipment is operated in a parallel offset mode.
5. place/bearing/distance/ P/B/D -- An extemporaneously assigned waypoint (position fix) defined as a magnetic radial and distance from a fixed geographical location.
6. waypoint displacement area -- The rectangular area formed around the plotted position of a waypoint. The rectangle is oriented along the desired track with the waypoint at its center. Its dimensions are two times the appropriate plus or minus along track and cross track displacement error values.

#### WCP/Mode S transactions

A transaction is the receipt, processing and relay, (when required), of a message by the WCP.

#### wearout failure

A failure that occurs as a result of deterioration or mechanical wear and whose probability of occurrence increases with time.

#### weather

The state of the atmosphere, mainly with respect to its effects on life and human activities; refers to instantaneous conditions or short term changes as opposed to climate.

#### weather advisory

In aviation weather forecast practice, an expression of anticipated hazardous weather conditions as they affect the operation of air traffic and as prepared by the WB.

#### weather data/information

(1) Radar derived weather information and information relating to weather conditions entered into the system via controllers, FSS, etc. (2) General weather data. This could include any or all of the following : alphanumeric

weather information, such as PIREPS, forecasts, reports, etc.; and CWSU products, such as mosaicked radar data, AFOS graphics and annotated weather reports.

1. weather data annotations -- Additional weather information, such as observations of weather phenomena, that would be difficult (or expensive) to automate. This information is input by an operator, such as a tower controller.
2. weather data request -- A request for weather information such as reports, forecasts, briefings, etc.

weather definitions (general)

1. altimeter setting -- That pressure value to which an aircraft altimeter scale is set so that it will indicate the altitude above MSL of the altimeter in an aircraft on the ground at the location for which the value was determined.
2. atmospheric pressure -- The force exerted by the weight of the atmosphere per unit area.
3. ceiling -- The height above the earth's surface of the lowest layer of clouds or obscuring phenomena aloft that is not classified as a thin layer or partial obscuration, that together with all lower clouds or obscuring phenomena covering more than half the sky as detected from the point of observation.
4. dewpoint -- The temperature to which a given parcel of air must be cooled at constant pressure and constant water vapor content in order for saturation to occur.
5. hail -- Precipitation composed of pieces of ice generally associated with convective activity and having a diameter in excess of 0.2 inches (5 mm).
6. hazardous weather -- Weather conditions which have the potential to significantly increase the likelihood of aviation accidents. Hazardous weather conditions include: moderate to severe icing, moderate to severe turbulence, moderate to severe precipitation, wind shear, thunderstorms, sustained high winds near the surface, widespread areas of low visibility, microbursts, lightning, and hail.
7. humidity -- A measurement of the amount of water vapor in the air relative to the total possible amount the air could hold at a particular temperature. This

measurement is a percentage, with 100 percent equal to the saturation level at the current temperature.

8. lightning -- A flash of light produced by a discharge of atmospheric electricity that takes place from one cloud to another or between a cloud and the earth.
9. microburst -- A small downburst with its outburst, damaging winds extending only 4 km (2.5 miles) or less. In spite of its small horizontal scale, an intense microburst could induce damaging winds as high as 75 meters per second.
10. precipitation -- Water droplets or ice particles condensed from atmospheric water vapor and of sufficient mass to fall from the sky. This would include rain, snow, freezing rain, sleet, ice pellets, et al.
11. precipitation character -- The character of precipitation is described as either continuous, intermittent, or showery.
12. precipitation intensity -- The amount of precipitation falling at the time of the observation. Intensity is expressed as light, moderate or heavy based on the rate-of-fall or visibility.
13. precipitation type -- One of the following rain (R), freezing rain (ZR), drizzle (L), freezing drizzle (ZL), snow (S), snow pellets (SP), snow grains (SG), ice pellets (IP), hail (A), ice crystals (IC), fog (F), ground fog (GF), ice fog (IF), drifting snow, blowing snow (BS).
14. surface observation -- Report of current surface weather at an observation point at an airport. May be made up of manually observed and entered weather, automatically sensed weather, or a combination of both. This information is contained in a surface aviation weather report (SA).
15. thunderstorm -- A localized storm characterized by one or more electrical discharges.
16. turbulence -- Irregular motion of the atmosphere produced when air flows over a comparatively uneven surface, or when two currents of air flow past or over each other in different directions or at different speeds.

17. visibility -- The greatest distance at which selected objects can be seen and identified, or its equivalent derived from instrumental measurements.
18. wind shear -- A change in wind speed and/or wind direction over a given distance. Can be vertical or horizontal.
19. wind speed -- The rate of horizontal motion of the air past a given point.
20. wind direction -- The direction from which the air is moving at a given location.

#### weather information parameters

These would be input to the weather processor by the meteorologist. They would include the setting of thresholds for alarms, contouring levels for wind, temperatures, et al.

#### weather observations

The observation, measurement, and recording of various weather phenomena. This process could be manual or automatic.

#### weather terms

1. weather information -- Current weather information plus trend weather information plus forecast weather information.
2. current weather information -- Surface aviation weather observations plus weather conditions aloft.
3. surface aviation weather observations -- Observations at a single point on the ground up to an altitude of 6,000 Ft (AGL).
4. weather conditions aloft -- From 6,000 feet above the ground to 60,000 feet MSL in the area of NAS responsibility. In addition, from ground level to 10,000 feet AGL within 45 NM of qualifying aerodromes.
5. trend weather information -- Includes observations made during past 3 hours plus any forecast values from unexpired terminal forecasts.
6. forecast weather information -- Terminal forecast plus area forecast plus winds aloft forecast plus unscheduled short-term advisories and forecasts.

7. terminal forecast -- Is an area within a 5-mile radius of the runway complex.
8. area forecast -- Is a forecast of general weather conditions over an area the size of several states.
9. winds aloft forecast -- Are forecasts for specific locations in the contiguous U.S.

#### weather radar

Radar specifically designed for observing weather. See cloud detection radar and storm detection radar.

#### weather vane

See wind vane.

#### weather video digitizer/WVD

The separate weather sub-system equivalent of the weather density digitizer portion of a common digitizer.

#### wedge

See ridge.

#### weekly

A scheduling term, meaning once each calendar week, and at approximately seven-day intervals (5 to 9 days).

#### 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 instruction have been met. "When able" is not used when expeditious compliance is required.

#### wet bulb temperature

The lowest temperature that can be obtained on a wet bulb thermometer in any given sample of air, by evaporation of water (or ice) from the muslin wick used to cover a thermometer; used in computing dew point and relative humidity.

wet bulb thermometer

A thermometer with a muslin covered bulb used to measure wet bulb temperature.

whirlwind

A small, rotating column of air which may be visible as a dust devil.

whisper-shout

A sequence of APCRBS interrogations and suppressions of varying power levels transmitted by TCAS equipment to reduce the severity of synchronous interference and multipath.

wilco

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

will

"Will" indicates a presumption that an action is to be taken. Will is intended to denote actions in the future tense. For example: obsolete equipment "will" be replaced as soon as funds can be made available. See shall, may.

willy-willy

A Australian term used to denote a tropical cyclone of hurricane strength.

wind

Moving air, especially a mass having a common natural and perceptible movement of air parallel to the ground. The term is generally limited to air moving horizontally or nearly so; vertical streams of air are usually called currents.

1. wind angle/WA, wind direction -- The compass direction from which the wind is blowing expressed as an angle measured clockwise from true or magnetic north.
2. wind speed/WS, wind velocity -- The rate of motion generally expressed in nautical miles (knots) or statute miles per hour.

wind rose

(1) A diagram showing the relative frequency and sometimes the average strength of the winds blowing from different

directions in a specified region; (2) A diagram showing the average relation between winds from different directions and the occurrence of other meteorological phenomena.

#### wind shear

A change in wind speed and/or direction in a short distance which results in a tearing or shearing effect. It can exist in a horizontal or vertical direction and occasionally in both.

1. wind shear alert -- An alert generated by wind shear detection equipment when wind shear is present.
2. wind shear alert transmission -- The transmission of wind shear alerts over a RF link that uses air (free space) as the communications medium.
3. wind shear data -- Wind direction and speed determined by center field sensors and sensors around the field periphery. This information is used as input to the wind shear detection equipment and is also displayed in the TCCC.

#### wind vane

An instrument used to indicate wind direction.

#### winding

A coil of wire arranged to form an electromagnet when an electric current is in the winding.

#### window, sliding

A class of moving average, digital, detectors, which makes decisions based on the density of radar hits within some interval.

#### wing tip vortices/vortices

Circular patterns of air created when generating lift. As an airfoil moves through the atmosphere in sustained flight, an 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 tip 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.

winking

A visual signal interrupted 720 times a minute with an 80/20 on-off ratio.

wire rope

A rope, sometimes small enough to be termed twine or cord, made of twisted wires.

wiretapping

1. active wiretapping -- The attaching of an unauthorized device, such as a computer terminal, to a communications circuit for the purpose of obtaining access to data through the generation of false messages or control signals, or by altering the communications of legitimate users.
2. passive wiretapping -- The monitoring and/or recording of data while the data are being transmitted over a communications link.

word

An ordered set of characters which occupies one storage location and is treated by the computer circuits as a unit and transferred as such. Ordinarily a word is treated by the control unit as an instruction, and by the arithmetic unit as a quantity. Word lengths may be fixed or variable depending on the particular computer.

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."

work factor

An estimate of the effort or time that can be expected to be expended to overcome a protective measure by a would-be penetrator with specified expertise and resources.

work order

A description of project or task, the authorization to commence work, and the appropriation codes to which project expenses are charged.

1. work order carrier/WOC -- The regional facilities and equipment representative which has been issued a work order to accomplish specified project work.

work sector/WSEC

A controller position; like the numbered R, D, or R, D, A, positions on the control room floor in an ARTCC. See GSEC.

working equipment

Special tools, devices and accessories required to install, adjust or align operating equipment in performance of maintenance operations, exclusive of test equipment.

write

(1) To transfer information, usually from main storage, to an output device; (2) To record data in a register, location, or other storage device or medium.



pulse

The pulse that may appear in the seventh of the 13 information pulse positions between the bracket pulses in a radar beacon response. The X pulse position is between the A4 and E1 Pulse positions on Mode 2 or 3/A.

x-radiation

Penetrating electromagnetic radiation which have wave lengths shorter than those of visible light and which are usually produced by bombarding a metallic target with fast electrons in a high vacuum.

yaw

The angle between the longitudinal axis and the flight path of an aircraft.

year

The period of time required for the earth to complete a single revolution around the sun.

1. apparent solar year -- The period of time between two successive passages of the mean sun through the first point of Aries. It has a mean value of 365 days 05 hours 48.47 minutes. This period contains one complete cycle of the seasons and is less than the sidereal year owing to the precession of the equinoxes.
2. sidereal year -- The period of time between two successive passages of the sun across a fixed position among the stars. Its value is constant, and is equal to 365 days 06 hours and 09 minutes, a true measure of the earth's period of orbital revolution.
3. solar mean year -- The period of time required for the earth to complete a single revolution around the sun. It has a value of 365 days, 05 hours and 49 minutes and 12 seconds of mean solar time divided into 12 months, 52 weeks and 365 or 366 (every fourth year) days.

yearly day-night average sound level/LDN

The 24-hour average sound level, in decibels, for the period from midnight to midnight, obtained after the addition of 10 decibels to sound levels for the periods between midnight and 7 a.m., and between 10 p.m. and midnight, local time, as average over a span of 1 year. LDN is the noise metric determined by the FAA, as directed by the Aviation Safety and Noise Abatement Act of 1979, to be uniformly applied in measuring the noise at airports and the areas surrounding such airports.

### zenith

The point on the celestial sphere directly above the observers position.

1. zenith distance -- The angular distance from the observers position to any point on the celestial sphere measured along the vertical circle passing through the point. It is equivalent to co-altitude, but when applied to a bodies subpoint and the observers position on earth it is expressed in nautical miles.

### zero(s)

The negative value of a binary bit.

### 0 (zero) codebar

One of nine codebars in a printer, it is used in connection with the automatic carriage return and automatic line feed functions and during conditioning operation.

### zero transmission level point/OTLP

The transmission level point (TLP) is a point in a transmission system at which the transmission level (expressed in dB) is defined as the nominal or design gain (or loss) at 1000 Hz referenced to an arbitrary point in the system called the 0 Transmission Level Point (OTLP). The OTLP (not to be confused with 0dBm) is a point chosen for engineering convenience and not an indication of signal power level. For the ARTCC the OTLP is at the equipment side of the MDE and at the RCA's the OTLP is also at the corresponding location. The OTLP is that point in a transmission system or circuit to which all other signal and noise levels are referred. Other system levels are either +dB, -dB (or equal) in magnitude to the OTLP.

