Air Washington Glossary

Term	Definition
A	
A/C	Aircraft
Aborted Takeoff	A takeoff that is terminated prematurely when it is determined that some condition exists that makes takeoff or further flight dangerous.
Abradable Strip	A strip of material in the compressor housing of some axial-flow gas turbine engines. The tip of the compressor blade touches the abradable strip, and wears, or abrades a groove in it. This groove ensures the minimum tip clearance.
Abradable Tip	Compressor blade tip. The tip of some axial-flow compressor blades constructed so that it will abrade, or wear away, upon contact with the compressor housing, which ensures the minimum tip clearance between the blade and the housing.
Absolute Humidity	The actual amount of the water vapor in a mixture of air and water.
Absolute Pressure	Equal to gauge pressure plus atmospheric pressure. Also known as psia.
Absolute Pressure	Pressure referenced from zero pressure or a vacuum.
Absolute Pressure Regulator	A valve used in a pneumatic system at the pump inlet to regulate the compressor inlet air pressure to prevent excessive speed variation and/or overspeeding of the compressor.
Absolute Temperature	Temperature measured relative to absolute zero. Absolute temperature scales include Kelvin and Rankine.
Absolute Zero	The point at which all molecular motion ceases. Absolute zero is –460 °F and –273 °C.
Advisory Circulars	AC. Issued to inform the aviation public in a systematic way of non-regulatory material. An AC is issued to provide guidance and information in a designated subject area or to show a method acceptable to the Administrator for complying with a related 14 CFR part.
AC	Advisory Circulars.
AC	Alternating Current
ACARS	Aircraft Communication Addressing and Reporting System
ACC	Active Clearance Control
Alternating Current	An electric current that reverses direction in a circuit at regular intervals.
Aircraft Communication Addressing and Reporting System	ACARS. A two-way communication link between an airliner in flight and the airline's main ground facilities. Data is collected in the aircraft by digital sensors and is transmitted to the ground facilities. Replies from the ground may be printed out so the appropriate flight crewmember can have a hard copy of the response.

Active Clearance Control	ACC. A system for controlling the clearance between tips of the compressor and turbine blades and the case of high-performance turbofan engines. When the engine is operating at maximum power, the blade tip clearance should be minimum, and the ACC system sprays cool fan discharge air over the outside of the engine case. This causes the case to shrink enough to decrease the tip clearance. For flight conditions that do not require such close clearance, the cooling air is turned off, and the case expands to its normal dimensions. The control of the ACC system is done by the FADEC, or full-authority digital electronic control.
Acceleration	The amount the velocity of an object is increased by a force during each second it is acted upon by that force. Acceleration is usually measured and expressed in terms of feet per second, per second (fps^2).
Acceleration Due to Gravity	The acceleration of an object caused by gravity. On earth, it is measured as 32.2 feet per second per second (32.2 fps/s).
Accessory End	The end of a reciprocating engine on which many of the accessories are mounted. Also, called the antipropeller end.
Accumulator	A hydraulic component that consists of two compartments separated by a movable component, such as a piston, diaphragm, or bladder. One compartment is filled with compressed air or nitrogen, and the other is filled with hydraulic fluid and is connected into the system pressure manifold. An accumulator allows an incompressible fluid to be stored under pressure by the force produced by a compressible fluid. Its primary purposes are to act as a shock absorber in the system, and to provide a source of additional hydraulic power when heavy demands are placed on the system.
Active Clearance Control	ACC. A system for controlling the clearance between tips of the compressor and turbine blades and the case of high-performance turbofan engines. When the engine is operating at maximum power, the blade tip clearance should be minimum, and the ACC system sprays cool fan discharge air over the outside of the engine case. This causes the case to shrink enough to decrease the tip clearance. For flight conditions that do not require such close clearance, the cooling air is turned off, and the case expands to its normal dimensions. The control of the ACC system is done by the FADEC, or full-authority digital electronic control.
Actuator	A fluid power device that changes fluid pressure into mechanical motion.
Airworthiness Directive	AD. Issued by the FAA in response to deficiencies and/or unsafe conditions found in aircraft, engines, propellers, or other aircraft parts. Compliance with an AD is mandatory.
Air data computer	ADC. An electronic computer in an aircraft that senses pitot pressure, static pressure, and total air temperature. It produces an indication of altitude, indicated airspeed, true airspeed, and Mach number. The output of ADC is usable by any of the engine or flight control computers.
Automatic Direction Finder	ADF
Attitude Director Indicator	ADI
Antidetonation Injection System	ADI System. A system used with some large reciprocating engines in which a mixture of water and alcohol is sprayed into the engine with the fuel when operating at extremely high power. The fuel-air mixture is leaned to allow the engine to develop its maximum power, and the ADI fluid absorbs excessive heat when it vaporizes.
Adiabatic Change	A physical change that takes place within a material in which heat energy is neither added to the material, nor taken away. If a container of gas is compressed, with no heat energy added to or taken from it, the gas will become hotter; its temperature will rise.

Adjustable Stabilizer	A stabilizer that can be adjusted in flight to trim the airplane, thereby allowing the airplane to fly hands-off at any given airspeed.
Adjustable-pitch Propeller	A propeller with blades whose pitch can be adjusted on the ground with the engine not running, but which cannot be adjusted in flight. Also referred to as a ground adjustable propeller. Sometimes also used to refer to constant-speed propellers that are adjustable in flight.
Advancing Blade	The blade on a helicopter rotor whose tip is moving in the same direction the helicopter is moving. In helicopters that have counterclockwise main rotor blade rotation as viewed from above, the advancing blade is in the right half of the rotor disk area during forward movement.
Adverse Yaw	A condition of flight at the beginning of a turn in which the nose of an airplane momentarily yaws in the opposite direction from the direction in which the turn is to be made. This is caused by the higher induced drag on the outside wing, which is also producing more lift. Induced drag is a by-product of the lift associated with the outside wing.
Advisory Circulars	AC. Issued to inform the aviation public in a systematic way of non-regulatory material. An AC is issued to provide guidance and information in a designated subject area or to show a method acceptable to the Administrator for complying with a related 14 CFR part.
Aerodrome	The name given by Dr. Samuel Langley to the flying machines built under his supervision between the years of 1891 and 1903.
Aerodynamics	The science of the action of air on an object, and with the motion of air on other gases. Aerodynamics deals with the production of lift by the aircraft, the relative wind, and the atmosphere.
Aerodynamic Drag	The total resistance to the movement of an object through the air. Aerodynamic drag is composed of both induced drag and parasite drag. See induced drag and parasite drag.
Aerodynamic Lift	The force produced by air moving over a specially shaped surface called an airfoil. Aerodynamic lift acts in a direction perpendicular to the direction the air is moving.
Aerodynamic Twisting Force	ATF. The aerodynamic force that acts on a rotating propeller blade to increase its blade angle. The axis of rotation of a blade is near the center of its chord line, and the center of pressure is between the axis and the leading edge. Aerodynamic lift acting through the center of pressure tries to rotate the blade to a higher pitch angle.
Aeroelastic Tailoring	The design of an aerodynamic surface whose strength and stiffness are matched to the aerodynamic loads that will be imposed upon it.
Aeromatic Propeller	A patented variable-pitch propeller that has counterweights around the blade shanks and the blades angled back from the hub to increase the effects of aerodynamic and centrifugal twisting forces. This propeller automatically maintains a relatively constant rpm for any throttle setting.
Aeronautical Radio Incorporated	ARINC. A corporation whose principal stockholders are the airlines. Its function is to operate certain communication links between airliners in flight and the airline ground facilities. ARINC also sets standards for communication equipment used by the airlines.
Automatic Flight Control System	AFCS. The full system of automatic flight control that includes the autopilot, flight director, horizontal situation indicator, air data sensors, and other avionics inputs.

Airplane Flight Manual	AFM. A document developed by the airplane manufacturer and approved by the Federal Aviation Administration. It is specific to a particular make and model airplane by serial number and it contains operating procedures and limitations.
Afterburner	A component in the exhaust system of a turbojet or turbofan engine used to increase the thrust for takeoff and for special flight conditions. Since much of the air passing through a gas turbine engine is used only for cooling, it still contains a great deal of oxygen. Fuel is sprayed into the hot, oxygen-rich exhaust in the afterburner, where it is ignited and burned to produce additional thrust.
Aft-fan Engine	A turbofan engine with the fan mounted behind the compressor section. The blades of an aft-fan are normally extensions of the free turbine blades.
Aging	A change in the characteristics of a material with time. Certain aluminum alloys do not have their full strength when they are first removed from the quench bath after they have been heat-treated, but they gain this strength after a few days by the natural process of aging.
Above Ground Level	AGL.
Agonic Line	A line drawn on an aeronautical chart along which there is no angular difference between the magnetic and geographic north poles.
Aileron	Primary flight control surfaces mounted on the trailing edge of an airplane wing, near the tip. Ailerons control roll about the longitudinal axis.
Airman's Information Manual	AIM. A primary FAA publication whose purpose is to instruct airmen about operating in the National Airspace System of the U.S. It provides basic flight information, ATC Procedures and general instructional information concerning health, medical facts, factors affecting flight safety, accident and hazard reporting, and types of aeronautical charts and their use.
Air Bleed	Carburetor component. A small hole in the fuel passage between the float bowl and the discharge nozzle of a float carburetor. Air drawn into the liquid fuel through the air bleed breaks the fuel up into an emulsion, making it easy to atomize and vaporize.
Air Carrier	An organization or person involved in the business of transporting people or cargo by air for compensation or hire.
Air Cooling	The removal of unwanted heat from an aircraft engine by transferring the heat directly into the air flowing over the engine components.
Aircraft	A device that is used, or intended to be used, for flight.
Aircraft Communication Addressing and Reporting System	ACARS. A two-way communication link between an airliner in flight and the airline's main ground facilities. Data is collected in the aircraft by digital sensors and is transmitted to the ground facilities. Replies from the ground may be printed out so the appropriate flight crewmember can have a hard copy of the response.
Aircraft Logbooks	Journals containing a record of total operating time, repairs, alterations or inspections performed, and all Airworthiness Directive (AD) notes complied with. A maintenance logbook should be kept for the airframe, each engine, and each propeller.
Aircraft Specifications	FAA recordkeeping documents issued for both type-certificated and non-type certificated products which have been found eligible for U.S. airworthiness certification.

Air-cycle Cooling System	A system for cooling the air in the cabin of a turbojet-powered aircraft. Compressor bleed air passes through two heat exchangers where it gives up some of its heat; then, it drives an expansion turbine where it loses still more of its heat energy as the turbine drives a compressor. When the air leaves the turbine, it expands and its pressure and temperature are both low.
A**ir Data Computer**	ADC. An electronic computer in an aircraft that senses pitot pressure, static pressure, and total air temperature. It produces an indication of altitude, indicated airspeed, true airspeed, and Mach number. The output of ADC is usable by any of the engine or flight control computers.
Air Density	The density of the air in terms of mass per unit volume. Dense air has more molecules per unit volume than less dense air. The density of air decreases with altitude above the surface of the earth and with increasing temperature.
Airfoil	Any surface, such as a wing, propeller, rudder, or even a trim tab, which provides aerodynamic force when it interacts with a moving stream of air.
Air-fuel Mixture Ratio	The ratio of the weight of the air to that of the fuel in the mixture fed into the cylinders of an engine.
Air Impingement Starter	A turbine engine starter that basically consists of a nozzle that blows a stream of compressed air against the turbine blades to rotate the compressor for starting the engine.
Air-oil Separator	A component in a turbine engine lubrication system that removes the air from the scavenged oil before it is returned to the oil tank.
Airplane	An engine-driven, fixed-wing aircraft heavier than air that is supported in flight by the dynamic reaction of air against its wings.
Airplane Flight Manual	AFM. A document developed by the airplane manufacturer and approved by the Federal Aviation Administration . It is specific to a particular make and model airplane by serial number and it contains operating procedures and limitations.
Airplane Owner/Information Manual	A document developed by the airplane manufacturer containing general information about the make and model of an airplane. The airplane owner's manual is not FAA approved and is not specific to a particular serial numbered airplane. This manual is not kept current, and therefore cannot be substituted for the AFM/POH.
Airspeed Indicator	A flight instrument that measures the pressure differential between the pitot, or ram, air pressure, and the static pressure of the air surrounding the aircraft. This differential pressure is shown in units of miles per hour, knots, or kilometers per hour.
Airstart	The starting of an aircraft engine while the aircraft is airborne, preceded by engine shutdown during training flights or by actual engine failure.
Airway	An airway is based on a centerline that extends from one navigation aid or intersection to another navigation aid (or through several navigation aids or intersections); used to establish a known route for en route procedures between terminal areas.
Airworthiness Alert	A notice sent by the FAA to certain interested maintenance personnel identifying problems with aircraft that have been gathered from Malfunction and Defect Reports. These problems are being studied at the time the Airworthiness Alert is issued but have not been fully evaluated by the time the material went to press.

Airworthiness Certificate	A document required to be onboard an aircraft that indicates the aircraft conforms to type design and is in condition for safe operation.
Airworthiness Directive	AD. Issued by the FAA in response to deficiencies and/or unsafe conditions found in aircraft, engines, propellers, or other aircraft parts. Compliance with an AD is mandatory.
Alclad	A registered trade name for clad aluminum alloy.
Alclad Aluminum	Used to designate sheets that consist of an aluminum alloy core coated with a layer of pure aluminum to a depth of approximately 51⁄2 percent on each side.
Algebra	The branch of mathematics that uses letters or symbols to represent numbers in formulas and equations.
Allowance	The difference of the upper and lower variation of a part.
All-weather Spark Plug	A shielded spark plug designed for high altitude operation. The ceramic insulator is recessed into the shell to allow a resilient grommet on the ignition harness to provide a watertight seal. All weather spark plugs, also called high-altitude spark plugs, are identified by their 3/4-20 shielding threads.
Alodine	The registered trade name for a popular conversion coating chemical used to produce a hard, airtight, oxide film on aluminum alloy for corrosion protection.
Alodizing	A simple chemical treatment for all aluminum alloys to increase their corrosion resistance and to improve their paint bonding qualities.
Alphanumeric Symbols	Symbols made up of all of the letters in our alphabet, numerals, punctuation marks, and certain other special symbols.
Approach Lighting System	ALS. Provides lights that will penetrate the atmosphere far enough from touchdown to give directional, distance, and glidepath information for safe transition from instrument to visual flight.
Alteration	A change or modification to an aircraft from its previous state.
Alternate Air	A device which opens, either automatically or manually, to allow induction airflow to continue should the primary induction air opening become blocked.
Alternate Static Source Valve	A valve in the instrument static air system that supplies reference air pressure to the altimeter, airspeed indicator, and vertical speed indicator if the normal static pickup should become clogged or iced over.
Alternating Current	AC. An electric current that reverses direction in a circuit at regular intervals.
Alternator	An electrical generator that produces alternating current. The popular DC alternator used on light aircraft produces three-phase AC in its stator windings. This AC is changed into DC by a six-diode, solid-state rectifier before it leaves the alternator.
Altimeter	A flight instrument that indicates altitude by sensing pressure changes.
Altimeter Setting	The barometric pressure at a given location corrected to mean (average) sea level.
Altitude Engine	An aircraft reciprocating engine equipped with a supercharger that allows it to maintain its rated sealevel horsepower to an established higher altitude.
Alumel	An alloy of nickel, aluminum, manganese, and silicon that is the negative element in a thermocouple used to measure exhaust gas temperature.
Amateur-built Aircraft	Aircraft built by individuals as a hobby rather than by factories as commercial products. Amateur-built or homebuilt aircraft do not fall under the stringent requirements imposed by the FAA on commercially built aircraft.

Ambient Air Pressure	The pressure of the air that surrounds an object.
Ambient Temperature	The temperature of the air surrounding a person or an object.
Automatic mixture control	AMC. The device in a fuel metering system, such as a carburetor or fuel injection system, that keeps the fuel-air mixture ratio constant as the density of air changes with altitude.
Aviation Medical Examiner	AME. A physician with training in aviation medicine designated by the Civil Aerospace Medical Institute (CAMI).
American Wire Gauge	AWG. The system of measurement of wire size used in aircraft electrical systems.
Ammeter	An instrument for measuring electric current in amperes.
Ampere	A unit of measure of the rate of electron flow or current in an electrical conductor. One ampere of current represents one coulomb of electrical charge (6.24 × 1018 charge carriers) moving past a specific point in one second.
Amphibian	An airplane with landing gear that allows it to operate from both water and land surfaces.
Amplifier	An electronic circuit in which a small change in voltage or current controls a much larger change in voltage or current.
Analog Electronics	Electronics in which values change in a linear fashion. Output values vary in direct relationship to changes of input values.
Analog Indicator	An electrical meter that indicates values by the amount a pointer moves across a graduated numerical scale.
Analog-type Indicator	An electrical meter that indicates values by the amount a pointer moves across a graduated numerical scale.
Anchor	A heavy hook connected to the seaplane by a line or cable, intended to dig into the bottom and keep the seaplane from drifting.
Aneroid	The sensitive component in an altimeter or barometer that measures the absolute pressure of the air. The aneroid is a sealed, flat capsule made of thin corrugated disks of metal soldered together and evacuated by pumping all of the air out of it. Evacuating the aneroid allows it to expand or collapse as the air pressure on the outside changes.
Angle of Attack	The acute angle between the chord line of a propeller blade and the relative wind. The angle of attack is affected by both the engine rpm and the forward speed of the aircraft.
Angle of Attack Indicator	An instrument that measures the angle between the local airflow around the direction detector and the fuselage reference plane.
Angle of Incidence	The acute angle formed between the chord line of an airfoil and the longitudinal axis of the aircraft on which it is mounted.
Annealing	The process of heating a metal to a prescribed temperature, holding it there for a specified length of time, and then cooling the metal back to room temperature.
Annual Inspection	A complete inspection of the air-frame and powerplant required for FAA-certificated aircraft operating under 14 CFR part 91 General Operating and Flight Rules, and not on one of the authorized special inspection programs. An annual inspection must be conducted every 12 calendar months, and it must be conducted by an aviation maintenance technician who holds an Airframe and Powerplant rating and an Inspection Authorization. The scope of an annual inspection is the same as that of a 100-hour inspection.
Annual Rings	The rings that appear in the end of a log cut from a tree. The number of annual rings per inch gives an indication of the strength of the wood. The more rings there are and the closer they are together, the stronger the wood. The pattern of alternating light and dark rings is caused by the seasonal variations in the growth rate of the tree. A tree grows quickly in the

	spring and produces the light-colored, less dense rings. The slower growth during the summer, or latter part of the growing season, produces the dark-colored, denser rings.
Annular Duct	A duct, or passage, that surrounds an object. The annular fan-discharge duct surrounds the core engine.
Annular Orifice	A ring-shaped orifice, normally one that surrounds another orifice.
Annulus	A ring or groove around the outside of a circular body or shaft, or around the inside of a cylindrical hole.
Annunciator Panel	A panel of warning lights visible to the flight crew. The lights are identified by the name of the system they represent and are often covered with colored lenses. Red lights indicate a dangerous condition, amber indicates a system is armed, and green indicate a safe condition.
Anodizing	The most common surface treatment of nonclad aluminum alloy surfaces. The aluminum alloy sheet or casting is the positive pole in an electrolytic bath in which chromic acid or other oxidizing agent produces an aluminum oxide film on the metal surface. Aluminum oxide is naturally protective, and anodizing merely increases the thickness and density of the natural oxide film.
Anodizing	A hard, airtight, unbroken oxide film electrolytically deposited on an aluminum alloy surface to protect it from corrosion.
Antenna	A special device used with electronic communication and navigation systems to radiate and receive electromagnetic energy.
Antibalance Tab	A tab installed on the trailing edge of a stabilator to make it less sensitive. The tab automatically moves in the same direction as the stabilator to produce an aerodynamic force that tries to bring the surface back to a streamline position. This tab is also called an antiservo tab.
Antidetonation Injection System	ADI System. A system used with some large reciprocating engines in which a mixture of water and alcohol is sprayed into the engine with the fuel when operating at extremely high power. The fuel-air mixture is leaned to allow the engine to develop its maximum power, and the ADI fluid absorbs excessive heat when it vaporizes.
Antidrag Wire	A structural wire inside a Pratt truss airplane wing between the spars. Antidrag wires run from the rear spar inboard, to the front spar at the next bay outboard. Antidrag wires oppose the forces that try to pull the wing forward.
Anti-icer System	A system that prevents the formation of ice on an aircraft structure.
Anti-icing	Prevention of the formation of ice on a surface. anti-propeller end. The end of a reciprocating engine that does not attach to the propeller. Also called the accessory end.
Anti-icing Additive	A chemical added to the turbine-engine fuel used in some aircraft. This additive mixes with water that condenses from the fuel and lowers its freezing temperature so it will not freeze and block the fuel filters. It also acts as a biocidal agent and prevents the formation of microbial contamination in the tanks.
Antiservo Tab	A tab installed on the trailing edge of a stabilator to make it less sensitive. The tab automatically moves in the same direction as the stabilator to produce an aerodynamic force that tries to bring the surface back to a streamline position. This tab is also called an antibalance tab.
Antiskid Brake System	An electrohydraulic system in an airplane's power brake system that senses the deceleration rate of every main landing gear wheel. If any wheel decelerates too rapidly, indicating an impending skid, pressure to that bake is released and the wheel stops decelerating. Pressure is then reapplied at a slightly lower value.
Antitear Strip	Strips of aircraft fabric laid under the reinforcing tape before the fabric is stitched to an aircraft wing.

Absolute Pressure Controller	APC
Apparent Power	That power apparently available for use in an AC circuit containing a reactive component. It is the product of effective voltage times the effective current, expressed in volt-amperes.
Approach Lighting System	ALS. Provides lights that will penetrate the atmosphere far enough from touchdown to give directional, distance, and glidepath information for safe transition from instrument to visual flight.
Apron	A defined area on an airport or heliport intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance. With regard to seaplanes, a ramp is used for access to the apron from the water.
Auxiliary Power Unit	APU. A small turbine- or reciprocating-engine-powered generator, hydraulic pump, and air pump. APUs are installed in the aircraft and are used to supply electrical power, air, and hydraulic pressure when the main engines are not running.
Aramid Fiber	Fiber made from an organic compound of carbon, hydrogen, oxygen, and nitrogen. It has high strength and low density. It is flexible under load and is able to withstand impact, shock, and vibration. Kevlar is a well-known aramid fiber.
Arbor Press	A press with either a mechanically or hydraulically operated ram used in a maintenance shop for a variety of pressing functions.
Archimede's Principle	The buoyant force that a fluid exerts upon a submerged body is equal to the weight of the fluid the body displaces.
Arcing	Sparking between a commutator and brush or between switch contacts that is caused by induced current when a circuit is broken.
Area	A measurement of the amount of surface inside a two-dimensional object.
ARINC	Aeronautical Radio Incorporated. A corporation whose principal stockholders are the airlines. Its function is to operate certain communication links between airliners in flight and the airline ground facilities. ARINC also sets standards for communication equipment used by the airlines.
Arm	The horizontal distance that a part of the aircraft or a piece of equipment is located from the datum.
Armature	The rotating part of an electric generator or motor.
Aromatic Compound	A chemical compound such as toluene, xylene, and benzene that is blended with gasoline to improve its anti-detonation characteristics.
Articulating Rod	Also referred to as a link rod. The rod in a radial engine that connects one of the piston wrist pins to a knuckle pin on the master rod.
Articulated Rotor	A rotor system in which each of the blades is connected to the rotor hub in such a way that it is free to change its pitch angle, and move up and down and fore and aft in its plane of rotation.
Aspect Ratio	The relationship of the length (wingtip to wingtip), or span, of an airfoil to its width, or chord.
Assembly Drawing	A description of an object made up of two or more parts.
Asymmetrical Airfoil	An airfoil section that is not the same on both sides of the chord line.
Asymmetrical Lift	A condition of uneven lift produced by the rotor when a helicopter is in forward flight. Asymmetrical lift is caused by the difference between the airspeed of the advancing blade and that of the retreating blade.
Asymmetrical Loading	The loading of a propeller disk that causes one side to produce more thrust than the other side.

