AVIATION TERMS And **TERMINOLOGY**

Compiled and edited by
Capt. M.P. "Pappy" Papadakis JD

Aviation terms are defined as they are accepted in the aviation community.

The terms utilized here comprise names given to specific varieties of documents that are in widespread and common usage throughout the aviation industry. The precise and current names and definitions must be ascertained within the context of each individual case since the terminology may change slightly with time and in some cases with each manufacturer.

ABORT : Cut short a planned maneuver.

ACCELERATION: The increasing rate of change of velocity.

ACCELERATE STOP DISTANCE : Runway traversed to accelerate to V1 and then stop.

ACROBATICS: a lose definition of **AEROBATICS:** A planned acrobatic maneuver where the roll exceeds 60 degrees or the nose reaches or exceeds 30 degrees pitch.

ACCESSORY SECTION : Components parts such as pumps and generators that are grouped together and receive power to run from the main engine.

ADVISORY CIRCULAR: Advice published and disseminated by the F.A.A.

AEROBATICS: A planned acrobatic maneuver where the roll exceeds 60 degrees or the nose reaches or exceeds 30 degrees pitch.

AIR DATA COMPUTER: A onboard computer that corrects flight instruments for altitude, airspeed, temperature and compressibility factors.

Aircraft Audit (configuration audit) : Should a development of a new aircraft be successful, and should procurement of many such aircraft be planned the development aircraft will undergo an audit. This audit specifies exactly what each subsequent aircraft will be equipped with.

Aircraft baseline, When the audit is complete the aircraft is said to be baselined. All aircraft subsequently built and delivered will be identical to the baseline aircraft. From this point forward the manufacturer can do nothing to change the form, fit or function of the baseline aircraft without first obtaining government permission.

AIRPORT DEPICTION: A published airport map that depicts all needed factors so that a pilot may taxi safely as well as see runway lengths and lighting depictions and more.

AIRPLANE : A fixed wing aircraft that is engine driven.

A.D.F.: An airborne radio instrument that when tuned to an appropriate frequency will depict azimuth to the broadcasting radio. (Azimuth direction finding)

AFTERBURNER: Thrust augmentation on a jet engine accomplished by introduction of raw fuel into the jet exhaust.

AILERON: Hinged flight control on the wing that facilitates roll.

AIRFOIL: Any surface that creates lift as it is moved through air.

AIRMET: A weather advisory that warns of potential weather hazards.

AIRPORT SURVEILLANCE RADAR : Radar approach that provides only range (azimuth) and distance with altitudes not monitored.

AIR TRAFFIC CONTROL: A service provided by the F.A.A. to insure the safe and orderly flow of air traffic within controlled airspace.

AIR TRAFFIC CONTROL CENTER : A facility for the control of aircraft in the enroute phases of flight.

AIRWAY : A designated Air Route between navigational ground stations.

AIRWORTHY : A condition deemed safe for flight.

AIRWORTHINESS CERTIFICATE: An F.A.A. document that shows a particular aircraft conforms to the production and type certificate and is in a condition safe to fly.

AIRWORTHINESS DIRECTIVES: Mandatory compliance documents issued by the F.A.A. to correct unsafe conditions.

ALTIMETER : A flight instrument that registers height.

ANGLE OF ATTACK: The angle formed between the wing and the relative wind.

ANTI SKID BRAKES: A braking system that senses a skid and releases that wheel and then applies braking again as soon as the skid is stopped.

APPROACH CONTROL : A F.A.A. radar that controls aircraft approaching the landing airport. Their control area is usually about thirty miles and 11,000 feet to the ground.

APPROACH FIX : A designated point where the final segment of an instrument approach is begun.

APPROACH PLATES: Published plates that depict visually the appropriate instrument approach to be flown.

ATTITUDE : The relative position of the aircraft to it's three axis of pitch, azimuth and roll.

ARTS: A computer generated controller's radar display that includes data tags, storage and retrieval for replay capability.

