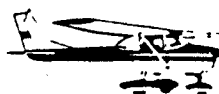


An Elementary Aviation Glossary

101 WORDS AND DEFINITIONS



AERODYNAMICS—Study of the forces of air acting on objects in motion relative to air.

AILERON—Control surfaces hinged at the back of the wings which by deflecting up or down helps to bank the airplane.

AIR—A mixture of gases making up the atmosphere which surrounds the earth.

AIRFOIL—A streamlined surface designed in such a way that air flowing around it produces useful motion.

AIRPLANE—A mechanically-driven, fixed-wing, heavier-than-air craft.

AIRPORT—A tract of land or water for the landing and takeoff of aircraft. Facilities for shelter, supply, and repair are usually found there.

AIRSPEED—Speed of the aircraft relative to the air through which it is moving.

AIRWAY—An air route marked by aids to air navigation such as beacons, radio ranges and direction-finding equipment, and along which airports are located.

ALTIMETER—An instrument for measuring in feet the height of the airplane above sea level.

ALTITUDE—The vertical distance from a given level (sea level) to an aircraft in flight.

AMPHIBIAN PLANE—An airplane that can land on both land and water.

ANEMOMETER—Instrument to measure speed of wind.

ASCEND—Climb.

ATMOSPHERE—Blanket of air surrounding the earth.

ATTITUDE—Position of the airplane relative to the horizon, i. e., a climbing attitude, straight-and-level attitude, etc.

AVIATION—A term applied to all phases of the manufacture and operation of aircraft.

BANK—A flight maneuver in which one wing points toward the ground and the other to the sky.

BAROMETER—An instrument to measure pressure of the atmosphere.

BEACON—A light or other signal indicating direction.

CEILING—Height above ground of cloud bases.

CHART—An aeronautical map showing information of use to the pilot in going from one place to another.

CIRRUS—Type of high thin cloud.

COCKPIT—The portion of the inside of the airplane occupied by the person(s) operating the airplane, and containing the instruments and controls.

COMPASS—An instrument indicating direction

CONTACT—Switching on the ignition of an aircraft engine or turning the propeller by hand. "Contact" is a word of warning that someone is about to turn on the ignition.

CONTROL TOWER—A glassed-in observation tower on the airport from which control tower operators observe and direct airport air and ground traffic.

COURSE—The direction over the earth's surface that an airplane is intended to travel.

CROSSWIND—Wind blowing from the side, not coinciding with the path of flight.

CUMULUS—Type of cloud formed in puffs or dome-shaped.

CURRENT—Stream of air; also, up-to-date.

DEAD STICK LANDING—Landing made without the engine operating.

DEGREE—1/360 of a circle, or 1/90 of a right angle.

DIVE—A steep angle of descent.

DRIFT—Deviation from a course caused by crosswise currents of air.

ELEVATION—The height above sea level of a given land prominence, such as airports, mountains, etc.

ELEVATORS—Control surfaces hinged to the horizontal stabilizer which controls the pitch of the airplane, or the position of the nose of the airplane relative to the horizon.

ENGINE—The part of the airplane which provides power, or propulsion, to pull the airplane through the air.

FIN—A vertical attachment to the tail of an aircraft which provides directional stability. Same as vertical stabilizer

FLAPS—Hinged or pivoted airfoils forming part of the trailing edge of the wing and used to increase lift at reduced airspeeds.

FLIGHT PLAN—A formal written plan of flight showing route, time enroute, points of departure and destination, and other pertinent information.

FORCE—A push or pull exerted on an object.

FREIGHT—Cargo.

FRONT (weather)—Boundary of two overlapping air masses. When cold air is advancing on warm air, it is said to be a cold front; warm air advancing on cooler air is a warm front.

FUSELAGE—The streamlined body of an airplane to which are fastened the wings and tail.

GEAR—The understructure of an airplane which supports the airplane on land or water: wheels, skis, pontoons. Retractable gear folds up into the airplane in flight. Gear that does not retract is called "fixed".

GLIDE—A motion of the airplane where the airplane descends at an angle to the earth's surface.

GLIDER—A fixed wing, heavier-than-air craft having no engine.

GRAVITY—Force toward the center of the earth.

HAIL—Lumps or balls of ice falling to the earth out of thunderstorms.

HANGAR—Building on the airport in which airplanes are stored or sheltered.

HAZARD—Obstructions or objects or threats to the safety of the passenger and aircraft.

HIGH PRESSURE AREA—Mass of air characterized by high barometric pressure.

HORIZONTAL—Parallel to the horizon.

HUMIDITY—Amount of invisible moisture in a given mass of air.