ATC	Air Traffic Control
ATCRBS	Air Traffic Control Beacon System
ATF	Aerodynamic Twisting Force. The aerodynamic force that acts on a rotating propeller blade to increase its blade angle. The axis of rotation of a blade is near the center of its chord line, and the center of pressure is between the axis and the leading edge. Aerodynamic lift acting through the center of pressure tries to rotate the blade to a higher pitch angle.
Atom	The smallest particle composed of a nucleus that contains protons, neutrons, and electrons, which revolve around the nucleus.
Atomize	The process of breaking a liquid down into tiny droplets or a fine spray. Atomized liquids vaporize easily.
Attenuate	To weaken, or lessen the intensity of, an activity.
Attitude	The position of an aircraft as determined by the relationship of its axes and a reference, usually the earth's horizon.
Attitude Indicator	A gyroscopic flight instrument that gives the pilot an indication of the attitude of the aircraft relative to its pitch and roll axes. The attitude indicator in an autopilot is in the sensing system that detects deviation from a level flight attitude.
Augmentor Tube	A long, stainless steel tube around the discharge of the exhaust pipes of a reciprocating engine. Exhaust gases flow through the augmenter tube and produce a low pressure that pulls additional cooling air through the engine compartment. Heat may be taken from the augmenter tubes and directed through the leading edges of the wings for thermal anti-icing.
Autoclave	A pressure vessel inside of which air can be heated to a high temperature and pressure raised to a high value. Autoclaves are used in the composite manufacturing industry to apply heat and pressure for curing resins.
Autogiro	A heavier-than-air rotor-wing aircraft sustained in the air by rotors turned by aerodynamic forces rather than by engine power. When the name Autogiro is spelled with a capital A, it refers to a specific series of machines built by Juan de la Cierva or his successors.
Autoignition System	A system on a turbine engine that automatically energizes the igniters to provide a relight if the engine should flame out.
Automated Weather Observing System	AWOS. Automated weather reporting system consisting of various sensors, a processor, a computer-generated voice subsystem, and a transmitter to broadcast weather data.
Automatic Adjuster	A subsystem in an aircraft disk brake that compensates for disk or lining wear. Each time the brakes are applied, the automatic adjuster is reset for zero clearance, and when the brakes are released, the clearance between the disks or the disk and lining is returned to a preset value. A malfunctioning automatic adjuster in a multiple-disk brake can cause sluggish and jerky operation
Automatic Flight Control System	AFCS. The full system of automatic flight control that includes the autopilot, flight director, horizontal situation indicator, air data sensors, and other avionics inputs.
Automatic Intake Valve	An intake valve opened by low pressure created inside the cylinder as the piston moves down. There is no mechanical means of opening it.
Automatic Mixture Control	AMC. The device in a fuel metering system, such as a carburetor or fuel injection system, that keeps the fuel-air mixture ratio constant as the density of air changes with altitude.

Automatic Pilot	An automatic flight control device that controls an aircraft about one or more of its three axes. The primary purpose of an autopilot is to relieve the pilot of the control of the aircraft during long periods of flight. autorotation. Descent of a helicopter without the use of engine power. An aerodynamic force causes the rotors to rotate. Also called autopilot.
Autopilot	An automatic flight control device that controls an aircraft about one or more of its three axes. The primary purpose of an autopilot is to relieve the pilot of the control of the aircraft during long periods of flight. autorotation. Descent of a helicopter without the use of engine power. An aerodynamic force causes the rotors to rotate. Also called automatic pilot.
Autosyn System	A synchro system used in remote indicating instruments. The rotors in an Autosyn system are two-pole electromagnets, and the stators are delta-connected, three-phase, distributed-pole windings in the stator housings. The rotors in the transmitters and indicators are connected in parallel and are excited with 26-volt, 400-Hz AC. The rotor in the indicator follows the movement of the rotor in the transmitter.
Auxiliary Fin	An additional vertical stabilizer installed on some float planes to offset the increased surface area of the floats in front of the center of gravity.
Auxiliary Power Unit	APU. A small turbine- or reciprocating-engine-powered generator, hydraulic pump, and air pump. APUs are installed in the aircraft and are used to supply electrical power, air, and hydraulic pressure when the main engines are not running.
Aviation Medical Examiner	AME. A physician with training in aviation medicine designated by the Civil Aerospace Medical Institute (CAMI).
Aviation Snips	Compound-action hand shears used for cutting sheet metal. Aviation snips come in sets of three. One pair cuts to the left, one pair cuts to the right, and the third pair of snips cuts straight.
Aviator's Oxygen	Oxygen that has had almost all of the water and water vapor removed from it.
Avionics	The branch of technology that deals with the design, production, installation, use, and servicing of electronic equipment mounted in aircraft.
AWG	American wire gauge. The system of measurement of wire size used in aircraft electrical systems.
AWOS	Automated Weather Observing System. Automated weather reporting system consisting of various sensors, a processor, a computer-generated voice subsystem, and a transmitter to broadcast weather data.
Axes of an Aircraft	Three imaginary lines that pass through an aircraft's center of gravity. The axes can be considered as imaginary axles around which the aircraft rotates. The three axes pass through the center of gravity at 90° angles to each other. The axis from nose to tail is the longitudinal axis (pitch), the axis that passes from wingtip to wingtip is the lateral axis (roll), and the axis that passes vertically through the center of gravity is the vertical axis (yaw).
Axial Bearing Load	The load on a bearing parallel to the shaft on which the bearing is mounted. Thrust produces an axial load on a bearing.
Axial Turbine	A turbine that is turned by a fluid flowing through it in a direction that is approximately parallel to the shaft on which the turbine wheel is mounted.
Axial Flow Compressor	A type of compressor used in gas turbine engines. Air passes through the compressor in essentially a straight line, parallel to the axis of the compressor. The compressor is made of a number of stages of rotating compressor blades between stages of stationary stator vanes.
Axis of Rotation	The center line about which a propeller rotates.
Azimuth	A horizontal angular distance, measured clockwise from a fixed reference direction to an object.

B	
Babbitt	A soft silvery metal used for main bearing inserts in aircraft reciprocating engines. Babbitt is made of tin with small amounts of copper and antimony.
Back	Propeller nomenclature. The curved surface of a propeller blade. The back of a propeller blade corresponds to the upper surface of an airplane wing.
Back Course	The reciprocal of the localizer course for an ILS (Instrument Landing System). When flying a back-course approach, the aircraft approaches the instrument runway from the end on which the localizer antennas are installed.
Backhand Welding	Welding in which the torch is pointed away from the direction the weld is progressing.
Backplate	Brake component. A floating plate on which the wheel cylinder and the brake shoes attach on an energizingtype brake.
Back-suction Mixture Control	A type of mixture control used in some float carburetors that regulates the fuel-air mixture by varying the air pressure above the fuel in the float bowl.
Backup Ring	A flat leather or Teflon ring installed in the groove in which an O-ring or T-seal is placed. The backup ring is on the side of the seal away from the pressure, and it prevents the pressure extruding the seal between the piston and the cylinder wall.
Baffle	A thin sheet metal shroud or bulkhead used to direct the flow of cooling air between and around the cylinder fins of an air-cooled reciprocating engine.
Balance Cable	A cable in the aileron system of an airplane that connects to one side of each aileron. When the control wheel is rotated, a cable from the cockpit pulls one aileron down and relaxes the cable going to the other aileron. The balance cable pulls the other aileron up.
Balance Panel	A flat panel hinged to the leading edge of some ailerons that produces a force which assists the pilot in holding the ailerons deflected. The balance panel divides a chamber ahead of the aileron in such a way that when the aileron is deflected downward, for example, air flowing over its top surface produces a low pressure that acts on the balance panel and causes it to apply an upward force to the aileron leading edge.
Balance Tab	An adjustable tab mounted on the trailing edge of a control surface to produce a force that aids the pilot in moving the surface. The tab is automatically actuated in such a way it moves in the direction opposite to the direction the control surface on which it is mounted moves.
Balanced Actuator	A linear hydraulic or pneumatic actuator that has the same area on each side of the piston.
Ballast	A weight installed or carried in an aircraft to move the center of gravity to a location within its allowable limits.
Banana Oil	Nitrocellulose dissolved in amyl acetate, so named because it smells like bananas.
Bank	The act of rotating an aircraft about its longitudinal axis.
Barometric Scale	A small window in the dial of a sensitive altimeter in which the pilot sets the barometric pressure level from which the altitude shown on the altimeter is measured. This window is sometimes called the Kollsman window. base. The electrode of a bipolar transistor between the emitter and the collector. Varying a small flow of electrons moving into or out of the base controls a much larger flow of electron between the emitter and the collector.

Base	In mathematics, used to refer to a particular mathematical object that is used as a building block. A base-a system is one that uses a as a new unit from which point counting starts again. (See decimal system.) In the mathematical expression a^n, read as "a to the nth power," a is the base.
Base	The electrode of a bipolar transistor between the emitter and the collector. Varying a small flow of electrons moving into or out of the base controls a much larger flow of electrons between the emitter and the collector.
Basic Empty Weight	Standard empty weight plus optional equipment.
Bayonet Stack	An exhaust stack with an elongated and flattened end. The gases leave the stack through a slot perpendicular to its length. Bayonet stacks decrease both exhaust back pressure and noise.
BDC	Bottom Dead Center. The position of a piston in a reciprocating engine when the piston is at the bottom of its stroke, and the wrist pin, crankpin, and center of the crankshaft are all in line.
Bead	Tire component. The high-strength carbon-steel wire bundles that give an aircraft tire its strength and stiffness where it mounts on the wheel.
Bead Seat Area	The flat surface on the inside of the rim of an aircraft wheel on which the bead of the tire seats.
Bearing Strength	Sheet metal characteristic. The amount of pull needed to cause a piece of sheet metal to tear at the points at which it is held together with rivets. The bearing strength of a material is affected by both its thickness and the diameter of the rivet.
Beehive Spring	A hardened-steel, coil-spring retainer used to hold a rivet set in a pneumatic rivet gun. This spring gets its name from its shape. It screws onto the end of the rivet gun and allows the set to move back and forth, but prevents it being driven from the gun.
Bell Mouth	The shape of the inlet of an augmentor tube that forms a smooth converging duct. The bell mouth shape allows the maximum amount of air to be drawn into the tube.
Bell Mouth Inlet Duct	A form of convergent inlet-air duct used to direct air into the compressor of a gas turbine engine. It is extremely efficient, and is used where there is little ram pressure available to force air into the engine. Bell mouth ducts are used in engine test cells and on engines installed in helicopters.
Bend Allowance	The amount of material actually used to make a bend in a piece of sheet metal. Bend allowance depends upon the thickness of the metal and the radius of the bend, and is normally found in a bend allowance chart.
Bend Radius	The radius of the inside of a bend.
Bend Tangent Line	A line made in a sheet metal layout that indicates the point at which the bend starts.
Benzene	A colorless, volatile, flammable, aromatic hydrocarbon liquid which has the chemical formula C6H6. Benzene, which is sometimes called benzoil, is used as a solvent, a cleaning fluid, and a fuel for some special types of reciprocating engines.
Bernoulli's Principle	A physical principle that explains the relationship between kinetic and potential energy in a stream of moving fluid. When energy is neither added to nor taken from the fluid, any increase in its velocity (kinetic energy) will result in a corresponding decrease in its pressure (potential energy).
Beta Control Range	Beta mode. The range of operation of a turboprop powerplant used for in-flight approach and ground handling of the engine and aircraft. Typically, the Beta mode includes operations from 65% to 95% of the engine's rated rpm.

Beta Tube	A tube in a Garrett TPE331 turboprop powerplant that extends into the propeller pitch control to act as a followup device. It provides movement of the propeller blades in proportion to movement of the power lever.
Bezel	The rim which holds the glass cover in the case of an aircraft instrument.
BHP	Brake horsepower. The actual horsepower delivered to the propeller shaft of a reciprocating or turboprop engine.
Bias-cut Surface Tape	A fabric tape in which the threads run at an angle of 45° to the length of the tape. Bias-cut tape may be stretched around a compound curve such as a wing tip bow without wrinkling.
Bidirectional Fibers	Fibers in a piece of composite material arranged to sustain loads in two directions.
Bilge Area	A low portion in an aircraft structure in which water and contaminants collect. The area under the cabin floorboards is normally called the bilge.
Bimetallic Hairspring	A flat, spiral-wound spring made of two strips of metal laid side-by-side and welded together. The two metals have different coefficients of expansion, and as the temperature changes, the spiral either tightens or loosens. A bimetallic hair spring is used in a thermocouple temperature changes at the reference junction.
Bimetallic Strip	A metal strip made of two different types of metal fastened together side by side. When heated, the two metals expand different amounts and the strip warps or bends.
Binary Number System	The binary number system is a number system that has only two digits, 0 (zero) and 1. Binary numbers are made from a series of zeros and ones. An example of an 8-bit binary number is 11010010. The prefix bi in the word binary is a Latin root for the word two.
Bipolar Transistor	A solid-state component in which the flow of current between its emitter and collector is controlled by a much smaller flow of current into or out of its base. Bipolar transistors may be of either the NPN or PNP type.
BITE	Built-in Test Equipment. A troubleshooting system installed in many modern jet aircraft. BITE equipment monitors engine and airframe systems, and when a fault is found, isolates it and provides maintenance personnel with a code that identifies the LRU (line replaceable unit) that contains the fault.
BL	Buttock Line. The longitudinal axis of the aircraft that serves as the reference location for positions to the left and right of center. The positions are usually dimensioned in inches.
Black Box	A term used for any portion of an electrical or electronic system that can be removed as a unit. A black box does not have to be a physical box.
Bladder-type Fuel Cell	A plastic-impregnated fabric bag supported in a portion of an aircraft structure so that it forms a cell in which fuel is carried.
Blade	The component of a propeller that converts the rotation of the propeller shaft into thrust. The blade of a propeller corresponds to the wing of an airplane.
Blade Angle	The acute angle between the chord line of a propeller blade and the plane of rotation.
Blade Butt	The end of a propeller blade that fits into the hub.
Blade Coning	An upward sweep of rotor blades as a result of lift and centrifugal force.
Blade Damper	A device attached to the drag hinge to restrain the fore and aft movement of the rotor blade.
Blade Face	The flat portion of a propeller blade, resembling the bottom portion of an airfoil.
Blade Flap	The ability of the rotor blade to move in a vertical direction. Blades may flap independently or in unison.

Blade Grip	The part of the hub assembly to which the rotor blades are attached, sometimes referred to as blade forks.
Blade Root	The ridges or upset portion of a propeller blade that holds it in the hub.
Blade Shank	The rounded portion of a propeller blade between the root and the airfoil section.
Blade Span	The length of a blade from its tip to its root.
Blade Station	A reference position on a propeller blade that is a specified number of inches from the center of the propeller hub.
Blade Tip	The opposite end from the root of a propeller blade.
Blade Track	The condition of a helicopter rotor in which each blade follows the exact same path as the blade ahead of it.
Blade Tracking	The mechanical procedure used to bring the blades of the rotor into a satisfactory relationship with each other under dynamic conditions so that all blades rotate on a common plane.
Blade Twist	The variation in the angle of incidence of a blade between the root and the tip.
Bleed Air	Compressed air tapped from the compressor stages of a turbine engine by use of ducts and tubing. Bleed air can be used for deice, anti-ice, cabin pressurization, heating, and cooling systems.
Bleed Valve	In a turbine engine, a flapper valve, a popoff valve, or a bleed band designed to bleed off a portion of the compressor air to the atmosphere. Used to maintain blade angle of attack and provide stall-free engine acceleration and deceleration.
Bleeder	A material such as glass cloth or mat that is placed over a composite lay-up to absorb the excess resin forced out of the ply fibers when pressure is applied.
Bleeding Dope	Dope whose pigments are soluble in the solvents or thinners used in the finishing system. The color will bleed up through the finished coats.
Bleeding of Brakes	The maintenance procedure of removing air entrapped in hydraulic fluid in the brakes. Fluid is bled from the brake system until fluid with no bubbles flows out.
Blending	A method of repairing damaged compressor and turbine blades. The damage is removed and the area is cleaned out with a fine file to form a shallow depression with generous radii. The file marks are then removed with a fine abrasive stone so the surface of the repaired area will match the surface of the rest of the blade.
Blimp	A cigar-shaped, nonrigid lighter-than-air flying machine.
Blisk	A turbine wheel machined from a single slab of steel. The disk and blades are an integral unit.
Block Diagrams	Used to show a simplified relationship of a more complex system of components.
Blow-in Doors	Spring-loaded doors in the inlet duct of some turbojet or turbofan engine installations that are opened by differential air pressure when inlet air pressure drops below that of the ambient air. Air flowing through the doors adds to the normal inlet air passing through the engine and helps prevent compressor stall.
Bluckets	The portions of aft-fan blades that are in the exhaust of the core engine. Bluckets drive the fan from energy received from hot gases leaving the core engine.
Blush	A defect in a lacquer or dope finish caused by moisture condensing on the surface before the finish dries. If the humidity of the air is high, the evaporation of the solvents cools the air enough to cause the moisture to condense. The water condensed from the air mixes with the lacquer or dope and forms a dull, porous, chalky-looking finish called blush. A blushed finish is neither attractive nor protective.

BMEP	Brake Mean Effective Pressure. The average pressure inside the cylinder of a reciprocating engine during the power stroke. BMEP, measured in pounds per square inch, relates to the torque produced by the engine and can be calculated when you know the brake horsepower.
Bonding	The process of electrically connecting all isolated components to the aircraft structure. Bonding provides a path for return current from electrical components, and a low-impedance path to ground to minimize static electrical charges. Shock-mounted components have bonding braids connected across the shock mounts.
Boost	A term for manifold pressure that has been increased above the ambient atmospheric pressure by a supercharger.
Boost Pump	An electrically driven centrifugal pump mounted in the bottom of the fuel tanks in large aircraft. Boost pumps provide a positive flow of fuel under pressure to the engine for starting and serve as an emergency backup in the event an engine-driven pump should fail. They are also used to transfer fuel from one tank to another and to pump fuel overboard when it is being dumped. Boost pumps prevent vapor locks by holding pressure on the fuel in the line to the engine-driven pump. Centrifugal boost pumps have a small agitator propeller on top of the impeller to force vapors from the fuel before it leaves the tank.
Bootstrapping	An action that is self-initiating or self-sustaining. In a turbocharger system, bootstrapping describes a transient increase in engine power that causes the turbocharger to speed up, which in turn causes the engine to produce more power.
Bore	The diameter of a reciprocating engine cylinder.
Borescope	An inspection tool for viewing the inside of a turbine engine without disassembling it. The instrument consists of a light, mirror, and magnifying lens mounted inside a small-diameter tube that is inserted into a turbine engine through borescope inspection ports.
Boss	An enlarged area in a casting or machined part. A boss provides additional strength to the part where holes for mounting or attaching parts are drilled.
Bottom	A condition in the installation of a propeller on a splined shaft when either the front or rear cone contacts an obstruction that prevents the cone from properly seating inside the propeller hub.
Bottom Dead Center	BDC. The position of a piston in a reciprocating engine when the piston is at the bottom of its stroke, and the wrist pin, crankpin, and center of the crankshaft are all in line.
Boundary Layer	The layer of air that flows next to an aerodynamic surface. Because of the design of the surface and local surface roughness, the boundary layer often has a random flow pattern, sometimes even flowing in a direction opposite to the direction of flight. A turbulent boundary layer causes a great deal of aerodynamic drag.
Bourdon Tube	A pressure-indicating mechanism used in most oil pressure and hydraulic pressure gauges. It consists of a sealed, curved tube with an elliptical cross section. Pressure inside the tube tries to straighten it, and as it straightens, it moves a pointer across a calibrated dial. Bourdon-tube pressure gauges are used to measure temperature by measuring the vapor pressure in a sealed container of a volatile liquid, such as methyl chloride, whose vapor pressure varies directly with its temperature.
Boyle's Law	States that the volume of an enclosed dry gas varies inversely with its absolute pressure, provided the temperature remains constant.

Brake Specific Fuel Consumption	BSFC. A measure of the amount of fuel used for a given amount of power produced by a heat engine. BSFC is expressed in pounds of fuel burned per hour for each brake horse-power the engine is producing.
Brayton Cycle	The constant-pressure cycle of energy transformation used by gas turbine engines. Fuel is sprayed into the air passing through the engine and burned. Heat from the burning fuel-air mixture expands the air and accelerates it as it moves through the engine. The Brayton cycle is an open cycle in that the intake, compression, combustion, expansion, and exhaust events all take place at the same time, but in different locations within the engine.
Brazing	A method of thermally joining metal parts by wetting the surface with a molten nonferrous alloy. When the molten material cools and solidifies, it holds the pieces together. Brazing materials melt at a temperature higher than 800 °F, but lower than the melting temperature of the metal on which they are used.
Break Lines	Line on a drawing indicating that a portion of the object is not shown on the drawing.
Break Mean Effective Pressure	BMEP. The average pressure inside the cylinder of a reciprocating engine during the power stroke. BMEP, measured in pounds per square inch, relates to the torque produced by the engine and can be calculated when you know the brake horsepower.
British Thermal Unit	BTU. The amount of heat required to change the temperature of 1 pound of water by 1 degree Fahrenheit.
BSFC	Brake Specific Fuel Consumption. A measure of the amount of fuel used for a given amount of power produced by a heat engine. BSFC is expressed in pounds of fuel burned per hour for each brake horse-power the engine is producing.
BTU	British Thermal Unit. The amount of heat required to change the temperature of 1 pound of water by 1 degree Fahrenheit.
Bucking Bar	A heavy steel bar with smooth, hardened surfaces, or faces. The bucking bar is held against the end of the rivet shank when it is driven with a pneumatic rivet gun, and the shop head is formed against the bucking bar.
Buffeting	Turbulent movement of the air over an aerodynamic surface.
Built-in Test Equipment	BITE. A troubleshooting system installed in many modern jet aircraft. BITE equipment monitors engine and airframe systems, and when a fault is found, isolates it and provides maintenance personnel with a code that identifies the LRU (line replaceable unit) that contains the fault.
Bulb Angle	An L-shaped metal extrusion having an enlarged, rounded edge that resembles a bulb on one of its legs.
Bulkhead	A structural partition that divides the fuselage of an aircraft into compartments, or bays.
Bungee Cord	An elastic cord made of small strips of rubber encased in a loosely braided cloth tube that holds and protects the rubber, yet allows it to stretch. The energy in a stretched bungee cord may be used to crank a large aircraft engine.
Bungee Shock Cord	A cushioning material used with the non-shock absorbing landing gears installed on older aircraft. Bungee cord is made up of many small rubber bands encased in a loose-woven cotton braid.
Buoyancy	The upward force that any fluid exerts on a body submerged in it.
Burner	Also referred to as Combustor. (Combustion chamber). The section of a gas turbine engine in which fuel is injected. This fuel mixes with air from the compressor and burns. The intense heat from the combustion expands the air flowing through the combustor and directs it our through the turbine. Combustors are also called burners.

Burnish	(verb). To smooth the surface of a metal part that has been damaged by a deep scratch or gouge. Metal piled at the edge of the damage is pushed back into the damage with a smooth, hard steel burnishing tool.
Burr	A sharp rough edge of a piece of metal left when the metal was sheared, punched, or drilled.
Bus	A point within an electrical system from which the individual circuits get their power.
Butterfly Valve	A flat, disk-shaped valve used to control the flow of fluid in a round pipe or tube. When the butterfly valve is across the tube, the flow is shut off, and when it is parallel with the tube, the obstruction caused by the valve is minimum, and the flow is at its greatest. Butterfly-type throttle valves are used to control the airflow through the fuel metering system.
Buttock Line	BL. The longitudinal axis of the aircraft that serves as the reference location for positions to the left and right of center. The positions are usually dimensioned in inches.
Butyl	Trade name for a synthetic rubber product made by the polymerization of isobutylene. Butyl withstands such potent chemicals as phosphate ester-base (Skydrol) hydraulic fluids.
Bypass Air	The part of a turbofan's induction air that bypasses the engine core.
Bypass Engine	Another name for a turbofan engine. See turbofan engine.
Bypass Ratio	The ratio of the mass of air moved by the fan to the mass of air moved by the core engine.
C	
CAD	Computer Aided Design. Using a computer in the design of a product.
CADD	Computer Aided Design Drafting. Using a computer in the design and drafting process.
CAE	Computer Aided Engineering. Using a computer in the engineering of a product.
Cage	(verb). To lock the gimbals of a gyroscopic instrument so it will not be damaged by abrupt flight maneuvers or rough handling.
Calendar Month	The measurement of time used by the FAA for inspection and certification purposes. One calendar month from a given date extends from that date until midnight of the last day of that month.
Calender	Fabric treatment. To pass fabric through a series of heated rollers to give it a smooth shiny surface.
Calibrated	The instrument indication compared with a standard value to determine the accuracy of the instrument.
Calibrated Airspeed	CAS. Indicated airspeed corrected for position error. See position error.
Calibrated Orifice	A hole of specific diameter used to delay the pressure change in the case of a vertical speed indicator.
Calorie	The amount of heat required to change the temperature of 1 gram of water by 1 degree Centigrade.
Cam	An eccentric, or lobe, on a rotating shaft that changes rotary motion into linear motion. A cam is mounted on the magnet shaft in a magneto to push upward on the insulated breaker point to separate, or open, the points when the magnet is in a particular location.
CAM	Computer Aided Manufacturing. Using a computer in the manufacturing of a product.
Camber	The curvature of a wing as viewed by cross section. A wing has upper camber on its top surface and lower camber on its bottom surface. The upper camber is more pronounced; the lower camber is comparatively flat. This causes the velocity of the airflow immediately above the wing to be much higher than that below the wing.