ATTITUDE GYRO : An instrument that depicts the aircraft pitch and roll attitude. (often called artificial horizon)

AUTOROTATION : A helicopter whose rotor blades are in neutral and freewheel as a result of wind passing through the blades.

BEARING : The magnetic azimuth to a radio fix

BLADE ANGLE : Angle the prop chord at a designated station makes with it's plane of rotation.

BLEED AIR : Compressed air taken from the compressor section of a jet engine for purposes other than thrust. (start, pressurization , air conditioning and anti icing)

BRINNELED : A condition in metals where small indentations have been impressed in the metal surface.

BUCKLED : A wrinkling or crumpled condition as a result of loading or sometimes heat.

BUFFET : Shaking or oscillation of an aircraft or its structures as a result of non laminar airflow over the surfaces.

BULGING : A distortion caused by heating or overpressures.

CARBURETOR : A device that mixes fuel and air prior to introduction into an engine.

CARGO AIRCRAFT : An airplane designed and specially equipped to carry cargo.

CATEGORY OPERATIONS: A designation system that determines what instrument decision height minimums an aircraft may be flown down to. The categories from least restrictive (high minima) to most restrictive (lowest minima)
are :
High Minima Capt .
Raw Data I.L.S.
Cat 1 I.L.S.

Cat 2 I.L.S.
Cat 3a I.L.S.
and Cat 3b I.L.S.

CAWS Computerized aircraft warning system

CEILING : The height above the ground to the base of the lowest layer of clouds that are broken or overcast.

CENTER of GRAVITY LIMITS: A range of positions that the center of gravity of an airplane may move and still remain safe for flight. (C.G. moves with passenger, fuel and cargo placement)

CIRCUIT BREAKERS: An electrical protective device that will sense and interrupt current flow.

CLEAR AIR TURBULENCE: Turbulence encountered in clear air. It is usually encountered at high altitudes and is associated with jet stream fringes .

CLEAR ICE: Transparent ice formation on an aircraft usually associated with moisture freezing on the cold soaked air frame.

CLIMB: The definition of an aerodynamic body (airplane) that is maneuvering to increase altitude.

C.O.D. A Correction of Defect or Deficiency is a descriptive adjective for the actual Technical Order that orders the change implemented. It is usual to see words to the effect. “This is a Correction of Deficiency Technical Order." PURPOSE: "This Technical Order was needed in order to bring the aircraft into compliance with contract specification ---------paragraph--------"

COMPANY DOCUMENTS: May Include Company letters, Company Service Letters, Company Service Bulletins, Company service Instructions, Company Advertisements, and Company Patents.

Company Final Compliance Documents: These are the documents as required of the manufacturer by the government in a military contract. The contractor must supply to the military in accordance with the provisions of the contract. They signify completion of milestones and completion of requirements. In total these documents when completed and approved by the government make up the basis of saying the military manufacturer has gained the approval of the military for a reasonably precise set of specifications.

The form that a plant representative of the government signs when he accepts delivery of an individual aircraft has nothing to do with the "approval of a reasonably

precise set of specifications". In fact a government plant representative has very, very little approval authority at all. It is usual that all such required reports, required milestones and required witnessing of successful tests and final approvals are signed and delivered by letter from the government to the manufacturer. In Milestone contracts it is not uncommon for funding to be held up until the milestone is accomplished . In one contract I was familiar with at N.A.D.C. the approval letter of the government was a requisite for the actual cutting of a check in payment thereof.

The APPROVAL CONTEMPLATED BY THE SUPREME COURT.

Often the specifications are silent as to the defect complained of. Often the widget is not made in accordance with the specification. Often the approval was in fact a rubber stamp. Often the manufacturer's product or fails to live up to the specifications. In discovering such cases with a military contractor it may be possible to file three causes of action. Strict Product Liability in Tort. Whistleblower for the cost of the airplane and the fix required to all airplanes. R.I.C.O. for conspiracy to do economic harm. Within the civilian context the F.A.A. requires submission of documents, tests and analysis as part of the certification process for new airplanes, and for substantial changes in old already approved aircraft. These compliance documents are kept both by the F.A.A. and by the manufacturer.

