

# AVIATION GLOSSARY

**100-hour inspection** – A complete inspection of an aircraft operated for hire required after every 100 hours of operation. It is identical to an annual inspection but may be performed by any certified Airframe and Powerplant mechanic.

**Absolute altitude** – The vertical distance of an aircraft above the terrain.

**AD** - See Airworthiness Directive.

**ADC** – See Air Data Computer.

**ADF** - See Automatic Direction Finder.

**Adverse yaw** - A flight condition in which the nose of an aircraft tends to turn away from the intended direction of turn.

**Aeronautical Information Manual (AIM)** – A primary FAA publication whose purpose is to instruct airmen about operating in the National Airspace System of the U.S.

**A/FD** – See Airport/Facility Directory.

**AHRS** – See Attitude Heading Reference System.

**Ailerons** – A primary flight control surface mounted on the trailing edge of an airplane wing, near the tip.

**AIM** – See Aeronautical Information Manual.

**Air data computer (ADC)** – The system that receives and processes pitot pressure, static pressure, and temperature to present precise information in the cockpit such as altitude, indicated airspeed, true airspeed, vertical speed, wind direction and velocity, and air temperature.

**Airfoil** – Any surface designed to obtain a useful reaction, or lift, from air passing over it.

**Airmen's Meteorological Information (AIRMET)** - Issued to advise pilots of significant weather, but describes conditions with lower intensities than SIGMETs.

**AIRMET** – See Airmen's Meteorological Information.

**Airport/Facility Directory (A/FD)** – An FAA publication containing information on all airports, seaplane bases and heliports open to the public as well as communications data, navigational facilities and some procedures and special notices..

**Airspeed indicator** – A differential pressure gauge that is calibrated to convert the difference between impact air pressure due to an aircraft's motion and the local static air pressure into a reading of velocity through the air mass.

**Airworthiness certificate** – A certificate issued by the Federal Aviation Administration attesting that the aircraft named on the certificate met all required design and performance criteria in force at the time of its manufacture.

**Airworthiness Directive (AD)** – A regulatory notice sent out by the Federal Aviation Administration to the registered owner of an aircraft informing him of the discovery of a condition that keeps his aircraft from continuing to meet its conditions for airworthiness.

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**Alternate static source** – a source of ambient air pressure from the unpressurized area within an aircraft for use when the static vent malfunctions. It is a less accurate but usable source of the actual air pressure surrounding the aircraft.

**Altimeter** – An aneroid barometer calibrated to indicate an aircraft's altitude based on the air pressure measured at a particular point.

**Angle of attack** – The acute angle between the chord line of an airfoil and the direction of the air that strikes the airfoil (relative wind).

**Annual inspection** - A complete inspection of an aircraft required by regulation every 12 calendar months. It must be accomplished by a certificated Airframe and Powerplant mechanic who also holds an Inspection Authorization.

**Approach control** – The Air Traffic Control entity that controls instrument flight aircraft and some visual flight rules aircraft immediately prior to hand off to the Local Controller.

**Artificial horizon** – Archaic term for “Attitude Indicator”.

**ASOS** – See Automated Surface Observing System. **ATIS** – See Automatic Terminal Information Service. **Attitude Indicator** – An instrument that displays an aircraft's pitch and bank attitudes by reference to a gyro stabilized bar which remains parallel to the horizon.

**Attitude Heading Reference System (AHRS)** – An integrated flight instrument system composed of three-axis sensors that provide attitude, heading, rate of turn, and slip/skid information. AHRS are designed to replace traditional mechanical gyroscopic flight instruments and provide much greater reliability and accuracy.

**Attitude indicator** – The instrument that shows the airplane's relation to the horizon. It is the foundation for all instrument flight.

**Automated Surface Observing System (ASOS)** - Intended to become the primary surface weather observing system in the United States. ASOS can perform minute by minute observations and perform the basic observations necessary to generate an aviation routine weather report (METAR).

**Automated Weather Observing System (AWOS)** - An earlier system similar in purpose to ASOS. From a user standpoint it differs from ASOS in that some AWOS sites report density altitude, but no AWOS sites are capable of reporting precipitation.

**Automatic direction finder (ADF)** – An aircraft radio navigation system that senses and indicates the direction to a ground transmitter. Typically used with Nondirectional Radio Beacons (NDBs).

**Automatic Terminal Information Service (ATIS)** - A taped broadcast giving weather and operational information for a particular airport.

**Auxiliary fuel pump** – An electrically powered fuel pump used to supply fuel to the engine for starting, or in case of failure of the engine driven pump.