### zonal wind

A west wind; the westerly component of a wind. Conventionally used to describe large scale flow that is neither cyclonic nor anticyclonic.

## APPENDIX A

### DEFINITIONS RELATED TO NAS PLANNING DOCUMENTS

#### Planning related definitions:

NAS goal. The high-level aims of the FAA Administrator to be accomplished by implementation of the NAS Plan for Facilities and Equipment and its component NAS Projects.

NAS objective. The intermediary means for achieving a NAS Goal. Achievement of NAS objectives results in benefits to NAS users.

NAS project. A level of planning and organization for NAS Programs or specific acquisitions.

#### Requirements-related definitions:

Requirement. A specified capability which must be provided by the system, sub-system, end item, contractor, et al.

Types of requirements. Categories of requirements which are useful for analysis and traceability. Types include operational, functional, performance, interface, facility, and verification requirements.

Operational requirement. Type of requirement that qualifies and quantifies the services and products which must be provided to NAS users, and NAS specialists. Operational requirements should be directly related to the NAS mission and may be impacted by a predetermined Operations Concept.

General requirement. Relates the characteristics of the operational requirement.

Functional requirement. Type of requirement that describes what the system must do to satisfy the operational requirements. A functional requirement must have an action verb and should have well defined inputs and outputs. A functional requirement is 'static' in the sense that the sequence of activity is not specified (e.g., post flight plan for controlled aircraft crossing an airspace sector boundary).

Performance requirement. Type of requirement that describes how well a function must be performed, and may be either qualitative or quantitative. In the system engineering process, performance requirements are derived from operational requirements and budgeted against the functional

requirements as part of the specification process (e.g., post flight plan 15 minutes before airspace sector boundary crossing).

Interface requirement. Type of requirement that describes the functional, performance, and/or physical characteristics of an interface between systems, facilities, sub-systems, projects, or end items or between the NAS and an external entity.

Facility requirement. Type of requirement that quantifies what the facility must provide to support the sub-systems and personnel contained within the facility (e.g., electrical power, floor loads, HVAC, lighting, et al.).

Verification requirement. Verification requirements are defined in the Quality Assurance section of requirements specifications. They consist of:

1. A definition of how the general verification methods shall be applied to specified performance, functional and interface requirements. This includes a description of test formulas, algorithms, techniques, and acceptable tolerance limits, as applicable.
2. The phase (sub-system acceptance testing, system integration testing, or site acceptance testing) during which the verification is to take place.
3. The minimum documentation necessary to describe the verification process (i.e., test plans and procedures). Verification requirements are defined in the quality assurance section of a specification, and in more detail in the test planning documents.

NAS mission. The mission of the NAS is to meet the growing and evolving national demand for aviation services while imposing a minimum of constraints on the users, promoting fuel-efficient flights and reducing system errors. The NAS will also increase the productivity of the agency work force while constraining the overall cost of operations. These advancements will result in a unified safe and efficient aviation system which contributes to national security and promotes U.S. aviation.

NAS specialist. The individual that interacts directly with the sub-systems that make up the NAS, (e.g., Air Traffic Controller Flight Service Specialist, Data System Specialist, Technician, System Engineer, Traffic Management Specialist/Coordinator, Weather Specialist, Air Traffic Supervisor, and Airway Facilities Supervisor and CWSU Meteorologist).

1. NAS user. The external individual or group that is supported by the operational services of the NAS, (e.g., Commuter Airline, Air Taxi, General Aviation, Helicopter Operator, Military Pilot and Law Enforcement Agency Fixed Base Operator).

Verification method. The general approach taken to verify the performance, functional and interface requirements. There are four basic verification methods: Test, Inspection, Analysis and Demonstration. These methods are further defined in Quality Assurance section of the NAS System Specification. Verification methods are assigned to every requirement in a Verification Requirements Traceability Matrix within the requirements specification.

System engineering activities-related definitions:

Design allocation. The process which maps specified functional requirements into the physical components of the system. The physical allocations for the NAS include Facilities, Sub-systems, and End Items.

Performance budgeting. The process which allocates performance requirements for a string of functional requirements in a way which will meet the quantitative operational requirements.

Requirement analysis. The process of deriving, organizing, and validating requirements in a systematic way to ensure that the requirements completely and correctly represent the needs of the NAS users.

Requirement traceability. The relationship that provides:

1. Linkage between the various levels and types of requirements (i.e., a system operational requirement traces to one or more system functional requirements);
2. Linkage from the requirements down to the design allocations made to the physical design components (i.e., operational requirement X is satisfied by ACCC and CWP);
3. Linkage from the requirements to the verification phase, methodology, procedures, and reports.

Interface analysis. The process of reviewing and defining the system interfaces to ensure that the specified interfaces are complete, consistent, and that they satisfy the operational requirements and design allocation.

Logistics support analysis. Logistics Support Analysis is an iterative process for early identification and correlation of any supportability, maintainability or reliability problems inherent to the proposed design, and identification and evaluation of resources required to develop, acquire and manage a support system for the design.

System design-related definitions:

NAS functional design. The NAS Functional Design allocates functional requirements to sub-elements and sub-systems and identifies functional interfaces. (Old name was Level 1 Design.)

NAS allocated design. NAS Allocated Design quantifies system and sub-system level performance requirements based on operational requirements. It will determine quantities and locations for each sub-system. Detailed sub-system performance requirements, interfaces and siting requirements will be defined. The primary product of the NAS Allocated Design is the NAS System Specification.

NAS transition design. Involves the planning and design activities associated with the transition of the NAS from the present system to the system specified in the NAS System Specification. (The old name for this effort was Level 3 Design.)

NAS site design. NAS Site Design will provide comprehensive site package plans for each affected site. These site implementation packages will contain all essential information needed to prepare, install, test and make operational sub-systems, equipment and software enhancements. Site specific designs will include installation, training, logistics and site test plans. (Old name was Level 4 Design.)

NAS element. One of the four major operational areas of the NAS. The four NAS elements are Air Traffic Control, Ground-to-Air, Communications, and Maintenance and Operations Support.

NAS sub-element. A grouping of sub-systems that are functionally related or collocated (e.g., Weather Sensing Facilities, Landing Facilities, Automated Flight Service Station).

NAS sub-system. A grouping of one or more end items that is a relatively independent identifiable entity. Sub-systems may track to multiple project specifications depending on the acquisition strategy (e.g., AWOS, LLWAS, RVR, NEXRAD, ILS, MLS, REIL).

NAS end item. Identifiable piece of hardware and/or software which can be bounded with a specification and interface definitions (e.g., work station, processor, display unit, et al.).

NAS facility. Throughout the distributed FAA, its technical contractors, and the SEIC many diverse definitions for facility exist. Instead of defining NAS Facility in strict terms, the various meanings of facility will be identified and defined.

Service facility. Sub-systems, personnel, and physical plant required to perform duties or satisfy an operational need.

Physical facility. The total plant required for a sub-element or sub-system to function. The physical facility will house, support or protect the sub-element or sub-system at a particular geographic location. The physical facility will have various physical characteristics in accordance with the function of the sub-element or sub-system. The physical facility can be of the following types depending on the function of the sub-element or sub-system:

1. Building - Consists of walls and a roof either single story or multi-story constructed of various material; usually fixed in location and housing personnel and equipment. The building may include air conditioning, power, et al., if required for the particular application.
2. Structure - Composed of interrelated parts which together form a structural entity, usually fixed in location containing equipment and which may be manned or unmanned. The structure may include air conditioning, power, et al., if required for the particular application.
3. Enclosure - Interrelated parts which surround or shut in equipment, fixed or movable, usually unmanned. The enclosure may include air conditioning, power, et al., if required for the particular application.
4. Assembly - Composed of interrelated parts which together form a functional entity, fixed or mobile, containing equipment.
5. Open-air plant (site) - A collection of components which can be identified only by geographic location.

Organizational facility. A grouping of personnel resources required to satisfy an operational need.

Functional facility. A grouping of material and intangible resources (e.g., software, data bases) required to satisfy an operational need.

Operational facility. A grouping of material and intangible resources employed in the actual performance of services and development of products that must be provided to NAS users.

Maintenance facility. A grouping of building, personnel, and inventory resources required in the performance of upkeep of any one or grouping of sub-systems.

NAS site. A single geographical location for one or more NAS Facilities.

Facility drawings. Depicts Physical Configuration of Physical Facility, Equipment Facility, et al.

Installation drawings. Depicts, as necessary, the Configuration to support the field installation and integration process.

Interim specifications. Will delineate the functional and performance requirements for the interim system configurations. These interim configurations define the NAS as it evolves stepwise from the present system to the 1995 system as each new sub-system is added.

Interim interface designs. Will specify, the interface requirement in ICUs or ICSs for the interim configurations which are not applicable to the final system configuration.

NAS master transition plan. Will provide the overall system-level guidance for the transition of the NAS to its final configuration. It will identify and schedule initial, interim and final system configurations and will provide guidance and direction to the individual project managers as they develop project-level transition plans.

System documentation-related definitions:

Technical documents.

1. NAS System Requirements Specification (NAS-SR-1000). This specification defines the operational requirements and is the approved operational requirements document. It serves as a basis to perform studies and analyses, identify engineering concepts to satisfy operational

requirements, and as a source document for system specification preparation.

2. NAS System Specification (NAS-SS-1000). This specification defines functional, performance, design, construction, logistics, personnel and training, documentation, verification, and interface requirements for the NAS. This specification allocates requirements to the elements, sub-elements, and sub-systems for the 1995 design of the NAS. The Specification is organized into five volumes. Volume I contains the system level requirements applicable across the entire NAS. Volumes II through V of NAS-SS-1000 contain requirements allocated to elements, sub-elements, and sub-systems. The NAS System Specification will serve as a source document for project specification preparation after it is baselined.

A (System/Segment). States the technical and mission requirements for a system/segment as an entity; allocates requirements to functional areas; documents design constraints, and defines the interfaces between or among the functional areas. It is maintained current during the demonstration and validation phase, culminating in a version that forms the future performance base for the development and production of the prime items and the configuration items.

3. NAS project specification. This specification describes the functional, performance, and interface requirements for a NAS project. It will also include validation requirements.

B (Development). Development specifications that state the requirements for the design or engineering development of a product during the development period. Each development specification shall contain sufficient detail to effectively describe the performance characteristics that each configuration item is to achieve when a developed configuration item is to evolve into a detail design for production.

C (Product). Product specifications are applicable to any configuration item below the system level, and may be oriented toward procurement of a product through specification of primarily functional (performance) requirements or primarily fabrication (detail design) requirements.

4. Level I Design Document (NAS-DD-1000). This document describes the functional architecture of the NAS for the 1995 system including allocations to sub-systems and sub-elements and functional interface definitions. The Level 1 Design Document was baselined in October 1984, and serves as the source document for development of the NAS System Specification.
5. Operations concept. Description of how the system will be operated and may include a description of operational activities, availability requirements, level of automation, man/machine interface, personnel staffing, procedural requirements, modes of operation, contingency plans, maintenance and training concept, and the operational interfaces with other systems. The content and extent of the operations concept is in the development phase.
6. Maintenance concept. This document describes how the system will be maintained. It includes all levels of maintenance and identifies maintenance approaches such as methods for detecting, isolating, and recording failures, planned or special maintenance or logistics considerations.
7. Interface control document (ICD). The ICD is a formal agreement (usually between affected contractors) which documents how interface design requirements have been fulfilled. The ICD identifies, qualifies and controls the characteristics of interfaces between a sub-system/equipment item or a subsystem and equipment item and its host facility. The purpose of the ICD is to assure interface compatibility by documenting form, fit and function required to satisfy installations, checkout and operations. The ICD will serve as a record of interface agreements and as a basis for developing coordinated design changes.
8. Interface requirements document (IRD). The IRD is a formal agreement which establishes design requirements for interfaces between sub-systems or a sub-system and its supporting facility. The purpose of an IRD is to impose interface design requirements on sub-system specifications and ICDs.

b. Planning documents (NAS).

1. NAS plan for facilities and equipment. The overall plan for improving NAS Facilities and Equipment from now to the year 2000. The Airport and Airway Improvement Act of 1982 requires an annual update of this plan.