Company testing in preparation for verification tests: A fallacy of demonstrated testing is that it is almost never done to worst case situations. A manufacturer will almost never invite the military to witness a test that it knows it will fail. Most enlightening is to discover test data leading up to and in preparation for the demonstration. There is a lot of IMAGINATIVE ENGINEERING completed to pass some tests.

Company witnessed verification tests: Often these are called for within the contract. In the military case the military often is a viewer of certain compliance tests. It is current that the military can watch any test it wishes to un announced. With regard to a sub manufacturer the prime contractor may be the only witness to their required tests although again the government can watch any test it wants to.

COMPRESSION RATIO: The ratio of the volume or air before the compression stroke to the volume after compression.

CONSTANT SPEED DRIVE: A device between the engine and the generator (usually a fluid drive transmission that governs generator speed at a constant).

Consumer complaints: In civilian aviation the manufacturer has a Service division to which consumer complaints are routed, answered and stored. These are discoverable.

C.D.R.L.: Contract Data Requirement List. This is a list made part of a government contract that delineates requirements that must be adhered to.

CONTROL SURFACE : Any primary (not trim) movable surface used to control the attitude of the aircraft.

COURSE : The planned direction of flight over the ground between points on the ground.

COURSE SELECTOR: A portion of a navigation instrument where the pilot inputs the radial course desired to be depicted.

CRASHWORTHINESS of airplane: The ability of the structure to protect the occupants through structural integrity, fire protection or egress. (ejection)

CREWMEMBER: A person designated by F.A.A. definition to perform duties involved with operation of the aircraft for the purpose of flight.

C.I.D.S. Critical Item Development Specification: This is a specification for the design and development of a new and required item not contemplated in the original contract, but critical to it.

CRUISE: A range of aircraft speeds used normally while the aircraft transits distance not in climb or descent.

CROSSWINDS: A wind direction other than directly down the runway creates a headwind and a crosswind vector component. The crosswind component may require special landing techniques. (if the crosswind is too great it may be beyond aircraft limitations and the pilot should (must) chose another runway.

DECISION HEIGHT: The point above the ground called minima for a precision instrument approach where the pilot must decide to land or he has to initiate a go around.

DEPARTURE CONTROL: An F.A.A. radar control that handles aircraft departing airports under instrument flight. Their control area is usually about 30 miles, ground to 10,000 feet.

DETONATION: An unwanted explosion of the fuel air mixture within a cylinder. This resulted from an incorrect fuel air mixture.

Development Contract : A type of contract that creates a hardware prototype or several models of the new product.

Deviation : A deviation is a request by a manufacturer for the right to deviate and not comply with a contract requirement or specification.

DFWI slang do not “fool” with it…means do not touch or disturb.

D.M.E.: Distance measuring equipment.

DIVE: An controlled aircraft maneuver where altitude is rapidly lost.

DRAG : An aerodynamic force opposing motion of a body through the air. (generally wind resistance)

DUTCH ROLL: Unwanted aerodynamic tendency of an aircraft to roll and yaw in oscillations.

DYNAMIC STABILITY : After an aircraft's attitude has been displaced DYNAMIC STABILITY is the description of an aircraft's flight characteristic to return, to remain displaced, or to displace further. If it's tendency is to return the aircraft is dynamically stable.

ELEVATOR: The movable portion of the horizontal tail that acts as a primary flight control for aircraft attitudes of nose up/nose down.

Engineering Changes. Engineering changes are what result in the civilian world when an E.C.P. is approved and the product is changed.

Engineering Change Proposals. Engineering Change Proposals are used both in military and civilian context. They are simply a proposal to make a change. The group making the proposal does not have the authority to institute the change. These are usually discoverable.

ENGINE FAILURE : An unwanted total loss of engine power.

Engineering Orders. Engineering orders are the Navy terminology for an approved change.