**AVGAS** – An acronym for aviation gasoline. Gasoline specifically manufactured for aircraft piston engines. The most common type of AVGAS found in General Aviation today is 100 octane, low lead (100LL) which can be identified by its blue color.

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**Avionics master switch** – A switch controlling electrical power to all electronic communication and navigation equipment in an aircraft.

**AWOS** – See Automated Weather Observing System.

**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.

**Best lift over drag ratio** – The highest value of the ratios of Lift to Drag for a particular airfoil. Commonly expressed as “L over D max”.

**Blade angle** – The angle formed between the face of a propeller blade and its plane of rotation. NOTE: in an airplane with the engine mounted in front of the cockpit, the face of the propeller blade is the surface that can be seen from the cockpit.

**Calibrated airspeed (CAS)** – The value of airspeed resulting when *Indicated Airspeed* is corrected for installation error and instrument error.

**Camber** – The amount of curve of an airfoil.

**Carbon monoxide** – A colorless, odorless, tasteless gas contained in exhaust fumes. It significantly reduces the ability of the blood stream to carry oxygen and can cause the effects of hypoxia.

**CAS** – See Calibrated Airspeed.

**CDI** - See Course Deviation Indicator.

**Center of gravity (CG)** - A theoretical point at which the entire weight of an aircraft may be considered to be concentrated.

**Center of pressure** - The point along the chord where the distributed lift of the entire wing is effectively concentrated.

**CG** – See Center of Gravity.

**Chord line** – An imaginary line drawn through an airfoil from its leading edge to its trailing edge.

**Clearance** – An authorization by air traffic control, for the purpose of preventing collision between known aircraft, for an aircraft to proceed under specified traffic conditions within controlled airspace.

**Clearance delivery** – The position within a control tower organization responsible for delivering clearances to aircraft departing on instrument flights or visual flight rule flights that are required to follow special departure routes. This is for aircraft on the ground and clearances are usually delivered prior to taxi. Depending on traffic volume, this may be done by a controller with a separate, dedicated frequency or Ground Control may perform it.

**Climb** – A flight maneuver that increases the aircraft’s altitude.

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**Common Traffic Advisory Frequency (CTAF)** – A frequency designated for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower.

**Coordinated Universal Time (UTC)** – A standard time corresponding to the local time for the zone beginning at the meridian through Greenwich England. It is corrected for seasonal variations in the earth's rotation about the sun. By international agreement it is the common time for all aviation operations.

**Course deviation indicator (CDI)** – The needle in the face of the VOR indicator that indicates whether or not the aircraft is left or right of the course or radial selected.

**Critical angle of attack** – The angle of attack at which the air ceases to flow smoothly over an airfoil

**Crosswind leg** - A flight path at right angles to the landing runway at its upwind end.

**CTAF** – See Common Traffic Advisory Frequency.

**Dead reckoning (DR)** – A method of navigation using time, speed, distance and the effect of wind computations that determine the direction and speed of the aircraft.

**Density altitude** – Pressure altitude corrected for nonstandard temperature variations. Air density is the single most important factor affecting aircraft performance.

**Departure control** – The Air Traffic Control entity to which Local Control transfers control of departing instrument flights and in some cases departing visual flight rule flights.

**Departure leg** - A flight path along the extended runway centerline in the direction of takeoff. Also the continuation of that flight path at a 45 degree angle to the original direction.

**Descent** – A flight maneuver that decreases the aircraft's altitude.

**Detonation** – In a reciprocating engine, an uncontrolled explosion inside a cylinder, as opposed to the rapid but even burning of the charge under normal conditions. "Pinging" sometimes heard in an automobile engine as a result of using a low fuel grade is a form of detonation.

**Dip error** – See Magnetic Dip.

**Direct User Access Terminal Service (DUATS)** - A service provided by the FAA that allows pilots to use personal computers to access weather data and file flight plans.

**Displaced threshold** - A threshold that is located at a point on a runway other than the designated beginning of the runway. (See "Threshold")

**Distance measuring equipment (DME)** – Civilian radio navigation equipment that receives signals providing distance information from the selected navigational facility. TACAN is the military version of this and is often co-located with civilian facilities.

**Distress** – In an aircraft, a condition requiring immediate action.

**DME** – See Distance Measuring Equipment.

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**Downwind leg** - A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.

**DR** – See Dead Reckoning.

**Drag** – An aerodynamic force acting in the same plane as the relative wind striking an airfoil but in the opposite direction.