INSTRUMENTS—Dials or gauges by which information about the flight, airplane, or engine is relayed to the pilot. When the pilot flies the airplane solely by reference to the gauges, he is said to be flying "on instruments".

KNOT—A measure of speed, one knot being one nautical mile per hour.

LAND—The act of making the airplane descend, lose flying speed, and make contact with the ground or water, thus ending the flight.

LANDING PATTERN—A set rectangular path around the airport which airplanes follow to land.

LIFT—An upward force caused by the rush of air over the wings, supporting the airplane in flight.

LOW PRESSURE AREA—Mass of air having low atmospheric pressure.

METEOROLOGY—The scientific study of the atmosphere.

MOISTURE—Water in some form in the atmosphere.

MONOPLANE—An airplane having one set of wings.

MULTI-ENGINE—Having more than one engine.

PARACHUTE—A fabric device attached to objects or persons to reduce the speed of descent.

PEDALS—Foot controls in the cockpit by which the pilot controls the action of the rudder.

PILOT—Person who controls the airplane.

PRECIPITATION—Any falling visible moisture: rain, snow, sleet, hail.

PRESSURE—Force in terms of force per unit area.

PROPELLER—An airfoil which the engine turns to provide the thrust, pulling the airplane through the air.

RADAR—Beamed radio waves for detecting and locating objects. The objects are "seen" on the radar screen, or scope.

RAMP—Area outside of airport buildings where airplanes are parked to be serviced or to pick up and discharge passengers and cargo.

RUDDER—Control surface hinged to the back of the vertical fin.

RUNWAY—A surface or area on the airport designated for airplanes to take-off and land.

SEAT BELT—Belts attached to the seat which fasten around the pilot and passengers to hold them firmly in their seats in bouncy air and during take-offs and landings.

SEAPLANE—An airplane that operates from water.

SLIPSTREAM—Current of air driven back by the propeller.

STABILIZER—Horizontal surface which stabilizes the airplane around its lateral axis.

STALL—The reduction of speed to the point where the wing stops producing lift.

STATIONARY—Something that does not move is said to be stationary. A front along which one air mass does not replace another.

STRATUS—Layered clouds.

STREAMLINE—An object shaped to make air flow smoothly around it.

TACHOMETER—Instrument which measures the speed at which the engine crankshaft is turning, hence the propeller speed in r. p. m.'s (rounds per minute).

TAIL—The part of the airplane to which the rudder and elevators are attached. The tail has vertical and horizontal stabilizers to keep the airplane from turning about its lateral axis.

TAKE-OFF—The part of the flight during which the airplane gains flying speed and becomes airborne.

TERMINAL—Building on the airport where people board planes, buy tickets, and have their luggage handled. Flight services are frequently located at the air terminal.

THRUST—Forward force.

TRANSMITTER—Microphone, or part of the radio that sends the message.

TRICYCLE LANDING GEAR—Airplane's landing wheels, two under the wings and one under the nose.

TURBULENCE—Irregular motion of air; uneven currents of air.

TURN—Maneuver which the airplane makes in changing its direction of flight.

UPDRAFT—Vertical current of air.

VELOCITY—Speed.

VERTICAL—Ninety degrees from the horizon

VISIBILITY—Distance toward the horizon that objects can be seen and recognized. Smoke, haze, fog, and precipitation can hinder visibility.

VORTEX—A circular, whirling movement of air forming a space in the center toward which anything caught in the vortex tends to move.

WEATHER—Condition of the atmosphere at a given time with respect to air motion, moisture, temperature, and air pressure.

WIND—Air in motion, important to aviation because it influences flight to a certain degree.

WIND SOCK—A cone-shaped, open-ended cylinder of cloth to catch the wind and show its direction.

WINGS—Part of the airplane shaped like an airfoil and designed in such a way to provide lift when air flows over them.

ZOOM—The climb for a short time at an angle greater than the normal climbing angle, the airplane being carried upward at the expense of airspeed.

Aerospace. A physical region made up of Earth's atmosphere and the space beyond.

Aerospace plane. A single spacecraft able to operate effectively in both the atmosphere and space. Also known as a "transatmospheric vehicle."

Apogee. The point of greatest distance from Earth (or the moon, a planet, etc.) achieved by a body in elliptical orbit. Usually expressed as distance from Earth's surface.

Atmosphere. Earth's enveloping sphere of air.

Boost phase. Powered flight of a ballistic missile—*i.e.*, before the rocket burns out.

Burn. The process in which rocket engines consume fuel or other propellant.

Circumterrestrial space. "Inner space" or the atmospheric region that extends from sixty miles to about 50,000 miles from Earth's surface.

Constellation. A formation of spacecraft orbiting for a specific combined purpose.