EXFOLIATION : A type of corrosion where the outer surface of metal is lost. It is often associated with chrome plating coming off.

E.A.C. : Expected Approach Clearance time is a time given to an aircraft by the F.A.A. and should radio contact be lost the aircraft is cleared to commence an approach at that time.

E.T.A. : Expected time of arrival.

E.C.P.: An Engineering Change Proposal: It must be approved before a change can be made.

FAIL SAFE : A design concept where all critical items affecting safety will fail to a safe status. It may be accomplished by redundant systems, back up systems, warning devices for impending failure etc. Within this concept no single point failure is allowed to cause a category One failure (defined as one that results in loss of life or aircraft). When such a component exists then it must be shown that it's expected failure rate will be extremely remote. (see F.A.R. and Milspec 882b)

FATIGUE : The progressive fracture failure of metal that begins at a stress concentration point and progresses to ultimate failure because of cyclic loadings.

FEATHER : A emergency position of a propeller so to produce little drag (wind resistance). Streamlined into wind (90 degrees)

F.A.A. Advisory Circulars: F.A.A. method of disseminating materials concerning aviation related matters that are advisory in nature.

F.A.F. The final approach fix is the point from which the final segment of an instrument approach is begun. On depiction charts it is designated by an iron cross X.

F.A.R. s : The Federal Air Regulations are the complete sets of rules governing aircraft, aviation and airspace in the United states . They have the effect of Law.

Field Service Digest: It is usual for the manufacturer to print and disseminate a digest compiled from the tech reps and from in house service reps' reports. This is standard but may be hidden under many different names.

FMS Flight Management systems: A name for any number of computerized devices that store flight plans and data so as to generate flight control inputs and map displays

F.O.D foreign object damage

F.O.M. foreign object material

F.S.D.R. : **Field Service Difficulty Reports**. These may have different names within the manufacturers nomenclature. In military contract situations it is normal for the manufacturer to provide technical representatives to the user commands. These tech reps. report field service difficulties individually to the factory field service support division.

Field Service Monthly Reports: Generally speaking, the manufacturer requires it's tech reps to write monthly summaries of their activities. This includes summations of problems encountered.

FIRE PROOF, FIRE RETARDANT, FIRE RESISTANT: See the definitions as written in Part

23 and Part 25 Federal Air Regulations. These have precise definitions and generally have to do with the temperature at which burning will occur as well as whether the material is allowed to sustain burning after the heat source is removed.

FLAMEOUT: An uncommanded total power loss in a jet engine where the flame in the burner section is extinguished.

FLIGHT CONTROLS: The total system of controls available to the pilot to control the attitude and of the aircraft.

FLIGHT DECK: The name given to the cockpit area of an airliner now that we are in politically correct speaks.

FLIGHT ENVELOPE- THE ENVELOPE: A Chart for an aircraft that shows speed on the X axis and g limits on the y axis. The aircraft may safely be flown within the envelope. If flown outside the envelope on the slow side the aircraft will stall. If flown outside the envelope on the vertical axis the aircraft will be over stressed due to positive or negative Gs. If flown outside the envelope on the high speed side the aircraft will be over stressed due to over speed. Flutter should not occur within the design envelope. On portions of the envelope other than where stall will occur there is a margin of safety before destruction will occur.

FLIGHT LEVELS: Thousand foot Altitudes above 18,000 feet where all aircraft altimeters are set to 29.92 inches pressure setting. Odd altitudes are Eastbound and even are Westbound from 18,000 to 29,000 ft. Above 29,000 feet Eastbound are designated every 4,000 feet (290, 330, 370, 410 etc.) and Westbound are 31,000 feet and every 4,000 feet.(310, 350, 390 etc.) Flight levels are no longer reported as altitudes in thousands of feet. Rather 29,000 feet would be reported as “Flight Level two niner zero"

FLIGHT PATH : The three dimensional path the aircraft transits over the ground.

FLIGHT PLAN: A flight plan is filed with air traffic control and contains specific information such as : route of flight, time of flight, altitude requested, fuel onboard, alternates if required, aircraft number and type, pilots name, and ABC equipment codes and more.