**DUATS** – See Direct User Access Terminal Service.

**EFAS** – See Enroute Flight Advisory Service.

**Elevator** – The horizontal, movable control surface in the tail section, or empennage, of an airplane.

**ELT** – See Emergency Locator Transmitter.

**Emergency locator transmitter (ELT)** – A small, self contained radio transmitter carried in an aircraft to help locate it in the event of a crash. A special switch, activated by impact forces, automatically turns it on.

**Emergency overrun** - A clear surface area beyond the takeoff end of a runway, not intended for normal use. It is designed and maintained so as to minimize damage to an aircraft unable to stop within the usable portion of the runway.

**Engine** – A device that converts chemical energy into mechanical energy.

**Enroute Flight Advisory Service (EFAS)** – A service specifically designed to provide, upon pilot request, timely weather information pertinent to their type of flight, route and altitude.

**Equator** – An imaginary line around the earth's surface, equidistant from the poles. It is the point from which Latitude is measured, north or south.

**Equipment list** – A list of all equipment approved for installation on a particular aircraft. The list must be kept with the aircraft records and it is normally found in the Pilot's Operating Handbook. Unless otherwise provided for, the aircraft is considered unairworthy if any of the listed equipment is inoperative.

**Estimated time enroute (ETE)** - Using navigation computations the time that is estimated to elapse for an aircraft to arrive at its destination or checkpoint.

**Estimated time of arrival (ETA)** - Using navigation computations the predetermined time that an aircraft is expected to arrive at a destination or checkpoint.

**ETA** – See Estimated Time of Arrival.

**ETE** – See Estimated Time Enroute.

**FBO**- See Fixed Base Operator.

**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.

**Fixed Base Operator (FBO)** - An airport business that provides flight training, aircraft maintenance and servicing, sales, charter service, etc.

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**Flaps** – Surfaces added to the trailing and sometimes the leading edge of a wing. Actuation of the flap changes the curvature of the wing, increasing lift and drag, and allows an airplane to operate safely at lower speeds.

**Flight Service Station (FSS)** – An FAA facility for relaying communications, furnishing weather and safety information to pilots, processing flight plans, and receiving VFR position reports.

**FSS** – See Flight Service Station.

**Full stall** – A stall that has progressed to the point that “nose up” pitch control is lost.

**Fuselage** – The body or central structural component of an airplane.

**Glide ratio** – The ratio of the forward distance an aircraft travels to the vertical distance it descends when it is operating without power.

**Global Positioning System (GPS)** – A satellite based radio positioning, navigation and time-transfer system. This system provides highly accurate navigation information based upon a network of satellites in earth orbit.

**GPS** – See Global Positioning System.

**Ground control** – The position within a control tower organization responsible for the safe and expeditious movement of aircraft on the ground.

**Ground effect** – A decrease in **induced drag** on an airfoil without a corresponding decrease in **lift**. It results from alteration of the downwash angle due to the proximity of the ground or other surface and becomes significant within a distance of about one half wingspan of the surface.

**Ground speed** – The rate of speed that an aircraft is actually traveling over the ground.

**Gyro** – Alternative name for a “gyroscope”.

**Gyroscope** – A rapidly spinning wheel or disc, normally with its weight concentrated on the rim.

**Gyroscopic precession** – A gyroscopic property wherein a force applied perpendicular to the rim of a spinning disc will result in movement of the disc as if the force had been applied at a point 90 degrees in the direction of rotation.

**Heading bug** – A moveable index marker found on some Heading Indicators that serves as a reminder of the desired heading or as an input to an autopilot.

**Heading indicator** – A gyroscopic navigation instrument used to give a more stable indication of an aircraft’s heading than it is possible to achieve with a magnetic compass. It is dependent upon other sources, such as a magnetic compass, for initial and updated directional alignment.

**Hold bars** - The markings on a taxiway that identify where an aircraft should stop when it does not have clearance to proceed onto the runway. They consist of four parallel lines, two solid and two dashed, with the solid lines on the side where the aircraft is to hold.

**Hold line** - Synonym for “Hold Bars”.

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**Horizontal component of lift** – That portion of the total lift produced by an airfoil that acts parallel to the earth's surface.

**Horizontal situation indicator (HSI)** – A flight navigation instrument that combines the heading indicator with a CDI, in order to provide the pilot with better situational awareness of location with respect to the courseline.

**HSI** – See Horizontal Situation Indicator.

**Hyperventilation** – An abnormal increase in the volume of air breathed in and out of the lungs. Symptoms include light-headedness, suffocation, drowsiness, tingling in the extremities, and coolness.