Camber	Wheel alignment. The amount the wheels of an aircraft are tilted, or inclined, from the vertical. If the top of the wheel tilts outward, the camber is positive. If the top of the wheel tilts inward, the camber is negative.
Cam Engine	A reciprocating engine with axial cylinders arranged around a central shaft. Rollers on the pistons in the cylinders press against a sinusoidal cam mounted on the shaft to produce rotation of the shaft.
Cam-ground Piston	A reciprocating engine piston that is not round, but is ground so that its diameter parallel to the wrist pin is slightly smaller than its diameter perpendicular to the pin. The mass of metal used in the wrist pin boss, the enlarged area around the wrist pin hole, expands when heated, and when the piston is at its operating temperature, it is perfectly round.
CAMI	Civil Aerospace Medical Institute
Can-annular Combustor	A type of combustor used in some large turbojet and turbofan engines. It consists of individual cans into which fuel is sprayed and ignited. These cans mount on an annular duct which collects the hot gases and directs them uniformly into the turbine.
Canard	A horizontal control surface mounted ahead of the wing to provide longitudinal stability and control.
Canard Configuration	A configuration in which the span of the forward wings is substantially less than that of the main wing.
Canted Rate Gyro	A rate gyro whose gimbal axis is tilted so it can sense rotation of the aircraft about its roll axis as well as its yaw axis.
Cantilever Wing	A wing that is supported by its internal structure and requires no external supports. The wing spars are built in such a way that they carry all the bending and torsional loads.
Cap Strip	The main top and bottom members of a wing rib. The cap strips give the rib its aerodynamic shape.
Capacitance	C. The property of an electric conductor that characterizes its ability to store an electric charge.
Capacitance Afterfiring	The continuation of the spark across the gap in a shielded spark plug after the fuel-air mixture in the cylinder is ignited. Afterfiring is caused by the return of electrical energy stored in the capacitance of the shielded ignition leads. Capacitance afterfiring is eliminated by the use of a resistor in the spark plug.
Capacitance-type Fuel Quantity Measuring System	A popular type of electronic fuel quantity indicating system that has no moving parts in the fuel tank. The tank units are cylindrical capacitors, called probes, mounted across the tank, from top to bottom. The dielectric between the plates of the probes is either fuel or the air above the fuel, and the capacitance of the probe varies with the amount of fuel in the tank. The indicator is a servo-type instrument driven by the amplified output of a capacitance bridge.
Capacitive Reactance	XC. The measure of a capacitor's opposition to alternating current.
Capacitor	An electrical component that stores an electric charge.
Capillary Tube	A glass or metal tube with a tiny inside diameter. Capillary action causes the fluid to move within the tube.
Capillary Tube	A soft copper tube with a small inside diameter. The capillary tube used with vapor-pressure thermometer connects the temperature sensing bulb to the Bourdon tube. The capillary tube is protected from physical damage by enclosing it in a braided metal wire jacket.
Carbon Monoxide Detector	A packet of chemical crystals mounted in the aircraft cockpit or cabin where they are easily visible. The crystals change their color from yellow to green when they are exposed to carbon monoxide.
Carbon Pile Voltage Regulator	A voltage regulator for a high output DC generator that uses a stack of pure carbon disks for the variable resistance element. A spring holds pressure on the stack to reduce its resistance when the generator output voltage is low. This allows

	maximum field current to flow. The field from an electro-magnet, whose strength varies directly with the generator voltage, opposes the spring to loosen the stack and increase its resistance when the generator voltage needs to be decreased. The increased resistance decreases the field current and reduces the output voltage.
Carbon Track	A trail of carbon deposited by an arc across a high-voltage component such as a distributor block. Carbon tracks have a relatively low resistance to the high voltage and can cause misfiring and loss of engine power.
Carburetor	Pressure. A hydromechanical device employing a closed feed system from the fuel pump to the discharge nozzle. It meters fuel through fixed jets according to the mass airflow through the throttle body and discharges it under a positive pressure. Pressure carburetors are distinctly different from float-type carburetors, as they do not incorporate a vented float chamber or suction pickup from a discharge nozzle located in the venturi tube.
Carburetor	float-type. Consists essentially of a main air passage through which the engine draws its supply of air, a mechanism to control the quantity of fuel discharged in relation to the flow of air, and a means of regulating the quantity of fuel/air mixture delivered to the engine cylinders.
Carburetor Ice	Ice that forms inside the carburetor due to the temperature drop caused by the vaporization of the fuel. Induction system icing is an operational hazard because it can cut off the flow of the fuel/air charge or vary the fuel/air ratio.
Carburizing Flame	An oxyacetylene flame produced by an excess of acetylene. This flame is identified by a feather around the inner cone. A carburizing flame is also called a reducing flame.
Carcass	Tire component. The layers of rubberized fabric that make up the body of an aircraft tire.
Cartridge Starter	A self-contained starter used on some military aircraft. A cartridge similar in size to a shotgun shell is ignited in the starter breech. The expanding gases drive a piston attached to a helical spline that converts the linear movement of the piston into rotary motion to rotate the crankshaft.
CAS	Calibrated airspeed. Indicated airspeed corrected for position error. See position error.
Cascade Effect	The cumulative effect that occurs when the output of one series of components serves as the input to the next series.
Case Hardening	A process in which the surface of a metal is changed chemically by introducing a high carbide or nitride content. Case hardening produces a hard, wear-resistant surface, or case, over a strong, tough core.
Case Pressure	A low pressure that is maintained inside the case of a hydraulic pump. If a seal becomes damaged, hydraulic fluid will be forced out of the pump rather than allowing air to be drawn into the pump.
Catalyst	A substance used to change the speed, or rate, of a chemical action without being chemically changed itself.
Cathode-ray Tube	CRT. A display tube used for oscilloscopes and computer video displays. An electron gun emits a stream of electrons that is attracted to a positively charged inner surface of the face of the tube. Acceleration and focusing grids speed the movement of the electrons and shape the beam into a pinpoint size. Electrostatic or electromagnetic forces caused by deflection plates or coils move the beam over the face of the tube. The inside surface of the face of the tube is treated with a phosphor material that emits light when the beam of electrons strikes it.
Cavitating	The creation of low pressure in an oil pump when the inlet system is not able to supply all of the oil the pump requires. Prolonged cavitation can damage pump components.

Cavitation	A condition that exist in a hydraulic pump when there is not enough pressure in the reservoir to force fluid to the inlet of the pump. The pump picks up air instead of fluid.
CDI	Course Deviation Indicator
CDU	Control Display Unit
Center of Gravity	CG. The point about which the nose-heavy and tail-heavy moments are exactly equal in magnitude.
Center of Gravity Range	CG Range. The center of gravity range for an aircraft is the limits within which the aircraft must balance. It is identified as a forward-most limit (arm) and an aft-most limit (arm).
Center of Lift	The location of the chord line of an airfoil at which all the lift forces produced by the airfoil are considered to be concentrated.
Center of Pressure	The point on the chord line of an airfoil where all aerodynamic forces are concentrated.
Centering Cam	A cam in the nose-gear shock strut that causes the piston to center when the strut fully extends. When the aircraft takes off and the strut extends, the wheel is straightened in its fore-and-aft position so it can be retracted into the wheel well.
Center-line Thrust Airplane	A twin-engine airplane with both engines mounted in the fuselage. One is installed as a tractor in the front of the cabin. The empennage is mounted on booms.
Centrifugal Compressor	A type of compressor that uses a vaned plate like impeller. Air is taken into the center, or eye, of the impeller and slung outward by centrifugal force into a diffuser where its velocity is decreased and its pressure increased.
Centrifugal Force	The apparent force occurring in curvilinear motion acting to deflect objects outward from the axis of rotation. For instance, when pulling out of a dive, it is the force pushing the pilot down in his or her seat.
Centrifugal Twisting Force	CTF. The force acting about the longitudinal axis of a propeller blade, and which tries to rotate the blade to a low-pitch angle. As the propeller rotates, centrifugal force tries to flatten the blade so all of its mass rotates in the same plane.
Centripetal Force	The force in curvilinear motion acting toward the axis of rotation. For instance, when pulling out of a dive, it is the force that the seat exerts on the pilot to offset the centrifugal force.
Ceramic	Any of several hard, brittle, heat-resistant, noncorrosive materials made by shaping and then firing a mineral, such as clay, at a high temperature.
CFR	Code of Federal Regulations. Established by law to provide for the safe and orderly conduct of flight operations and to prescribe airmen privileges and limitations.
CG	Center of Gravity. The point about which the nose-heavy and tail-heavy moments are exactly equal in magnitude.
CG Range	Center of Gravity Range. The center of gravity range for an aircraft is the limits within which the aircraft must balance. It is identified as a forward-most limit (arm) and an aft-most limit (arm).
Channel-chromed Cylinders	Reciprocating engine cylinders with hard chromium-plated walls. The surface of this chrome plating forms a spider web of tiny stress cracks. Deplating current enlarges the cracks and forms channels that hold lubricating oil on the cylinder wall.
Charging Stand	Air conditioning service equipment. A handy and compact arrangement of air conditioning servicing equipment. A charging stand contains a vacuum pump, a manifold gauge set, and a method of measuring and dispensing the refrigerant.
Charles' Law	States that all gases expand and contract in direct proportion to the change in the absolute temperature, provided the pressure is held constant.

Chatter	A type of rapid vibration of a hydraulic pump caused by the pump taking in some air along with the hydraulic fluid.
Check	Wood defect. Longitudinal cracks that extend across a log's annual rings.
Check Valve	A hydraulic or pneumatic system component that allows full flow of fluid in one direction but blocks all flow in the opposite direction.
Cheek	Crankshaft. The offset portion of a crankshaft that connects the crankpin to the main bearing journals.
Chemical Energy	Energy released from chemical reactions.
Chemical Oxygen Candle System	An oxygen system used for emergency or backup use. Solid blocks of material that release oxygen when they are burned are carried in special fireproof fixtures. When oxygen is needed, the candles are ignited with an integral igniter, and oxygen flows into the tubing leading to the masks.
Chevron Seal	A form of one-way seal used in some fluidpower actuators. A chevron seal is made of a resilient material whose cross section is in the shape of the letter V. The pressure being sealed must be applied to the open side of the V.
Chip Detector	A component in a lubrication system that attracts and holds ferrous metal chips circulating with the engine oil. Some chip detectors are part of an electrical circuit. When metal particles short across the two contacts in the detector, the circuit is completed, and an annunciator light is turned on to inform the flight crew that metal particles are loose in the lubrication system.
Choke Nozzle	A nozzle in a gas turbine engine that limits the speed of gases flowing through it. The gases accelerate until they reach the speed of sound, and a normal shock wave forms that prevents further acceleration.
Choke of a Cylinder	The difference in the bore diameter of a reciprocating engine cylinder in the area of the head and in the center of the barrel.
Choke-ground Cylinder	A cylinder of a reciprocating engine that is ground so that its diameter at the top of the barrel is slightly smaller than the diameter in the center of the stroke. The large mass of metal in the cylinder head absorbs enough heat to cause the top end of the barrel to expand more than the rest of the barrel. At normal operating temperature, the diameter of a choke-ground cylinder is uniform throughout.
Chord Line	An imaginary line, passing through a propeller blade, joining the leading and trailing edges.
Chromel	An alloy of nickel and chromium used as the positive element in a thermocouple for measuring exhaust gas temperature.
Cigarette	A commonly used name for a spark plug terminal connector used with a shielded spark plug.
Circle	A closed plane figure with every point an equal distance from the center. A circle has the greatest area for its circumference of any enclosed shape.
Circuit Breaker	An electrical component that automatically opens a circuit any time excessive current flows through it. A circuit breaker may be reset to restore the circuit after the fault causing the excessive current has been corrected.
Circular Magnetization	A method of magnetizing a part for magnetic particle inspection. Current is passed through the part, and the lines of magnetic flux surround it. Circular magnetism makes it possible to detect faults that extend lengthwise through the part.
Circular Magnetization	The induction of a magnetic field consisting of concentric circles of force about and within a part, which is achieved by passing electric current through the part.
Circumference (of a circle)	The linear measurement of the distance around a circle. The circumference is calculated by multiplying the diameter of the circle by 3.1416.

Circumferential Coil Spring	Garter spring. A coil spring formed into a ring. This type of spring is used to hold segmented ring-type carbon seals tightly against a rotating shaft.
Clad Aluminum	A sheet of aluminum alloy that has a coating of pure aluminum rolled on one or both of its surfaces for corrosion protection.
Clamp-on Ammeter	An electrical instrument used to measure current without opening the circuit through which it is flowing. The jaws of the ammeter are opened, slipped over the currentcarrying wire, and then clamped shut. Current flowing through the wire produces a magnetic field which induces a voltage in the ammeter that is proportional to the amount of current.
Claret Red	A dark purplish pink to a dark gray purplish red color.
Class A Fire	A fire with solid combustible materials such as wood, paper, and cloth as its fuel.
Class B Fire	A fire that has combustible liquids as its fuel.
Class C Fire	A fire which involves energized electrical equipment.
Class D Fire	A fire in which a metal such as magnesium burns.
Cleco Fastener	A patented spring-type fastener used to hold metal sheets in position until they can be permanently riveted together.
Closed Angle	An angle formed in sheet metal that has been bent more than 90°.
Closed Assembly Time	The time elapsing between the assembly of glued joints and the application of pressure.
Closed-center Hydraulic System	A hydraulic system in which the selector valves are installed in parallel with each other. When no unit is actuated, fluid circulates from the pump back to the reservoir without flowing through any of the selector valves.
Closed-center Selector Valve	A type of flow-control valve used to direct pressurized fluid into one side of an actuator, and at the same time, direct the return fluid from the other side of the actuator to the fluid reservoir. Closed-center selector valves are connected in parallel between the pressure manifold and the return manifold.
Closed-loop Control	A type of control in which part of the output is fed back to the input. This allows the input to continually compare the command signals with the output to determine the extent to which the commands have been complied with.
Close-quarter Iron	A small hand-held iron with an accurately calibrated thermostat. This iron is used for heatshrinking polyester fabrics in areas that would be difficult to work with a large iron.
Coaxial	Rotating about the same axis. Coaxial rotors of a helicopter are mounted on concentric shafts in such a way that they turn in opposite directions to cancel torque.
Coaxial Cable	A special type of electrical cable that consists of a central conductor held rigidly in the center of a braided outer conductor. Coaxial cable, commonly called coax, is used for attaching radio receivers and transmitters to their antenna.
Code of Federal Regulations	CFR. Established by law to provide for the safe and orderly conduct of flight operations and to prescribe airmen privileges and limitations.
Coefficient of Drag	A dimensionless number used in the formula for determining induced drag as it relates to the angle of attack.
Coefficient of Lift	A dimensionless number relating to the angle of attack used in the formula for determining aerodynamic lift.
Coin Dimpling	A process of preparing a hole in sheet metal for flush riveting. A coining die is pressed into the rivet hole to form a sharp-edged depression into which the rivet head fits.
Coke	The solid carbon residue left when all volatile parts of a mineral oil have been evaporated by heat.

Cold Section	The portion of a gas turbine engine ahead of the combustion section. The cold section includes the inlet, compressor, and diffuser.
Cold-cranking Simulation	A method used for specifying the characteristics of a lubricating oil at low temperature. Oils rated by this test have the letter W (standing for Winter) in their designation. For example, SAE 15W50.
Cold-tank Lubrication System	A turbine engine lubricating system in which the oil cooler is in the scavenge subsystem.
Collective Pitch Control	The helicopter control that changes the pitch of all of the rotor blades at the same time. Movement of the collective pitch control increases or decreases the lift produced by the entire rotor disk.
Collector Ring	A ring made of thin corrosion-resistant steel tubing that encircles a radial engine and collects exhaust gases from each cylinder. The ring ends with a connection to the exhaust tail pipe.
Collodion	Cellulose nitrate used as a film base for certain aircraft dopes.
Combustion Chamber	The section of the engine into which fuel is injected and burned.
Combustion Heater	A type of cabin heater used in some aircraft. Gasoline from the aircraft fuel tanks is burned in the heater.
Combustor	Also refered to as Burner. (Combustion chamber). The section of a gas turbine engine in which fuel is injected. This fuel mixes with air from the compressor and burns. The intense heat from the combustion expands the air flowing through the combustor and directs it our through the turbine. Combustors are also called burners.
Commutator	A mechanical rectifier mounted on the armature shaft of a DC generator or motor. It consists of a cylindrical arrangement of insulated copper bars connected to the armature coils. Carbon brushes ride on the copper bars to carry current into or out of the commutator, providing a unidirectional current from a generator or a reversal of current in the motor coils.
Compass Fluid	A highly refined, water-clear petroleum product similar to kerosene. Compass fluid is used to dampen the oscillations of magnetic compasses.
Compass Rose	A location on an airport where an aircraft can be taken to have its compasses swung. Lines are painted on the rose to mark the magnetic directions in 30° increments.
Compass Swinging	A maintenance procedure that minimizes deviation error in a magnetic compass. The aircraft is aligned on a compass rose, and the compensating magnets in the compass case are adjusted so the compass card indicates the direction marked on the rose. After the deviation error is minimized on all headings, a compass correction card is completed and mounted on the instrument panel next to the compass.
Compensated Fuel Pump	A vane-type, engine-driven fuel pump that has a diaphragm connected to the pressure regulating valve. The chamber above the diaphragm is vented to the carburetor upper deck where it senses the pressure of the air as it enters the engine. The diaphragm allows the fuel pump to compensate for altitude changes and keeps the carburetor inlet fuel pressure a constant amount higher than the carburetor inlet air pressure.
Compensating Winding	A series winding in a compound wound DC generator. The compensating windings are embedded in the faces of the field poles and their varying magnetic field works with the fields from the interpoles to effectively cancel the field distortion caused by armature current.
Compensator Port	Brake system component. A small hole between a hydraulic brake master cylinder and the reservoir. When the brakes are released, this port is uncovered and the fluid in the master cylinder is vented to the reservoir. When the brake is applied,

	the master-cylinder piston covers the compensator port and allows pressure in the line to the brake to build up and apply the brakes. When the brake is released, the piston uncovers the compensator port. If any fluid has been lost from the brake, the reservoir will refill the master cylinder. A restricted compensator port will cause the brakes to drag or will cause them to be slow to release.
Composite	Something made up of different materials combined in such a way that the characteristics of the resulting material are different from those of any of the components.
Composite Propeller Blade	A propeller blade made from several materials such as metal, graphite, glass or aramid fibers, and foam.
Compound Curve	A curve formed in more than one plane. The surface of a sphere is a compound curve.
Compound Gauge	Air conditioning servicing equipment. A pressure gauge used to measure the pressure in the low side of an air conditioning system. A compound gauge is calibrated from zero to 30 inches of mercury vacuum, and from zero to about 150-psi positive gauge pressure.
Compressibility Effect	The sudden increase in the total drag of an airfoil in transonic flight caused by formation of shock waves on the surface.
Compression Failure	A type of structural failure in wood caused by the application of too great a compressive load. A compression failure shows up as a faint line running at right angles to the grain of the wood.
Compression Ratio	Reciprocating engine.The ratio of the volume of a cylinder with the piston at the bottom of its stroke to the volume of the cylinder with the piston at the top of its stroke.
Compression Ratio	turbine engine. The ratio of the pressure of the air at the discharge of a turbine engine compressor to the pressure of the air at its inlet.
Compression Strut	A heavy structural member, often in the form of a steel tube, used to hold the spars of a Pratt truss airplane wing apart. A compression strut opposes the compressive loads between the spars arising from the tensile loads produced by the drag and antidrug wires.
Compression Wood	A defect in wood that causes it to have a high specific gravity and the appearance of an excessive growth of summerwood. In most species, there is little difference between the color of the springwood and the summerwood. Any material containing compression wood is unsuited for aircraft structural use and must be rejected.
Compressor	Air conditioning system component. The component in a vapor-cycle cooling system in which the low-pressure refrigerant vapors, after they leave the evaporator, are compressed to increase both their temperature and pressure before they pass into the condenser. Some compressors are driven by electric motors, others by hydraulic motors and, in the case of most light airplanes, are belt driven from the engine.
Compressor Bleed Air	Air that is tapped off from a turbine engine compressor. Compressor bleed air is used for anti-icing the inlet ducts and for cooling the turbine inlet guide vanes and first stage turbine blades. Bleed air is also used for certain airframe functions. See customer bleed air.
Compressor Pressure Ratio	See compression ratio (turbine engine).
Compressor Stall	A condition in a turbine engine axial-flow compressor in which the angle of attack of one or more blades is excessive and the smooth airflow through the compressor is disrupted.
Compressor Surge	A stall that affects the entire compressor and seriously restricts the airflow through the engine.

Computer Aided Design	CAD. Using a computer in the design of a product.
Computer Aided Design Drafting	CADD. Using a computer in the design and drafting process.
Computer Aided Engineering	CAE. Using a computer in the engineering of a product.
Computer Aided Manufacturing	CAM. Using a computer in the manufacturing of a product.
Computer Graphics	Drawing with the use of a computer.
Concave Surface	A surface that is curved inward. The outer edges are higher than the center.
Condenser	See capacitor.
Condenser	Air conditioning system component. The component in a vapor-cycle cooling system in which the heat taken from the aircraft cabin is given up to the ambient air outside the aircraft.
Con-di Ducts	The British name for a convergent-divergent duct. See convergent-divergent duct.
Condition Lever	In a turbine engine, a powerplant control that controls the flow of fuel to the engine. The condition lever sets the desired engine r.p.m. within a narrow range between that appropriate for ground and flight operations.
Conduction	The transfer of heat which requires physical contact between an object that has a large amount of heat energy and one that has a smaller amount of heat energy.
Conductor	A material that will carry electric current.
Configuration	This is a general term, which normally refers to the position of the landing gear and flaps.
Coning Angle	The angle formed between the plane of rotation of a helicopter rotor blade when it is producing lift and a line perpendicular to the rotor shaft. The degree of the coning angle is determined by the relationship between the centrifugal force acting on the blades and the aerodynamic lift produced by the blades.
Constant	Mathematical. A value used in a mathematical computation that is the same every time it is used. For example, the relationship between the length of the circumference of a circle and the length of its diameter is a constant, 3.1416. This constant is called by the Greek name of Pi (π).
Constant Differential Mode	Cabin pressurization. The mode of pressurization in which the cabin pressure is maintained a constant amount higher than the outside air pressure. The maximum differential pressure is determined by the structural strength of the aircraft cabin.
Constantan	A copper-nickel alloy used as the negative lead of a thermocouple for measuring the cylinder head temperature of a reciprocating engine.
Constant-displacement Pump	A fluid pump that moves a specific volume of fluid each time it rotates; the faster the pump turns, the more fluid it moves. Some form of pressure regulator or relief valve must be used with a constant displacement pump when it is driven by an aircraft engine.
Constant-pressure Cycle of Energy Release	The cycle of energy transformation of a gas turbine engine. See Brayton cycle.

Constant-speed Drive	CSD. A component used with either aircraft gas turbine or reciprocating engines to drive AC generators. The speed of the output shaft of the CSD is held constant while the speed of its input shaft caries. The CSD holds the speed of the generator, and the frequency of the AC constant as the engine speed varies through its normal operating range.
Constant-speed Propeller	A controllable-pitch propeller whose pitch is automatically varied in flight by a governor to maintain a constant RPM in spite of varying air loads.
Constant-volume Cycle of Energy Release	The cycle of energy transformation of a reciprocating engine. See Otto cycle.
Contact	The term used between a person hand-propping an aircraft engine and the person in the flightdeck. When the person is ready to spin the propeller, he calls contact . The person in the flightdeck turns on the fuel, slightly opens the throttle, applies the brakes, and replies contact , and then turns the ignition switch to BOTH. The propeller is then pulled through to start the engine.
Contactor	Electrical component. A remotely actuated, heavy-duty electrical switch. Contactors are used in an aircraft electrical system to connect the battery to the main bus.
Continuity Tester	A troubleshooting tool that consists of a battery, a light bulb, and test leads. The test leads are connected to each end of the conductor under test, and if the bulb lights up, there is continuity. If it does not light up, the conductor is open.
Continuous Airworthiness Inspection Program	An inspection program that is part of a continuous airworthiness maintenance program approved for certain large airplanes (to which 14 CFR Part 125 is not applicable), turbojet multi-engine airplanes, turbopropeller-powered multi-engine airplanes, and turbine-powered rotorcraft.
Continuous Magnetic Particle Inspection	A method of magnetic particle inspection in which the part is inspected by flowing a fluid containing particles of iron oxide over the part while the magnetizing current is flowing.
Continuous-duty Solenoid	A solenoid-type switch designed to be kept energized by current flowing through its coil for an indefinite period of time. The battery contactor in an aircraft electrical system is a continuous-duty solenoid. Current flows through its coil all the time the battery is connected to the electrical system.
Continuous-flow Oxygen System	A type of oxygen system that allows a metered amount of oxygen to continuously flow into the mask. A rebreather-type mask is used with a continuous-flow system. The simplest form of continuous flow oxygen system regulates the flow by a calibrated orifice in the outlet to the mask, but most systems use either a manual or automatic regulator to vary the pressure across the orifice proportional to the altitude being flown.
Continuous-loop Fire-detection System	A fire-detection system that uses a continuous loop of two conductors separated with a thermistor-type insulation. Under normal temperature conditions, the thermistor material is an insulator; but if it is exposed to a fire, the thermistor changes into a conductor and completes the circuit between the two conductors, initiating a fire warning.
Contrarotating	Rotating in opposite directions. Turbine rotors are contrarotating when the different stages have a common center, but turn in opposite directions.
Control Horn	The arm on a control surface to which the control cable or push-pull rod attaches to move the surface.
Control Stick	The type of control device used in some airplanes. A vertical stick in the flight deck controls the ailerons by side-to-side movement and the elevators by fore and aft movement.