FLUTTER : A condition where aerodynamic forces exacerbate aircraft natural vibratory modes in an aero elastic deformations. A serious and unwanted condition that is supposedly designed so as to not occur within the flight envelope.

FOG: Fog is a cloud on the ground. Minute water droplets suspended in air that restricts visibility.

Form 337 S.T.C. : This is the F.A.A. form that must be submitted and approved by the

F.A.A. before any significant change or modification can be made to an aircraft.

Form DOD 2050: This form was the acceptance check form of the delivery of a separate singular aircraft to the military. It is signed by the local military plant representative, and it acknowledges that the military aircraft appears and is accepted in conformance with some contract and some military specifications. Some judges have been fooled into believing that this document is the proof of the existence of reasonably precise military specifications. First a military plant rep has very limited approval power, and in fact none over the specifications. This piece of paper has about as much significance as a show room floor showing of the car you are about to drive away with.

FUEL EXHAUSTION: Out of Fuel.

FUEL STARVATION: A condition where the engine does not receive fuel and therefore fails.

FUSELAGE: The structural body portion of an aircraft or helicopter.

GLIDE SLOPE. The approved descending portion of a landing system that controls vertical height during an approach to a landing. (I.L.S., P.A.R., V.A.S.I., meatball)

G.C.A., C.C.A: Ground controlled approach and Carrier controlled approach: A condition where a radar operator talks a pilot through a landing approach.

G.P.S. Global Positioning satellite…often meant to be a device to locate person or aircraft relative to geographical position.

G.P.W.S. ground proximity warning systems

GROUND SPEED : The speed an aircraft covers over the ground.

GUST LOADS : Rapidly changing loads imposed on an aircraft when they fly into vertical air currents. Typical in turbulence, wind shears and wake turbulence.

Hardover: An uncommanded condition where a flight control moves rapidly to it's maximum deflection.

Hazard : A condition where there is an identified risk of loss of aircraft, pilot, mission capability or component function. See MilSpec: 882b.

HEADING : The direction in which an aircraft is pointed relative to North.

HELICOPTER : An air Machine that utilizes engine driven rotors for lift as well as propulsion.

HUMAN FACTORS. The study of all human traits and variables which effect mans ability to interface with a machine as well as the machines suitability to interface with a man.

HYDROPLANING: A skid condition where a tire is riding on a cushion of water, water oil emulsion or steam. The result is diminished brake capacity. (It's a skid)

ICAO : The International Civil Aviation Organization headquartered in Montreal.

Incident Reporting System. The military and the manufacturers keep track of incidents and the outcome thereof. They do this through a computerized system . Typically there will be the narrative of the incident . Manufacturers investigation, status and recommendation as well as " How Mal" codes. This computerized system is in place in the military and is shared with the manufacturer. What it is called changes with manufacturer. Data from such a computerized system is discoverable from the manufacturer or from the government.

IMPACT ANGLE: The angle made between the flight path and the surface of the terrain. Note it does not correct for aircraft attitude or ground slope.
(For instance I did a fighter accident where the impact angle was twenty degrees to level ground while the attitude was aircraft ten degrees nose high.)

INSTRUMENT FLIGHT RULES: A set of flight rules that must be followed if the pilot wants F.A.A. controlling. Instrument flight rules must be utilized under Instrument meteorological conditions (bad weather) and in the high altitude jet system.

JET ROUTES : A high altitude system of route between ground radio facilities from 18,000 feet and higher designated as flight levels.

JET STREAM : A high altitude three dimensional river of high speed air that flows from west to east and meanders to the lower latitudes in the winter and retreats in the summer. It may have velocities of 200 mph range at the core.

Kinetic Energy: Energy equals the mass times velocity squared divided by two.

I.L.S. : Instrument Landing systems are a combination of a ground transmitter that broadcasts glide slope and azimuth radials and an airborne receiver that receives and displays flight path as glide slope and azimuth information.