**Hypoxia** – A deficiency of oxygen which impairs the brain functions and other organs.

**IAS** – See Indicated Airspeed.

**Ident** – n. A feature incorporated in a transponder that makes it possible to easily identify its signal return on a radarscope. v. Activating the “ident” feature of a transponder.

**Idle cutoff** – The position of the mixture control in a reciprocating engine fuel metering system that shuts off all fuel to the cylinders.

**IDT** – Abbreviation for “ident” feature of a transponder.

**Ignition switch** – In a reciprocating engine powered aircraft, the switch that controls the operation of the individual magnetos. It differs from most electrical switches in that the “off” position completes a connection to ground rather than opening the circuit.

**Incipient spin** – The early stage of a spin, before the nose has dropped to its final stabilized position and steady state rotation has begun.

**Inclinometer** – An instrument used to measure the attitude of an aircraft relative to the horizontal. In an airplane it is usually mounted to show rotation about the longitudinal axis. It normally consists of a curved glass tube containing a clear damping fluid and a black ball which is free to move inside the tube.

**Indicated airspeed (IAS)** – The direct reading of the airspeed indicator uncorrected for variations in atmospheric density, installation or instrument error.

**Indicated altitude** – The altitude read directly from the altimeter (uncorrected) after it is set to the current altimeter setting.

**Induced angle of attack** – Air approaching an airfoil in flight actually rises in a wave like motion in advance of the airfoil. For this reason, the airfoil “sees” a different angle of attack than if it were measured against the free stream air flow well in advance of the airfoil. The **induced angle of attack** is the difference between the angle of attack the airfoil “sees” and the angle of attack measured against the free stream air.

**Induced drag** – Aerodynamic drag produced by an airfoil as the inevitable byproduct of producing lift.

**Landing gear** – The part of an aircraft structure that supports it when it is not flying.

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**Lateral axis** – An imaginary line passing horizontally through the center of gravity of an aircraft. In an airplane it is parallel to a line through the respective wing tips. The airplane pitches about the lateral axis.

**Latitude** – The angular measurement of distance on the earth's surface, north and south of the equator. The equator is 0 degrees latitude, the north geographic pole is 90 degrees north latitude, and the south geographic pole is 90 degrees south latitude.

**Level flight** – A flight maneuver in which the aircraft does not change altitude.

**Lift** – An aerodynamic force caused by air flowing over an airfoil.

**Lift over drag ratio** – The ratio of Lift to Drag at a given airspeed. Since all other parameters of the Lift and Drag equations for a particular airspeed are the same, engineers usually express the ratio in terms of the Coefficients of Lift and Drag.

**Lineman** - A person who assists a pilot taxiing in a confined area through the use of hand signals. More generally a person who works in the parking area, assisting pilots, servicing aircraft, etc.

**Load factor** – The ratio of the amount of load imposed on an aircraft structure to the weight of the structure itself.

**Local controller** – The position within a tower organization responsible for the separation of aircraft on the runway and providing advisories and sequencing to other aircraft within the tower's area of jurisdiction.

**Longitude** – The angular measurement defining location on the earth's surface in east and west directions from the prime meridian at Greenwich, England.

**Longitudinal axis** – An imaginary line passing horizontally through the center of gravity parallel to the fuselage centerline. The airplane rolls about the longitudinal axis.

**Longitudinal stability** - The measure of an aircraft's ability to return unassisted to its original flight path when it is disturbed by transient forces acting about the lateral axis

**Magnetic Bearing To** – The magnetic heading to a radio navigational facility or nondirectional radio beacon.

**Magnetic compass** – A navigation instrument that displays a vehicle's orientation with respect to the magnetic poles by utilizing the property of a bar magnet to align itself with the earth's magnetic force.

**Magnetic deviation** – A magnetic compass error caused by the magnetic fields within the aircraft. Deviation error is different on each heading, and can be corrected for by applying the information found on the compass correction card.

**Magnetic dip** - The downward deflection of a bar magnet due to the vertical component of the earth's magnetic field.

**Magnetic variation** – A compass error caused by the difference in the locations of the earth's geographic and magnetic north poles.

**Maneuvering speed** – A speed computed by the manufacturer that will prevent exceeding the maximum load factor for the airplane in vertical gusts of 30 feet per second. Maneuvering speed ( $V_A$ ) decreases as weight decreases.

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**Master switch** – A single switch that controls electrical power to all circuits in an aircraft electrical system.