2. NAS plan for engineering and development. The planning document describing the research, development, and engineering activities to support ongoing and planned F&E projects through the year 2000. It provides a description of the research, engineering, and development activities required to support these ongoing programs and major responsibilities of the agency; to assist the orderly integration of new systems and procedures into the NAS in support of facilities and equipment implementation; to support the agency in the development and integration of airborne systems with the operation of ground-based systems; to support regulatory functions; to support aircraft safety; to promote aviation research and development; to support airport development, improvement, and planning; and to develop and evaluate advanced technology for application and integration into the NAS.
3. The maintenance and operations support plan. The planning document which presents the FAA's maintenance program through the year 2000, including philosophy, the maintenance concept, organization and staffing plans, and an outline of specific projects.
4. Rotorcraft master plan. The planning document which addresses all aspects of rotorcraft requirements through the year 2000 in the broad disciplines of operations, policy, research and development.

## A LISTING OF ACRONYMS AND ABBREVIATIONS

This listing of aviation related acronyms and abbreviations are commonly used, recognized or accepted within the FAA. This document is not intended to be an arbiter of the "official" definition. Rather, it is intended to be a general listing of acronyms and abbreviations related to NAS projects, system programming, to contractors' documents and terminology, and to miscellaneous topics.

Acronyms and abbreviations are listed in alphabetical order. Special characters (e.g., "/" or "&" or imbedded blanks) are ignored in the alphabetical order. Where there are multiple occurrences of an acronym or abbreviation, they are arranged according to the alphabetical order of the definitions.

Note that frequently there are similar definitions for a particular item (e.g., ALSIP: Approach Lighting System Implementation Program vs Approach Lighting System Improvement Program). In such instances, all known variations of the acronym are defined.

A Absolute (temperature)  
A Alaskan standard time  
A Alert indicator (FDE tower data)  
A Amber (ICAO)  
A Ampere  
A Analysis  
A Approach control arrival position  
A Arctic (air mass)  
A Availability  
A developmental (Assistant) controller  
A hail (weather reports only)  
A transmission Accepted message  
AA Absolute Altitude  
AA Aircraft Address  
A/A Air to Air (ICAO)  
AA Assigned Altitude  
AAA Advanced Automation Analysis  
AAA Airport Airspace Analysis  
AAA (or AAB, AAC...etc., in sequence) amended  
meteorological message (message type designator)  
(ICAO)  
aa aa alert code  
AAACX Automated Administrative Activities for DPCX  
AAAS Automated Airport Advisory System  
AAC Alaskan Air Command (military)  
AADB fixed Beacon test target Azimuth Deviation  
(parameter)  
AADC Approach And Departure Control  
AADF AAS Demonstration Facility  
AADP fixed Primary test target Azimuth Deviation  
(parameter)  
AAF Army Air Field  
AAG Audible Alarm Gate  
AAGS Alternate AAS Global SMM  
AAH Assigned Altitude High  
AAI Airport Arrival Interval  
AAJ Arrival Aircraft Interval  
AAS Automated Airport Information System  
AAITVL Arrival Aircraft IntERVAL  
AAL Above Aerodrome Level (ICAO)  
AAL Assigned Altitude Low  
AALT Assigned ALtitude  
AAMSS ARINC Aeronautical Mobile Satellite Service  
AAP Advanced Automation Program  
AAP Advise if Able to Proceed  
AAPO Advanced Automation Program Office  
AAR Airport Acceptance Rate  
AAR Alert Action Request  
AARTE Airport Acceptance RATE  
AARTU Antenna Azimuth-Range-Timing Unit  
AAS Advanced Automation System  
AAS Airport Advisory Service

AASRAT	AAS Requirements Action Team
AASSS	AAS Sector Suite
AATI	ARTS III Active Transfer Interval (parameter)
AATM	Assistant Air Traffic Manager
AATM	At All Times
AAIM-A	Assistant Air Traffic Manager - Administration
AAIM-O	Assistant Air Traffic Manager - Operations
AATMS	Advanced Air Traffic Management System
AATS	Advanced Automation Training System
AAWF	Auxiliary Aviation Weather Facility
AAWS	Automatic Aviation Weather Service
AB	Address Branch
AB	AERA Branch
AB	AirBorne
AB	Allocation Baseline
AB	Area Branch
ABBR	ABBReviate
ABBR	ABBReviated
ABER	ABBReviation
ABC	Assigned Beacon Code
ABCST	Automatic BroadCAST
ABCT	Active Boundary Crossing Time (parameter)
AbC	Aboard
ABDIS	Area B Data Interchange System
ABDIS	Automated service-B Data Interchange System
A-BDIS	Automated service-B Data Interchange System
ABDIS	class A interim NADIN computerized BDIS terminal at Kansas City
ABER	AirBorne Equipment Record (adaptation record)
ABL	As-Built List
ABLAST	Automated Bidders' List And Solicitation Tracking system
ABLCHG	Airborne LaunCHing
ABLI	Attention BLinking Interval (parameter)
ABM	ABeam (ICAO)
ABM	Asynchronous Balanced Mode
ABN	Aerodrome Beacon (ICAO)
ABND	ABaNDon
ABNDT	ABuNDant
ABNML	ABNorMaL
ABR	Abbreviated Registration analysis
ABS(X)	ABSolute value of X
ABT	ABouT
ABTF	Air Blast Test Facility
ABV	ABoVe
ABV	ABoVe specified altitude
AC	Advisory Circular
AC	Air Carrier
A/C	Air Conditioning
A/C	AirCRAFT
A/C	Aircraft Commander
A/C	Alarm Card (NADIN)

AC	Alter Course
ac	alternating current
AC	AltoCumulus (ICAO)
A/C	Approach Control
AC	Area Coordinator
AC	Assistant Chief
AC	AutoCumulate
AC	Availability of Coverage for the subsystem
ACA	After Contract Award
ACARS	Airborne Collision Avoidance Radar System
ACARS	ARINC Communications Addressing and Reporting System
ACAS	Airborne Collision Avoidance System
ACB	Adjacent Center Backup
ACC	ACCumulator
ACC	Area Control Center
ACCAS	Alto Cumulus CAteLLianUS
ACCC	Area Control Computer Complex
ACCD	Air Control Computer Display
accept.	acceptance
ACCID	notification of an aircraft ACCIDENT (ICAO)
ACCTS	Administrator's Correspondence Control and Information System
ACCR	AirCRAFT Conflict Resolution
ACCT	ACCounT
ACCUM	ACCUMulate
ACD	Automatic Call Director
ACD	Automatic Call Distribution
ACD	Automatic Call Distributor
ACDD	Air Carrier Domestic Departures
ACDNT	AcciDENT
ACDO	Air Carrier District Office
ACDO	Air Carrier Domestic Overflights
ACE	Automatic Clutter Eliminator
ACELST	Adaptation output print program
ACEM	AirCRAFT Equipment Modification
Acce.	Access
ACES	Adaptation Controlled Environment Subsystem (NOSS support program)
ACEUTE	ACES dependent utility program (NOSS support program)
ACF	Advanced Communications Facility
ACF	Advanced Communications Function
ACF	Air control Facility
ACF	Area Control Facility
ACFE	Association Checking Flight plan position Extrapolation interval (parameter)
ACFI	Advisory Committee on Flight Information
ACFO	Aircraft Certification Field Office
ACFOF	ACF Operational Function
ACFT	AirCRAFT

ACHR Aircraft CHAracteristics Record (adaptation record)  
 ACI AAS Change Instrument  
 ACI Allocated Configuration Identification  
 ACI Azimuth Completion Indicator  
 ACIC Aeronautical Charting and Information Center  
 ACIC Assistant Chief-In-Charge  
 ACID AirCRAFT IDentification  
 ACK ACKnowledge  
 ACL Altimeter Check Location (ICAO)  
 ACLD Above CLouds  
 ACLS Automatic Carrier Landing System  
 ACLT ACceLerate  
 ACLT Actual Calculated Landing Time  
 ACM Administrative and Control Module  
 ACM Air Combat Maneuvers  
 ACM Approach Control Message  
 ACM Asynchronous Communications Multiplexer  
 ACN Aircraft Classification Number (ICAO)  
 ACN All Concerned Notified  
 ACN Approval Control Number  
 ACNOT ACCident NOTice  
 ACO Administrative Contracting Officer  
 ACO Aircraft Certification Office  
 ACO Contracting Officer's technical representative (Field)  
 ACOD Air Carrier Oceanic Departures  
 ACOC Air Carrier Oceanic Overflights  
 ACOTR Assistant COTR  
 ACP ACcePtance (message type designator) (ICAO)  
 ACP Airport Capacity Prediction  
 ACP Area Command Post  
 ACP Azimuth Change Pulse  
 ACP ICAO ACcePtance message  
 ACPT ACcePT  
 ACPT ACcePTed (ICAO)  
 ACQ ACQuisition  
 ACRNM Air Carrier Name Record (adaptation record)  
 ACRS ACROSS  
 ACS Advanced Computer System (now AAS)  
 ACSL Alto Cumulus Standing Lenticular  
 ACT ACTive  
 ACT ACTivated (ICAO)  
 ACT ACTivity (ICAO)  
 ACT Air Combat Training (military)  
 ACTF Aircraft Component Test Facility  
 ACTG ACTing  
 ACTS Automated Configuration Tracking System  
 ACTV ACTive  
 ACTV ARTS III ACTive Count (parameter)  
 ACTVT ACTivaTe  
 Actvtn Activation

ACU	Automatic Calling Unit
ACVF	AERA-2 Concept Validation Facility
ACW	Aircraft Control and Warning system
ACWF	Actual Cost of Work Performed
ACWP	Actual Cost of Work Planned
ACYC	AntiCYclonic
AD	Addendum
AD	AeroDrome (ICAO)
AD	Air Defense (military)
AD	Air Distance
AD	Airworthiness Directive
A/D	Analog-to-Digital
A/D	Arrival Director
AD	Arrival Display (message ID)
Ada	A programming language; not an acronym
ADA	ADvisory Area (ICAO)
ADA	Azimuth Division Area
ADAM	Associate Data Access Method
ADAP	ADAPtation
ADAP	Airport Development Aid Program
ADAS	AWOS Data Acquisition System
ADC	Aerospace Defense Command
ADC	Air Defense Center
ADC	Air Defense Command
ADC	Analog-to-Digital Converter
AUC	Automatic Eriit Control
ADC	Auxiliary Display Controller
ADC	Azimuth Data Converter
ADCAD	Airway Data Collection And Distribution
ADCCP	Advanced Data Communication Control Procedure
ADCDIAG	Aerospace Defense Command DIAGnostics
ADCF	Air Defense Control Facility (military)
ADCN	Administrative Data Communication Network
ADCOC	Air Defense Command Operations Control
ADCOMM	Air Defense COMMAND
ADCON	ADvise all CONCerned
ADCT	Addressed Data Control Table (PVD)
ADCTR	Arrival DireCTOR
ADCUS	ADvise CUstom Service
ADD	Address Decoder
ADDC	Air Defense Direction Center
ADDI	ARTS III Data Drop Interval (parameter)
ADDM	Automated Documentation Development and Maintenance
ADDN	ADDition
ADDN	ADDitionAl
ADDP	A-line/D-line Distance Parameter (parameter)
ADDT	Adaptation Data Display Tool
ADF	Active Data File
ADF	Application Development Facility
ADF	Automatic Direction Finder
ADF	Auxiliary Data Function

ADFAP	Automatic Direction Finder Approach
ADFEL	Mode C Altitude Display FILTER record (adaptation record)
ADI	Add/Delete Indicator
AdI	Adjustment Increment (time)
ADIS	Automatic Data Interchange System
ADIT	Analysis & Design Interface Transforms
ADITS	Automated Design Issue Tracking System
ADIZ	Air Defense Identification Zone
ADJ	ADJacent
ADJFR	ADJacent Facilities Device (adaptation record)
ADLA	Arrival DeLay
ADLO	Air Defense Liaison Officer (military)
ADLY	airport Arrival DeLay
ADM	Atmospheric Data Maintenance
ADM	Auxiliary Display Monitor
ADMAP	ADvise by (air) Mail As soon as Possible
ADMIN	ADMINistration
ADMIR	ADMINistrator
ADMIS	Aircraft Departing at (number of) Minutes Intervals
ADMISA	advise Customs and Public Health Services
ADMEV	ADMINistrative
ADNL TFC	ADditionAL Traffic is ...
ADNOK	ADvise if Not OK
ADNOT	ADIS NOTice
ADO	Airline Dispatch Office
ADO	Airport District Office
ADP	Automated Data Processing
ADP	Automatic Data Processing
ADPCM	Adaptive Differential Pulse Code Modulation
ADPE	Automated Data Processing Equipment
ADPM	Automated Data Processing Manager
ADPOPS	Automated Data Processing Operations
ADFP	Adaptation Data Plotter Program
ADFS	Automatic Data Processing System
ADPT	ADaPTed
ADPT	ADaPTer
ADPTRT	Alternate DeParture Route
Adqt	Adequate
ADR	Adapted Direct Route
ADR	ADdRes
ADR	ADvisory Route (ICAO)
ADR	Aircraft Delay Report
ADR	Alternate Departure Route
ADRDE	ADvise Reason for Delay
ADRNDCK	ADiRoNDaCK
ADRS	A Departmental Reporting System
ADRT	Alternate Departure Route
Ads	Address
ADS	Air Defense Sector
ADS	Applications Development System