I.L.S. APPROACHES.: I.L.S. approaches are precision instrument approaches that are approved and are standard variety utilized in the U.S.A. The major difference between the variety is the minima that can be flown and the certification of the equipments used.

RAW DATA: One pilot , one instrument, Dh 250 ft. and 3/4 mile or rvr 4000 ft.

CAT I, dual displays Dh 200 ft., rvr 1800

CAT II, dual displays ,autopilot , dh 100 ft. qualified pilot , qualified lighting, airport systems protected.

CAT IIIa and IIIb, dual displays, dual autopilot - auto land, 50 ft
no flags, qualified crew, qualified airport, operable qualified lighting, airport protecting minima.

I.N.S. : The inertial navigation system. See description in text.

LAMINAR FLOW: The smooth flow of air over the aircraft.

LIFT: Aerodynamic Force acting on an airfoil perpendicular to the relative wind. It is the lifting force created by wind movement over an airfoil or lifting body.

LINE OF SIGHT : a straight line between an observer and the observed. In radios it means that the radio beams will not go beyond the curvature of the earth.

LOCALIZER : A localizer is the portion of an I.L.S. radio navigation system that transmits or receives azimuth signals.

LONGITUDINAL AXIS : This is the roll axis of an aircraft. The line around which the aircraft will roll.

MACH NUMBER : A ratio of the speed of the aircraft to the speed of sound at the same altitude .

MAGNETO : An electric generation device utilized in some aircraft ignitions to provide spark.

Maintainability studies: Within each contract for a military aircraft is the requirement that it be easily maintained. These requirement set out maintenance guidelines and design criteria.

Maintenance records: In either the military or in civilian practice complete maintenance records are to be kept by the owner. In the military context the government keeps the records in a computerized format. These are discoverable.

M.D.R. : Malfunction and Defect Reports is the old name for S.D.R. as described above. It is the older reporting format, but if you ask you will receive these as well.

M.T.B.F. reports: Mean Time Between Failure Reports. In military contracting and in conjunction with system safety it is often a requirement of the manufacturer to predict

time to failure of his design. Later as part of the contract and “lessons learned " he may be required to track his part in the field to see if it actually is performing as to requirement and prediction. Sometimes the military provides this function through its logistics and overhaul programs. Sometimes the manufacturer is tasked to do it. Either way if it exists it is discoverable.

MEDICAL CERTIFICATE: The documentation showing that the airmen has met certain physical health requirements through medical examinations performed by authorized medical examiners to the satisfaction of the F.A.A.. There are various varieties of such medical certification.

Military Specifications : Books of current military guidelines that the military expects designers to accomplish as a minimum in their design proposals. The individual contract states which specifications and which issue of specs will be applicable to the existing contract. These specifications tell what must be accomplished, but not how it is to be achieved.

Military Standards: Books of standards that the military expect the designer to adhere to. These too will be delineated in the contract.

Military Design Handbook Criteria: General Guidelines of the military stating some current design philosophy and criteria.

MINIMUM DESCENT ALTITUDE : The approach minimum altitude allowed in a non precision approach.

MINIMUM OBSTRUCTION CLEARANCE : An altitude on a radio navigation map routes that guarantees obstruction clearance by at least 1,000 feet and radio reception within twenty miles.

MISSED APPROACH: A go around maneuver from an instrument approach, because a safe landing could not be made or the runway was not in sight.

N.T.S.B. : Government agency empowered to investigate civilian accidents.

Nautical Mile : 6080 feet.

N.O.D. Notice of Deficiency. This is a recent government contracting section that requires the manufacturer to report (fess up) to the government for any parts or designs that fail to meet the original specification and original contract requirements. It is a semi warranty usually of 180 days after delivery. The manufacturer is supposed to fix these defects free of charge. Often such N.O.D. results in mediation or arbitration where the cost of the fix is negotiated.

Non Precision Approach : An instrument approach in which there is no vertical glide slope information provided.