Control Yoke	The movable column on which an airplane control wheel is mounted. The yoke may be moved in or out to actuate the elevators, and the control wheel may be rotated to actuate the ailerons.
Controllability	The characteristic of an aircraft that allows it to change its flight attitude in response to the pilot's movement of the flight deck controls.
Convection	The process by which heat is transferred by movement of a heated fluid (gas or liquid).
Conventional Current	An imaginary flow of electricity that is said to flow from the positive terminal of a power source, through the external circuit to its negative terminal. The arrowheads in semiconductor symbols point in the direction of conventional current flow.
Convergent Duct	A duct, or passage, whose cross-sectional area decreases in the direction of fluid flow.
Convergent-divergent Duct	A duct that has a decreasing cross section in the direction of flow (convergent) until a minimum area is reached. After this point, the cross section increases (divergent). Convergent-divergent ducts are called CD ducts or con-di ducts.
Conversion Coating	A chemical solution used to form an airtight oxide or phosphate film on the surface of aluminum or magnesium parts. The conversion coating prevents air from reaching the metal and keeps it from corroding.
Convex Surface	A surface that is curved outward. The outer edges are lower than the center.
Core Engine	The gas generator portion of a turboshaft, turboprop, or turbofan engine. The core engine consists of the portion of the compressor used to supply air for the engine operation, diffuser, combustors, and turbine(s) used to drive the compressor. The core engine provides the high-velocity gas to drive the fan and/or any free turbines that provide power for propellers, rotors, pumps, or generators.
Coriolis Effect	The change in rotor blade velocity to compensate for a change in the distance between the center of mass of the rotor blade and the axis rotation of the blade as the blades flap in flight.
Cornice Brake	A large shop tool used to make straight bends across a sheet of metal. Cornice brakes are often called leaf brakes.
Corrugated Metal	Sheets of metal that have been made more rigid by forming a series of parallel ridges or waves in its surface.
cos	Cosine. A trigonometric function comparing two sides of a right triangle as follows: Cos = adjacent side/hypotenuse.
Cosine	cos. A trigonometric function comparing two sides of a right triangle as follows: Cos = adjacent side/hypotenuse.
Cotter Pin	A split metal pin used to safety a castellated or slotted nut on a bolt. The pin is passed through the hole in the shank of the bolt and the slots in the nut, and the ends of the pin are spread to prevent it backing out of the hole.
Coulomb	A measure of electrical output. One coulomb is 6.24 × 10^18 electrons.
Countersink	A tool that cuts a cone-shaped depression around a hole in order to allow a rivet or screw to set flush with the surface of the material.
Countersinking	Preparation of a rivet hole for a flush rivet by beveling the edges of the holes with a cutter of the correct angle.
Coverite Surface Thermometer	A small surface-type bimetallic thermometer that calibrates the temperature of an iron used to heat-shrink polyester fabrics.
Cowl Flaps	Shutter-like devices arranged around certain air-cooled engine cowlings, which may be opened or closed to regulate the flow of air around the engine.

Cowling	A small surface-type bimetallic thermometer that calibrates the temperature of an iron used to heat-shrink polyester fabrics.
Crabbing	Pointing the nose of an aircraft into the wind to compensate for wind drift.
Crankcase	The housing that encloses the crankshaft, camshaft, and many of the accessory drive gears of a reciprocating engine. The cylinders are mounted on the crankcase, and the engine attaches to the airframe by the crankcase.
Crankshaft	The central component of a reciprocating engine. This high-strength alloy steel shaft has hardened and polished bearing surfaces that ride in bearings in the crankcase. Offset throws, formed on the crankshaft, have ground and polished surfaces on which the connecting rods ride. The connecting rods change the in-and-out motion of the pistons into rotation of the crankshaft.
Crazing	A form of stress-caused damage that occurs in a transparent thermoplastic material. Crazing appears as a series of tiny, hair-like cracks just below the surface of the plastic.
Creep	The deformation of a metal part that is continually exposed to high centrifugal loads and temperatures.
Critical Altitude	The altitude above which a reciprocating engine will no longer produce its rated horsepower with its throttle wide open.
Critical Engine	The engine of a twin-engine airplane whose loss would cause the greatest yawing effect.
Critical Match Number	The flight match number at which there is the first indication of air flowing over any part of the structure at a speed of Mach one, the local speed of sound.
Cross Coat	A double coat of aircraft finishing material in which the second coat is sprayed at right angles to the first coat, before the solvents have evaporated from the first coat.
Cross-feed Valve	Fuel system component. A valve in a fuel system that allows any of the engines of a multi-engine aircraft to draw fuel from any fuel tank. Cross-feed systems are used to allow a multi-engine aircraft to maintain a balanced fuel condition.
Cross-flow Valve	An automatic flow-control valve installed between the gear-up and gear-down lines of the landing gear of some large airplanes. When the landing gear is released from its uplocks, its weight causes it to fall faster than the hydraulic system can supply fluid to the gear-down side of the actuation cylinder. The cross-flow valve opens and directs fluid from the gear-up side into the gear-down side. This allows the gear to move down with a smooth motion.
CRT	Cathode-ray tube. A display tube used for oscilloscopes and computer video displays. An electron gun emits a stream of electrons that is attracted to a positively charged inner surface of the face of the tube. Acceleration and focusing grids speed the movement of the electrons and shape the beam into a pinpoint size. Electrostatic or electromagnetic forces caused by deflection plates or coils move the beam over the face of the tube. The inside surface of the face of the tube is treated with a phosphor material that emits light when the beam of electrons strikes it.
Cryogenic Fluid	A liquid which boils at a temperature lower than about 110˚K (-163˚C) under normal atmospheric pressure. Also called cryogenic liquid.
Cryogenic Liquid	A liquid which boils at a temperature lower than about 110 ºK (-163 ºC) under normal atmospheric pressure. Also called cryogenic fluid.

CSD	Constant-speed drive. A component used with either aircraft gas turbine or reciprocating engines to drive AC generators. The speed of the output shaft of the CSD is held constant while the speed of its input shaft caries. The CSD holds the speed of the generator, and the frequency of the AC constant as the engine speed varies through its normal operating range.
CTF	Centrifugal twisting force. The force acting about the longitudinal axis of a propeller blade, and which tries to rotate the blade to a low-pitch angle. As the propeller rotates, centrifugal force tries to flatten the blade so all of its mass rotates in the same plane.
Cuno Filter	The registered trade name for a particular style of edge-type fluid filter. Cuno filters are made up of a stack of thin metal disks that are separated by thin scraper blades. Contaminants collect on the edge of the disks, and they are periodically scraped out and allowed to collect in the bottom of the filter case for future removal.
Current	The flow of electrical charge.
Current Limiter	An electrical component used to limit the amount of current a generator can produce. Some current limiters are a type of slow-blow fuse in the generator output. Other current limiters reduce the generator output voltage if the generator tries to put out more than its rated current.
Curtiss Jenny	Curtiss JN4-D, A World War I training airplane powered by a Curtiss OX-5 engine. It was widely available after the war and helped introduce aviation to the general public.
Cusp	A pointed end.
Customer Bleed Air	Air that is tapped off a turbine engine compressor and used for such airframe functions as the operation of air conditioning and pressurization systems.
Cyclic Pitch Control	The helicopter control that allows the pilot to change the pitch of the rotor blades individually, at a specific point in their rotation. The cyclic pitch control allows the pilot to tilt the plane of rotation of the rotor disk to change the direction of lift produced by the rotor.
Cylinder	The component of a reciprocating engine which houses the piston, valves, and spark plugs and forms the combustion chamber.
D	
Dacron	The registered trade name for a cloth woven from polyester fibers.
Dalton's Law	States that a mixture of several gases which do not react chemically exerts a pressure equal to the sum of the pressures which the several gases would exert separately if each were allowed to occupy the entire space alone at the given temperature.
Damped Oscillation	Oscillation whose amplitude decreases with time.
Data	The input for computer processing in the form of numerical information that represents characters or analog quantities.
Data Bus	A wire or group of wires that are used to move data within a computer system.
Database	A body of information that is available on any particular subject.
Dataplate Performance	The performance specifications of a turbine engine observed and recorded by the engine manufacturer or overhauler and recorded on the engine dataplate. This data includes the engine speed at which a specified EPR is attained. When trimming the engine, the technician uses this data as the goal.

Dataplate Specifications	Specification of each gas turbine engine determined in the manufacturer's test cell when the engine was calibrated. This data includes the engine serial number with the EPR that produced a specific RPM. The technician refers to this information when trimming the engine.
Datum	An imaginary vertical plane or line from which all measurements of arm are taken. The datum is established by the manufacturer. Once the datum has been selected, all moment arms and the location of CG range are measured from this point.
DC	Direct current. Electricity that flows in one direction at all times.
Deaerator	A component in a turbine engine lubrication system that removes air from the scavenged oil before it is returned to the tank.
Debonding	Separation of the bond between the skin laminates and the core of a composite structure.
Debooster Valve	A valve in a power brake system between the power brake control valve and the wheel cylinder. This valve lowers the pressure of the fluid going to the brake and increases its volume. A debooster valve increases the smoothness of brake application and aids in rapid release of the brakes.
Decay	The breakdown of the structure of wood fibers. Wood that shows any indication of decay must be rejected for use in aircraft structure.
Deceleration	The amount the velocity of an object, measured in feet per second, is decreased by a force during each second it is acted upon by that force. Deceleration is usually expressed in terms of feet per second, per second (fps^2).
Decibels	The unit for measuring sound intensity. One decibel is the smallest change in sound intensity the human ear can detect.
Deciduous	A type of tree that sheds its foliage at the end of the growing season. Hardwoods come from deciduous trees.
Decimal System	The number system, also called the base-ten system, based on the number 10. Consisting of ten symbols, or digits (0, 1, 2, 3, 4, 5, 6, 7, 8, 9), the main principle is that 10 is considered as a new unit from which point counting starts again.
Decomposition	The breakdown of the structure of wood fibers. Wood that shows any indication of decay must be rejected for use in aircraft structure.
Dedicated Computer	A small digital computer, often built into an instrument or control device that contains a built-in program that causes it to perform a specific function.
Deep-vacuum Pump	A vacuum pump capable of removing almost all of the air from a refrigeration system. A deep-vacuum pump can reduce the pressure inside the system to a few microns of pressure.
Defect Report	A report (FAA Form 8010-4) providing the FAA and industry with a very essential service record of mechanical difficulties encountered in aircraft operations. Such reports contribute to the correction of conditions or situations which otherwise will continue to prove costly and/or adversely affect the airworthiness of aircraft. Also referred to as Malfunction Report.
Deflator Cap	A cap for a tire, strut, or accumulator air valve that, when screwed onto the valve, depresses the valve stem and allows the air to escape safely through a hole in the side of the cap.
Degradation	The alteration of material properties (e.g., strength, modulus, coefficient of expansion) which may result from deviations in manufacturing or from repeated loading and/or environmental exposure.

DeHaviland DH-4	An English designed observation airplane built in large quantities in the United States during World War I. After the war, surplus DH-4s were used for carrying the U.S. Mail.
Deicer Boots	Inflatable rubber boots attached to the leading edge of an airfoil. They can be sequentially inflated and deflated to break away ice that has formed over their surface.
Deicer System	A system that removes ice after it has formed on an aircraft.
Deicing	The removal of ice that has formed on a surface.
Delamination	Separation of the bond between the individual plies of a laminated composite structure.
Delivery Air Duct Check Valve	An isolation valve at the discharge side of the air turbine that prevents the loss of pressurization through a disengaged cabin air compressor.
Delta Airplane	An airplane with a triangular-shaped wing. This wing has an extreme amount of sweepback on its leading edge, and a trailing edge that is almost perpendicular to the longitudinal axis of the airplane.
Delta Connection	Electrical connection. A method of connecting three electrical coils into a ring or, as they are drawn on a schematic diagram as a triangle, a delta (D).
Delta P (ΔP)	Differential pressure.
Denier	A measure of the fineness of the yarns in a fabric.
Denominator	The lower part of a fraction (represented by the letter D in N⁄D), the quantity by which the numerator is divided.
Density	The weight of a substance per unit volume.
Density Altitude	The altitude in standard air at which the density is the same as that of the existing air.
Density Ratio (σ)	The ratio of the density of the air at a given altitude to the density of the air at sea level under standard conditions.
Derated	Electrical specification. Reduction in the rated voltage or current of an electrical component. Derating is done to extend the life or reliability of the device.
Desiccant	Air conditioning component. A drying agent used in an air conditioning system to remove water from the refrigerant. A desiccant is made of silica-gel or some similar material.
Detail Drawing	A description of a single part, given in such a manner as to describe by lines, notes, and symbols the specifications for size, shape, material, and methods of manufacture to be used in making the part.
Detailed Inspection	A thorough examination of an item including disassembly. The overhaul of a component is considered to be a detailed inspection.
Detent	A spring-loaded pin or tab that enters a hole or groove when the device to which it is attached is in a certain position. Detents are used on a fuel valve to provide a positive means of identifying the fully on and fully off position of the valve.
Detergent Oil	A type of mineral oil with metallic-ashforming additives that protects the inside of an engine from sludge and varnish buildup. Used in automotive engines, it has proven unsuitable for use in aircraft engines.
Detonation	An uncontrolled explosion inside the cylinder of a reciprocating engine. Detonation occurs when the pressure and temperature of the fuel inside the cylinder exceeds the critical pressure and temperature of the fuel. Detonation may be caused by using fuel that has a lower octane rating or performance number than is specified for the engine. Detonation

	causes explosive burning of the fuel which creates an increased cylinder pressure, excessive cylinder head temperature, and decreased engine performance.
Deviation Error	An error in a magnetic compass caused by localized magnetic fields in the aircraft. Deviation error, which is different on each heading, is compensated by the technician swinging the compass. A compass must be compensated so the deviation error on any heading is no greater than 10 degrees.
Dew Point	The temperature to which humid air must be cooled at constant pressure to become saturated.
Dewar Bottle	A special container used to store liquid oxygen and liquid nitrogen. A Dewar bottle has an inner and an outer container, and the space between them forms a vacuum. The two surfaces within the vacuum are silvered to reflect heat away from the container walls.
Dial Indicator	Measures variations in a surface by using an accurately machined probe mechanically linked to a circular hand whose movement indicates thousandths of an inch, or is displayed on a liquid crystal display (LCD) screen.
Diameter	Circle. The length of a line passing directly through the center of a circle. Twice the radius of the circle.
Die	Used for cutting external threads on round stock.
Difference	The answer to a subtraction problem.
Differential Aileron Travel	Aileron movement in which the upward-moving aileron deflects a greater distance than the one moving downward. The up aileron produces parasite drag to counteract the induced drag caused by the down aileron. Differential aileron travel is used to counteract adverse yaw.
Differential Pressure	The difference between two pressures. An airspeed indicator is a differential-pressure gauge. It measures the difference between static air pressure and pitot air pressure.
Differential-voltage Reverse-current Cutout	A type of reverse-current cutout switch used with heavy-duty electrical systems. This switch connects the generator to the electrical bus when the generator voltage is a specific amount higher than the battery voltage.
Diffuser	A component in a gas turbine engine that decreases the velocity of air flowing through it and increases its pressure.
Digital Multimeter	An electrical test instrument that can be used to measure voltage, current, and resistance. The indication is in the form of a liquid crystal display in discrete numbers.
Digitized Image	A modified image picked up by the miniature TV camera in the end of a fiber-optic probe. This image is converted into a digital electronic signal that eliminates unwanted portions of the viewed area and allows the desired image to be enhanced for a clearer view of the inside of a turbine engine.
Dihedral	The positive angle formed between the lateral axis of an airplane and a line that passes through the center of the wing or horizontal stabilizer. Dihedral increases the lateral stability of an airplane.
Diluter-demand Oxygen System	A popular type of oxygen system in which the oxygen is metered to the mask, where it is diluted with cabin air by an airflow-metering aneroid assembly which regulates the amount of air allowed to dilute the oxygen on the basis of cabin altitude. The mixture of oxygen and air flows only when the wearer of the mask inhales. The percentage of oxygen in the air delivered to the mask is regulated, on the basis of altitude, by the regulator. A diluter-demand regulator has an emergency position which allows 100 percent oxygen to flow to the mask, by-passing the regulating mechanism.

Dipole Antenna	A half wavelength, center-fed radio antenna. The length of each of the two arms is approximately one fourth of the wavelength of the center frequency for which the antenna is designed.
Dipstick	A gage, in the form of a thin metal rod, used to measure the level of liquid in a reservoir. The dipstick is pushed into the reservoir until it contacts a built-in stop; then it is removed and visually inspected. The level of liquid in the reservoir is indicated by the amount of the dipstick wet by the liquid.
Direct Current	DC. Electricity that flows in one direction at all times.
Direct Shaft Turbine	A single-shaft turbine engine in which the compressor and power section are mounted on a common driveshaft.
Directional Stability	Stability about the vertical axis of an aircraft, whereby an aircraft tends to return, on its own, to flight aligned with the relative wind when disturbed from the equilibrium state.
Dirigible	A large, cigar-shaped, rigid, lighter-than-air flying machine. Dirigibles are made of a rigid truss structure covered with fabric. Gas bags inside the structure contain the lifting gas, which is either helium or hydrogen. Dirigibles differ from balloons in that they are powered and can be steered.
Disk Area	The area swept by the blades of the rotor. It is a circle with its center at the hub and has a radius of one blade length.
Discontinuity	An interruption in the normal physical structure or configuration of a part, such as a crack, forging lap, seam, inclusion, porosity, and the like. A discontinuity may or may not affect the usefulness of a part.
Dissimilar Metal Corrosion	Caused by contact between dissimilar metal parts in the presence of a conductor.
Distance Measuring Equipment	DME. Line-of-sight limited airborne equipment (transceiver) using paired pulse replies from ground-based transponder to determine slant range distance by time between airborne transmission of pulses and return of pulses from the ground transponder.
Distributed Pole Stator Winding	Alternator stator windings wound in a series of slots in the stator frame. A distributed pole stator is distinguished from a salient pole stator whose coils are wound around separate pole shoes that project inward from the field frame toward the rotor.
Distributor	A high-voltage selector switch that is gear driven from the shaft of the rotating magnet in a magneto. The distributor rotor picks up the high voltage from the secondary winding of the coil and directs it to high-voltage terminals. From here, it is carried by high-tension ignition leads to the spark plugs.
Divergent Duct	A duct that has an increased cross-sectional area in the direction of flow.
Divergent Oscillation	Oscillation whose amplitude increases with time.
Dividend	In a division problem, the number to be divided by the divisor. In 6 ÷ 2 = 3, the dividend is 6.
Division	The process of finding how many times one number (the divisor) is contained in another number (the dividend).
Divisor	In a division problem, the number by which dividend is to be divided. In 6 ÷ 2 = 3, the divisor is 2.
DME	Distance Measuring Equipment. Line-of-sight limited airborne equipment (transceiver) using paired pulse replies from ground-based transponder to determine slant range distance by time between airborne transmission of pulses and return of pulses from the ground transponder.
DOD	Department of Defense

Dope Proofing	The treatment of a structure to be covered with fabric to keep the solvents in the dope from softening the protective coating on the structure.
Dope Roping	A condition of aircraft dope brushed onto a surface in such a way that it forms a stringy, uneven surface rather than flowing out smoothly.
Doping	The process by which small amounts of additives called impurities are added to the semiconductor material to increase their current flow by adding a few electrons or a few holes.
Double-acting Actuator	Hydraulic system component. A linear actuator moved in both directions by fluid power.
Double-acting Hand Pump	Hydraulic system component. A hand-operated fluid pump that moves fluid during both strokes of the pump handle.
Doubler	A piece of sheet metal used to strengthen and stiffen a repair in a sheet metal structure.
Downdraft Carburetor	A carburetor that mounts on the top of a reciprocating engine. Air entering the engine flows downward through the carburetor.
Downtime	Any time during which an aircraft is out of commission and unable to be operated.
Downwash	Air forced down by aerodynamic action below and behind the wing of an airplane or the rotor of a helicopter. Aerodynamic lift is produced when the air is deflected downward. The upward force on the aircraft is the same as the downward force on the air.
Drag	Helicopter rotor blade movement. Fore-and-aft movement of the tip of a helicopter rotor blade in its plane of rotation.
Drag	The net aerodynamic force parallel to the relative wind, usually the sum of two components: induced drag and parasite drag.
Drag Wire	A structural wire inside a Pratt truss airplane wing between the spars. Drag wires run from the front spar inboard, to the rear spar at the next bay outboard. Drag wires oppose the forces that try to drag the wing backward.
Dragging Brakes	Brakes that do not fully release when the brake pedal is released. The brakes are partially applied all the time, which causes excessive lining wear and heat.
Drill Motor	An electric or pneumatic motor that drives a chuck that holds a twist drill. The best drill motors produce high torque, and their speed can be controlled.
Drip stick	A fuel quantity indicator used to measure the fuel level in the tank when the aircraft is on the ground. The drip stick is pulled down from the bottom of the tank until fuel drips from its opened end. This indicates that the top of the gauge inside the tank is at the level of the fuel. Note the number of inches read on the outside of the gauge at the point it contacts the bottom of the tank, and use a drip stick table to convert this measurement into gallons of fuel in the tank.
Droop	A progressive decrease in RPOM with load in a gas turbine engine whose speed is governed with a fly-weighttype governor in the fuel control. As the load increases, the pilot valve drops down to meter more fuel. The lower position of the valve decreases the compression of the speeder spring and allows the flyweights to assume an on-speed position at a lower rpm.
Dry air Pump	An engine-driven air pump which used carbon vanes. Dry pumps do not use any lubrication, and the vanes are extremely susceptible to damage from the solid airborne particles. These pumps must be operated with filters in their inlet so they will take in only filtered air.

Dry ice	Solidified carbon dioxide. Dry ice sublimates, or changes from a solid directly into a gas, at a temperature of –110 °F (–78.5 °C).
Dry Rot	Decomposition of wood fibers caused by fungi. Dry rot destroys all strength in the wood.
Dry-sump Engine	An engine that carries its lubricating oil supply in a tank external to the engine.
Dual Ignition	An ignition system of an aircraft reciprocating engine that has two of every critical unit, including two spark plugs in each cylinder. Dual ignition provides safety in the event of one system malfunctioning, but more important, igniting the fuel-air mixture inside the cylinder at two locations provides more efficient combustion of the fuel-air mixture in the cylinder.
Dual-spool Gas Turbine Engine	An axial-flow turbine engine that has two compressors, each driven by its own stage or stages of turbines. Also called two-spool engine.
Duct Heater	A thrust augmentation system, similar to an afterburner, where fuel is added to the fan-discharge air and burned.
Duct Losses	A decrease in pressure of the air flowing into a gas turbine engine caused by friction.
Ducted-fan Engine	An engine-propeller combination that has the propeller enclosed in a radial shroud. Enclosing the propeller improves the efficiency of the propeller.
Ductility	The property of a material that allows it to be drawn into a thin section without breaking.
Dummy Load	Electrical load. A noninductive, high-power, 50-ohm resistor that can be connected to a transmission line in place of the antenna. The transmitter can be operated into the dummy load without transmitting any signal.
Durability	A measure of engine life. Durability is usually measured in TBO hours.
Duralumin	The name for the original alloy of aluminum, magnesium, manganese, and copper. Duralumin is the same as the modern 2017 aluminum alloy.
Dutch Roll	An undesirable, low-amplitude coupled oscillation about both the yaw and roll axes that affects many swept wing airplanes. Dutch roll is minimized by the use of a yaw damper.
Dutchman Shears	A common name for compound-action sheet metal shears.
Duty Cycle	A schedule that allows a device to operate for a given period of time, followed by a cooling down period before the device can be operated again.
Dwell Chamber	A chamber in a turbine engine into which the scavenged oil is returned. Entrained air separates from the oil in the dwell chamber before it is picked up by the pressure pump.
Dynamic Pressure (q)	The pressure a moving fluid would have if it were stopped. Dynamic pressure is measured in pounds per square foot.
Dynamic Stability	The stability that causes an aircraft to return to a condition of straight and level flight after it has been disturbed from this condition. When an aircraft is disturbed from the straight and level flight, its static stability starts it back in the correct direction; but it overshoots, and the corrective forces are applied in the opposite direction. The aircraft oscillates back and forth on both sides of the correct condition, with each oscillation smaller than the one before it. Dynamic stability is the decreasing of these restorative oscillations.
Dynamometer	A device used to measure the amount of torque being produced by an engine. The drive shaft of the engine is loaded with either an electric generator or a fluid pump, and the output of the generator or pump is measured and converted into units of torque. Torque at a specific rpm can be converted into brake horsepower.