ADS	Audio Distribution System
ADS	Automatic Dependent Surveillance
ADSAS	Air-Derived Separation Assurance System
ADSPN	Advise DiSPosition
ADTAC	Air Defense Tactical Air Command
ADTI	ARTS Departure Transfer Interval (parameter)
ADTR	Acquisition phase Demonstration & Test Requirements
ADU	Application Data Unit
ADU	Azimuth Distribution Unit
ADV	ADVise
ADVALT	ALlOtmEnt ADVice
ADVC	ADViCe
ADVCTN	ADVECTION
ADVM	Alert Delete Validation Mask (parameter)
ADVN	ADVAnCed
ADVY	ADViSorY
ADW	Air Defense Warning
ADZ	ADvise
ADZAR	ADvise ARrival
ADZY	ADviSorY
AE	Acquisition Engineering
AE	Airport Equipment
AE	Application Entity
A&E	Architectural and Engineering
A&E	Architecture and Engineering
A/E	Architecture and Engineering
AED	Airport and Environmental Data
AEEC	Airlines Electronic Engineering Committee
AEH	Atmospheric Electrical Hazard
AEM	Aircraft and Engine Mechanic
AEM	Airport Equipment Management
AENG	Airways ENGiNeer
AER	Approach End Runway
AERA	Automated En Route Air traffic control
AERO	AERONautical
AEROSAT	AERONautical SATellite program (experimental)
AEVAC	Air EVACuation
AEW	Airborne Early Warning
AF	Advanced Functions
A/F	Airfile
AF	Air Force
AF	Airway Facilities
AF	Area Forecast
AF	Audio Frequency
AF	Flow Control Amendment information (message ID)
AFB	Air Force Base
AFC	Advanced Flow Control
AFC	Automatic Frequency Control
AFCC	Air Force Communications Command (military)
AFCMD	Air Force Contract Management Division
AFCP	Advanced Flow Communication Service

AFCS	Air Force Communications Service
AFCT	AFfeCT
AFD	Airport Facility Directory
AFD	Airway Facilities Division
AFDI	Arrival Flight plan Drop Interval (parameter)
AFDK	After Dark
AFFF	Aqueous Film-Forming Foam
AFGL	Air Force Geophysical Laboratory
AFGWC	Air Force Global Weather Central
AFI	Aircraft Frequency Indicator
AFIL	Air-FILed flight plan
AFIL	FLight plan filed in the Air (ICAO)
AFIO	FAA Authorization For Intercept Operations
AFIRM	AffIRMative
AFIS	Aerodrome Flight Information Service (ICAO)
AFIS	Automatic Flight Inspection System
AFJ	Air Force Jet
AFLC	Air Force Logistics Command
AFM	AFfirM (ICAO)
AFM	Affirmative (ICAO)
AFM	that is correct (ICAO)
AFM	yes (ICAO)
AFM	Area Flow Management
AFM	Arrival Flow Management
AFMS	Automatic Flight Management System
AFNEO	Air Force NOTAM Exchange Office
AFOS	Automated FOrcasting System
AFOS	Automation of Field Operations and Services (NWS)
AFPL	APULS Failing to Poll LDN (parameter)
AFPRO	Air Force Plant Representative's Office
AFR	Air Force Regulation
AFREP	Air Force REPresentative to FAA
AFRT	Air FREight
AFS	Aeronautical Fixed Service
AFS	Airway Facilities Sector
AFS	Airway Facilities Service
AFSATCOM	Air Force SATellite COmmunications system
AFSC	Air Force Systems Command
AFSC	Airway Facilities Chief
AFSCA	AFSS Channel Assignment
AFSCF	Air Force Satellite Control Facility
AFSD	Arrival Fix Search Distance (parameter)
AFSFA	Airway Facilities Sector Field Area
AFSFO	Airway Facilities Sector Field Office
AFSFOU	Airway Facilities Sector Field Office Unit
AFSFU	Airway Facilities Sector Field Unit
AFSM	Availability of the (ACCC) Full Service Mode
AFSO	Airway Facilities Sector Office
AFSS	Automated Flight Service Station
AFSSWS	AFSS Work Station
AFT	AFTer
AFTN	Acronautical Fixed Telecommunications Network

AG	Air Ground
A/G	Air-to-Ground
AGA	Aerodromes, air routes and Ground Aids (ICAO)
A/C/A	Air-to-Ground-to-Air
AGACS	automatic Air/Ground Air Communication System
AGC	Automatic Gain Control
AGCS	Air/Ground Communications System
AGE	Airspace Ground Equipment
A-GEAR	Arresting GEAR
AGL	Above Ground Level
AGN	AGain
AGR	AGRee
AGRMT	AGReeMenT
AGS	ACCC Global SMMX
A/H	Already Had
A/H	Alter Heading
Ab	Ampere hour
AH	Availability of the system's Hardware
AHCH	Automatic Handoff Center High (parameter)
AHCL	Automatic Handoff Center Low (parameter)
AHD	AHead
AHead	Assigned Heading
AHI	Automatic Handoff Initiation
AHMH	Automatic Handoff Initiation High (parameter)
AHML	Automatic Handoff Initiation Low (parameter)
AHU	Air Handling Unit
AI	Action Item
AI	Amend Itinerary (message ID)
AI	Analog Input
AI	Arrival approved request for IFR flight
AI	Articulation Index
AI	Artificial Intelligence
AIA	Advise If Able
AIA	American Institute of Aeronautics
AIAA	American Institute of Aeronautics and Astronautics
AIAATSC	All International Air Traffic Switching Centers
AIB	ATrline B
AIC	Aeronautical Information Circular (ICAO)
AID	Aircraft ID
AID	Airport Information Desk
AIDES	Automated Interactive Design and Evaluation System
AIDS	Accident Incident Data System
AIDS	Automatic Initiation Distance Search (parameter)
AIF	Airport Improvement Fund
AIFP	Activate IFR Flight Plan
AILS	Automatic Instrument Landing System
AIM	AAS Intermediate Milestone
AIM	AIDES Interactive Metrics
AIM	Airman's Information Manual
AIMS	ATCRBS Improved Mark XII System
AIP	Aeronautical Information Publication (ICAO)
AIP	Airport Improvement Program

AIR	AFOS mnemonic for "AIRMET"
AIRAC	Aeronautical Information Regulation And Control
AIRAD	AIRman ADVisory
AIRCOMNET	Air Force COMMunications NETwork
AIRDISPOFF	Airline DISPatch OFFice
AIREP	Air REPort (ICAO)
AIREP	Aircraft meteorological REPort
AIREP	AIR REPort
AIREP	collection of PIREPs
AIREPS	Airborne pilot REPortS
AIREQUIP	AIRport EQUIPment
AIRFL	Air ReFueLing
AIRFL	Aerial ReFueLing
AIRMET	AIRmen's METeorological information
AIROPNET	AIR CPerations NETwork
AIRPAC	Advisor for the Intelligent Resolution of Predicted Aircraft Conflicts
AIRROTBCON	AIRport ROTating BeaCON
AIRS	Airport Information Retrieval System
AIRTAX	AIR TAXI name record (adaptation record)
AIRTRIPS	AIR Traffic Rules Information Processing System
AIS	Aeronautical Information Service
AIS	Aeronautical Information Specialist
AIS	Aeronautical Information System
AIS	Automation Information System
AISIM	Automated Interactive Simulation Model
AITT	Automatic Track Initiation Table
AITT	discrete code initiation lead time (parameter)
AIU	Airport Interface Unit
AKCP	Alphanumeric Keyboard Parity Counter
AL	Annual Leave
AL	Approach and Landing
ALA	ALighting Area (ICAO)
ALACFO	ALL Air Carrier Field Offices
ALADLO	ALL Air Defense Liaison Officers in region
ALAFFO	ALL Airway Facilities sectors and Field Offices
ALANO	ALL Accident Notice Offices
ALARTC	ALL ARTCCs in region
ALAT	ALL Air Traffic service personnel in region
ALATAS	ALL Air Traffic Supervisors in region
ALATF	ALL Air Traffic Field Facilities
ALATFO	All Air Traffic Field Offices
ALC	ALtitude at Coordination fix (FDE tower data)
ALC	Assistant Local Controller
ALCKT	ALL-Circuit message
ALCS/C	ALL AT Combined Stations/Centers in region
ALCS/T	ALL AT Combined Stations/Towers in region
ALCT	ALtitude Conformance limits (parameter)
ALCT	Attempt to LoCaTe
ALD	ALarm Driver
ALDA	Air Line Dispatchers Association
ALERFA	ALERT Phase

ALF	ALoFt
ALFAA	ALL FAA field offices and personnel
ALFAB	All FAA offices on service B
ALFSFL	ALL Flight Standards Field offices
ALFSS	ALL Flight Service Stations in region
ALG	Acquisition and Material Service
ALG	ALoNg
ALGHNY	ALleGHenY
ALIATSC	ALL International Aeronautical Telecommunications Switching Centers
ALIFO	ALL International Field Offices
ALIPSS	ALL International Flight Service Stations in region
Alloctn	Allocation(s)
ALNMT	ALignMenT
ALNOT	ALert NOTice
ALP	Airport Layout Plan
ALPA	AirLine Pilots Association
ALPH	ALtitude Position smoothing constant (parameter)
ALQDS	ALL QuaDrants
ALR	ALeRting message (ICAO)
ALRAFAC	ALL Radar Air traffic control FACilities in region
ALRGN	ALL RAdiOn offices
ALS	Approach Lighting System
ALSEC	ALL SECTors
ALSF	high-intensity Approach Lighting system with Sequenced Flashers
ALSF2	high-intensity Approach Lighting system with Sequenced Flashers II
ALSIP	Approach Lighting System Implementation Program
ALSIP	Approach Lighting System Improvement Program
ALS/M	Approach Lighting System/Medium intensity
ALSTR	ALtitude STRatification (adaptation record)
ALT	ALTitude
ALT	assigned ALTitude
ALT Set	ALTimeter Setting
ALTA	ALberTA
ALTI	Actual Landing Time Interval
ALPTM	ALTIIMeter/weather station record (adaptation record)
ALTLM	ALTitude LIMits
ALTM	ALTIIMeter setting (FDE tower data)
ALTN	ALTErNate
ALTN	ALTErNate (aerodrome) (ICAO)
ALTN	ALTErNating (light alternates in colour) (ICAO)
ALTP	ALTErNate airPorT
ALTR	ALTErNate printer load capacity
ALTRV	ALTitude ReserVation
ALTRV APREQ	ALTitude ReserVation APProval REQuest
ALTRV APVL	ALTitude ReserVation APProVAL
ALTWR	ALL air traffic control ToWErs in region
ALTx	ALtitude high/low (AHI) (parameter)