**Maximum elevation figure (MEF)** – A number printed on an aeronautical chart within each quadrangle formed by the displayed lines of latitude and longitude that shows the elevation of the highest known feature within that space to the nearest higher hundred feet above mean sea level.

**Mean Sea Level (MSL)** - The datum used for measuring altitude. It is the average height above the surface.

**MEF** – See Maximum Elevation Figure.

**MEL** – See Minimum Equipment List.

**Meridian** – A line on the earth's surface passing through both geographic poles.

**MFD** – See Multi-Function Display.

**Minimum equipment list (MEL)** – A list obtained by an Airworthiness Certificate holder from an FAA Flight Standards District Office that permits operation of a specific aircraft with specific installed equipment inoperative.

**Mixture control** – A control in a reciprocating engine powered aircraft that lets the pilot vary the fuel-air ratio.

**MSL** - See Mean Sea Level.

**Multi-function display (MFD)** – A cockpit display capable of presenting information received from a variety of advanced avionics systems to the pilot in numerous ways. Often an MFD will be used in conjunction with a primary flight display (PFD).

**N number** - A common term for the registration number on a U.S. registered aircraft. It derives from the fact that the letter “N” is the national identification letter assigned to U.S. aircraft by international agreement, and therefore precedes the other characters in the number.

**NDB** – See Nondirectional Beacon.

**Nondirectional beacon (NDB)** – A low, medium or UHF radio beacon transmitting nondirectional signals which may be sensed by automatic direction finding equipment in an aircraft so equipped.

**Normal category** – A Federal Aviation Agency certification category that guarantees, for airplanes weighing less than 4100 pounds, that the airplane structure can withstand positive load factors of 3.8 and negative load factors of 1.52. In flight maneuvers are accordingly restricted in order to stay within those limits.

**NOTAMS** – See Notices to Airmen.

**Notices to Airmen (NOTAMs)** – They provide the most current information available. Information on airports and changes which effect the national airspace system that are time critical and in particular are of concern to instrument flight rules.

**OBS** – See Omni Bearing Selector.

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**Oil pressure gauge** – An instrument that indicates the pressure of the lubricating oil inside the engine, usually measured at the point it is discharged from the oil pump.

**Omni bearing selector (OBS)** – The knob that rotates the bearing selector card on the VOR indicator allowing the operator to select the desired radial to be used for navigation.

**Operating limitations** – Limiting values for speeds, weight, powerplant temperatures and pressures, crew size, etc furnished by the manufacturer of a specific aircraft. (See 14 CFR § 23 Subpart G)

**Overbanking tendency** – the tendency for bank angle to continue increasing after the bank control has been returned to neutral.

**PAPI** – See Precision Approach Path Indicator.

**Parasite drag** – The aggregate of the remaining sources of drag after accounting for induced drag. It consists of **form drag** caused by the frontal area of the aircraft, **skin friction drag** caused by air passing over the aircraft's surfaces, and **interference drag** caused by the interference of the airflow between various parts of the aircraft such as the intersection of the wings and fuselage.

**P-factor** – The common term for “Asymmetric Propeller Disc Loading”. At high nose up attitudes, such as at low speed, the axis of the propeller's rotation is not parallel to the direction of flight (direction of the relative wind). The downward moving propeller blade then has a higher angle of attack than the upward moving blade and hence produces more thrust.

**PFD** – See Primary Flight Display.

**PIC** – See Pilot in Command.

**Pilot in Command (PIC)** – The pilot responsible for the operation and safety of an aircraft during flight time.

**Pilot's information manual (PIM)** – A generic version of a Pilot's Operating Handbook applicable to all aircraft of a similar model. Published for general information and study purposes. It lacks specific weight and balance data and is usually sold in bound copy form. Although virtually identical to the Pilot's Operating Handbook, it is not a legal substitute for it in the aircraft.

**Pilot's operating handbook (POH)** – A book containing data and operating instructions for a specific aircraft. It is required by regulation to be carried in the aircraft while it is in flight. It is usually bound in loose leaf form to facilitate correction.

**Pilot weather report (PIREP)** – A weather report transmitted by a pilot about conditions encountered aloft that will be used by flight service to fill in the gaps between reporting stations. These typically contain cloud tops, icing and turbulence information.

**PIM** – See Pilot's Information Manual.

**PIREP** – See Pilot Weather Report.

**Pitch** – The motion of an aircraft about its lateral axis (line from wingtip to wingtip).

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**Pitot tube** – An open-end tube that opens directly into the free stream air passing by the aircraft. It is the source of ram or impact pressure for the airspeed indicator.