Dyne	The unit of force that imparts an acceleration of one centimeter per second, per second to a mass of one gram. One dyne is equal to 2.248 · 10-6 pounds.
E	
EADI	Electronic Attitude Director Indicator
ECAM	Electronic Centralized Aircraft Monitor
Eccentric Brushing	A special bushing used between the rear spar of certain cantilever airplane wings and the wing attachment fitting on the fuselage. The portion of the bushing that fits through the hole in the spar is slightly offset from that which passes through the holes in the fitting. By rotating the bushing, the rear spar may be moved up or down to adjust the root incidence of the wing.
Eddy Current	Current induced into a conductor due to a mobbing or non-uniform magnetic field.
Eddy Current Damping	Electrical instrument damping. Decreasing the amplitude of oscillations by the interaction of magnetic fields. In the case of a vertical-card magnetic compass, flux from the oscillating permanent magnet produces eddy currents in a damping disk or cup. The magnetic flux produced by the eddy currents opposes the flux from the permanent magnet and decreases the oscillations.
Eddy Current Inspection	An inspection method where eddy currents are induced into the material to be tested. In aircraft manufacturing plants, eddy current is used to inspect castings, stampings, machine parts, forgings, and extrusions.
Edge Distance	The distance between the center of a rivet hole and the edge of the sheet of metal.
EEC	Electronic Engine Control. An electronic fuel control for a gas turbine engine. The EEC senses the power-lever angle (PLA), engine RPM, bleed valve, and variable stator vane position, and the various engine pressures and temperatures. It meters the correct amount of fuel to the nozzles for all flight conditions, to prevent turbine over-speed and over temperature.
EFD	Electronic Flight Display. For the purpose of standardization, any flight instrument display that uses LCD or other image-producing system (cathode ray tube (CRT), etc.)
Effective Pitch	The actual distance a propeller advances in one revolution through the air.
EFIS	Electronic Flight Instrument System
E-gap Angle	The position of the rotating magnet in a magneto when the breaker points are timed to open. The E-gap (efficiency gap) angle is several degrees of magnet rotation beyond the magnet's neutral position. At this point, the magnetic field stress is the greatest, and the change in flux is the greatest, inducing the maximum voltage in the secondary winding.
EGT	Exhaust Gas Temperature. The temperature of the gases as they leave the cylinder of a reciprocating engine or the turbine of a gas turbine engine.
EHSI	Electronic Horizontal Situation Indicator
EICAS	Engine Indicating and Crew Alerting System. An electronic instrumentation system that monitors airframe and engine parameters and displays the essential information on a video display on the instrument panel. Only vital information is continually displayed, but when any sensed parameters fall outside of their allowable range of operation, they are automatically displayed.

Ejector	A form of jet pump used to pick up a liquid and move it to another location. Ejectors are used to ensure that the compartment in which the boost pumps are mounted is kept full of fuel. Part of the fuel from the boost pump flowing through the ejector produces a low pressure that pulls fuel from the main tank and forces it into the boostpump sump area.
Elastic Limit	The maximum amount of tensile load, in pounds per square inch, that a material is able to withstand without permanent deformation.
Electrical Energy	Electrical energy is converted to heat energy when an electric current flows through any form of resistance such as an electric iron, electric light, or an electric blanket.
Electrical Potential	The electrical force caused by a deficiency of electrons in one location and an excess of electrons in another. Electrical potential is measured in volts.
Electrical Steel	A low-carbon iron alloy that contains some silicon It is used as the core for transformers, field frames for generators and alternators, and the magnetic circuit of magnetos.
Electrohydraulic	Hydraulic control which is electrically actuated.
Electronic Engine Control	EEC. An electronic fuel control for a gas turbine engine. The EEC senses the power-lever angle (PLA), engine RPM, bleed valve, and variable stator vane position, and the various engine pressures and temperatures. It meters the correct amount of fuel to the nozzles for all flight conditions, to prevent turbine over-speed and over temperature.
Electromagnet	A magnet produced by an electrical current flowing through a coil of wire. The coil is normally wound around a core of soft iron which has an extremely low retentivity, allowing it to lose its magnetism as soon as the current stops flowing.
Electromagnetic Radiation	A method of transmitting energy from one location to another. Current caused by high voltage in the secondary winding of a magneto produces electric and magnetic fields which oscillate back and forth at a high frequency and extend out into space in the form of waves. These waves of electromagnetic radiation are received as interference by the radio receivers in the aircraft.
Electromotive Force	EMF. A force that causes electrons to move from one atom to another within an electrical circuit. An electromotive force, or EMF, is the difference in the electrical pressure, or potential, that exists between two points. An EMF may be produced by converting mechanical movement, pressure, chemical, light, or heat energy into electrical energy. The basic unit of EMF is the volt.
Electron Current	The actual flow of electrons in a circuit. Electrons flow from the negative terminal of a power source through the external circuit to its positive terminal. The arrowheads in semiconductor symbols point in the direction opposite to the flow of electron current.
Electronic Flight Display	EFD. For the purpose of standardization, any flight instrument display that uses LCD or other image-producing system (cathode ray tube (CRT), etc.)
Electrostatic Field	A field of force that exists around a charged body.
Elevator	The horizontal, movable primary control surface in the tail section, or empennage, of an airplane. The elevator is hinged to the trailing edge of the fixed horizontal stabilizer.

Elevator Downspring	A spring in the elevator control system that produces a mechanical force that tries to lower the elevator. In normal flight, this spring force is overcome by the aerodynamic force from the elevator trim tab. But in slow flight with an aft CG position, the trim tab loses its effectiveness and the downspring lowers the nose to prevent a stall.
Elevons	Movable control surfaces on the trailing edge of a delta wing or a flying wing airplane. These surfaces operate together to serve as elevators, and differentially to act as ailerons.
ELT	Emergency Locator Transmitter. A self-contained radio transmitter that automatically begins transmitting on the emergency frequencies any time it is triggered by a severe impact parallel to the longitudinal axis of the aircraft.
EM Wave	Electromagnetic wave.
Emergency Locator Transmitter	ELT. A self-contained radio transmitter that automatically begins transmitting on the emergency frequencies any time it is triggered by a severe impact parallel to the longitudinal axis of the aircraft.
EMF	Electromotive force. A force that causes electrons to move from one atom to another within an electrical circuit. An electromotive force, or EMF, is the difference in the electrical pressure, or potential, that exists between two points. An EMF may be produced by converting mechanical movement, pressure, chemical, light, or heat energy into electrical energy. The basic unit of EMF is the volt.
EMI	Electromagnetic Interference
Empennage	The section of the airplane that consists of the vertical stabilizer, the horizontal stabilizer, and the associated control surfaces. The tail section of an airplane.
Empty Weight	See standard empty weight.
Empty-weight Center of Gravity	The center of gravity of an aircraft when it contains only the items specified in the aircraft empty weight.
Empty-weight Center of Gravity Range	The distance between the allowable forward and aft empty-weight CG limits
Emulsion	A suspension of small globules of one material in another when the two materials will not mix. Oil and water will not mix, but they can be formed into an emulsion. An emulsion will separate into its components when it is allowed to sit.
Enamel	A type of finishing material that flows out to form a smooth surface. Enamel is usually made of a pigment suspended in some form of resin. When the resin cures, it leaves a smooth, glossy protective surface.
Energizing Brake	A brake that uses the momentum of the aircraft to increase its effectiveness by wedging the shoe against the brake drum. Energizing brakes are also called servo brakes. A single-servo brake is energizing only when moving in the forward direction, and a duo-servo brake is energizing when the aircraft is moving either forward or backward.
Energy	The capacity of a physical system to perform work. There are two types of energy, kinetic and potential.
Engine Indicating and Crew Alerting System	EICAS. An electronic instrumentation system that monitors airframe and engine parameters and displays the essential information on a video display on the instrument panel. Only vital information is continually displayed, but when any sensed parameters fall outside of their allowable range of operation, they are automatically displayed.
Engine Pressure Ratio	EPR. The ratio of the turbine discharge total pressure to the compressor inlet total pressure. EPR is normally used as the parameter to determine the amount of thrust an axial-flow turbojet or turbofan engine is producing.

Engine Trimming	A maintenance procedure in which the fuel control on a gas turbine engine is adjusted to cause the engine to produce the required EGT or EPR at a specified rpm.
Entrained Water	Water suspended in jet fuel. The amount of entrained water that can be held in the fuel is determined by the temperature of the fuel. When the fuel becomes cold, the water precipitates out and forms ice crystals on the fuel filter element.
Environmental Systems	In an aircraft, the systems, including the supplemental oxygen systems, air conditioning systems, heaters, and pressurization systems, which make it possible for an occupant to function at high altitude.
Epicyclic Reduction Gears	A gear train in which a series of small planetary gears rotate around a central gear. More commonly called a planetary gear train.
EP Lubricant	Extreme Pressure Lubricant. A lubricant that reacts with iron to form iron chlorides, sulfides, or phosphides on the surface of a steel part. These compounds reduce wear and damage to surfaces in heavy rubbing contact. EP lubricants are specially suited for lubricating gear trains.
Epoxy	A flexible, thermosetting resin that is made by polymerization of an epoxide. Epoxy has wide application as a matrix for composite materials and as an adhesive that bonds many different types of materials. It is noted for its durability and its chemical resistance.
EPR	Engine Pressure Ratio. The ratio of the turbine discharge total pressure to the compressor inlet total pressure. EPR is normally used as the parameter to determine the amount of thrust an axial-flow turbojet or turbofan engine is producing.
Equalizing Resistor	A large resistor in the ground circuit of a heavy-duty aircraft generator through which all of the generator output current flows. The voltage drop across this resistor is used to produce the current in the paralleling circuit that forces the generators to share the electrical load equally.
Equivalent Shaft Horsepower	ESHP. A measure of the power produced by a turboprop engine. ESHP takes into consideration both the shaft horsepower delivered to the propeller and the thrust developed at the engine exhaust. Under static conditions, one shaft horsepower is approximately equal to 2.5 pounds of thrust.
ESHP	Equivalent Shaft Horsepower. A measure of the power produced by a turboprop engine. ESHP takes into consideration both the shaft horsepower delivered to the propeller and the thrust developed at the engine exhaust. Under static conditions, one shaft horsepower is approximately equal to 2.5 pounds of thrust.
Ethanol	Alcohol made from cereal grains such as corn.
Ether	A volatile, highly flammable liquid that may be used to prime the cylinders of an aircraft engine when starting under extremely cold conditions.
Ethylene Dibromide	A chemical compound added to aviation gasoline to convert some of the deposits left by the tetraethyl lead into lead bromides. These bromides are volatile and will pass out of the engine with the exhaust gases.
Ethylene Glycol	A form of alcohol used as a coolant for liquid-cooled aircraft engines. It is also used in automobile engines as a permanent antifreeze.
Eutectic	An alloy or solution that has the lowest possible constant melting point.
Evacuation	Air conditioning servicing procedure. A procedure in servicing vapor-cycle cooling systems. A vacuum pump removes all the air from the system. Evacuation removes all traces of water vapor that could condense out, freeze, and block the system.

Evaporative Cooling	Also refered to as steam cooling. A method of liquid cooling in which the coolant, normally water, is allowed to absorb enough heat that it boils. The steam gives up its heat when it condenses back into a liquid.
Evaporator	Air conditioning component. The component in a vapor-cycle cooling system in which heat from the aircraft cabin is absorbed into the refrigerant. As the heat is absorbed, the refrigerant evaporates, or changes from a liquid into a vapor. The function of the evaporator is to lower the cabin air temperature.
Exceedance Condition	A condition in which a parameter sensed by the EICAS exceeds the limits for which it is programmed.
Exhaust	The rear opening of a turbine engine exhaust duct. The nozzle acts as an orifice, the size of which determines the density and velocity of the gases as they emerge from the engine.
Exhaust Cone	The fixed conical fairing centered in the turbine wheel. The exhaust cone straightens the flow and prevents the hot gases from circulating over the rear face of the turbine wheel.
Exhaust Gas Temperature	EGT. The temperature of the gases as they leave the cylinder of a reciprocating engine or the turbine of a gas turbine engine.
Exhaust Manifold	The part of the engine that collects exhaust gases leaving the cylinders.
Exhaust Nozzle	The opening at the rear of the exhaust pipe.
Expander-tube Brake	A brake that uses hydraulic fluid inside a synthetic rubber tube around the brake hub to force rectangular blocks of brake-lining material against the rotating brake drum. Friction between the brake drum and the lining material slows the aircraft.
Expansion Wave	The change in pressure and velocity of supersonic air as it passes over a surface that drops away from the flow. As the surface drops away, the air tries to follow it, and in changing its direction, the air speeds up to a higher supersonic speed, and its static pressure decreases. There is no change in the total amount of energy as air passes through an expansion wave.
Exploded View Drawing	A pictorial drawing of two or more parts that fit together as an assembly. The view shows the individual parts and their relative position to the other parts before they are assembled.
Exponent	Power. A shorthand method of indicating how many times a number, called the base, is multiplied by itself. For example, in the number 4^3, the 3 is the power or exponent and 4 is the base. That is, 4^3 is equal to 4 × 4 × 4 = 64.
Extension Lines	Used to extend the line showing the side or edge of a figure for the purpose of placing a dimension to that side or edge.
External-combustion Engine	A form of heat engine in which the fuel releases its energy outside of the engine. This released heat expands air which is used to perform useful work. Steam engines are a popular type of external combustion engine.
Extreme Pressure Lubricant	EP Lubricant. A lubricant that reacts with iron to form iron chlorides, sulfides, or phosphides on the surface of a steel part. These compounds reduce wear and damage to surfaces in heavy rubbing contact. EP lubricants are specially suited for lubricating gear trains.
Extruded Angle	A structural angle formed by passing metal heated to its plastic state through specially shaped dies.
F	
FAA	Federal Aviation Administration
FAA Form 337	The Major Repair and Alteration form that must be completed when an FAA-certificated aircraft or engine has been given a major repair or major alteration.

FAA FSDO	Federal Aviation Administration Flight Standards District Office. An FAA field office serving an assigned geographical area staffed with Flight Standards personnel who serve the aviation industry and the general public on matters relating to certification and operation of air carrier and general aviation aircraft.
Face	Propeller nomenclature. The flat surface of a propeller that strikes the air as the propeller rotates. The face of a propeller corresponds to the bottom of an airplane wing.
FADEC	Full-authority Digital Electronic Control. A digital electronic fuel control for a gas turbine engine that is functioning during all engine operations, hence full authority. It includes the EEC (see EEC) and functions with the flight management computer. FADEC schedules the fuel to the nozzles in such a way that prevents overshooting power changes and over-temperature conditions. FADEC furnishes information to the EICAS (engine indication and crew alerting system).
Fading of Brakes	The decrease in the amount of braking action that occurs with some types of brakes that are applied for a long period of time. True fading occurs with overheated drum-type brakes. As the drum is heated, it expands in a bell-mouthed fashion. This decreases the amount of drum in contact with the brake shoes and decreases the braking action. A condition similar to brake fading occurs when there is an internal leak in the brake master cylinder. The brakes are applied, but as the pedal is held down, fluid leaks past the piston, and the brakes slowly release.
Fairing	A part of a structure whose primary purpose is to produce a smooth surface or a smooth junction where two surfaces join.
Fairlead	A plastic or wooden guide used to prevent a steel control cable rubbing against an aircraft structure.
Fan Pressure Ratio	The ratio of the fan-discharge pressure to the fan inlet pressure.
FCC	Federal Communications Commission
FCC	Flight Control Computer
Feather	Helicopter rotor blade movement. Rotation of a helicopter rotor blade about its pitch-change axis.
Feathering Propeller	A controllable-pitch propeller whose blades can be moved into a high pitch angle of approximately 90˚. Feathering the propeller of an inoperative engine prevents it from wind-milling and greatly decreases drag.
Federal Aviation Administration Flight Standards District Office	FAA FSDO. An FAA field office serving an assigned geographical area staffed with Flight Standards personnel who serve the aviation industry and the general public on matters relating to certification and operation of air carrier and general aviation aircraft.
Feedback	Helicopter. The transmittal of forces, which are initiated by aerodynamic action on rotor blades, to the cockpit controls.
Feeler Gages	A type of measuring tool consisting of strips of precision-ground steel of accurately measured thickness. Feeler gages are used to measure the distance between closefitting parts, such as the clearances of a mechanical system or the distance by which moving contacts are separated.
Ferrous Metals	Any metal that contains iron and has magnetic characteristics.
FHP	Friction horsepower. The amount of horsepower used to turn the crankshaft, pistons, gears, and accessories in a reciprocating engine and to compress the air inside the cylinders.
Fiber Optics	The technique of transmitting light or images through long, thin, flexible fibers of plastic or glass. Bundles of fibers are used to transmit complete images.

Fiber Stop Nut	A form of a self-locking nut that has a fiber insert crimped into a recess above the threads. The hole in the insert is slightly smaller than the minor diameter of the threads. When the nut is screwed down over the bolt threads, the opposition caused by the fiber insert produces a force that prevents vibration loosening the nut.
File	A hand-held cutting tool used to remove a small amount of metal with each stroke.
Fill Threads	Threads in a piece of fabric that run across the width of the fabric, interweaving with the warp threads. Fill threads are often called woof, or weft, threads.
Fillet	A fairing used to give shape but not strength to an object. A fillet produces a smooth junction where two surfaces meet.
Finishing Tape	Strips of aircraft fabric that are doped over all seams and places where the fabric is stitched to the aircraft structure. Surface tape is also doped over the wing leading edges where abrasive wear occurs. The edges of surface tape are pink, or notched, to keep them from raveling before the dope is applied. Also called surface tape.
Fire Pull Handle	The handle in an aircraft flight deck that is pulled at the first indication of an engine fire. Pulling this handle removes the generator from the electrical system, shuts off the fuel and hydraulic fluid to the engine, and closes the compressor bleed air valve. The fire extinguisher agent discharge switch is uncovered, but it is not automatically closed.
Fire Sleeve	A covering of fire-resistant fabric used to protect flexible fluid lines that are routed through areas subject to high temperature.
Fire Zone	A portion of an aircraft designated by the manufacturer to require fire-detection and/or fire-extinguishing equipment and a high degree of inherent fire resistance.
Fishmouth Splice	A type of splice used in a welded tubular structure in which the end of the tube whose inside diameter is the same as the outside diameter of the tube being spliced is cut in the shape of a V, or a fishmouth, and is slipped over the smaller tube welded. A fishmouth splice has more weld area than a butt splice and allows the stresses from one tube to transfer into the other tube gradually.
Fitting	An attachment device that is used to connect components to an aircraft structure.
Fixed Fire-extinguishing System	A fire-extinguishing system installed in an aircraft.
Fixed Slot	A fixed, nozzle shaped opening near the leading edge of a wing that ducts air onto the top surface of the wing. Its purpose is to increase lift at higher angles of attack.
Fixed-pitch Propellers	Propellers with fixed blade angles. Fixed-pitch propellers are designed as climb propellers, cruise propellers, or standard propellers.
Flame Tubes	Small-diameter metal tubes that connect cantype combustors in a turbine engine to carry the ignition flame to all of the combustion chambers. The British call combustion liners flame tubes.
Flameout	A condition of turbine engine operation when the fire unintentionally goes out. Improper fuel-air mixture or interruption of the air flow through the engine can cause a flameout.
Flap	Aircraft control. A secondary control on an airplane wing that changes its camber to increase both its lift and its drag.
Flap	Helicopter rotor blade movement. Up-and-down movement of the tip of a helicopter rotor blade.

Flaps	Hinged portion of the trailing edge between the ailerons and fuselage. In some aircraft ailerons and flaps are interconnected to produce full-span flaperons. In either case, flaps change the lift and drag on the wing.
Flap Overload Valve	A valve in the flap system of an airplane that prevents the flaps being lowered at an airspeed which could cause structural damage. If the pilot tries to extend the flaps when the airspeed is too high, the opposition caused by the air flow will open the overload valve and return the fluid to the reservoir.
Flash Point	The temperature to which a liquid must be raised for it to ignite, but not continue to burn when a flame is passed above it.
Flashing the Field	A maintenance procedure for a DC generator that restores residual magnetism to the field frame. A pulse of current from a battery is sent through the field coils in the direction in which current normally flows. The magnetic field produced by this current magnetizes the steel frame of the generator.
Flashover	An ignition system malfunction in which the high voltage in the magneto distributor jumps to the wrong terminal. Flashover causes the wrong spark plug to fire. This reduces the engine power and produces vibration and excessive heat.
Flat Pattern Layout	The pattern for a sheet metal part that has the material used for each flat surface, and for all of the bends, marked out with bend-tangent lines drawn between the flats and bend allowances.
Flat-rated Engine	A turboprop engine whose allowable output power is less than the engine is physically capable of producing.
Flight Controller	The component in an autopilot system that allows the pilot to maneuver the aircraft manually when the autopilot is engaged.
Flight Management Computer	FMC. An electronic flight instrumentation system that enables the flight crew to initiate and implement a given flight plan and monitor its execution.
Flight Management System	FMS. A computer system containing a database to allow programming of routes, approaches, and departures that can supply navigation data to the flight director/autopilot from various sources, and can calculate flight data such as fuel consumption, time remaining, possible range, and other values.
Float Carburetor	A fuel metering device that uses a floatactuated needle valve to maintain fuel level slightly below the edge of the discharge nozzle.
Floatplane	A seaplane equipped with separate floats to support the fuselage well above the water surface.
Flock	Pulverized wood or cotton fibers mixed with an adhesive. Flock, attached to a wire screen, acts as an effective induction air filter for small reciprocating engines.
Flow Divider	Reciprocating engine. The valve in an RSA fuel injection system that divides the fuel from the fuel control unit and distributes it to all of the cylinders. It compares with the manifold valve in a Teledyne-Continental fuel injection system.
Flow Divider	Turbine engine. A component in a turbine engine fuel system that routes all of the fuel to the primary nozzles or primary orifices when starting the engine or when the rpm is low. When the engine speed builds up, the flow divider shifts and opens a passage to send the majority of the fuel to the secondary nozzles or orifices.
Fluid	A form of material whose molecules are able to flow past one another without destroying the material. Gases and liquids are both fluids.
Fluid Power	The transmission of force by the movement of a fluid. The most familiar examples of fluid power systems are hydraulic and pneumatic systems.

Flutter	Rapid and uncontrolled oscillation of a flight control surface on an aircraft that is caused by a dynamically unbalanced condition.
Fly-by-wire	A method of control used by some modern aircraft in which control movement or pressures exerted by the pilot are directed into a digital computer where they are input into a program tailored to the flight characteristics of the aircraft. The computer output signal is sent to actuators at the control surfaces to move them the optimum amount for the desired maneuver.
Flying Boat	An airplane whose fuselage is built in the form of a boat hull to allow it to land and takeoff from water. In the past, flying boats were a popular form of large airplane.
Flying Wing	A type of heavier-than-air aircraft that has no fuselage or separate tail surfaces. The engines and useful load are carried inside the wing, and movable control surfaces on the trailing edge provide both pitch and roll control.
FMC	Flight Management Computer. An electronic flight instrumentation system that enables the flight crew to initiate and implement a given flight plan and monitor its execution.
FMS	Flight Management System. A computer system containing a database to allow programming of routes, approaches, and departures that can supply navigation data to the flight director/autopilot from various sources, and can calculate flight data such as fuel consumption, time remaining, possible range, and other values.
FOD	Foreign Object Debris
FOD	Foreign Object Damage. Any damage caused by any loose object to aircraft, personnel, or equipment. These loose objects can be anything from broken runway concrete to shop towels and safety wire.
Foot-pound	A measure of work accomplished when a force of 1 pound moves an object a distance of 1 foot.
Force	The energy applied to an object that attempts to cause the object to change its direction, speed, or motion. In aerodynamics, it is expressed as F, T (thrust), L (lift), W (weight), or D (drag), usually in pounds.
Forehand Welding	Welding in which the torch is pointed in the direction the weld is progressing.
Foreign Object Damage	FOD. Any damage caused by any loose object to aircraft, personnel, or equipment. These loose objects can be anything from broken runway concrete to shop towels and safety wire.
Form Drag	Parasite drag caused by the form of the object passing through the air.
Former	An aircraft structural member used to give a fuselage its shape.
Forward Bias	A condition of operation of a semiconductor device such as a diode or transistor in which a positive voltage is connected to the P-type material and a negative voltage to the N-type material.
Four-stroke Cycle	A constant-volume cycle of energy transformation that has separate strokes for intake, compression, power, and exhaust.
FPD	Freezing Point Depressant
Fraction	A number written in the form N⁄D in which N is the numerator and D is the denominator. For example, 5⁄16 is a fraction.
Fractional Distillation	Procedure used for separating various components from a physical mixture of liquids. Crude oil is a mixture of many different types of hydrocarbon fuels which can be separated by carefully raising its temperature. The first products to be released, those having the lowest boiling points, are some of the gaseous fuels; next are gasoline, kerosene, diesel fuel, heavy fuel oils, lubricating oils, and finally, tar and asphalt.