NOTAM : Notice to Airmen is an advisory of the F.A.A. that notifies of hazards or changed conditions affecting the air space system and airports.

OPERATOR: A person who causes the operation of an aircraft.

OVERCAST : Cloud coverage that is 90% or greater.

OVERHAUL : A maintenance operation that entails disassembly ,inspection, repair as needed, reinstallation and return to service as per approved procedures.

Pilot in Command : Is an aviation definition of art. The pilot on board an aircraft acting as crewmember who has ultimate responsibility for the operational control of the aircraft. He may not be manipulating the controls.

PITCH ATTITUDE : The attitude of the aircraft, nose up / nose down.

PORPOISE : To oscillate in the pitch attitude.

POWERPLANT : The engine.

PRECISION APPROACH: An Radar Instrument approach that provides glideslope information.

PREVAILING VISIBILITY: The visibility as determined by an observer in miles to known ground objects as seen from the observers position (tower).

P.I.D.S. Prime Item Development Specification: This is a specification, usually authored by the prime contractor to a subcomponent manufacturer for the design and development of a new item.

Procurement Contract: A procurement contract simply purchases a number of the previously base lined aircraft.

PROPELLER: a series of airfoil blades mounted to a rotating hub
that produce lift and thrust.

PROTOTYPE: The first of a series usually made in the development and testing phase.

RADAR : Radio detection and ranging systems.

RADAR ALTITUDE: The height above ground determined by radar.

RADIAL: A line of bearing broadcast by a ground station.

RAM AIR: Air that enters an opening in a device as a result of movement of the device through the air.

RELIABILITY: The capability of a component to perform its assigned tasks for the time and in the environment of operation as predicted.

Reliability Studies: Studies concerning the reliability of aircraft parts and components.

R.F.P.: Request for Proposal: This is a government contracting device that invites or solicits manufacturers to submit proposals for the design or development of a product. It is part of the competitive bidding rules of D.O.D.

R.F.Q.: Request for Quote: This is a government contracting device that solicits competitive pricing. It is sort of a sealed bid. Once a single contractor is selected the price becomes negotiable for follow on items.

ROTOR: The large slow propellers utilized on a helicopter for lift and motion.

RUNWAY VISUAL RANGE: The distance a pilot will see down a runway as predicted by instruments mounted at the runway edge. R.V.R. readings control the takeoff and landing allowable minima for instrument flight and approaches.

SEIZED: Moving parts of a system that have frozen together because of overheat heat or lack of lubrication.

S.D.R.: Service difficulty reports are an F.A.A. function of a voluntary maintenance reporting system. These reports can be obtained by F.O.I.A. request to the F.A.A. in Oklahoma city. If you are interested in RS5-aD1 fuel injector failures, you simply request all Bendix Fuel injector problems for a time period and you are provided the data at cost.

S.T.O.L : Short field takeoff and landing. Generally, a specialized design of aircraft or a kit applied to a regular aircraft that improves it's take off and landing capabilities.

SIGMET: A significant meteorological information broadcast and warning of serious weather conditions in a localized geographical area.

SIMULATOR: An approved device that simulates cockpits and flight instruments and motions utilized for flight training.

SOLO: Flight conducted alone, without another pilot on board.

SPIN: An uncontrolled rotation of a stalled aircraft falling toward the earth.

SPOILER: a flight control device that when deployed spoils lift on an airfoil.

STALL: A condition where the critical angle of attack has been exceeded and the airfoil no longer creates lift since airflow over the airfoil is no longer laminar but in fact has separated.

Ship file or Ship log: In both civilian practice and in the military a log is begun at the factory for every airplane produced. Starting with the keel beam every operation is signed off as it is completed and every major step is Q.C.'d. These signatures delineates the workers and the dates each step was completed and who the work was done by. It culminates in the final inspections and test flights.

S.I.D.: A published standard Instrument departure route depiction used for navigation away from selected airports.

S.T.A.R.: Published standard terminal arrival route depiction for arrival routes to selected airports.