**POH** – See Pilot's Operating Handbook.

**Power required curve** – A plot of the horsepower necessary to produce a given airspeed. The conventional presentation displays horsepower on the vertical scale and airspeed on the horizontal scale.

**Practical Test Standards (PTS)** – An FAA published set of standards by which all FAA practical tests (checkrides) will be conducted listing the tasks and parameters required to complete them satisfactorily.

**Precision approach path indicator (PAPI)** – An airport lighting facility providing a visual glide path by means of a row of two or four lights on a line perpendicular to the runway which indicates “on path” by a symmetric display of red and white lights with red nearest the runway.

**Pre-ignition** – Ignition of the charge in a reciprocating engine cylinder before the normal ignition spark occurs.

**Pressure altitude** – The altitude indicated when the altimeter setting window (barometric scale) is set to 29.92. This is the standard datum plane where pressure (Corrected to 15°C) is 29.92 in. Hg. at sea level.

**Preventive maintenance** – Procedures followed in order to keep a piece of equipment working properly. Preventive maintenance that may be performed by owner pilots is listed in 14 CFR § 43, Appendix A.

**Primary flight display (PFD)** – An electronic display that provides increased situational awareness by replacing the traditional six instruments used for instrument flight with a display that shows the horizon, airspeed, altitude, vertical speed, trend, trim, and rate of turn among other key relevant indications.

**Prime meridian** – The meridian passing through the Royal Observatory at Greenwich, England. By international convention, 0 degrees Longitude.

**Propeller** – A rotating airfoil driven by an engine to produce thrust to pull or push an aircraft through the air.

**PTS** – See Practical Test Standards.

**Pulsating visual approach slope indicator (P-VASI)** – An airport lighting facility providing a visual glide slope by means of a single point, two color light source. “On path” is indicated by a steady white, slightly low by steady red. Divergence from the glide path is indicated by the respective lights pulsing. The greater the divergence, the more rapidly the light pulses.

**P-VASI** – See Pulsating Visual Approach Slope Indicator.

**Radial** – A navigational signal radiated from a VOR aligned with a single magnetic bearing from that facility. For example the 270° radial is a signal that will be aligned with a 270° magnetic bearing from that facility.

**Rate of climb indicator** – Obsolescent term for “Vertical Speed Indicator”.

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**RCO** - See Remote Communications Outlet.

**Registration certificate** – A document issued by the Federal Aviation Administration which shows the name and address of the owner of an aircraft, the manufacturer's serial number for the aircraft, and the register number it must display. It is analogous to the registration slip for an automobile.

**Registration number** – The number letter combination assigned to an aircraft by a government for identification purposes. By international agreement it must be prominently displayed on the airframe. It is analogous to an automobile license plate.

**REIL** – See Runway End Identifier Lights.

**Relative bearing** – Assuming the nose of the aircraft is 0°. The direction from the nose of the aircraft in degrees is the relative bearing to a station. If the station were off of the right wing tip the relative bearing to that station would be 90°. Off of the tail 180°.

**Relative wind** – The direction of airflow with respect to an airfoil. It is parallel and opposite the path of the airfoil's movement

**Remote communications outlet (RCO)** – An unmanned communications facility remotely controlled by air traffic personnel. These typically serve FSS's.

**Roll** – The motion of an aircraft about its longitudinal axis (line from nose to tail).

**Rotating beacon** – Rotating lights installed in a position affording good visibility near an airport for the purpose of helping pilots find the airport at night. For civil airports, the lights are alternating green and white.

**Rudder** – The vertical, movable control surface in the tail section or empennage of an airplane.

**Runway end identifier lights (REIL)** – Two synchronized flashing lights, one on each side of the runway threshold, which provide positive identification of the approach end of a particular runway.

**Sectional aeronautical chart** – An aeronautical map drawn to a scale of 1:500,000 intended for visual navigation of slow and medium speed aircraft.

**Short field** – Describes a limited runway length or procedure that will require an aircraft to be operated in a manner that will allow a takeoff in the shortest possible distance. With respect to landing, a runway length or procedure requiring an aircraft to be landed with the shortest possible ground roll.

**SIGMET** – See Significant Meteorological Information.

**Significant Meteorological Information (SIGMET)** – Issued to advise pilots of weather potentially hazardous to ALL categories aircraft.

**Slipstream effect** – A rotating flow of air from the propeller that strikes the vertical tail surfaces at low speed. For propellers with American rotation (Clockwise as viewed from the cockpit), it strikes the vertical tail on the left side.