ALU	Arithmetic-Logic Unit
ALUTIN	ALeUTian
ALWF	ActuaL Wind Factor
ALWOS	Automated Low-cost Weather Observation System
A&M	Aeronautical and Meteorological
A&M	Aeronautical and Meteorological display
A/M	Aeronautical and Meteorological display
AM	AMendment (message ID)
AM	Amplitude Modulation
AM	Ante Meridian
AM	Area Manager
A/M	Area Manager
AMA	Area Minimum Altitude (ICAO)
AMA	Assistant Manager for Automation
AM-A	Assistant Manager for Automation
AM-AP	Assistant Manager-Airspace and Procedures
AMB	Aircraft Maintenance Base
AMB	Airway Modernization Board (predecessor to NAFEC/FAATC)
AMB	AMBiiguity
AMC	Army Material Command
AMCL	AMended Clearance
AMCS	Adjacent Manual Center Strip
AMD	Aeronautical and Meteorological Display
AMD	AMend
AMD	AMendEd (message type designator; used to indicate amended meteorological message) (ICAO)
AMCAR	Aircraft Meteorological Data Relay
AMDT	AMendment
AMDT	AMount of Delay (Time) at meter fix (parameter)
AME	Aviation Medical Examiner
AMECH	Account MECHanical
AMGR	Airport ManaGeR
AMIC	Area Manager In Charge
AMIC	Assistant Manager In Charge
AMIS	Aircraft Management Information System
AMIS	Aircraft Movement and Information Service
AMIS	Air Movement Identification Service
AMIS	MISsed datum altitude position smoothing constant (parameter)
AM-MO	Assistant Manager-Military Operations
AMOS	Automated Meteorological Observing Station
AMOS	Automated Meteorological Observing System
AMOS	Automatic Meteorological Observing System
AMP	Aircraft Management Program
AMP	AMphenol Corporation
AM-PP	Assistant Manager-Plans and Programs
AM-PS	Assistant Manager-Program Support
AMPS	ATCRBS Monopulse Processing System
AMPSS	Administrative Management and Program Support System
AM-QA	Assistant Manager-Quality Assurance

AMR	Area Management Region
AMRF	AMended Route of Flight
AMS	Aeronautical Mobile Services (ICAO)
AMS	Airspace Management System
AMS	American Meteorological Society
AMSAT	radio AMERICAN SATellite corporation
AMSL	Above Mean Sea Level (ICAO)
AMSS	Aeronautical Mobile Satellite Service
AM-T	Assistant Manager-Training
AMTI	Airborne Moving Target Indicator
AM-TM	Assistant Manager-Traffic Management
AMTM	Assistant Manager for Traffic Management
AM-TS	Assistant Manager-Technical Support
AMVER	Automated Mutual assistance VESSEL Rescue system
AN	Air Navigation
AN	Airspace Index (table)
A/N	AlphaNumeric
ANF	Air Navigation Facility
ANG	Air National Guard
ANG	AlphaNumeric Generator
ANK	AlphaNumeric Keyboard
ANLYS	ANALYSIS
ANMACS	Automated Network Monitor And Control Subsystem
ANMC	Automated Network Management Control
ANME	Automated Network Management Equipment
ANMP	Account Network Management Program
ANMS	Automated Network Management System
AN/NPX-14	military beacon interrogator
ANOVA	ANalysis of VARIance
ANP	AlphaNumeric control Panel
ANRA	Air Navigation Radio Aids
ANS	Air Navigation System
ANS	American National Standard
ANS	ANSwer (ICAO)
ANSI	American National Standards Institute
ant	antenna
ANTS	Automated NAS Tracking System
AO	Administrative Officer
AOA	At Or Above
AOR	Adder Out Bus
AOB	At Or Below
AOC	Airport Operating Certificate
AOC	Aerodrome Obstacle Chart
AOCI	Airport Operators Council, Incorporated
AOCI	Airport Operators Council International
AOCP	AAS AIC Operational
AOE	Airport of Entry
AOPA	Aircraft Owners and Pilots Association
AOS	All Other Sources
AOS	Automated Observation System
AP	Acquisition Paper
AP	Acquisition Phase

AP	Acquisition Plan
V/P	Address Parity
AP	Air Position
A&P	Airframe and Powerplant
AP	AirPlot
AP	AirPort (ICAO)
AP	Airspace Probe
AP	ANOMALOUS Propagation
AP	Application Process
AP	Assumed Position
AP	Attached Processor
AP	Automation Programmers
APA	All Points Addressable
APC	Acquisition Processing Cabinet
APC	Area Positive Control
APCB	Approach Control Boundary check constant (parameter)
APCH	APproaCH
APD	Azimuth Position Data
APDI	ARTS III Proposed Drop Interval
APE	arrival, departure, or overflight code
APG	Azimuth Pulse Generator
API	Air Position Indicator
APL	AirPort Lights
APL	Applied Physics Laboratory
APL	A Programming Language
APLAN	Active/inactive PLAN (adaptation record)
APM	Associate Program Manager
APOLLO	manufacturer of Flow Control Computer
APP	APPendix
APP	NAS APPLications software
APP	APProach control (ICAO)
APP	APProach control office (ICAO)
APP	APProach control service(ICAO)
APPA	Advise Present Position and Altitude
APPL	APPLication
APR	Agency Procurement Request
APR	Airport Program Report
APR	Automated Problem Resolution
AprCl	Approach Clearance
APREQ	APproval REQuest
APRP	APULS Poll Reroute Parameter (parameter)
APRX	APpRoXimate (ICAO)
APRX	APpRoXimately (ICAO)
APS	Acquisition and Processing Set
APS	Airborne Pulse Search radar
APS	Airspace and Procedures Specialist
APS	Airway Planning Standard
APSA	Alternate Preferential Storage Area
APSB	Sector conflict Alert Boundary (parameter)
APSE	Ada Programming Support Environment
APSG	After PaSSing

APSOw	AP phase Statement of Work
APt	AirPort
APt	AirPort table
APU	Auxiliary Power Unit
APJHS	Automatic Polling Unit, High Speed
APJLS	Automatic Polling Unit, Low Speed
APV	APproVal (ICAO)
APV	APproVe (ICAO)
APV	APproVed (ICAO)
APVL	APproVAL
AQAFO	Aeronautical Quality Assurance Field Office
AQL	Acceptable Quality Level
AR	Acceptance Review
AR	Administrative Request
A&R	Alert and Resolution display
AR	Altimeter Request (message ID)
AR	As Required
AR	Atlantic Route
AR	Attribute Register
AR2	ARTS-II production system (case file designator)
ARA	Airborne Radar Approach
ARAC	Army Radar Approach Control (military)
APAD	Altitude RADial
ARAP	Arrival Route Altitude Parameter (parameter)
ARAPPS	Advance Remote Area Precision Position System
ARB	Agency Review Board
ARB	Airport Rotating Beacon
ARB	ARTCC Boundaries (CWP)
ARB	ARTCC Boundaries (RWP)
ARBCN	Airway BeaCoN
ARC	Airlines Reporting Corporation
ARC	Air Rescue Center
ARC	Aviation Review Committee
Arch.	Architecture
ARCO	Canadian Airspace Reservation Coordination Office
ARCOD	ARRival COOrdination fix
ARCP	Air Refueling Control Point
ARCT	Air Refueling Control Time
ARD	Alert and Resolution Display
ARD	Automatic Release Date
ARDA	first filter threshold for Azimuth Registration Deviation (parameter)
ARDB	second filter threshold for Azimuth Registration Deviation (parameter)
ARDM	ATC Resource Data Maintenance
ARDP	Arrival Route Distance Parameter (parameter)
AREP	Air Refueling Egress Point
AREST	Availability of the REST of the (ACCC) subsystem
AREX	Air Refueling EXit
ARF	Airport Reservation Function
ARF	Aviation Route Forecast
ARFIX	ARRival FIX

ARFOR	ARea FORecast (ICAO)
ARIES	Airborne Receiver Interference Environmental Simulator
ARIES	Aircraft Reply and Interference Environment Simulator
ARIES	Aircraft Reply and Interrogation Environment Simulator
ARINC	Aeronautical Radio, INC. (a support contractor)
ARIP	Air Refueling Initial Point
ARL	AeRiaL
ARLD	Acceptable Run Length Deviation (primary test targets) (parameter)
ARLO	ARmy Liaison Officer
ARM	Antenna Rotation Monitor
ARM	Arrival Rate Metering
ARML	AirMail
ARMS	Airport Remote Maintenance Subsystem
ARMS	Airport Remote Monitoring System
ARNG	ARRaNGe (ICAO)
ARNOT	ARea NOTice
ARO	Airport Reservations Office
ARO	Air traffic services Reporting Office (ICAO)
ARP	Aerodrome Reference Point (ICAO)
ARP	Air RePORT (message designator) (ICAO)
ARP	Aircraft Reference Pulse
ARP	Airport Reference Point
ARP	Airport Reservations Position
ARP	Azimuth Reference Pulse
ARPA	Advanced Research Projects Agency (network)
ARPC	Air Refueling Control Point
ARPRS	Airspace Rules Processing and Reporting
ARPT	AIRPORT' (adaptation record)
ARQ	Automatic eRRor-correction eQipment
ARR	ARRival message (ICAO)
ARR	ARRive
ARRS	Aerospace Rescue and Recovery Service
ARS	Air Rescue Service (USAF)
ARS	Special Air Report (message type designator) (ICAO)
ARSA	Airport Radar Service Area
ARSR	Air Route Surveillance Radar
ARSR-1	Air Route Surveillance Radar, Model 1
ARSR-3	Air Route Surveillance Radar, Model 3
ARST	ARreSTing (specify part of aircraft arresting equipment) (ICAO)
ARSUP	ARea SUPervisor
ART	Automated Reasoning Tool
ARTC	Air Route Traffic Control
ARTCC	Air Route Traffic Control Center
ARTEMIS	a computerized scheduling tool (PERT, CPM)
ARTG	Azimuth Range Timing Group

ARTP ARTS III Accept Transfer Retransmission Parameter  
 (parameter)  
 ARTS Automated Radar Terminal System (ARTS-II,  
 ARTS-III)  
 ARU Airborne Radar Unit (military)  
 ARUN test message RUN length (for fixed primary test  
 targets) (parameter)  
 ARUNK ARRival UNKnown  
 ARVM Alert Redetection Validation Mask (parameter)  
 AS Address Space  
 AS airport Advisory Service  
 AS AirSpeed  
 AS Altimeter data Setting (message ID)  
 AS Alto-Stratus  
 AS Application System  
 AS Area Supervisor  
 AS Automation Specialist  
 AS Availability of the Software of the (ACCC)  
 subsystem  
 ASA Aircraft Separation Assurance  
 ASA Automated Separation Assurance  
 ASAP As Soon As Possible  
 ASAR Automatic Storage And Retrieval system  
 ASARC Aviation Systems Acquisition Review Committee  
 ASARC Aviation Systems Acquisition Review Council  
 ASAT Active Site Assignment Table  
 ASAT Automated Specification and Analysis Tool  
 ASB Automated System Build  
 ASC Acquisition and Signal Conditioning  
 ASC ADAS System Console  
 ASC ASCent (ICAO)  
 ASC ASCending (ICAO)  
 ASCC Aeronautical Satellite Control Center  
 ASCII American Standard Code for Information Interchange  
 ASCU Automatic Scanning Control Unit  
 ASD Aircraft Situation Display  
 ASD AirSpace Docket  
 ASDA Accelerate-Stop Distance Available  
 ASDAR Aircraft-to-Satellite DATA Relay  
 ASDE Airport Surface Detection Equipment  
 ASDM AirSpace Data Management  
 ASE And may Simultaneously Execute (in TDL process)  
 ASE Assistant Systems Engineer  
 ASFT Aeronautical Services Earth Terminal  
 ASF Area Support Facility  
 ASF Advanced Simulation Facility  
 ASG Automated Sciences Group, inc.  
 ASCO ASSigned  
 ASGN ASSIGN  
 ASGN request logical device ASSIGNment (message ID)  
 ASHRAE American Society of Heating, Refrigeration, and  
 Air conditioning Engineers

ASI	AirSpeed Indicator
ASI	Altimeter Setting Indicator
ASI	Altitude Setting Indicator
ASI	Aneroid Setting Indication
ASI	Association Status Indicator
ASIC	Area Supervisor In Charge
ASIP	AirSpace flight Inspection Pilot
ASL	Above Sea Level
ASLA	Altitude Stratification Level A (parameter)
ASLB	Altitude Stratification Level B (parameter)
ASLC	Altitude Stratification Level C (parameter)
ASLT	Advanced Solid Logic Technology
ASM	Assistant Sector Manager
ASM	Auxiliary Storage Manager (service division)
ASMC	AAS System Monitor and Control
ASNA	Aviation Safety and Noise Abatement act
ASCA	Army School of the Air
ASCS	Automated Surface Observation System
ASP	AAS Sector Processing
ASP	Airport System Plan
ASP	AirSpace
ASP	Arrival Sequencing Program
ASP	Attached Support Processor
A-Spec	in AAS, the SLS for DCP (FAA-ER-13C-005D)
A-Spec	system requirements Specification
ASPH	ASPHalt
ASR	Airport Surveillance Radar
ASR-4	Airport Surveillance Radar, Model 4
ASR-5	Airport Surveillance Radar, Model 5
ASR-6	Airport Surveillance Radar, Model 6
ASR-7	Airport Surveillance Radar, Model 7
ASR-8	Airport Surveillance Radar, Model 8
ASR-9	Airport Surveillance Radar, Model 9
ASR9SURV	ASR-9 SURVeillance
ASR9WTHR	ASR-9 WeaTHeR
ASR	Automated Speech Recognition
ASR	Automatic Send/Receive
AS/R	Automatic Send/Receive
ASR	Auxiliary storage Save/Restore
ASRS	Airport Surface Radar Surveillance
ASRS	Automated Scheduling and Reporting System
ASRS	Aviation Safety Reporting System
ASRVT	AAS System Requirements Validation Team
Assmt	Assessment
ASSOC	ASSOCiated
ASSS	Advanced Sector Suite System
Assy	Assembly
AST	Advanced System Technologies (a support contractor)
AST	Aggregate Statistics Tool
ASTA	Airport Surface Traffic Automation
ASTC	Airport Surface Traffic Control