Frangible	Capable of being broken.
Free-turbine Engine	A gas turbine engine with a turbine stage on a shaft independent of the shaft used to drive the compressor. Free turbines are used to drive the propeller reduction gear in a turboprop engine and the rotor transmission in a helicopter.
Freewheeling Unit	A component of the transmission or power train that automatically disconnects the main rotor from the engine when the engine stops or slows below the equivalent rotor rpm.
Freezing Point	The temperature at which solids, such as wax crystals, separate from a hydrocarbon fuel as it is cooled.
Frequency	The number of cycles (on/off) completed per unit of time. Usually expressed in Hertz.
Fretting Corrosion	Occurs when two mating surfaces, normally at rest with respect to one another, are subject to slight relative motion.
Friction	The opposition to movement between objects.
Friction Horsepower	FHP. The amount of horsepower used to turn the crankshaft, pistons, gears, and accessories in a reciprocating engine and to compress the air inside the cylinders.
Frise Aileron	An aileron with its hinge line set back from the leading edge so that when it is deflected upward, part of the leading edge projects below the wing and produces parasite drag to help overcome adverse yaw.
Frost	Ice crystal deposits formed by sublimation when the temperature and dew point are below freezing.
FS	Fuselage stations. Reference locations, usually given in inches, used to determine forward and aft positions on an aircraft. FS – 0 is the datum.
FSDO	Flight Standards District Office. See FAA FSDO.
Fuel Control Unit	The fuel-metering device used on a turbine engine that meters the proper quantity of fuel to be fed into the burners of the engine. It integrates the parameters of inlet air temperature, compressor speed, compressor discharge pressure, and exhaust gas temperature with the position of the cockpit power control lever.
Fuel Efficiency	Defined as the amount of fuel used to produce a specific thrust or horsepower divided by the total potential power contained in the same amount of fuel.
Fuel Grade	The rating system used for aviation gasoline. It rates fuel according to its antidetonation characteristics.
Fuel Heaters	A radiator-like device which has fuel passing through the core. A heat exchange occurs to keep the fuel temperature above the freezing point of water so that entrained water does not form ice crystals, which could block fuel flow.
Fuel Injection	A fuel metering system used on some aircraft reciprocating engines in which a constant flow of fuel is fed to injection nozzles in the heads of all cylinders just outside of the intake valve. It differs from sequential fuel injection in which a timed charge of high-pressure fuel is sprayed directly into the combustion chamber of the cylinder.
Fuel Jettison System	A system installed in most large aircraft that allows the flight crew to jettison, or dump, fuel to lower the gross weight of the aircraft to its allowable landing weight. Boost pumps in the fuel tanks move the fuel from the tank into a fuel manifold. From the fuel manifold, it flows away from the aircraft through dump chutes is each wing tip. The fuel jettison system must be so designed and constructed that it is free from fire hazards.
Fuel Tank Sump	A sampling port in the lowest part of the fuel tank that the pilot can utilize to check for contaminants in the fuel.
Fuel Totalizer	A fuel quantity indicator that gives the total amount of fuel remaining on board the aircraft on one instrument. The totalizer adds the quantities of fuel in all of the tanks.

Fuel-air Mixture Ratio	Ratio of the number of pounds of fuel to the number of pounds of air in the mixture burned in cylinders of a reciprocating engine.
Fuel-flow Transmitter	A device in the fuel line between the engine-driven fuel pump and the carburetor that measures the rate of flow of the fuel. It converts this flow rate into an electrical signal and sends it to an indicator in the instrument panel.
Full-authority Digital Electronic Control	FADEC. A digital electronic fuel control for a gas turbine engine that is functioning during all engine operations, hence full authority. It includes the EEC (see EEC) and functions with the flight management computer. FADEC schedules the fuel to the nozzles in such a way that prevents overshooting power changes and over-temperature conditions. FADEC furnishes information to the EICAS (engine indication and crew alerting system).
Full-bodied	Not thinned.
Full-register Position	The position of a magnet in a magneto when its poles are aligned with the pole shoes and the maximum amount of magnetic flux is flowing through the magnetic circuit.
Fully Articulated Rotor	A helicopter rotor whose blades are attached to the hub in such a way that they are free to flap, drag, and feather. See each of these terms.
Fungus	Plural: fungi. Any of several types of plant life that include yeasts, molds, and mildew.
Fuse	A protective device containing a special wire that melts when current exceeds the rated value for a definite period.
Fuselage	The section of the airplane that consists of the cabin and/or cockpit, containing seats for the occupants and the controls for the airplane.
Fuselage Stations	FS. Reference locations, usually given in inches, used to determine forward and aft positions on an aircraft. FS – 0 is the datum.
Fusible Plugs	Plugs in the wheels of high-performance airplanes that use tubeless tires. The centers of the plugs are filled with a metal that melts at a relatively low temperature. If a takeoff is aborted and the pilot uses the brakes excessively, the heat transferred into the wheel will melt the center of the fusible plugs and allow the air to escape from the tire before it builds up enough pressure to cause an explosion.
G	
Galling	Fretting or pulling out chunks of a surface by sliding contact with another surface or body.
GAMA	General Aviation Manufacturers Association
Gas Generator	The basic gas turbine engine. It consists of the compressor, diffuser, combustor, and turbine. The gas generator is also called the core engine.
Gas Turbine Engine	An internal combustion engine that burns its fuel in a constant-pressure cycle and uses the expansion of the air to drive a turbine which, in turn, rotates a compressor. Energy beyond that needed to rotate the compressor is used to produce torque or thrust.
Gasket	A seal between two parts where there is no relative motion.
Gauge	Rivet. The distance between rows of rivets in a multirow seam. Gauge is also called transverse pitch.
Gauge Pressure	Pressure referenced from existing atmospheric pressure.

Gear-type Pump	A constant-displacement fluid pump that contains two meshing large-tooth spur gears. Fluid is drawn into the pump as the teeth separate and is carried around the inside of the housing with teeth and is forced from the pump when the teeth come together.
General Aviation Airworthiness Alerts	Documents published by the FAA as Advisory Circulars 43.16. These are used to alert technicians of problems that have been found in specific models of aircraft, and reported on Malfunction and Defect Reports. Airworthiness Alerts suggest corrective action, but compliance with the suggestion is not mandatory.
General Aviation	A term used to describe the total field of aviation operation except the military and airlines.
Generator	A mechanical device that transforms mechanical energy into electrical energy by rotating a coil inside a magnetic field. As the conductors in the coil cut across the lines of magnetic flux, a voltage is generated that causes current to flow.
Generator Series Field	A set of heavy field windings in a generator connected in a series with the armature. The magnetic field produced by the series windings is used to change the characteristics of the generator.
Generator Shunt Field	A set of field windings in a generator connected in parallel with the armature. Varying the amount of current flowing in the shunt field windings controls the voltage output of the generator.
Geometric Pitch	The distance a propeller would advance in one revolution if it were rotating in a solid.
Geopotential of the Tropopause	The point in the standard atmosphere where the temperature stops dropping and becomes constant. This is the tropopause, or the dividing line between the troposphere and the stratosphere.
Gerotor Pump	A form of constant-displacement pump that uses an external-tooth drive gear that meshes with and drives an internal-tooth gear that has one more space for a tooth than there are teeth on the drive gear. Both gears turn inside a close-tolerance housing. As the gears rotate, fluid flows between the teeth that are beginning to un-mesh, and is carried around the pump as the space continues to open up. On the discharge side of the pump, the teeth becomes smaller, fluid is forced out of the pump.
Gimbal	A support that allows a gyroscope to remain in an upright condition when its base is tilted.
Gimbal Ring	A type of support that allows an object, such as a gyroscope, to remain in an upright condition when its base is tilted.
Glass Cockpit	An aircraft instrument system that uses a few color cathode-ray-tube displays to replace a large number of mechanically actuated instruments.
Glaze Ice	Ice that forms when large drops of water strike a surface whose temperature is below freezing. Glaze ice is clear and heavy.
Glide Slope	The portion of an ILS (Instrument Landing System) that provides the vertical path along which an aircraft descends on an instrument landing.
Global Position System	GPS. A satellite-based radio positioning, navigation, and time-transfer system.
GMA Welding	Gas Metal Arc Welding. Metal inert gas welding is a form of electric arc welding in which the electrode is an expendable wire. MIG welding is now called GMA welding.
Goniometer	Electronic circuitry in an ADF system that uses the output of a fixed loop antenna to sense the angle between a fixed reference, usually the nose of the aircraft, and the direction from which the radio signal is being received.
Governor	A control which limits the maximum rotational speed of a device.
GPS	Global Position System. A satellite-based radio positioning, navigation, and time-transfer system.

GPU	Ground Power Unit. A service component used to supply electrical power and compressed air to an aircraft when it is operating on the ground.
Gram	The basic unit of weight or mass in the metric system. One gram equals approximately 0.035 ounce.
Graphite	A form of carbon. Structural graphite is used in composite structure because of its strength and stiffness.
Greige	Pronounced gray. The unshrunk condition of a polyester fabric as it is removed from the loom.
Gross Thrust	The thrust produced by a turbojet or turbofan engine when the engine is static or not moving. The air is considered to have no inlet velocity, and the velocity of the gas leaving the engine is considered to be the acceleration factor.
Ground	The voltage reference point in an aircraft electrical system. Ground has zero electrical potential. Voltage values, both positive and negative, are measured from ground. In the United Kingdom, ground is spoken of as earth.
Ground Adjustable Trim Tab	A metal trim tab on a control surface that is not adjustable in flight. Bent in one direction or another while on the ground to apply trim forces to the control surface.
Ground Effect	The increased aerodynamic lift produced when an airplane or helicopter is flown nearer than half wing span or rotor span to the ground. This additional lift is caused by an effective increase in angle of attack without the accompanying increase in induced drag, which is caused by the deflection of the downwashed air.
Ground Power Unit	GPU. A service component used to supply electrical power and compressed air to an aircraft when it is operating on the ground.
Ground-boosted Engine	An aircraft reciprocating engine with a built-in supercharger that boosts the sea-level rated horsepower of the engine.
Gudgeon Pin	The British name for a wrist pin, or piston pin. See wrist pin.
Guncotton	A highly explosive material made by treating cotton fibers with nitric and sulfuric acids. Guncotton is used in making the film base of nitrate dope.
Gusset	A small plate attached to two or more members of a truss structure. A gusset strengthens the truss.
Gyro	Gyroscope. The sensing device in an autopilot system. A gyroscope is a rapidly spinning wheel with its weight concentrated around its rim. Gyroscopes have two basic characteristics that make them useful in aircraft instruments: rigidity in space and precession. See rigidity in space and precession.
Gyroscopic Precession	The characteristic of a gyroscope that causes it to react to an applied force as though the force were applied at a point 90° in the direction of rotation from the actual point of application. The rotor of a helicopter acts in much the same way as a gyroscope and is affected by gyroscopic precession.
H	
Half-wave Rectifier	An electrical rectifier circuit that converts AC into pulsating DC. Only one alternation of each cycle is present in the output.
Halogenated Hydrocarbon	A hydrocarbon compound in which one or more hydrogen atoms have been replaced with atoms of one of the halogen elements such as fluorine, chlorine, or bromine.
Halon 1211	A halogenated hydrocarbon fire-extinguishing agent used in many HRD fire-extinguishing systems for powerplant protection. The technical name for Halon 1211 is bromochlorodifluoromethane.

Halon 1301	A halogenated hydrocarbon fire-extinguishing agent that is one of the best for extinguishing cabin and powerplant fires. It is highly effective and is the least toxic of the extinguishing agents available. The technical name for Halon 1301 is bromotrifluoromethane.
Hand Propping	Starting an engine by rotating the propeller by hand.
Hangar Rash	Scrapes, bends, and dents in an aircraft structure caused by careless handling.
Hardwood	Wood from a broadleaf tree that sheds its leaves each year.
Head of Pressure	Pressure exerted by a column of fluid and created by the height of the column.
Head-up Display	HUD. A special type of flight viewing screen that allows the pilot to watch the flight instruments and other data while looking through the windshield of the aircraft for other traffic, the approach lights, or the runway.
Heading Indicator	A gyroscopic flight instrument that gives the pilot an indication of the heading of the aircraft.
Heat	The total kinetic energy of the molecules of any substance.
Heat Engine	A mechanical device that converts the chemical energy in a fuel into heat energy. The heat energy is then converted into mechanical energy and useful work.
Heat Exchanger	A device used to exchange heat from one medium to another. Radiators, condensers, and evaporators are all examples of heat exchangers. Heat always moves from the object or medium having the greatest level of heat energy to a medium or object having a lower level.
Helical Spline	A spline that twists, or winds, around the periphery of a shaft. Helical splines are used to change linear motion into rotary motion of the shaft on which the splines are cut.
Helical Spring	A spring wound in the form of a helix, or coil.
Heli-Coil Insert	The registered trade name of a special helical insert used to restore threads stripped from a bolt hole, or to reinforce the threads in an aluminum casting. The damaged threads are drilled out and new threads are cut with a special oversize tap. A coil of stainless steel wire, with a cross section in the shape of a diamond, is screwed into the hole and serves as the new threads. Heli-Coil inserts are also used to provide durable threads in soft metal castings. Some spark plug holes in aluminum alloy cylinder heads are fitted with Heli-Coil inserts to minimize the wear caused by repeated removal and installation of the spark plugs.
Helix	A screw-like, or spiral, curve.
Henry	The basic unit of inductance, symbolized with the letter H. An electric circuit has an inductance of one henry when current changing at the rate of one ampere per second induces a voltage of one volt into the circuit.
Heptanes	An organic compound, $CH_3(CH_2)_5CH_3$, that is used as the low reference fuel for rating the antidetonation characteristics of aviation gasoline.
Hermaphrodite Caliper	Generally used as a marking gauge in layout work. It should not be used for precision measurement.
Hermetically Sealed	A complete seal, especially against the escape or entry of air.
Hertz	A unit of frequency equal to one cycle per second.
Hidden Lines	Indicates invisible edges or contours.
High Unmetered Fuel Pressure	Pressure in a Teledyne-Continental fuel injector pump that is adjusted by the variable orifice.

High-Bypass Ratio Engine	A turbofan engine whose bypass ratio is 4:1 or greater.
High-pressure Compressor	The second-stage compressor in a dual-spool gas turbine engine. The high pressure compressor is called the N2 compressor and is the one that is rotated by the starter for starting, and the one whose rpm is controlled by the fuel control.
Holding Relay	An electrical relay that is closed by sending a pulse of current through the coil. It remains closed until the current flowing through its contacts is interrupted.
Homebuilt Aircraft	Aircraft that are built by individuals as a hobby rather than by factories as commercial products. Homebuilt, or amateur-built, aircraft are not required to meet the stringent requirements imposed on the manufacture of FAA-certified aircraft.
Honing	Cylinder wall treatment. Scratching the surface of the cylinder wall with an abrasive to produce a series of grooves of microscopic depth and uniform pattern. The honed pattern holds oil to lubricate the cylinder walls.
Horsepower	HP. A measure of power equal to 550 footpounds per second or 33,000 foot-pounds per minute and 746 Watts.
Hot Dimpling	A process used to dimple, or indent, the hole into which a flush rivet is to be installed. Hot dimpling is done by clamping the metal between heating elements and forcing the dies through the holes in the softened metal. Hot dimpling prevents hard metal from cracking when it is dimpled. Also called thermal dimpling.
Hot Section	The portion of a gas turbine engine that operates at a high temperature. The hot section includes the combustion, turbine, and exhaust sections.
Hot Start	Occurs when the engine starts, but the exhaust gas temperature exceeds specified limits. This is usually caused by an excessively rich fuel/air mixture entering the combustion chamber.
Hot-tank Lubricating System	A turbine engine lubricating system in which the oil cooler is located in the pressure subsystem. The oil is returned to the tank without being cooled.
Hot-wire Cutter	A cutter used to shape blocks of Styrofoam. The wire is stretched tight between the arms of a frame and heated by electrical current. The hot wire melts its way through the foam.
HP	Horsepower. A measure of power equal to 550 foot-pounds per second or 33,000 foot-pounds per minute and 746 Watts.
HRD	High-rate-discharge.
HRD Fire Extinguisher	A fire extinguisher that carries the extinguishing agent in a sealed sphere or cylinder. When the agent-discharged switch is closed, an ignited powder charge drives a cutter through a frangible disk which releases the agent. The entire contents of the container is emptied in much less than a second.
HSI	Horizontal Situation Indicator.
Hub	Propeller component. The high-strength component inside a propeller that attaches the blades to the engine propeller shaft.
HUD	Head-Up Display. A special type of flight viewing screen that allows the pilot to watch the flight instruments and other data while looking through the windshield of the aircraft for other traffic, the approach lights, or the runway.
Human Factors	A multidisciplinary field encompassing the behavioral and social sciences, engineering, and physiology, to consider the variables that influence individual and crew performance for the purpose of optimizing human performance and reducing errors.
Humidity	The amount of water vapor in the air.

Hung Start	Occurs when the engine starts normally, but the rpm remains at some low value rather than increasing to the normal starting rpm. This is often the result of insufficient power to the starter, or the starter cutting off before the engine starts self-accelerating.
Hybrid Compressor Engine	A gas turbine engine that has both centrifugal and axial-flow compressors.
Hybrid Spark Plug	A fine-wire spark plug that has a platinum center electrode and iridium ground electrodes.
Hydraulic Actuator	The component in a hydraulic system that converts hydraulic pressure into mechanical force. The two main types of hydraulic actuators are linear actuators (cylinders and pistons) and rotary actuators (hydraulic motors).
Hydraulic Fuse	A type of flow control valve that allows a normal flow of fluid in the system but, if the flow rate is excessive, or if too much fluid flows for normal operation, the fuse will shut off all further flow.
Hydraulic Lock	A condition in which oil drains into the lower cylinders of a reciprocating engine and leaks past the piston rings to fill the combustion chamber. If the oil is not removed before the engine is started, it can cause serious damage.
Hydraulic Motor	A hydraulic actuator that converts fluid pressure into rotary motion. Hydraulic motors have an advantage in aircraft installations over electric motors, because they can operate in a stalled condition without the danger of a fire.
Hydraulic Power Pack	A small, self-contained hydraulic system that consists of a reservoir, pump, selector valves, and relief valves. The power pack is removable from the aircraft as a unit to facilitate maintenance and service.
Hydraulics	The system of fluid power which transmits force through an incompressible fluid.
Hydrocarbon	An organic compound that contains only carbon and hydrogen. The vast majority of fossil fuels, such as gasoline and turbine-engine fuel, are hydrocarbons.
Hydromechanical	Any device that combines fluid pressures with mechanical actions to achieve a desired result. In a hydromechanical fuel control used for a turbine engine, hydraulic servos are used in conjunction with the mechanical linkages.
Hydrometer	A device used for measuring the specific gravity of liquids.
Hydroplaning	A condition that exists when a high-speed airplane is landed on a water-covered runway. When the brakes are applied, the wheels lock up and the tires skid on the surface of the water in much the same way a water ski rides on the surface. Hydroplaning develops enough heat in a tire to ruin it.
Hydrostatic Test	A pressure test used to determine the serviceability of high-pressure oxygen cylinders. The cylinders are filled with water and pressurized to 5⁄3 of their working pressure. Standard-weight cylinders (DOT 3AA) must by hydrostatically tested every five years, and lightweight cylinders (DOT 3HT) must be tested every three years.
Hyperbolic Navigation	Electronic navigation systems that determine aircraft location by the time difference between reception of two signals. Signals from two stations at different locations will be received in the aircraft at different times. A line plotted between two stations along which the time difference is the same forms a hyperbola.
Hypersonic Speed	Speed of greater than Mach 5 (five times the speed of sound).
Hypotenuse	The side of a right triangle that is opposite the right angle. The hypotenuse is the longest side of a right triangle.
Hypoxia	A physiological condition in which a person is deprived of the needed oxygen. The effects of hypoxia normally disappear as soon as the person is able to breathe air containing sufficient oxygen.
I	

IA	Inspection Authorization. An authorization that may be issued to an experienced aviation maintenance technician who holds both an Airframe and Powerplant rating. It allows the holder to conduct annual inspections and to approve an aircraft or aircraft engine for return to service after a major repair or major alteration.
IAS	Indicated airspeed. The airspeed as shown on an airspeed indicator with no corrections applied.
ICAO	International Civil Aviation Organization
Ice Bridging	A spark plug failure that occurs when starting a reciprocating engine in extremely cold weather. When a cylinder fires, the fuel-air mixture is converted into carbon dioxide and water vapor. The water vapor condenses on the spark plug electrodes and forms ice that bridges the electrode gap and prevents the plug firing until the ice is melted. This normally requires removing the spark plugs from the engine.
Icebox Rivet	A solid rivet made of 2017 or 2024 aluminum alloy. These rivets are too hard to drive in the condition they are received from the factory, and must be heat-treated to soften them. They are heated in a furnace and then quenched in cold water. Immediately after quenching they are soft, but within a few hours at room temperature they become quite hard. The hardening can be delayed for several days by storing them in a subfreezing icebox and holding them at this low temperature until they are to be used.
IDG	Integrated Drive Generator. An AC generator installed on turbine engines. An IDG incorporates a brushless, threephase AC generator and a constant-speed drive in a single component.
IF	Intermediate Frequency
IFR	Instrument Flight Rules
Igniter	The component in a turbine-engine ignition system that provides a high-energy spark for igniting the fuel-air mixture in the combustion chamber for starting.
Igniter Plugs	The electrical device used to provide the spark for starting combustion in a turbine engine. Some igniters resemble spark plugs, while others, called glow plugs, have a coil of resistance wire that glows red hot when electrical current flows through the coil.
IHP	Indicated Horsepower. The theoretical horse-power a reciprocating engine develops.
ILS	Instrument Landing System
IMEP	Indicated Mean Effective Pressure. The average pressure existing inside the cylinder of a reciprocating engine during its power stroke.
Impact Ice	Ice that forms on the wings and control surfaces or on the carburetor heat valve, the walls of the air scoop, or the carburetor units during flight. Impact ice collecting on the metering elements of the carburetor may upset fuel metering or stop carburetor fuel flow.
Improper Fraction	A fraction with the numerator equal to or greater than the denominator.
Impulse Coupling	A spring-loaded coupling between a magneto shaft and the drive gear inside the engine. When the engine is rotated for starting, the impulse coupling locks the magnet so it cannot turn. The spring in the coupling winds up as the crankshaft continues to turn, and when the piston is near top center, the coupling releases and spins the magnet, producing a hot and retarded spark.

Incandescent	Glowing because of intense heat.
Inch-pound	A measure of work accomplished when a force of 1 pound moves an object a distance of 1 inch.
Inconel	The registered trade name for an alloy of chromium, iron, and nickel. Inconel is similar to stainless steel, but cannot be hardened by heat treatment.
Indicated Airspeed	IAS. The airspeed as shown on an airspeed indicator with no corrections applied.
Indicated Horsepower	IHP. The theoretical horse-power a reciprocating engine develops.
Indicated Mean Effective Pressure	IMEP. The average pressure existing inside the cylinder of a reciprocating engine during its power stroke.
Induced Current	Electrical current produced in a conductor when it is moved through or crossed by a magnetic field.
Induced Drag	Aerodynamic drag produced by an airfoil when it is producing lift. Induced drag is affected by the same factors that affect induced lift.
Inductance	The ability of a coil or conductor to oppose a change in current flow.
Induction Manifold	The part of the engine that distributes intake air to the cylinders.
Induction Time	The time allowed an epoxy or polyurethane material between its initial mixing and its application. This time allows the materials to begin their cure.
Inductive Reactance	An opposition to the flow of AC or changing DC caused by inductance in the circuit. Inductive reactance, whose symbol is XL, causes a voltage drop, but it does not use power nor produce heat.
Inductor	A coil of wire that produces inductance in an electrical circuit.
Inertia	The tendency of a body to resist acceleration. A body at rest will remain at rest or a body in motion will stay in motion in a straight line unless acted on by an outside force.
Inertia Starter	A starter for a large reciprocating engine that uses energy stored in a rapidly spinning flywheel to turn the crankshaft.
Infrared Radiation	Electromagnetic radiation whose wavelengths are longer than those of visible light.
Ingot	A large block of metal that was molded as it was poured from the furnace. Ingots are further processed into sheets, bars, tubes, or structural beams.
Inlet Guide Vanes	A set of stator vanes in front of the first stage of compression in a gas turbine engine. The inlet guide vanes deflect the air entering the compressor in the correct direction for optimum operation. Inlet guide vanes may be fixed, or their angle may be controlled hydraulically by fuel from the fuel control.
In-line Engine	A reciprocating engine with all of the cylinders arranged in a straight line.
INS	Inertial Navigation System
Inside Calipers	Calipers with outward curved legs for measuring inside diameters, such as diameters of holes.
Inspection Authorization	IA. An authorization that may be issued to an experienced aviation maintenance technician who holds both an Airframe and Powerplant rating. It allows the holder to conduct annual inspections and to approve an aircraft or aircraft engine for return to service after a major repair or major alteration.
Installation Drawing	A drawing that includes all necessary information for a part or an assembly in the final installed position in the aircraft.
Insulator	A material that does not conduct electrical current very well or not at all. Examples are glass, ceramic, and plastic.