**Sneaky stalls** – A colloquial expression for an unanticipated stall that occurs during a flight maneuver. (Usually a maneuver that requires great concentration on the part of inexperienced pilots.)

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**Soft field** – Describes a runway that is not paved typically grass or dirt. With respect to an aircraft operating procedure, the procedure that will allow an aircraft to land or takeoff on a soft surface without hazard or damage to the aircraft.

**Spin** – An airplane maneuver resulting when the development of a stall is asymmetric across the span of the wing. The airplane will rotate (generally about the longitudinal axis) in the direction of the more fully stalled section. If rotation takes place primarily about the vertical axis it is identified as a “flat” spin.

**Squawk** - v. The act of initiating operation of a specific code or function on a transponder (see also “transponder”). n. Generic term for a code to be displayed on a transponder.

**Squelch** – A circuit in a radio receiver that keeps the volume down when no signal is being received thus limiting annoying background noise.

**Stall** - n. The condition that exists when the angle of attack becomes so great that air no longer flows smoothly over an airfoil. v. The act of inducing a stall.

**Static vent** – A small hole or port in the skin of an aircraft at a location where air flowing past the aircraft is least disturbed. It is the normal source of ambient air pressure for the altimeter, vertical speed indicator and airspeed indicator.

**Straight and level flight** – A flight maneuver in which the aircraft neither changes direction nor altitude.

**Straight flight** – A flight maneuver in which the aircraft does not change direction.

**TACAN** – See Tactical Air Navigation.

**Tactical air navigation (TACAN)** – A military radio navigation facility that provides distance information and directional signals. When combined with a VOR these facilities provide distance information and directional signals for civilian aircraft as well.

**TAF** – See Terminal Aerodrome Forecast.

**Tail** – Collectively, the aerodynamic surfaces mounted on the rearmost portion of an aircraft.

**TAS** – See True Airspeed.

**Terminal area chart** – An aeronautical map drawn to a scale of 1:250,000 intended for visual navigation in the congested airspace near and including Class B airspace.

**Terminal aerodrome forecast (TAF)** – Forecast that gives a description of expected conditions at an airport and within a 5 nautical mile radius of a runway complex for a 24 or 30-hour period.

**Tetrahedron** – A large lightweight, covered framework in the shape of a triangular pyramid lying on one side. It is mounted on a pivot near the center of an airport and when viewed from the air gives the appearance of a giant arrowhead. If allowed to swing freely it indicates wind direction but it can also be locked into position parallel to a runway centerline to indicate a preferred use runway.

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**Threshold** - The beginning of that portion of a runway usable for landing.

**Throttle** – The valve in a carburetor or fuel injection system that controls the amount of fuel-air mixture allowed to enter the cylinders of an engine. Also, commonly, the cockpit lever that controls the valve.

**Thrust** – The aerodynamic force produced by a propeller or jet engine as it forces a mass of air to the rear, behind the aircraft.

**Torque** – A force that produces or tries to produce rotation.

**Total drag curve** – A plot of drag that must be overcome at a given airspeed. The conventional presentation shows drag on the vertical scale and airspeed on the horizontal scale. The conventional presentation usually also shows separate plots for induced drag and parasite drag and then a third plot line representing their graphic sum.

**Tower (Controller)** – The radio call sign used to contact the Local controller. Through common usage, a synonym for “Local Controller”.

**Transcribed weather broadcast (TWEB)** - A continuous weather broadcast on low/medium frequencies (190 – 535kHz) and selected VORs (108.0 – 117.95 MHz).

**Transponder** – A device carried in an aircraft used to produce a recognizable, selectively coded pattern on an air traffic control radar screen.

**Tri-colored VASI** – An airport lighting facility providing a visual glide slope from a single light unit projecting a three-color approach path into the final approach area. The below glide path indication is red, above glide path is amber, and on glide path is green.

**Trim tab** – An auxiliary control surface, adjustable in flight, added to a primary control surface to modify control force inputs.

**True airspeed (TAS)** – The actual speed of an aircraft through the airmass. It is calibrated airspeed corrected for temperature and altitude.

**True Altitude** – The true vertical distance of an aircraft above sea level. Typically expressed in Mean Sea Level (MSL).

**Turn coordinator** – A gyroscopic instrument that detects motion about the longitudinal and yaw axes of an aircraft by utilizing the property of gyroscopic precession.