ASTM	American Society for Testing and Materials
ASTRO	ASTROdynamics
ASTRO-DABS	Aeronautical Satellite-based Discrete Address Beacon System
ASU	Alarm Switchover Unit (NADIN)
ASU	Automatic ringdown
ASV	Airline Schedule Vendor
ASW	Anti-Submarine Warfare (military)
AT	Air Traffic
AT	Automatic Tracking
AT	NAS-to-ARTS message control (table)
ATA	Actual Time of Arrival
ATA	Advanced Tactical Aircraft
ATA	Airport Traffic Area
ATA	Air Traffic Assistant
ATA	Air Transport Association
ATAC	Advanced Technology Applications Corporation
ATAC	Air Traffic Assistant Chief
ATACC	Air Traffic Automation Coordinating Committee
ATACT	Air Traffic AERA Concepts Team
AIAD	ARTS III Arrival Delay
ATAF	Air Traffic/Airways Facilities
LIAC	NAS Technical Advisory Group
AIAMS	Air Traffic Administrative Management System
AIAPS	Automated Traffic Advisory and Planning System
AIAR	Above Transmitted And Received
AIARS	Advanced Tactical Air Reconnaissance System
AIARS	Automatic Traffic Advisory and Resolution Service
AIAS	Airspace and Traffic Advisory Service
ATAFT	Air Traffic AAS Test Team
ATBCB	Architectural and Transportation Barriers Compliance Board
ATBM	Airway/Terminal Building Maintenance
ATC	Air Traffic Control
ATC	Air Traffic Controller
ATCA	Air Traffic Control Association
ATCAA	ATC Assigned Airspace
ATCAC	Air Traffic Control Advisory Committee
ATCBI	Air Traffic Control Beacon Interrogation
ATCC	Air Traffic Command Center
ATCRBS	Air Traffic Control Radar Beacon System
ATCS	Air Traffic Control Specialist
ATCT	Air Traffic Control Tower
ATD	Actual Time of Departure (TCAD)
ATD	Air Traffic Division
ATD	Along-Track Distance
ATD	Associate Technical Director
ATD	regional Air Traffic Division
ATDI	ARTS Track Drop Interval (parameter)
ATDD	Air Taxi Domestic Departures
ATDO	Air Taxi Domestic Overflights
ATDO	Airways Technical District Office

ATE	Automatic Test Equipment
ATF	Advanced Tactical Fighter
ATFC	Account Traffic
ATID	Auto Track Initiated Display (parameter)
ATIP	ARTS III Transfer Initiate retransmission Parameter (parameter)
ATIS	Automatic Terminal Information Service
ATIS	Automated Terminal Information Service
ATIS	Automated Terminal Information System
ATIS	Automatic Traffic Information Service
ATLC	ATLantic
ATM	Aircraft and Track Management
ATM	Air Traffic Manager
ATM	Area Traffic Manager
ATM	AuthenTication Manuever
ATMCT	ATtEmPt to Contact
ATMS	Advanced Text Management System
ATMSMN	Air Traffic Management System Material Need
ATO	Aeronautical Telecommunications Officer
ATO	Air Traffic operations Officer
ATO	Alternate Technical Officer
ATO	Associate Technical Officer
ATOD	Air Taxi Oceanic Departures
ATOG	Allowable TakeOff Gross weight
ATOC	Air Taxi Oceanic Overflights
ATP	Actual Time of Penetration
ATP	Alarm Termination Panel
ATP	At (Time or Place) (ICAO)
ATP	Authority To Proceed
ATP	Authorized To Proceed
ATPAC	Air Traffic Procedures Advisory Committee
ATR	Acceptance Test Review
ATR	Address Translation Register
ATR	Air Traffic Requirements
ATR	Air Transport Rating
ATRAM	Aerial TRAMway
ATRD	Acquisition phase Test Requirements Document (AAS)
ATRD	Automatic TRack initiation Dimension (parameter)
ATREP	Air Traffic REPresentative
ATRK	Along-TRack error
ATRLS	Actual Time of ReLaaSe
ATRT	Acceptance Test Review
ATRP	ARTS III Transmission Retry Parameter (parameter)
ATS	Air Traffic Service
ATSCC	Air Traffic System Command Center
ATSCCP	Air Traffic Service Contingency Command Post
ATSD	Air Traffic Situation Display
ATSI	Automatic Tracking Subcycle Interval (parameter)
AT&T	American Telephone and Telegraph
ATT	American Teletype and Telegraph
ATT	ATTachment
ATTD	Audio-Taped Time Display

ATTM	At This Time
ATTN	ATTeNtion (ICAO)
ATTRVT	Air Traffic Transition Requirements Validation Team
ATUI	ARTS III Track Update Interval (parameter)
ATWS	Air Traffic Watch Supervisor
ATZ	Aerodrome Traffic Zone (ICAO)
AUGMTN	AUGMentation
AUGRA	AUthority GRANted
AUR	Analysis Underway Report
AURBO	AURora BOREalis
AUREQ	Authority is REQuEsted
AURP	Analysis Under Way RePort
AUS	AUTomation Specialist
AUS/DSP	AUTomation Specialist/automation programmer
AUT	AUTomation (case file designator)
AUTO	AUTomatic
AUTOB	AUTomatic weather reporting system
AUTODIN	AUTomatic Data Interchange Network
AUTODIN	AUTomated Digital Network
AUTOMN	AUTOMation
AUTOVON	AUTomated VOice Network
AUTOVON	AUTomatic VOice Network
AUTOVON	AUTomatic VOice switching Network
AUTOX	AUTomatic routing
AUTH	AUTHorization
AUTH	AUTHorized
AUW	All Up Weight (ICAO)
AUX	AUXiliary
AUX-DC	AUXiliary Display Controller
AUZ	AUthorize
AVANA (UTC)	ALTRV Approval Void for Aircraft Not Airborne by (time)
AVASIS	Abbreviated Visual Approach Slope Indicator System (ICAO)
AVBL	AVailaBLE (ICAO)
AVBL	AVailaBility (ICAO)
AVC	Automatic Volume Control
AVER	AVERage
AVFP	Activate VFR Flight Plan
AVFPNO	pilot failed to Activate VFR/DVFR Flight Plan
AVFR	ARTS VFR inhibit indicator (parameter)
AVG	AVERage
AVGAS	AViaticn CAS-Line
AVIJ	ATIS Voice Interface Unit
AVL	Automatic Vehicle Location
AVM	Automatic Vehicle Monitoring
AVS	AViation Standards
AW	Advanced WESTAR
AWA	Advise When Able
AWACS	Airborne Warning And Control System (military)
AWANS	Aviation Weather And NOTAM System

AWAY	AirWAY route (adaptation record)
AWB	AWard fee Board
AWBE	Automatic Weather Broadcast Equipment
AWDBR	Alphanumeric Weather Data Base analysis Report
AWDS	Automated Weather Distribution System
AWE	Advise When Established
AWF	Aviation Weather Facility
AWG	American Wire Gauge
AWG	Average Wire Gauge
AWG	American Wire Guide
AWIPS-90	Advanced Weather Interactive Processing System for the 1990s
AWL	All-Weather Landing
AWN	Aviation Weather and NOTAM system (case file designator)
AWN	Aviation Weather Network
AWOL	Absent WithOut Leave
AWOP	All-Weather Operations Panel
AWOP	All-Weather Operations Plan
AWOS	Automated Weather Observation System
AWOS	Automatic Weather Observing/reporting System
AWOS	Automated Weather Observing System
AWP	Aviation Weather Processor
AWS	Air Weather Service (USAF)
AWS	Aviation Weather System
AWSS	Airborne Wind Shear System
AWT	Available Write Time
AWY	AirWAY
AXP	Adaptive cross Parity checking
AXPS	Air eXPress
AZ	AZimuth
AZ	Flow Control arrival message (message ID)
AZ/BAZ	AZimuth/Back AZimuth
AZM	AZimuth (ICAO)
AZRAN	AZimuth and RANge (radar)

B	Beacon (radar)
B	Beginning of precipitation
B	Bering Standard Time
B	Billion(s)
b	bit(s)
B	Block altitude indication
B	Blue (ICAO)
B	Brightness
B	Byte(s) (8 bits)
B Code	Beacon Code
BA	Balanced Asynchronous
BA	Braking Action (ICAO)
BAC	Below All Clouds
BAFO	Best And Final Offer
BAFVC	Bids Accepted for the Following VaCancies
BAL	BALance
BAL	Basic Assembly Language
BAJASM	BAL ASsembler (NOSS utility program)
BAN	Beacon AlphaNumerics
BAN	Binary ANgular measurement
BANS	BRITE AlphaNumeric Subsystem
BANS	BRITE AlphaNumeric System
BAP	Branch Analysis Program (test analysis tool)
BARA	Beacon Azimuth Range Analyzer
BARA	Beacon Azimuth Registration Analyzer
BARA	Beacon Azimuth Resolution Analysis (OS maintenance support program)
BAS	Basic AirSpeed
BASE	cloud BASE (ICAO)
BASIC	Beginners' All-purpose Symbolic Instruction Code
BASOPS	BASE Operations (military)
BAT	Basic Air Temperature
BAT	Basic Assurance Test
BATT	BATTery
BAZ	Back AZimuth
Bb	Background brightness
BB	flight plan data Base Analyzer subroutine (flight plan analysis subsystem)
BED	Ei-directional Bus Driver
BBPS	Beacon phase-encoded BlIPS/Scan output threshold (parameter)
BBU	Battery Backup Unit
BC	Back Course (ILS)
BC	Basic Control
BC	Beacon Code
BC	Beginning Climb
BC	Brightness Control
BC	British Columbia
BC	BroadCast
BC	Buffer Channel (NADIN)
BC	Bulk file Creation (message ID) (parameter)
BCAC	Bell Code Alarm Control

BCAG	Bell Code Alarm Gate
BCAS	Beacon Collision Avoidance System
BCD	Binary Coded Decimal
BCFC	Beacon phase-encoded Fail Count (parameter)
BCFG	Fog patches (ICAO)
BCH	Beach
BCKG	BackinG
BCM	Back Course Marker (ILS)
BCN	Backup Communications Network (Ethernet)
BCN	Beacon (aeronautical ground lighting) (ICAO)
BCN	Beacon code
BCPS	Battery Charger Power Supply
BCRD	Beacon Code Readout Distance
BCREQ	BroadCast REQuested
BCS	Backup Channel Switch
BCS	Boeing Computer Services
BCST	Beacon Code Sort (OS maintenance support program)
BCST	BroadCast
BCT	Branch on Count (instruction)
BCT	Boundary Crossing Time
BCTC	Buffer Content and Transmit Control register
BCTI	Buffer Content and Transmit Indicator control
BCTR	Binary Counter
BCW	Buffer Control Word
BCWP	Budget Cost of Work Performed
BCWP	Budget Cost of Work Planned
BCWS	Budget Cost of Work Scheduled
BD	Beginning Descent
BD	Bellamy Drift
Bd	Brightness display
BD	Bulk file Dump (message ID)
BDA	B DATA (automated service interchange system computer equipment) (case file designator)
BDA	Bermuda
BDAM	Basic Direct Access Method
BDAS	Beacon Data Acquisition Subsystem
BDAS	Beacon Data Acquisition System
BDAT	Beacon DATA (digitized)
B-DATA	Basic flight DATA
BDE	Batch Data Exchange
BDIS	automated Data Interchange System, (Service B)
BDIS	automatic Data Interchange System, (Service B)
BDIS	Service-B Data Interchange System
BDR	BoardER
BDRY	BounDaRY
BDS	Service B Data interchange System (operations) (case file designator)
BDSL	BiDs SoLicited
BEG	Bus Enable Gate
BEP	Back-End Processor (NADIN)
BER	Bit-Error Rate
BERC	maximum Beacon data Count (parameter)