Integral Fuel Tank	A fuel tank which is formed by sealing off part of the aircraft structure and using it as a fuel tank. An integral wing tank is called a wet wing. Integral tanks are used because of their large weight saving. The only way of repairing an integral fuel tank is by replacing damaged sealant and making riveted repairs, as is done with any other part of the aircraft structure.
Integrated Drive Generator	IDG. An AC generator installed on turbine engines. An IDG incorporates a brushless, three-phase AC generator and a constant-speed drive in a single component.
Intercooler	A device used to reduce the temperature of the compressed air before it enters the fuel metering device. The resulting cooler air has a higher density, which permits the engine to be operated with a higher power setting.
Interference Angle	Poppet valve dimension. The difference between the valve seat and the valve face angles. Normally, the valve seats are ground with between 0.5º and 1º greater angle than the valve face. This allows the face to touch the seat with a line contact that provides the best sealing.
Interference Drag	Parasite drag caused by air flowing over one portion of the airframe interfering with the smooth flow of air over another portion.
Interference Fit	A type of fit used when assembling certain mechanical devices. The hole is made smaller than the part that fits into it. The material containing the hole is heated to expand the hole, and the part that fits into the hole is chilled to shrink it. The parts are assembled, and when they reach the same temperature their fit is so tight they will not loosen in service.
Intergranular Corrosion	An attack along the grain boundaries of an alloy that commonly results from a lack of uniformity in the alloy structure.
Intermittent-duty Solenoid	A solenoid-type switch whose coil is designed for current to flow through it for only a short period of time. The coil will overheat if current flows through it too long.
Internal Combustion Engine	A form of heat engine in which the fuel and air mixture is burned inside the engine to heat and expand the air so it can perform useful work.
Internal Timing	The adjustment of the breaker points of a magneto so they will begin to open at the time the magnet is in its E-gap position.
Interpole	A field pole in a compound-wound DC generator used to minimize armature reaction. Interpoles are located between each of the regular field poles, and their coils are in series with the armature winding so all of the armature current flows through them. The magnetic field produced by the interpole coils cancels the distortion caused by the armature field and allows the brushed to remain in the neutral plane where there is no potential difference between the commutator segments. Keeping the brushes in the neutral plane minimizes sparking.
Interstage Turbine Temperature	ITT. The temperature of the gases between the high pressure and low pressure turbines.
Instrument Landing System	A ground-based precision instrument approach system usually consisting of a localizer, glideslope, outer marker, middle marker, and approach lights.
Inverted Engine	An in-line or V-engine in which the cylinders are mounted below the crankshaft.
Inverter	An electrical device that changes DC to AC power.
Ion	An atom or group of atoms in which the number of electrons is different from the number of protons. It is a positive ion if the number of electrons is less than the number of protons, and a negative ion if the number of electrons is greater than the number of protons.

Iridium	A very hard, brittle, highly corrosion-resistant, whitish-yellow, metallic chemical element. Iridium is used for the fine-wire electrodes in spark plugs that must operate in engines using fuel with an exceptionally high lead content. iso-octane. An organic compound used as the high reference fuel for rating the antidetonation characteristics of aviation gasoline $(CH_3)_2CHCH_2C(CH_3)_3$.
IRS	Inertial Reference System
IRU	Inertial Reference Unit
Isobaric Mode	The mode of pressurization in which the cabin pressure is maintained at a constant value regardless of the outside air pressure.
Isogonic Line	A line drawn on an aeronautical chart along which the angular difference between the magnetic and geographic north poles is the same.
Isometric Drawings	A drawing that uses a combination of the views of an orthographic projection and tilts the object forward so that portions of all three views can be seen in one view.
Iso-octane	A hydrocarbon, C8H18, which has very high critical pressure and temperature. Iso-octane is used as the high reference for measuring the antidetonation characteristics of a fuel.
Isopropyl Alcohol	A colorless liquid used in the manufacture of acetone and its derivatives and as a solvent and anti-icing agent.
Isothermal Change	A physical change that takes place within a material in which heat energy is added to or taken from the material as needed to keep its temperature constant.
ITT	Interstage Turbine Temperature. The temperature of the gases between the high pressure and low pressure turbines.
J	
Jackscrew	A hardened steel rod with strong threads cut into it. A jackscrew is rotated by hand or with a motor to apply a force or to lift an object.
Jet Fuel	Fuel designed and produced to be used in aircraft gas turbine engines.
Jet Propulsion	A method of propulsion by accelerating a relatively small mass of air through a large change in velocity.
Jet Pump	A special venturi in a line carrying air from certain areas in an aircraft that need an augmented flow of air through them. High-velocity compressor bleed air is blown into the throat of a venturi where it produces a low pressure that pulls air from the area to which it is connected. Jet pumps are often used in the lines that pull air through galleys and toilet areas.
Jeweler's File	A small, fine-cut, metalworking file used by jewelry manufacturers.
Joggle	A small offset near the edge of a piece of sheet metal. It allows one sheet of metal to overlap another sheet while maintaining a flush surface.
Jointer	A woodworking power tool used to smooth edges of a piece of wood.
Joule	A measure of energy. In terms of electrical energy, one joule is equal to one watt-second.
Journal	Bearing. A hardened and polished surface on a rotating shaft that rides in a plain bearing.
K	
Kerosene	A light, almost colorless, hydrocarbon liquid obtained from crude oil through the fractional distillation process. Kerosene is the base for turbine engine fuel.

Kevlar	A patented synthetic aramid fiber noted for its flexibility and light weight. It is to a great extent replacing fiberglass as a reinforcing fabric for composite construction.
Key	(verb). To initiate an action by depressing a key or a button.
K-factor	A factor used in sheet metal work to determine the setback for other than a 90° bend. Setback = K · (bend radius + metal thickness). For bends of less than 90°, the value of K is less than 1; for bends greater than 90°, the value of K is greater than 1.
Kick-in Pressure	The pressure at which an unloading valve causes a hydraulic pump to direct its fluid into the system manifold.
Kick-out Pressure	The pressure at which an unloading valve shuts off the flow of fluid into the system pressure manifold and directs it back to the reservoir under a much reduced pressure.
Kilogram	One thousand grams.
Kinematic Viscosity	The ratio of the absolute viscosity of a fluid to its density. Kinematic viscosity is measured in centistokes.
Kinetic Energy	Energy due to motion, defined as one half mass times velocity squared.
Kirchhoff's Law	Voltage. A basic law of electrical currents stating that the algebraic sum of the applied voltage and the voltage drop around any closed circuit is zero.
Knot	Wood defect. A hard, usually round section of a tree branch embedded in a board. The grain of the knot is perpendicular to the grain of the board. Knots decrease the strength of the board and should be avoided where strength is needed.
Knot	Measure of speed. A speed measurement that is equal to one nautical mile per hour. One knot is equal to 1.15 statute mile per hour.
Kollsman Window	The barometric scale window of a sensitive altimeter. See barometric scale.
Koroseal Lacing	A plastic lacing material available in round or rectangular cross sections and used for holding wire bundles and tubing together. It holds tension on knots indefinitely and is impervious to petroleum products.
Kraft Paper	A tough brown wrapping paper, like that used for paper bags.
L	
L/D Ratio	A measure of efficiency of an airfoil. It is the ratio of the lift to the total drag at a specified angle of attack.
Labyrinth Seal	A type of air and/or seal used around the main – shaft bearings in a gas turbine engine. The seal consists of a series of rotating blades that almost contact the seal land. A small amount of air flows between the seal and the land to prevent oil flowing past the seal.
Lacquer	A finishing material made of a film base, solvents, plasticizers, and thinners. The film base forms a tough film over the surface when it dries. The solvents dissolve the film base so it can be applied as a liquid. The plasticizers give the film base the needed resilience, and the thinners dilute the lacquer so it can be applied with a spray gun. Lacquer is sprayed on the surface as a liquid, and when the solvents and thinners evaporate, the film base remains as a tough decorative and protective coating.
Laminar Flow	Airflow in which the air passes over the surface in smooth layers with a minimum of turbulence.
Laminated wood	A type of wood made by gluing several pieces of thin wood together. The grain of all pieces runs in the same direction.
Land	Piston. The portion of a piston between the ring grooves.

Land	Splined shaft. The portion of a splined shaft between the grooves.
Landing Gear Warning System	A system of lights used to indicate the condition of the landing gear. A red light illuminates when any of the gears are in an unsafe condition; a green light shows when all of the gears are down and locked, and no light is lit when the gears are all up and locked. An aural warning system is installed that sounds a horn if any of the landing gears are not down and locked when the throttles are retarded for landing.
Laser Tachometer	A highly accurate tachometer that shines a laser beam on a rotating element that has reflective tape or a contrasting mark. The reflected laser beam is converted into electrical pulses which are counted and displayed on a monitoring instrument.
Last-chance Oil Filter	A small filter installed in the oil line to the bearing jet in a gas turbine engine. This filter traps any contaminants that have passed the main filter and holds them until the engine is disassembled for overhaul.
Latent Heat	Heat that is added to a material that causes a change in its state without changing its temperature.
Lateral Axis	An imaginary line, passing through the center of gravity of an airplane, and extending across it from wing tip to wing tip.
Lateral Stability	The stability about the longitudinal axis of an aircraft; the rolling stability, or the ability of an airplane to return to level flight due to a disturbance that causes one of the wings to drop.
Lateral Vibration	A vibration in which the movement is in a lateral direction, such as imbalance of the main rotor.
Lay-up	The placement of the various layers of resinimpregnated fabric in the mold for a piece of laminated composite material.
LCD	Liquid Crystal Display. A digital display that consists of two sheets of glass separated by a sealed-in, normally transparent liquid crystal material. The outer surface of each glass sheet has a transparent conductive coating with the viewing side etched into character-forming segments with leads going to the edges of the display. A voltage applied between the front and back coatings disrupts the orderly arrangement of molecules and causes the liquid to darken so that light cannot pass through it. The segment to which the voltage is applied appears as black against a reflected background.
Lead-acid Battery	A commonly used secondary cell having lead as its negative plate and lead peroxide as its positive plate. Sulfuric acid and water serve as the electrolyte.
Leading Edge	The thick edge at the front of a propeller blade.
Leaf Brake	A large shop tool used to make straight bends across a sheet of metal. Also called cornice brakes.
Lean Die-out	A condition in which the fire in a gas turbine engine goes out because the fuel-air mixture ratio is too lean to sustain combustion.
Lean Mixture	A fuel-air mixture that contains more than 15 parts of air to 1 part of fuel, by weight.
LED	Light Emmitting Diode
Left-right Indicator	The course-deviation indicator used with a VOR navigation system.
Lever	The simplest machine. There are three basic parts in all levers: the fulcrum F, a force or effort E, and a resistance R.
Liaison Aircraft	A type of light military aircraft made popular during World War II because of its ability to land and takeoff from unimproved terrain. Liaison aircraft have been replaced with helicopters.
Lift	One of the four main forces acting on an aircraft. On a fixed-wing aircraft, an upward force created by the effect of airflow as it passes over and under the wing.

Lightening Hole	A hole cut in a piece of structural material to get rid of weight without losing any strength. A hole several inches in diameter may be cut in a piece of metal at a point where the metal is not needed for strength, and the edges of the hole are flanged to give it rigidity. A piece of metal with properly flanged lightening holes is more rigid than the metal before the holes were cut.
Line Boring	A method of assuring concentricity of bored holes. A boring bar extends through all of the holes and cuts the inside diameters so they all have the same center.
Line Replaceable Unit	LRU. Aircraft components designed to be replaced as a unit while the aircraft is on the flight line.
Linear Actuator	A fluid power actuator that uses a piston moving inside a cylinder to change pressure into linear, or straight-line, motion.
Linear Change	A change in which the output is directly proportional to the input.
Link Rod	The rod in a radial engine that connects one of the piston wrist pins to a knuckle pin on the master rod. Also called articulating rods.
Liquid Cooling	The removal of unwanted heat from an aircraft engine by transferring the heat into a liquid and then passing the heated liquid through a liquid-to-air heat exchanger (radiator) to transfer the heat into the ambient air.
Liquid Crystal Display	LCD. A digital display that consists of two sheets of glass separated by a sealed-in, normally transparent liquid crystal material. The outer surface of each glass sheet has a transparent conductive coating with the viewing side etched into character-forming segments with leads going to the edges of the display. A voltage applied between the front and back coatings disrupts the orderly arrangement of molecules and causes the liquid to darken so that light cannot pass through it. The segment to which the voltage is applied appears as black against a reflected background.
Load Cell	A component in an electronic weighing system that is placed between the jack and the jack pad on the aircraft. The load cell contains strain gauges whose resistance changes with the weight on the cell.
Loadmeter	A current meter used in some aircraft electrical systems to show the amount of current the generator or alternator is producing. Loadmeters are calibrated in percent of the generator rated output.
Localizer	The portion of an ILS (Instrument Landing System) that directs the pilot along the center line of the instrument runway.
Lodestone	A magnetized piece of natural iron oxide.
Logic Flow Chart	A type of graphic chart that can be made up for a specific process or procedure to help follow the process through all of its logical steps.
Long Range Aid to Navigation	LORAN A. A hyperbolic navigation system that operates with frequencies of 1,950 kHz, 1,850 kHz, and 1,900 kHz.
Longitudinal Axis	An imaginary line, passing through the center of gravity of an airplane, and extending lengthwise through it from nose to tail.
Longitudinal Magnetization	A method of magnetizing through a solenoid, or coil, that encircles the part so the lines of magnetic flux pass lengthwise through the part. Longitudinal magnetism makes it possible to detect faults that extend across the part.
Longitudinal Stability	The tendency for an aircraft nose to pitch up or pitch down, rotating around the lateral axis (wingtip to wingtip).
LORAN A	Long Range Aid to Navigation. A hyperbolic navigation system that operates with frequencies of 1,950 kHz, 1,850 kHz, and 1,900 kHz.
LORAN C	The LORAN system used in aircraft. It operates on a frequency of 100 kHz.

Low Bypass Ratio Engine	A turbofan engine whose bypass ratio is less than 2:1.
Low Unmetered Fuel Pressure	Pressure in a Teledyne-Continental fuel injector pump that is adjusted by the relief valve.
Low-pressure Compressor	The first-stage compressor in a dual-spool gas turbine engine. The low-pressure compressor is called the N1 compressor and its speed is not governed. It seeks its own best speed as the atmospheric conditions change so it can furnish a relatively constant mass of air to the inlet of the second-stage compressor.
LRU	Line Replaceable Unit. Aircraft components designed to be replaced as a unit while the aircraft is on the flight line.
Lubber Line	A reference on a magnetic compass and directional gyro that represents the nose of the aircraft. The heading of the aircraft is shown on the compass card opposite the lubber line.
M	
M&D Report	Malfunction and Defect Report. A small postcardlike form (FAA Form 8330) used by repair stations, maintenance shops, and technicians to report an unacceptable condition to the FAA. Information on these forms provides the basis for the General Airworthiness Alerts and subsequent Airworthiness Directives.
MAC	Mean Aerodynamic Chord. The average distance from the leading edge to the trailing edge of the wing.
Mach Number	The ratio of the speed of an object through the air to the speed of sound under the same atmospheric conditions. An object traveling at the speed of sound is traveling at Mach one (M1.0).
Magnesyn System	The registered trade name of a remote indicating instrument system. A Magnesyn system uses a permanent magnet as its rotor and a toroidal coil excited by 400-hertz AC as its stator. A small magnet in the center of the indicator coil follows the movement of a larger magnet in the transmitter coil.
Magnetic Bearing	The direction to or from a radio transmitting station measured relative to magnetic north.
Magnetic Compass	A device for determining direction measured from magnetic north.
Magnetic Field	The invisible, but measurable, force surrounding a permanent magnet or current-carrying conductor. This field is produced when the orbital axes of the electrons of the atoms in the material are all in alignment.
Magnetic Flux	Lines of magnetic force that are assumed to leave a magnet at its north end and return to its south end. Lines of flux tend to be as short as possible and cannot cross each other.
Magnetic Particle Inspection	A method of non-destructive inspection for ferrous metal components. The part being inspected is magnetized and then flooded with a solution of iron oxide suspended in a light oil, much like kerosene. Any flaw, either on the surface or just below the surface, forms a north and south pole, and the iron oxide attracted to these poles helps locate the flaw. The iron oxide is normally treated with a fluorescent dye, and the inspection is conducted in a darkened booth. When an ultraviolet light (black light) is shone on the part, the treated iron oxide shows up as a brilliant line.
Main Gear	The wheels of an aircraft's landing gear that supports the major part of the aircraft's weight.
Maintenance	This includes inspection, overhaul, repair, preservation, and the replacement of parts, but excludes preventive maintenance.
Major Alteration	An alteration not listed in the aircraft, aircraft engine, or propeller specifications: (1) that might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or (2) that is not done according to accepted practices or cannot be done by elementary operations.

Major Overhaul	The disassembly, cleaning, and inspection of an engine and the repair and replacement of all parts that do not meet the manufacturer's specification.
Major Repair	A repair that (1) if improperly done, might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness, or (2) is not done according to accepted practices, or cannot be done by elementary operations.
Malfunction Report	A report (FAA Form 8010-4) providing the FAA and industry with a very essential service record of mechanical difficulties encountered in aircraft operations. Such reports contribute to the correction of conditions or situations which otherwise will continue to prove costly and/or adversely affect the airworthiness of aircraft. Also referred to as Defect Report.
Malfunction and Defect Report	M&D Report. A small postcard like form (FAA Form 8330) used by repair stations, maintenance shops, and technicians to report an unacceptable condition to the FAA. Information on these forms provides the basis for the General Airworthiness Alerts and subsequent Airworthiness Directives.
Mandrel	A precision steel bar on which a propeller is mounted for balancing. The mandrel is placed across two perfectly level knife-edge plates, and the propeller is allowed to rotate until it stops with its heavy point at the bottom.
Manifold Absolute Pressure	MAP. The absolute pressure that exists within the induction system of a reciprocating engine. It is the MAP that forces air into the cylinders of the engine. MAP is commonly called manifold pressure.
Manifold Cross-feed Fuel System	A type of fuel system commonly used in large transport category aircraft. All fuel tanks feed into a common manifold, and the dump chutes and the single-point fueling valves are connected to the manifold. Fuel lines to each engine are taken from the manifold.
Manifold Pressure	The absolute pressure of the air inside the induction system of a reciprocating engine.
Manifold Pressure Gauge	A pressure gauge that measures the absolute pressure inside the induction system of a reciprocating engine. When the engine is not operating, this instrument shows the existing atmospheric pressure.
Manifold Valve	The valve in an RSA fuel injection system that divides the fuel from the fuel control unit and distributes it to all of the cylinders. It compares with the manifold valve in a Teledyne-Continental fuel injection system. Also called flow divider (reciprocating engine).
Manufacturer's Maintenance Manual	A manual provided by an aircraft manufacturer that outlines the methods, techniques, and practices prescribed for each person performing maintenance, alteration, or preventive maintenance on an aircraft, engine, propeller, or appliance.
MAP	Manifold Absolute Pressure. The absolute pressure that exists within the induction system of a reciprocating engine. It is the MAP that forces air into the cylinders of the engine. MAP is commonly called manifold pressure.
Married Needles	A term used when two hands of an instrument are superimposed over each other, as on the engine/rotor tachometer.
Mass	A measure of the amount of matter in an object. For the purpose of measuring the mass of air flowing through a turbine engine, the weight of the air, in pounds per second, is divided by the acceleration due to gravity (32.3 feet per second).
Mast	Helicopter. The component that supports the main rotor.
Mast Bumping	Action of the rotor head striking the mast, occurring on underslung rotors only.
Master Switch	A switch in an aircraft electrical system that can disconnect the battery from the bus and open the generator or alternator field circuit.

Material Safety Data Sheets	MSDS are required by the Federal Government to be available in workplaces to inform workers of the dangers that may exist from contact with certain materials.
Matrix	Advanced composites. The material that bonds the fibers together in an advanced composite structure. The matrix carries the stresses into the fibers.
Matter	Something that has mass, takes up space, and exists as a solid, liquid, or gas.
Maximum Landing Weight	The heaviest weight an aircraft can have when it lands. For large wide body commercial airplanes, it can be 100,000 pounds less than maximum takeoff weight, or even more.
Maximum Ramp Weight	The heaviest weight to which an aircraft can be loaded while it is sitting on the ground, sometimes referred to as the maximum taxi weight.
Maximum Takeoff Weight	The heaviest weight an aircraft can have when it starts the takeoff roll. The difference between this weight and the maximum ramp weight would equal the weight of the fuel that would be consumed prior to takeoff.
Maximum Weight	The maximum authorized weight of the aircraft and its contents, and is indicated in the Aircraft Specifications or Type Certificate Data Sheet.
Maximum Zero Fuel Weight	The heaviest weight an aircraft can be loaded to without having any usable fuel in the fuel tanks. Any weight loaded above this value must be in the form of fuel.
Mean Aerodynamic Chord	MAC. The average distance from the leading edge to the trailing edge of the wing.
Mean Camber	A line that is drawn midway between the upper and lower camber of an airfoil section. The mean camber determines the aerodynamic characteristics of the airfoil.
Mean Sea Level	MSL. When the letters MSL are used with an altitude, it means that the altitude is measured from mean, or average, sea level.
Mechanical Advantage	A ratio of the resistance force to the effort force.
Mechanical Energy	This includes all methods of producing increased motion of molecules such as friction, impact of bodies, or compression of gases.
Medium-bypass Ratio Engine	A turbofan engine whose bypass ratio is between 2:1 and 4:1.
MEK	Methul Ethyl Ketone. A volatile, water soluble, organic chemical compound that is used as a solvent to remove oily contaminants from ignition system components.
Mercerize	A treatment given to cotton thread to make it strong and lustrous. The thread is stretched while it is soaked in a solution of caustic soda.
Methanol	Alcohol made from wood.
METO Horsepower	The maximum power allowed to be continuously produced by an engine. Takeoff power is usually limited to a given amount of time, such as 1 minute or 5 minutes.
MFD	Multifunction display. A liquid crystal or CRT display that shows a number of parameters and replaces several analog-type indicators.
Microballoons	Tiny, hollow spheres of glass or phenolic material used to add body to a resin.

Microbial Contaminants	The scum that forms inside the fuel tanks of turbine-engine-powered aircraft that is caused by micro-organisms. These micro-organisms live in water that condenses from fuel, and they feed on the fuel. The scum they form clogs fuel filters, lines, and fuel controls and holds water in contact with the aluminum alloy structure, causing corrosion.
Microinches rms	A measure used for cylinder wall surface roughness. Twenty microinches rms means that the highest and lowest deviation from the average surface is 20 millionths of an inch.
Micro-Mesh	A patented graduated series of cloth-backed cushioned seats that contain abrasive crystals. Micro-Mesh is used for polishing and restoring transparency to acrylic plastic windows and windshields.
Micron	A measurement used to identify the size of particles trapped by filters. One micron is a micro meter, or one millionth of a meter. It is 0.000039 inch.
Micronic Filter	The registered trade name of a type of fluid filter whose filtering element is a specially treated cellulose paper formed into vertical convolutions, or wrinkles. Micronic filters prevent the passage of solids larger than about 10 microns, and are normally replaced with new filters rather than cleaned.
Micro-organism	An organism, normally bacteria or fungus, or microscopic size.
Microprocessor	A single silicon chip that contains the arithmetic and logic functions of a computer.
Microswitch	The registered trade name for a precision switch that uses a short throw of the control plunger to actuate the contacts. Microswitches are used primarily as limit switches to control electrical units automatically.
MIG Welding	Metal inert gas welding is a form of electric arc welding in which the electrode is an expendable wire. MIG welding is now called GMA (gas metal arc) welding.
Mil	One thousandth of an inch (0.001 inch). Paint film thickness is usually measured in mils.
Mildew	A gray or white fungus growth that forms on organic materials. Mildew forms on cotton and linen aircraft fabric and destroys its strength.
Milliammeter	An instrument that measures electrical current in units of thousandths of an ampere.
Millibar	A unit of pressure in the metric system. One bar is a pressure of 14.5 psi, or 29.52 in. Hg. One millibar is one thousandth of a bar, or 0.01469 psi, or 0.02952 in. Hg.
Millivoltmeter	An electrical instrument that measures voltage in units of millivolts (thousandths of a volt).
Minor Alteration	Any alteration that does not fit the definition of a major repair. See major repair.
Mist Coat	A very light coat of zinc chromate primer. It is so thin that the metal is still visible, but the primer makes pencil marks easy to see.
Mixed Number	A combination of a whole number and a fraction. For example, 5 3⁄8 is a mixed number.
Module	Modular engine construction. The method of construction for mast modern gas turbine engine. The engine is made of several modules, or units, that can be removed and replaced or serviced independent of the rest of the engine.
Moisture Separator	A component in a high-pressure pneumatic system that removes most of the water vapor from the compressed air. When the compressed air is used, its pressure drops, and this pressure drop causes a drop in temperature. If any moisture were allowed to remain in the air, it would freeze and block the system.