**Turn** - A flight maneuver that changes the aircraft's direction of flight. It is a change in **linear** velocity.

**TWEB** – See Transcribed Weather Broadcast.

**Unaccelerated flight** - Flight where **linear** velocity is unchanged. (Note: a steady rate climb or descent is unaccelerated, but a turn is not unaccelerated since it is a change in **linear** velocity)

**UNICOM** – A privately owned radio station located on an airport used for ground – air communication. Services can be arranged and advisory information passed on these channels, but it cannot be used to control traffic.

**Upwind leg** - A flight path parallel to the landing runway in the direction of landing.

# AVIATION GLOSSARY

**Urgent Condition** – In an aircraft, means there is a potential distress situation requiring timely but not immediate assistance.

**UTC** – See Coordinated Universal Time. The order of the initials is taken from its usage in the Romance Languages.

**Utility category** – A Federal Aviation Agency certification category that guarantees the airplane structure can withstand positive load factors of 4.4 and negative load factors of 1.76. In flight maneuvers are accordingly restricted in order to stay within those limits.

**VASI** – See Visual Approach Slope Indicator.

**Vertical axis** – An imaginary line passing vertically through the center of gravity of an aircraft. The airplane yaws about the vertical axis.

**Vertical component of lift** – That portion of the total lift produced by an airfoil that acts perpendicular to the earth's surface.

**Vertical speed indicator (VSI)** – An instrument that measures vertical velocity by sensing the rate of change in atmospheric pressure.

**Very high frequency (VHF)** – The radio frequency band from 30 to 300 MHz. Frequencies from 108 to 118 MHz are used for navigation aids and frequencies from 118 to 136 MHz are used for civil air/ground voice communication. Other portions of the band are used for non-aviation purposes.

**Very high frequency omni directional range (VOR)** – A radio navigation facility producing directional radio signals aligned with all magnetic compass headings allowing aircraft equipped with a VOR receiver to track along these radials.

**VFR** – See Visual Flight Rules.

**VHF** – See Very High Frequency.

**VHF omni test signal (VOT)** – A signal transmitted from an FAA VOR TEST FACILITY used to determine the accuracy of the VOR in any aircraft when tuned to that frequency.

**Visual approach slope indicator (VASI)** – An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he is “on path” if he sees red/white, “above path” is white/white, and “below path” if red/red.

**Visual flight rules (VFR)** – Flight operating rules followed when weather is better than specified minimum ceiling and visibility. In the United States, it is commonly used as synonymous to “good weather”.

**Voice activated transmission (VOX)** – A system where the sound of the speaker's voice automatically keys the microphone. Usually found in intercom systems, but technically possible for radios.

**VOR** – See Very High Frequency Omni Directional Range.

**VORTAC** – A combined civilian VOR and military TACAN directional radio navigation facility that also provides distance information to aircraft equipped with the proper receivers.

# AVIATION GLOSSARY

**VOT** – See VHF Omni Test Signal.

**VOX** – See Voice Activated Transmission.

**VSI** – See Vertical Speed Indicator.

**WAC** – See World Aeronautical Chart.

**WCA** – See Wind Correction Angle.

**Weight** – A measure of the force of gravity acting upon a body.

**Weight and balance** – Commonly, the calculation of the actual weight and location of the center of gravity of an aircraft to determine if it complies with the limitations set forth in the operating limitations.

**Wind correction angle (WCA)** – The angle between the heading of an aircraft and the course over the ground computed to correct for wind direction.

**Wind Shear** – An abrupt change in wind speed and/or direction. It can be either horizontally, vertically or both.

**Wind tee** – A device resembling a capital letter “T” with a vertical fin added on the long center arm so as to form a crude planform silhouette of an airplane. Its operation and use is identical to that of a **Tetrahedron**.

**Wing** – The part of a heavier-than-air aircraft that produces aerodynamic lift.

**Wing walker** - (On the ground) A person who assists in the movement of an aircraft in a confined area by walking in the vicinity of the wing tips to verify safe clearance.

**Wingtip vortices** – Rotating air currents formed at the wing tips any time a wing is producing lift.

**World aeronautical chart (WAC)** – An aeronautical map drawn to a scale of 1:1,000,000 intended for visual navigation by high speed aircraft. It is also valuable in initial flight planning for slower aircraft since it covers 4 times the area of a Sectional Aeronautical Chart.

**Yaw** – The motion of an aircraft about its vertical axis (vertical line through the center of gravity).

**Zulu time** – Alternative identification of Coordinated Universal Time. In print form Coordinated Universal Time is usually identified by adding the letter “Z” after the numerals, hence “Zulu Time” from the international alphabet designation for “Z”.