STATORS : Stationery portions of jet engines positioned between rotating compressors and turbines whose purpose is to stop the rotational flow of air between successive stages of compressors.

STRENGTH: The capability of a material to carry a load.

STRESS CONCENTRATION POINT: Any discontinuity in a material that increases or localizes stress.

Study Contract: A type of contract for the design of a new item in the paperwork stage.

System Safety Development Plan. In large government contracts the company must have a complete systems safety development plan.

System Safety Group. This is a safety department common to most major manufacturers. In the military context in a big development contract the manufacturer must have such a group or form one.

Systems safety Plan. In a large government procurement contract, it is usual for the manufacturer to have to continue the development plan with a lessons learned and continuing systems safety analysis group.

Systems Safety Studies: It is usual that a manufacturer will do the following studies of his developing product. The Military requires it. Large manufacturers do it in the

civilian world because a safe product is good economics. These studies are discoverable:

A. Systems Safety Failure Mode and Effect Studies
B. Systems Safety Fault Tree Analysis
C. Systems Safety Hazard Analysis
D. Systems Safety Lessons Learned Tracking
E. Systems Safety Committee Meetings.
F. Systems Safety Updates to studies.
G. Systems safety Common Cause Failure studies

TACHOMETER: An instrument that displays R.P.M. in number or percent.

Technical Orders. Is the Air Force name for an Air Force issued Change.

THRUST: The force of propulsion developed by an engine or propeller system.

TIMED MAINTENANCE:

T.B.O. Manufacturers suggested time between overhaul.
T.S.O. Actual time accumulated since last overhaul.
T.T. Total time on component or aircraft.
M.T.B.F. A manufacturer's prediction of reliability of a component or aircraft. (Mean time between failure)

Torque: A rotational moment arm created by a force acting tangentially around the center of rotation. A twisting moment.

TRANSPORT CATEGORY : Any aircraft greater in weight than 12,500 lbs.

TRIM : An aerodynamic adjustment to the flight controls that reduces control pressures.

TURBOJET ENGINE : A jet engine where the thrust is produced by the escaping exhaust gasses.

TURBOFAN ENGINE : A jet engine where the thrust is produced by both exhaust gas and by ducted fans that are driven by the exhaust gasses passing over drive turbines.

TURBO PROP ENGINES: A jet engine where the exhaust gasses pass through a turbine that directly runs a propeller to create thrust.

TURBOSHAFT ENGINES: A Jet engine that passes its exhaust through a turbine in order to rotate a power shaft that is connected through gearing in order to rotate propellers or rotors which in turn produce thrust.

Vd: design dive speed

Vmc: Velocity minimum control, speed at which directional control can be maintained in a multi engine aircraft with critical engine out and the others at takeoff power.

Vne: Velocity never exceed.

Vno: normal operating upper limit speed.

V1: a pre-selected decision speed

Vr: a pre-selected rotation speed

V2: A speed that must be obtained by 35 feet and if attained the airplane will safely climb with critical engine out.

Vs: Stall speed power off.

VACUUM PUMP: A pump that maintains air suction. They are often utilized to drive some old flight instruments.

T.O.W.S. Take off warning system

Velocity : Speed, acceleration times time, The rate at which distance is travelled.

VERTIGO: Dizziness, a condition where the subject feels that he is rotating or the world about him is rotating. It is a condition caused by fluid movement in the inner ear. (The spinning games children play to induce vertigo.)

V.F.R.: Visual Flight Rules.

V.M.C.: Visual Meteorological Conditions. 1,000 feet and 3 miles visibility.

Waiver: A waiver is what is granted by the military when a manufacturer asks to deviate from a contract requirement or a specification.

Warranty work invoices: In the civilian context warranty work is recorded and available through discovery.

WINDSHEAR: A rapid change in the direction and velocity of wind.

WINDMILL: A condition where a propeller is unpowered but is turning due to wind being forced through it due to aircraft motion.

ZERO-ZERO: A fog condition with no visibility and no ceiling. (don't go flying)