Deep space. All space beyond the Earth-moon system, or from about 480,000 miles altitude outward.

Eccentric orbit. An extremely elongated elliptical orbit.

Ecliptic plane. The plane defined by the circle on the celestial sphere traced by the path of the sun.

Elliptical orbit. Any noncircular, closed spaceflight path.

Exosphere. The upper limits of Earth's atmosphere, ranging from about 300 miles altitude to about 2,000 miles altitude.

Expendable launch vehicle (ELV). A launch vehicle that cannot be reused after one flight.

Ferret. A satellite whose primary function is to gather electronic intelligence, such as microwave, radar, radio, and voice emissions.

Geostationary Earth orbit. A geosynchronous orbit with 0° inclination in which the spacecraft circles Earth 22,300 miles above the equator and appears from Earth to be standing still.

Geosynchronous Earth orbit (GEO). An orbit at 22,300 miles that is synchronized with Earth's rotation. If a satellite in geosynchronous orbit is not at 0° inclination, its ground path describes a figure eight as it travels around Earth.

Geosynchronous transfer orbit (GTO). An orbit that originates with the parking orbit and then reaches apogee at the GEO.

Ground track. An imaginary line on Earth's surface that traces the course of another imaginary line between Earth's center and an orbiting satellite.

High-Earth orbit (HEO). Flight path above geosynchronous altitude (22,300 to 60,000 miles from Earth's surface).

High-resolution imagery. Detailed representations of actual objects that satellites produce electronically or optically on displays, film, or other visual devices.

Inertial upper stage. A two-stage solid-rocket motor used to propel heavy satellites into mission orbit.

Ionosphere. A region of electrically charged thin air layers that begins about thirty miles above Earth's atmosphere.

Low-Earth orbit (LEO). Flight path between Earth's atmosphere and the bottom of the Van Allen belts, *i.e.*, from about sixty to 300 miles altitude.

Magnetosphere. A region dominated by Earth's magnetic field, which traps charged particles, including those in the Van Allen belts. It begins in the upper atmosphere, where it overlaps the ionosphere, and extends several thousand miles farther into space.

Medium-Earth orbit (MEO). Flight path between low-Earth orbit (about 300 miles in altitude) and geosynchronous orbit at an average altitude of 22,300 miles.

Mesosphere. A region of the atmosphere about thirty to fifty miles above Earth's surface.

Orbital decay. A condition in which spacecraft lose orbital altitude and orbital energy because of aerodynamic drag and other physical forces.

Orbital inclination. Angle of flight path in space relative to the equator of a planetary body. Equatorial paths are 0° for flights headed east, 180° for those headed west.

Outer space. Space that extends from about 50,000 miles above Earth's surface to a distance of about 480,000 miles.

Parking orbit. Flight path in which spacecraft go into LEO, circle the globe in a waiting posture, and then transfer payload to a final, higher orbit.

Payload. Any spacecraft's crew and/or cargo; the mission element supported by the spacecraft.

Perigee. The point of minimum altitude above Earth (or the moon, a planet, etc.) maintained by a body in elliptical orbit.

Period. The amount of time a spacecraft requires to go through one complete orbit.

Polar orbit. Earth orbit with a 90° inclination. Spacecraft on this path could pass over every spot on Earth as Earth rotates under the satellite's orbit (see "orbital inclination").

Remote imaging. Images of Earth generated from spacecraft that provide data for mapping, construction, agriculture, oil and gas exploration, news media services, and the like.

Rocket. An aerospace vehicle that carries its own fuel and oxidizer and can operate outside Earth's atmosphere.

Semisynchronous orbit. An orbit set at an altitude of 12,834 miles. Satellites in this orbit revolve around Earth in exactly twelve hours.

Single-stage-to-orbit (SSTO) system. A radically new, reusable single-stage rocket that can take off and land repeatedly and is able to boost payloads into orbit.

Stratosphere. That section of atmosphere about ten to thirty miles above Earth's surface.

Sun-synchronous orbit. A low-Earth orbit inclined at about 98° to the equator. At this inclination and altitude, a satellite's orbital plane will always maintain the same relative orientation to the position of the sun.

Thermosphere. The thin atmosphere about fifty to 300 miles above Earth's surface. It experiences dramatically increased levels of heat compared to the lower layers.

Transfer. Any maneuver that changes a spacecraft orbit.

Transponder. A radar or radio set that, upon receiving a designated signal, emits a radio signal of its own.

Troposphere. The region of the atmosphere from Earth's surface to about ten miles above the equator and five miles above the poles. This is where most clouds, wind, rain, and other weather occurs.

Van Allen belts. Zones of intense radiation trapped in Earth's magnetosphere that could damage unshielded spacecraft.