BERP	BEacon Registration Printout
BETA	altitude change rate smoothing constant (parameter)
B&F	Budget and Finance
BF	Bulk storage Flight plan (message ID)
BFCAD	Basic Full Digital ARTS Display
BFDK	BEfore DARK
BFF	Blink Flip Flop
BFM	Basic Flight Maneuvers
BFO	Beat Frequency Oscillator
BFFC	Bulk Flight Plan Conversion
BFR	BEfore (ICAO)
BFTA	Beacon False Target Analysis (OS maintenance support program)
BFTA	Beacon False Target Analyzer
BGN	BeGAN
BGT	Benchmark Generation Tool
BHND	BEhind
BI	Band Index value
B/I	Batch Interactive
BI	Batch Interactive
BI	Beacon Interrogator
BIC	BUEC Interface Circuit
BICARSA	Billing, Inventory Control, Accounts Receivable, and Sales Analysis
BID	Bulk File ID
BIFR	Before entering IFR conditions
BIL	Basic Insulation Level
BINOVC	Breaks IN OVerCast
BINS	sort BIN Storage table
BINTA	Buffer INTER-facility input Adapter
BINTI	Buffered INTER-facility Input
BINTO	Buffered INTER-facility Output
BIOCH	Byte Input/Output CHannel
BIOS	Basic Input/Output System
BIP	Beacon Input Processing
BIPIE	Beacon Input Processing External Interrupt routine
BIT	Basic Instructor Training
Bit	Binary digit
Bit	Binary integer
BIT	Built-In Test
BITE	Built-In Test Equipment
BITS	Built-In Test Sequences
BKN	BrKer
Bksp	Backspace
B/L	BaseLine
BL	Between Layers
BL	BLank
BLC	BLanking Control
BLD	Bi-phase Level Decoder
BLD	phase I and II BuILDing system (case file designator)

Bldg	Building
SLE	Bi-phase Level Encoder
SLINE	fix posting LINE (adaptation record)
BLK	Block
BLK MPX CHAN	Block MultiPlexor CHANnel
BLKTIM	(erroneous indication of BLKTME)
BLKTME	BULK TIME change program (NCSS support program)
BLO	BeLOW clouds (ICAO)
BLSN	BLowing SNOW (ICAO)
BLUA	Briefing/Log on Usage Analysis report
BLW	BeLOW (ICAO)
BLZD	BlizzarD
BMx	intensity level Monitor for lights (where "x" is a value between 1 and 5)
BM	Beacon Modification
BM	Buffer Memory
BM	Bulk file amendment (Message ID)
BMAS	Business Management Accounting System
BMB	Buffer Memory Bus
BMBR	BoMBeR
BMET	Business Management Evaluation Team
BMEWS	Ballistic Missile Early Warning System
BMI	Buffer Memory Interface
BMS	MISsed datum altitude change rate smoothing constant (parameter)
BMP	Batch Message Processing
BMT	Beginning of Morning Twilight
BMS	Basic Meteorological Services
BMU	Buffer Memory Unit
BNC	Baby "N" type Connector
BND	BOUND
BNDRY	BOUNDaRY
BNF	Backus Naur Form
BNTH	BeNeATH
BOD	Beneficial Occupancy Date
BOD	Building Occupancy Date
BOE	Basis Of Estimate
BCM	Bill Of Material
BOMB	BOMBing (ICAO)
BOS	Basic Operational Storage
BOT	Beginning Of Tape
BOVC	Base Of Overcast
BP	Bulk Processing (message ID)
BPA	Basic Pressure Altitude
BPAK	Basic Partitioned Access Method
BPE	Basic Programmed Extensions
BPI	Bits Per Inch
BPI	Bytes Per Inch
BPM	Break Point Module
BPM	Bulk Performance Monitor
BPOC	Before Proceeding On Course
bps	bits per second

BPS	Bits Per Second
BPS	Bytes Per Second
BPT	Beginning Procedure Turn
BPT	Bisynch Pass-Through
BR	Bahamas Route
BR	Beacon Request (message ID)
BR	BRanch
BR	Branch (ICAO)
BR	Bulk flight plan Readout (message ID)
BRADS	Business Report Application Development System
BRAF	BRaking Action Fair
BRAG	BRaking Action Good
BRAN	BRaking Action Nil
BRAP	BRaking Action Poor
BRF	BRief
BRF	short (used to indicate the type of approach desired or required) (ICAO)
BRG	BeaRinG (ICAO)
BRG	Baud Rate Generator
BRG	Beacon Reply Group
BRG	BeaRinG
BRGHT	BRiGHT
BRIDE	Bright Radar Indicator Terminal Equipment
BRITE	Bright Radar Indicator Tower Equipment
BRITE	PVD brightness record (adaptation record)
BRK	BReaK
BRKEIC	BReaKs in Higher overCast
BRL/EEP	Bomb Release Line/End Exercise Point
BRM	BARometer
BRM	Binary Rate Multiplier
BRPO	Beacon Registration PrintOut
BRR	Baud Rate control Register
BRS	Black Ribbon Shift
BRT	Bus Receive Table
BRTQC	Beacon RTQC
B/S	Bits per Second
BS	Blowing Snow
BS	commercial Broadcasting Station (ICAO)
BSAF	Bids solicited As follows
BSC	Binary Synchronous Communication
BSD	flight plan Sign-off and Drop interrogator subroutine (flight plan analysis subsystem)
BSE	flight plan Bulk Store File
BSEI	Bulk Store Flush Interval (parameter)
BSHP	Beginning Standard Holding Position
BSI	British Standards Institute
BSTAP	Beginning Straight-In-APproach
BSM	Basic Storage Module
BSN	Bit Sequence Number
BSOP	Blank Strip Override Parameter (parameter)
B-Spec	requirements Specification
BSRAP	Beginning Standard Range APproach

BSRO	Begin Standard Refuel Orbit
BSTF	Bulk Store Tape File
BSTR	Bell System Technical Reference
BT	British Telecom
BT	Blink Timer
BTA	Basic True Altitude
BTAM	Basic Telecommunications Access Method
BTAM-ES	BTAM-Extended Support
BTD	Beacon Target Detector
BTE	Beacon Target Extractor
BTC	BTC, Inc. (a support contractor)
BTL	Beacon Tracking Level
BTL	BeTWEEN Layers (ICAO)
BTN	BeTWEEN
BTQ	Table and Queue interrogator subroutine (flight plan analysis subsystem)
BTR	BeTTER
BTRS	Beacon Target Report Stores
BTS	Batch Terminal Simulator
BTU	British Thermal Unit
BTWN	BeTWEEN
BUEC	BackUp Emergency Communications
BUF	BUFFer
BUIC	BackUp Interceptor Control
BUL	BULletin
BUMP	dUMMy filter table
BUR	BUREau
BUS	BUSiness
BVC	Beacon Video Conditioner
BVD	Beacon Video Digitizer
BW	Beam Width
BWI	Baltimore-Washington International airport
Bx	intensity level of lights (where "x" is a value between 1 and 5)
BX	Bulk flight plan cancellation (message ID)
BX.25	a CCITT communications protocol
BY	Blowing spray
BYD	BeYOND
BYTE	eight bits
BZR	BuZZer Celsius

C Central standard time  
 C Circling  
 C Collimation  
 C<sup>3</sup> Command, Control, and Communications  
 C Computer program product specification  
 C Conflict alert list  
 C Continental  
 C Coordinator  
 C Critical  
 C a high-level programming language  
 CA ATC Advises  
 CA Collision Avoidance  
 CA Common Answer  
 CA Conflict Alert  
 CA Conflict Alert on-off (message ID)  
 CA Contract Administration  
 CA Contract Award  
 C/A Course/Acquisition  
 CAA Civil Aeronautics Administration (predecessor to the FAA)  
 CAAL Collimation Azimuth Acceptance Limit (parameter)  
 CAAS Computer-Aided Approach System  
 CAB Civil Aeronautics Board  
 CAC Change to Approach Control  
 CAC Corrective Action Center  
 CACI Conflict Alert IFR/VFR Mode C Intruder  
 CACT Civil Air Carrier Turbojet  
 CAD Central Aircraft Dispatch  
 CAD Computer-Aided Design  
 CAD Conflict Alert Display update subprogram (display channel outputs subsystem)  
 CADAM Computer-graphics Augmented Design And Manufacturing program  
 CAD/CAM Computer-Aided Design/Computer-Aided Manufacturing  
 CADIZ Canadian Air Defense Identification Zone  
 CADM Computer-Aided Decision Making  
 CADO Chief, Airport District Office  
 CAED Computer-Aided Engineering Design  
 CAEG Computer-Aided Engineering Graphics  
 CAFB Fixed Beacon test target Azimuth (parameter)  
 CAFP Fixed Primary test target Azimuth (parameter)  
 CAH Current Altitude High  
 CAI Computer-Aided Instruction  
 CAI Computer-Assisted Instruction  
 CAI Contractor Acceptance Inspection  
 CAI Cost Accounting Instruction  
 CAIS Comprehensive Airman Information System  
 CAISD Conflict Alert Immediate Summary Display  
 CAK CRD Acknowledge Key  
 CAL Current Altitude Low  
 Calc Calculate  
 CALCOMP a plotting device

CAM	Cache Memory
CAM	Canadian Armed Force Transport Command
CAM	Cost Account Manager
CAMI	Civil AeroMedical Institute
CAMP	Clock AMplifiers
CA/MSAW	Collision Alert/Minimum Safe Altitude Warning
CA/MSAW	Conflict Alert/Minimum Safe Altitude Warning
CAN	CANada
CANFORCE	CANadian Armed FORCES
CANO	Catalog Number
CANOT	CANadian NOTAM
CAO	Change of Appointing Office
CAOS	Configuration Analysis Orders Table
CAP	Civil Air Patrol
CAP	Cost Account Package
CAP	Cost Account Planning
CAP/IS	Combined Approach Control/International Station
CAPPI	Constant Altitude Plan Position Indicator
CAPR	Conflict Alert Pair Retest limit (parameter)
CAPS	Capacity Analysis and Planning System
CAPS	Cost Account Planning Sheet
CAPT	CAPTain
CAR	Conformance Assessment Report
CAR	Controller-Assisted Resolution
CARA	Check AREa Airports
CARF	Central Altitude Reservation Facility
CARF	Central Altitude Reservation Function
CARIB	CARIBbean
CARL	Collimation Range Acceptance Limit (parameter)
CARU	Canadian Airspace Reservation Unit
CAS	Calibrated Air Speed
CAS	Collision Avoidance System
CAS	Commercially Available Software
CAS	Contract Administration Services
CAS	Contract Administration Staff
CASCDS	CASCaDeS
CASE	Common Application Service Elements
CASE	Computer-Aided Software Engineering
CASFO	Civil Aviation Security Field Office
CASF	Classified Air Speed (parameter)
CAT	CATegory
Cat-(n)	Category-(n) (IIS)
CAT	Clear-Air Turbulence
CATB	Common Active Track Buffer
CATCH	Civil Air Traffic Coordination and Handling
CATEGORY	CATEGORY recording record (adaptation record)
CATX	Climb And cross
CAUFN	Caution Advised Until Further Notice
CAVOK	Cloud And Visibility OK
CAVU	Clear And Visibility Unlimited
CAW	Channel Access Word
CAW	Channel Address Word

CAWS	Common Aviation Weather Subsystem
CB	Circuit Breaker
Cb	Cumulonimbus (cloud)
CBAS	Cost/Benefit Analysis System
CBB	Contract Budget Base
CBBS	Channel Back-to-Back Switch
CBC	FVD Beacon Code selection subprogram (track data processing subsystem)
CBFD	Fixed Beacon test target Codes (parameter)
CBI	Computer-Based Instruction
CBIL	Common Bulk Items List
CBIPO	Custom-Built Installation Process Offering
CBL	CaBLE (case file designator)
CBMAM	CumulonimBUS MAMma
CBO	Congressional Budget Office
CBRT	CDC automatic aBoRT request message (SE to CDC message)
CBS	Cost Breakdown Structure
CBT	Computer-Based Training
CBU	Console BackUp
CBX	Computerized Branch eXchange
CC	Cable Closet
CC	Carbon Copy
CC	Central computer Complex supervisor
CC	Common Console
C/C	Common Console
CC	Communications Console
CC	Communications Controller
CC	Configuration Console
CC	Configuration Control
CC	Cursor Counter
CCA	Channel-to-Channel Adapter
CCA	Circuit Card Assembly
CCA	Collimation Correction Angle
CCA	Continental Control Area
CCAB	Change Control And Build
CCB	Change Control Board
CCB	Configuration Control Board
CCC	Central Computer Complex
CCC	Change and Configuration Control
CCC	Communications Control Center (regional)
CCC	Configuration and Change Control
CCC	Consolidated Central Catalog
CCCP	Contractor's Configuration Control Board
CCCH	Host Central Computer Complex
CCCI	Command, Control, Communications, and Intelligence
CCCM	Central Computer Complex Module
CCD	Change Control Decision
CCD	Change Control Division
CCD	Configuration Control Decision
CCD	Configuration Control Directive
CCD	Consolidated Cab Display

CCDC	Common Console Diagnostics/Certification
CCDE	Common Console Display Element
CCDM	Common Console Display Monitor
CCE	Common Commercial Equipment
CC/ESI	Common Console/EDARC System Interface
CCF	Channel Control Function
CCF	Comment Control Form
CCG	Check Character Generator
CCG	Contract Coordination Group
CCHHR	absolute disk address (cylinder/cylinder/head/head- d/record)
CCIN	Common Control Unit Interface
CCIR	Consultative Committee for International Radio
CCITT	Consultative Committee for International Telegraph and Telephone
CCITT	International Telegraphic and Telephone Consultative Committee
CCKD	Character Clock generator and Driver
CCL	Convective Condensation Level
CCLDS	Clear of CLOUDS
CCLKOB	Counter CLockwise OrBit
CCM	Communication Concentrator Module (MCCP/MMC)
CCM	Configuration Control Management
CCM	Configuration Control Monitor
CCMS	Central Control and Monitor System
CCMS	Climate Control Monitoring System
CCMS	Command, Control, and Monitoring System
CCMS	Configuration Control Management System
CCOS	Common Console Operating System
CCP	Common Console Processor
CCP	Configuration Control Plan
CCP	Contingency Command Post
CCP	Contract Charge Proposal
CCPN	Certification Previous CPMI minute threshold (parameter)
CCPO	Certification Previous minute CPU threshold (parameter)
CCR	Configuration Control Register
CCRU	Complete CREW
CCRZ	Climb and CRUISE
CCS	Common Console Simulator
CCSA	Common Control Switching Arrangements
CCSF	Configuration Control Support Facility
CCSS	Common Console Processor System Services (IBM CSCI 2, AAS)
CCSS	Configuration Control Subsystem
CCT	Climb Completion Time
CCTLR	Chief ConTroller
CCTR	Character CounTer
CCTS	CDRL Comsent Tracking System
CCTV	Closed-Circuit TeleVision
CCU	Central Control Unit

CCU	Communication Control Unit
CCUS	Cleared CUSoms
CCV	Control Configured Vehicle
CCW	Channel Command Word
CCW	Coded Continuous Wave
CCW	Counter Clock Wise
CCW	Counter Clockwise Wrap
CCWP	Controllers' CRD waiting Period (parameter)
CD	Civil Defense
CD	Clearance Delivery (FAA ATCT position) (see FD/CD)
CD	Clearance Directive
CD	Common Digitizer
CD	Conceptual Design
CD	Control Document
CD	Controller and Driver
CD2	dual Common Digitizer
CD-2	Common Digitizer-2
CD-2A	Common Digitizer-2A (long Range)
CD-2D	Common Digitizer-2D (short Range)
CDA	Channel Device Address
CDA	DARC update processing subprogram (inquiry processing subsystem)
CDAD	Collimation Data Azimuth Deviation (parameter)
CDAD	CRA Design Advisory Driver
CDB	Character Definition Block
CDBS	Configuration Data Base System
CDC	Call-Directing Code
CDC	Computer Display Channel
CDC	Computer Display Channel operational software
CDC	Control Data Corporation
CDCM	CDC Module
CDCMNT	CDC MaintEnance program (NAS Maintenance support program)
CDCMODC	CDC MODC site parameter record (adaptation record)
CDCS	CDC Summary printout interval (parameter)
CDCS	radar Display Channel Summary printout interval (parameter)
CDD	Common Data Directory
CDE	Computer Display Element
CDE	Computer Display Equipment
CDE	Contents Directory Entry
CDFNT	Cold front
CDG	Course Design Guide
CDI	Calculated Delay Interval
CDI	Calculated Delay Time
CDI	Course Deviation Indicator
CDL	Clearance Directive List
CDL	Console Data Link
CDM	Controller Display Module
CD/MAR	Common Digitizer/Minimally Attended Radar
CDMO	Configuration Data Management Operation
CDO	Communications Duty Office

CDP	Common Digitizer Processing
CDP	flight plan Data Printout subroutine (inquiry processing subsystem)
CDPROC	Common Digitizer PROCESSing
CDR	Card Data Recorder
CDR	Climb/Descent Rate (in dynamic SIM flight)
CDR	Continuous Data Recording
CDR	Critical Data Recording (ARTS)
CDR	Critical Design Review
CDR	IOT final dispatcher subprogram (inquiry processing subsystem)
CDRD	Collimation Data Range Deviation (parameter)
CDRL	Contract Data Requirements List
CDRL	Contract Deliverable Requirements List
CDRL	Contractor's Data Requirements List
CD-ROM	Compact Disk Read Only Memory
CDRS	CDC Data ReSend (parameter)
CDRS	Continucus Data Recording System
CDRW	CDR software Walk-through
CDS	Central Dispatch System
CDSE	Computer-Driven Simulation Environment
CDSIM	Common Digitizer SIMulator
CDSS	minimum collimation Sample Size (parameter)
CDT	Calculated Delay Time
CDT	Channel Definition Table
CDT	Console Data Terminal
CDT	Controlled Departure Time
CDT	Customized Departure Time
EDTT	Cockpit Display of Traffic Information
CDT SMS	Console Data Terminal System Monitor Station
CDU	Control Display Unit
CDU	Coolant Distribution Unit
CE	Communications Equipment
CE	Compute Element
CE	Computing Element
CE	Customer Engineer
CEC	CEntiCycle
CEC	Common Equipment Cabinet
CECT	Computing Element Control Table
CED	Computer Entry Device
CED	Control Entry and Display
CED	Controller Entry Device
CEDD	Computer Entry/Display Device
CEDP	Computer Entry Device Parity Counter (parameter)
CEL	CEntiLane
CELNAV	CELEstial NAVigation training
CEN	CENtral processor
CENPAC	CENtral PACific
CENRP	CENter Radar ARTS Presentation
CENT	CENTer
CENTREX	CENTRal EXchange
CEO	Chief Executive Officer

CEP Central East Pacific  
 CEP Circular Error Probable  
 CEPT Conference for European Postal and  
 Telecommunication  
 CEQ Communications general (case File designator)  
 CEQ Council on Environmental Quality  
 CER Climb En Route  
 CER Conformance Evaluation Report  
 CER Cost Estimating Relationship  
 CERAP Combined Center/Radar Approach Control  
 CERCE Computer Entry/Readout Common Equipment  
 CERCE Computer Entry/Readout Equipment  
 CERTIF CERTIFICATION  
 CES Cost Estimating System  
 CEST Core ESTimation program (NOSS DR&A program)  
 CET Computer Entry Tester  
 CET Cumulative Elapsed Time  
 CEU Compute Element Utilization  
 CF Canadian Forces  
 CF Center Field  
 CF Central Field  
 CF Central Flow  
 CF Central Flow control information (message ID)  
 CF Control Fanout  
 CF Control Flow  
 CF Coriolis Force  
 CF2 Central Flow Control Function  
 CFAD Composite Flight Data processing  
 CFADC Canadian Forces Air Defense Command  
 CFAF Central Flow Automation Facility  
 CFAP Cleared For Approach  
 CFAR Constant False Alarm Rate  
 CFC Carbon Fiber Composite  
 CFC Central Flow Control  
 CFC Central Flow Control subprogram (interfacility  
 outputs subsystem)  
 CFCC Central Flow Control Complex  
 CFCC Central Flow Control Computer  
 CFCCC Central Flow Control Computer Complex  
 CFCE Central Flow Control Facility (at FAATC)  
 CFCE Central Flow Control Function (at Washington  
 Headquarters)  
 CFCE Central Flow Control Interval (parameter)  
 CFCON Codes CONnector Fix  
 CF/CRD Category Function/Computer Readout Device  
 CFCS Central Flow Control Service  
 CFCT Central Flow Bulk Flight Plan Read (parameter)  
 CFDP Compact Flight Data Processing System  
 CFE Contractor-Furnished Equipment  
 CFF Critical Flicker Frequency  
 CFFS Central Flow Function Switch (parameter)  
 CFIX Coordination FIX (FDE tower data)

CFM	ConFirm
CFMWP	Central Flow Meteorological Weather Processor
CFN	ConFiNe
CFP	Cold Front Passage
CFR	Code of Federal Regulations
CFR	Crash, Fire, and Rescue
CFSA	Coordination Fix Search Altitude
CFSR	Contract Funds Status Report
CFU	Control and Format Unit
CFW	Center Field Wind
CFWP	Central Flow Weather Processor
CFWSU	Central Flow Weather Service Unit
CFY	ClarIFY
CFZ	FZ builder subprogram (inquiry processing subsystem)
CG	Center of Gravity
C/G	Center of Cravity
CG	Character Generator
CG	Coast Guard
CG	Communications Gateway
CG	Composition Graph
CG	Console Group
CGA	Color Graphics Adapter
CGA	Configurable Gate Array
CGAS	Coast Guard Air Station
CGD	Computer-Generated Data
CGFF	Coarse Geographic Filter Frequency (parameter)
CGL	Circling Guidance Light(s) (ICAO)
CGLS	Coast Guard LORAN Station
CGR	Character Generator Register
CGSTN	CoNGeSTion
CGW	Communications GateWay
CH	CHannel
ch	chapter
CH	Clock Head
CH	Compass Heading
CHAN	CHANnel
CHANNEL	CHANNEL address record (adaptation record)
CHAP	CHAPter
CHAR	CHARacter
CHARC	CHARacteristic
CHC	CHanCe
CHD1	Color HeaDing 1 (parameter)
CHD2	Color HeaDing 2 (parameter)
CHG	CHAnGe
CHG	CHAnGe (modification) message (ICAO)
CHI	Cloud Height Indicator
CHI	Computer/Human Interface (see MMI)
CHIN	CHannel INterface
CHK	CHecK
CHN	S/370 CHAnnel interface adapter
CHNL	CHAnnel

CHOP	CHangeOver Point (VOR)
CHORAS	Computer-Human Operational Requirements Analysis System
CHPID	CHannel Path IDentifier
CHRG	CHaRGe
CHSPK	CHeSaPeaKe
CHTL	Corrected Horizontal Total Luminance
CHTR	CHarTeR
C <sup>3</sup> I	Command, Control, Communications, and Intelligence
CI	Change Identification
CI	Change Itinerary (message ID)
CI	Cirrus
CT	Configuration Item
CI	Control Interface
C&I	Correlation and Interpretation processor
C&I	Correlation and Interpolation
CIA	Communications Interface Adapter
CIB	Control Interface Bus
CIC	Console Interface Circuit
CICS	Customer Information Control System
CICS/ISC	CICS/Intersystem Communications
CICS OLEDB	CICS OnLine Test/Debug
CICSPARS	CICS Performance Analysis Reporting System
CICS SPM	CICS Source Program Maintenance Online
CICWG	Contractor Interface Control Working Group
CID	Commercial Item Description
CID	Computer IDentification
CID	Controlled Impact Demonstration
CIDLN	Common ICAO Data Interchange Network
CIDS	Configuration Item Development Specification
CIDS	Critical Item Development Specification
CIE	Commission Internationale de l'Eclairage (International Commission on Illumination)
CIFP	Cancel IFR Flight Plan
CIFR	Cancel IFR clearance previously given
CIFRR	Common Instrument Flight Rules Room
CIG	Ceiling
CIYN	Configuration Item Identification Number
CIL	Category Inventory List
CIL	Configuration Item List
CIM	Control Interface Module
CINCAD	Commander-IN-Chief of Aerospace Defense
CINCLANT	Commander-IN-Chief, ATLANTic
CINCNOBAD	Commander-IN-Chief, NORTH american Air Defense command
CINCPAC	Commander-IN-Chief, PACific
CINCPACAF	Commander-IN-Chief, PACific Air Forces
CIP	Communications Interface Processing
CIP	Control Interfacility Processor subprogram (interfacility outputs subsystem)
CIP	Controller Interface Processor