Mold Line	A line used in the development of a flat pattern for a formed piece of sheet metal. The mold line is an extension of the flat side of a part beyond the radius. The mold line dimension of a part is the dimension made to the intersection of mold lines and is the dimension the part would have if its corners had no radius.
Mold Point	The intersection of two mold lines of a part. Mold line dimensions are made between mold points.
Molecule	The smallest particle of an element or compound that retains the chemical properties of the element or compound.
Moment	A force that causes or tries to cause an object to rotate. The value of a moment is the product of the weight of an object (or the force), multiplied by the distance between the center of gravity of the object (or the point of application of the force) and the fulcrum about which the object rotates.
Momentum	A force caused by the inertia of a moving body as it tries to keep the object moving in the same direction, at the same speed.
Monel	An alloy of nickel, copper, and aluminum or silicon.
Monocoque	A single-shell type of aircraft structure in which all of the flight loads are carried in the outside skin of the structure.
Motor	(verb) The act of rotating a turbine engine using the starter, with the ignition system deactivated. An engine is motored to force air through it to purge fuel fumes.
MS Flareless Fittings	Designed primarily for highpressure (3,000 psi) hydraulic systems that may be subjected to severe vibration or fluctuating pressure. Using this type of fitting eliminates all tube flaring, yet provides a safe and strong, dependable tube connection. The fitting consists of three parts: a body, a sleeve, and a nut.
MSDS	Material Safety Data Sheets. MSDS are required by the Federal Government to be available in workplaces to inform workers of the dangers that may exist from contact with certain materials.
MSL	Mean Sea Level. When the letters MSL are used with an altitude, it means that the altitude is measured from mean, or average, sea level.
MTBF	Mean Time Between Failures
Multifunction Display	MFD. A liquid crystal or CRT display that shows a number of parameters and replaces several analog-type indicators.
Multimeter	An electrical test instrument that consists of a single current-measuring meter and all of the needed components to allow the meter to be used to measure voltage, resistance, and current. Multimeters are available with either analog-or digital-type displays.
Multiple-can Combustor	A combustor used in a gas turbine engine that consists of a series of individual burner cans, each made of an inner liner and an outer case. The individual cans are arranged around the periphery of a centrifugal compressor. Hot gases flow directly from the cans into the turbine.
Multiple-disk Brakes	Aircraft brakes in which one set of disks is keyed to the axle and remains stationary. Between each stationary disk there is a rotating disk that is keyed to the inside of the wheel. When the brakes are applied, the stationary disks are forced together, clamping the rotating disks between them. The friction between the disks slows the aircraft.
Multiplication	The process of repeated addition.
N	
N1	A symbol representing the rotational speed of the lowpressure compressor in a dual-spool gas turbine engine.

N2	A symbol representing the rotational speed of the highpressure compressor in a dual-spool gas turbine engine.
NACA	National Advisory Committee for Aeronautics. This organization, dedicated to the technical development of aviation, has been superseded by NASA.
NACA Cowling	A long-chord cowling used over a radial engine. The forward portion of this cowling has an aerodynamic shape that produces a forward pull, and the rear portion extends back to fair in with the fuselage. There is a narrow peripheral gap between the rear of the cowling and the fuselage for the cooling air to escape. Some NACA cowlings have controllable flaps over this opening to control the amount of cooling air that flows through the engine.
Nacelle	A streamlined enclosure on an aircraft in which an engine is mounted. On multiengine propeller-driven airplanes, the nacelle is normally mounted on the leading edge of the wing.
Nailing Strip	A method of applying pressure to the glue in a scarf joint repair in a plywood skin. A strip of thin plywood is nailed over the glued scarf joint with the nails extending into a supporting structure beneath the skin. The strip is installed over vinyl sheeting to prevent it sticking to the skin. When the glue is thoroughly dry, the nailing strip is broken away and the nails removed.
Nap of the Fabric	The ends of the fibers in a fabric. The first coat of dope on cotton or linen fabric raises the nap, and the fiber ends stick up. These ends must be carefully removed by sanding to get a smooth finish.
Naphtha	A volatile, flammable liquid distilled from petroleum. It is used as a cleaning agent and solvent, and is present in some blended turbine-engine fuels.
NASA	National Aeronautics and Space Administration
National Advisory Committee for Aeronautics	NACA - This organization, dedicated to the technical development of aviation, has been superseded by NASA.
Naturally Aspirated Engine	A reciprocating engine that depends upon atmospheric pressure to force the fuel-air mixture into the cylinders. Naturally aspirated engines are neither supercharged nor turbocharged.
NAVAIDS	Navigational Aids. Any visual or electronic device, airborne or on the surface, that provides point-to-point guidance information, or position data, to aircraft in flight.
Navigational Aids	NAVAIDS. Any visual or electronic device, airborne or on the surface, that provides point-to-point guidance information, or position data, to aircraft in flight.
Negative Torque Sensing	A system in a turboprop engine that prevents the engine from being driven by the propeller. The NTS increases the blade angle when the propellers try to drive the engine.
NDB	Non-Directional Beacon
Negative Number	A number that is less than zero.
Negative Pressure Relief Valve	Pressurization component. A valve that opens anytime the outside air pressure is greater than the cabin pressure. It prevents the cabin altitude from ever becoming greater than the aircraft flight altitude.
Net Thrust	The thrust produced by a turbojet or turbofan engine in which the acceleration factor is the difference between the velocity of the incoming air and the velocity of the exhaust gases leaving the engine.

Neutral Axis	Neutral plane. A line through a piece of material that is bent. The material in the outside of the bend is stretched and that on the inside of the bend is shrunk. The material along the neutral plane is neither shrunk nor stretched.
Neutral Flame	An oxyacetylene flame produced when the ratio of oxygen and acetylene is chemically correct and there is no excess of oxygen or carbon. A neutral flame has a rounded inner cone and no feather around it.
Neutral Position	The position of the magnet in a magneto when its poles are between the pole shoes and no lines of flux are flowing through the magnetic circuit.
Newton	The unit of force needed to accelerate a mass of one kilogram one meter per second per second. One newton is equal to 1000,000 dynes, or 2.248 × 10^-1 pound.
NICAD	Nickel-Cadmium Battery
Nichrome	The registered trade name for an alloy of nickel and chromium. Nichrome wire is used for making electrical heater elements and precision wire-wound resistors. Nichrome's resistance is approximately 65 times that of copper.
Nickel-Cadmium Battery	NICAD. A battery made up of alkaline secondary cells. The positive plates are nickel hydroxide, the negative plates are cadmium hydroxide, and potassium hydroxide is used as the electrolyte.
Nitriding	A method of case hardening steel. Steel is placed in a retort (a sealed, high-temperature furnace), and heated to a specified temperature while surrounded by ammonia gas (NH_3). The ammonia breaks down into nitrogen and hydrogen, and the nitrogen unites with some of the alloying elements in the steel to form an extremely hard surface. Nitriding hardens crankshaft bearing surfaces and cylinder walls in reciprocating engines. It takes place at a lower temperature than other forms of case hardening, and does not cause warping.
Noise	Electrical. An unwanted electrical signal within a piece of electronic equipment.
Nomex	A patented nylon material used to make the honeycomb core for certain types of sandwich materials.
Nomogram	A graph that usually consists of three sets of data. Knowledge of any two sets of data enables the reader to determine the third set.
Nonenergizing Brake	A brake that does not use the momentum of the aircraft to increase the friction.
Nonvolatile Memory	Memory in a computer that is not lost when power to the computer is lost.
Normal Category Airplane	An aircraft that is certificated under 14 CFR part 23 that is not certificated under the acrobatic, utility, or commuter category.
Normal Heptane	A hydrocarbon, C7H16, with a very low critical pressure and temperature. Normal heptane is used as the low reference in measuring the anti-detonation characteristics of a fuel.
Normal Shock Wave	A type of pressure wave that forms at right angles to a surface when air moves at the speed of sound.
Normalizing	The process of heating the part to the proper temperature, holding it at that temperature until it is uniformly heated, and then cooling it in still air.
Nose-gear Centering Cam	A cam in the nose-gear shock strut that causes the piston to center when the strut fully extends. When the aircraft takes off and the strut extends, the wheel is straightened in its fore-and-aft position so it can be retracted into the wheel well.
Notch Sensitivity	A measure of the loss of strength of a material caused by the presence of a notch, or a V-shaped cut.

Nozzle Guide Vanes	A series of stator vanes immediately ahead of the first-stage turbine. The function of the inlet guide vanes is to divert the hot gases in the proper direction to enter the turbine, and to provide a series of convergent ducts which increase the velocity of the gases. Also called turbine inlet guide vanes and turbine nozzle.
NPN Transistor	A bipolar transistor made of a thin base of P-type silicon or geranium sandwiched between a collector and an emitter, both of which are made of N-type material.
NTS	Negative Torque Sensing. A system in a turboprop engine that prevents the engine from being driven by the propeller. The NTS increases the blade angle when the propellers try to drive the engine.
Nuclear Energy	Energy stored in the nucleus of atoms is released during the process of nuclear fission in a nuclear reactor or atomic explosion.
Null Position	The position of an ADF loop antenna when the signal being received is canceled in the two sides of the loop and the signal strength is the weakest.
Numerator	The upper part of a fraction (represented by the letter N in N⁄D).
Nutcrackers	The hinged link between the piston and cylinder of an oleo-type landing gear shock absorber. The torque links allow the piston to move freely in and out of the landing gear cylinder, but prevent it rotating. The torque links can be adjusted to achieve and maintain the correct wheel alignment. Torque links are also called scissors and nutcrackers.
O	
Oblique Shock Wave	A pressure wave that forms on a sharp pointed object when air flows past it at a supersonic speed.
Oblique View	A view that is similar to an isometric view except with two of the three drawing axes always at right angles to each other.
Octane Rating	A system used to rate the antidetonation characteristics of a reciprocating engine fuel. Fuel with an octane rating of 80 performs in a laboratory test engine the same as the fuel made of a mixture of 80% iso-octane and 20% heptanes. When a fuel is given a dual rating such as 80/87, the first number is its anti-detonating rating with a lean fuel-air mixture, and the higher number is its rating with a rich mixture.
Odometer	The portion of an automobile speedometer that indicates the distance traveled.
Offset Throw	Crankshaft design. Crank arms on a reciprocating engine crankshaft. The arms, or throws, to which the connecting rods and pistons are attached are offset from the center of the crankshaft to move the pistons in and out of the cylinder. The amount of the offset determines the stroke of the engine.
Ohm	The standard unit used to measure resistance.
Ohm's Law	Explains the relationship between voltage, current, and resistance in an electrical circuit, and states that current flow in an electrical circuit is directly proportional to the amount of voltage applied to the circuit.
Ohmmeter	A current measuring instrument that provides its own source (self-excited) of power.
Oil Analysis	A method of measuring the contents in parts per million of various chemical elements in oil. A sample of the oil is burned in an electric arc, and the resulting light is analyzed with a spectroscope which identifies the chemical elements in the oil and gives an indication of the amount of each element. This type of oil analysis is called a spectrometric oil analysis program, or SOAP.

Oil Dilution	A method of temporarily decreasing the viscosity of the lubricating oil to make it possible to start a reciprocating engine when the temperature is very low. Before shutting the engine down, enough gasoline from the fuel system is mixed with the lubricating oil in the engine to dilute it so the starter can turn the engine over when the oil is cold and viscous. When the engine starts and the oil warms up, the gasoline evaporates.
Oil-damped Bearing	A type of roller bearing installation in a gas turbine engine in which the outer race is installed in an oil damper compartment whose inside diameter is a few thousandths of an inch larger than the outside diameter of the outer race. Oil under pressure fills the oil damper compartment and allows the bearing to compensate for sight misalignment and to absorb vibrations of the shaft.
Oleo Shock Absorber	A shock absorber used on aircraft landing gear. The initial landing impact is absorbed by oil transferring from one compartment in the shock strut into another compartment through a metering orifice. The shocks of taxiing are taken up by a cushion of compressed air.
On-condition Maintenance	A maintenance program that closely monitors the operating condition of an engine and allows major repairs or replacements to be made when engine performance deteriorates to a specific level.
One-hundred Hour Inspection	An inspection required by 14 CFR part 91, section 91.409 for FAA-certificated aircraft operated for hire or used for flight instruction for hire. A 100-hour inspection is identical in content to an annual inspection, but can be conducted by an aviation maintenance technician who holds an Airframe and Powerplant rating, but does not have an Inspection Authorization. See 14 CFR part 43, Appendix D for list of the items that must be included in an annual or 100-hour inspection.
One-to-one Vibration	A low frequency vibration having one beat per revolution of the rotor. This vibration can be either lateral, vertical, or horizontal.
On-speed Condition	The speed condition in which the engine is turning at the rpm for which the propeller governor is set.
Open Angle	An angle in which sheet metal is bent less than 90°.
Open Assembly Time	The period of time between the application of the glue and the assembly of the joint components.
Open Wiring	An electrical wiring installation in which the wires are tied together in bundles and clamped to the aircraft structure rather than being enclosed in conduit.
Open-center Selector Valve	A type of selector valve that functions as an unloading valve as well as a selector valve. Open-center selector valves are installed in series, and when no unit is actuated, fluid from the pump flows through the centers of all the valves and returns to the reservoir. When a unit is selected for actuation, the center of the selector valve is shut off and the fluid from the pump goes through the selector valve into one side of the actuator. Fluid from the other side of the actuator returns to the valve and goes back to the reservoir through the other selector valves. When the actuation is completed, the selector valve is placed in its neutral position. Its center opens, and fluid from the pump flows straight through the valve.
Open-hydraulic System	A fluid power system in which the selector valves are arranged in series with each other. Fluid flows from the pump through the center of the selector valves, back into the reservoir when no unit is being actuated.
Operating Center of Gravity Range	The center of gravity for an aircraft loaded and ready for flight.

Operating Cycle	One complete series of events in the operation of a turbine engine that consists of starting the engine, taking off, landing, and shutting the engine down.
Optoelectronic Device	An electronic device that produces, modulates, or senses electromagnetic radiation in the ultraviolet, visible light, or infrared portions of the energy spectrum.
Orifice Check Valve	A component in a hydraulic or pneumatic system that allows unrestricted flow in one direction, and restricted flow in the opposite direction.
O-ring	A widely used type of seal made in the form of a rubber ring with a round cross section. An O-ring seals in both directions, and it can be used as a packing or a gasket.
Ornithopter	A heavier-than-air flying machine that produces lift by flapping its wings. No practical ornithopter has been built.
Orthographic Projection	A method of showing all six possible views of an object: front, top, bottom, rear, right side, and left side.
Oscilloscope	An electrical instrument that displays on the face of a cathode-ray tube the waveform of the electrical signal it is measuring.
Otto Cycle	The constant-volume cycle of energy transformation used by reciprocating engines. A mixture of fuel and air is drawn into the cylinder as the piston moves to the bottom of its stroke. The mixture is compressed as the piston moves upward in the cylinder, and when the piston is near the top of its stroke, the mixture is electrically ignited and burns. The burning mixture heats and expands the air inside the cylinder and forces the piston down, performing useful work. The piston then moves back up, forcing the burned gases out of the cylinder.
Outflow Valve	Pressurization component. A valve in the cabin of a pressurized aircraft that controls the cabin pressure by opening to relieve all pressure above that for which the cabin pressure control is set.
Outside Calipers	Used for measuring outside dimensions, such as the diameter of a piece of round stock.
Overboost	A condition of excessive manifold pressure in a reciprocating engine. Overboosting occurs when the supercharger is operated at too high a speed.
Overrunning Clutch	A type of clutch that couples an input shaft with an output shaft. When the input shaft is driven, the output shaft rotates with it. When the output shaft is driven, the output shaft rotates with it. But when the output shaft is driven, the input shaft does not turn.
Overspeed Condition	A speed condition in which the engine is turning at an rpm higher than that for which the propeller governor is set.
Overtemp	A condition in which a device has reached a temperature above that approved by the manufacturer or any exhaust temperature that exceeds the maximum allowable for a given operating condition or time limit. Can cause internal damage to an engine.
Overtorque	A condition in which an engine has produced more torque (power) than the manufacturer recommends, or a condition in a turboprop or turboshaft engine where the engine power has exceeded the maximum allowable for a given operating condition or time limit. Can cause internal damage to an engine.
Overvoltage Protector	A component in an aircraft electrical system that opens the alternator field circuit any time the alternator output voltage is too high.
Oxidizing Flame	An oxyacetylene flame in which there is an excess of oxygen. The inner cone is pointed and often a hissing sound is heard.
Ozone	An unstable form of oxygen produced when an electric spark passes through the air. Ozone is harmful to rubber products.

P	
Packing	A seal between two parts where there is relative motion.
Paint	A covering applied to an object or structure to protect it and improve its appearance. Paint consists of a pigment suspended in a vehicle such as oil or water. When the vehicle dries by evaporation or curing, the pigment is left as a film on the surface.
Parabolic Reflector	A reflector whose surface is made in the form of a parabola.
Parallel Circuit	A circuit in which two or more electrical resistances or loads are connected across the same voltage source.
Paralleling Circuit	A circuit in a multi-engine aircraft electrical system that controls a flow of control current which is used to keep the generators or alternators sharing the electrical load equally. The relay opens automatically to shut off the flow of paralleling current any time the output of either alternator or generator drops to zero.
Paralleling Relay	A relay in multi-engine aircraft electrical system that controls a flow of control current which is used to keep the generators or alternators sharing the electrical load equally. The relay opens automatically to shut off the flow of paralleling current any time the output of either alternator or generator drops to zero.
Parasite Drag	A form of aerodynamic drag caused by friction between the air and the surface over which it is flowing.
Parent Metal	The metal being welded. This term is used to distinguish between the metal being welded and the welding rod.
Partial Pressure	The percentage of the total pressure of a mixture of gases produced by each of the individual gases in the mixture.
Parting Film	A layer of thin plastic material placed between a composite lay-up and the heating blanket. It prevents the blanket from sticking to the fabric.
Pascal	The unit of pressure produced when one Newton of force acts uniformly over an area of one square meter. One Pascal is equal to 14.503 · 10-5 (0.00014503) psi. The kilopascal (kPa) is easier to manipulate. 1 kPa = 1,000 Pa = 0.14503 psi.
Pascal's Law	The law that states that pressure applied anywhere to a body of fluid causes a force to be transmitted equally in all directions; the force acts at right angles to any surface in contact with the fluid.
PAX	Passengers.
PCB	Plenum Chamber Burning. A method of thrust augmentation used on engines with vectored nozzles. Fuel injected into the fan-discharge air is burned to increase thrust.
Peak Voltage	The voltage of AC electricity that is measured from zero voltage to the peak of either alternation.
Pendular Action	Helicopter. The lateral or longitudinal oscillation of the fuselage due to its suspension from the rotor system.
Penetrant Dwell Time	The length of time a part is left in the penetrant when preparing it for inspection by the fluorescent or dye penetrant method. The hotter the part and the longer the penetrant dwell time, the smaller the fault that will be detected.
Percentage	Used to express a number as a fraction of 100. Using the percentage sign, %, 90 percent is expressed as 90%.
Performance Number	The rating of antidetonation characteristics of a reciprocating engine fuel that is better than the high rating reference fuel, iso-octane. Performance numbers are greater than 100.
Permanent Magnet	A piece of hardened steel that has been exposed to a strong magnetizing force which has aligned the spin axes of the electrons surrounding its atoms. The high retentivity of the material causes the electrons to retain their magnetic orientation.

Permanent-mold Casting	A casting made in a reusable metal mold. The walls of permanent-mold castings can be made thinner than similar walls made by sand casting.
Permeability	A measure of the ease with which lines of magnetic flux can pass through a material.
Perspective View	A drawing that shows a three-dimensional object (portraying height, width, and depth) as it appears to an observer. It most closely resembles the way an object would look in a photograph.
Petrolatum-zinc Dust Compound	A special abrasive compound used inside an aluminum wire terminal being swaged onto a piece of aluminum electrical wire. When the terminal is compressed, the zinc dust abrades the oxides from the wire, and the petrolatum prevents oxygen reaching the wire so no more oxides can form.
Petroleum Fractions	The various components of a hydrocarbon fuel that are separated by boiling them off at different temperatures in the process of fractional distillation.
Phantom Line	Composed of one long and two short evenly spaced dashes, indicates an alternate position of parts of the object or the relative position of a missing part.
Phase Rotation	The sequence with which the output phases of a three-phase generator are connected to the load. Reversing the phase sequence of a generator from A-B-C to A-C-B prevents the generator from being synchronized with the others on the bus. Also called phase sequence.
Phase Sequence	The sequence with which the output phases of a three-phase generator are connected to the load. Reversing the phase sequence of a generator from A-B-C to A-C-B prevents the generator from being synchronized with the others on the bus. Also called phase rotation.
Phased Array Antenna	A complex antenna which consists of a number of elements. A beam of energy is formed by the superimposition of the signals radiating from the elements. The direction of the beam can be changed by varying the relative phase of the signals applied to each of the elements.
Phenolic Plastic	A plastic material made of a thermosetting phenol-formaldehyde resin, reinforced with cloth or paper. Phenolic plastic materials are used for electrical insulators and for chemical-resistant table tops.
Pi (π) Filter	An electronic filter used to prevent radio frequency energy produced in the ignition exciter from feeding back into the aircraft electrical system. The filter is made of an inductor with a capacitor on its input and output. The name is derived from the resemblance of the three components on a schematic diagram to the Greek letter pi (π).
Pictorial Drawing	A drawing that is similar to a photograph. It shows an object as it appears to the eye, but it is not satisfactory for showing complex forms and shapes.
Pilot Hole	A small hole punched or drilled in a piece of sheet metal to locate a rivet hole.
Pilot's Operating Handbook	POH. A document published by the airframe manufacturer and approved by the FAA that lists the operating conditions for a particular model of aircraft. Engine operating parameters are included in the POH.
Pin Knot Cluster	A group of knots, all having a diameter of less than approximately 1⁄16 inch.
Pinion	A small gear that meshes with and drives a larger gear.
Pinked-edge Tape	Cloth tape whose edges have small V-shaped notches cut along their length. The pinked edges prevent the tape from raveling.

Pinking Shears	Shears used to cut aircraft fabric with a series of small notches along the cut edge.
Piston	Reciprocating engine component. The movable plug inside the cylinder of a reciprocating engine. The piston moves in and out to compress the fuel-air mixture and to transmit the force from the expanding gas in the cylinder to the crankshaft.
Piston Pin	The hardened steel pin that attaches a piston to the small end of a connecting rod. Also called wrist pin.
Pitch	Term used to describe the frequency of a sound.
Pitch	Aircraft maneuver. Rotation of an aircraft about its lateral axis.
Pitch	Rivet. The distance between the centers of adjacent rivets installed in the small row.
Pitch Angle	The angle between the chord line of a propeller blade and the plane of rotation. See blade angle.
Pitch Distribution	The gradual change in pitch angle of a propeller blade from the root to the tip.
Pitch Pocket	Wood defect. Pockets of pitch that appear in the growth rings of a piece of wood.
Pitot Pressure	Ram air pressure used to measure airspeed. The pitot tube faces directly into the air flowing around the aircraft. It stops the air and measures its pressure.
Plain-weave Fabric	Fabric in which each warp thread passes over one fill thread and under the next. Plain-weave fabric typically has the same strength in both warp and fill directions.
Plan Position Indicator	PPI. A type of radar scope that shows both the direction and distance of the target from the radar antenna. Some radar antenna rotate and their PPI scopes are circular. Other antenna oscillate and their PPI scopes are fan shaped.
Plane of Rotation	The plane in which a propeller blade rotates. The plane of rotation is perpendicular to the propeller shaft.
Planer	A woodworking power tool used to smooth the surfaces of a piece of wood.
Planetary Gears	A type of large-ratio reduction gearing. A series of small planetary gears are mounted on a spider attached to the output shaft. The planetary gears rotate between a fixed sun gear and a driven ring gear.
Plastic Media Blasting	PMB. A method of removing paint from an aircraft surface by dry-blasting it with tiny plastic beads.
Plasticizer	A constituent in dope or lacquer that gives its film flexibility and resilience.
Plastics	The generic name for any of the organic materials produced by polymerization. Plastics can be shaped by molding or drawing.
P-lead	Primary lead. The wire that connects the primary winding of a magneto to the ignition switch. The magneto is turned off by grounding its P-lead.
Plenum	An enclosed chamber in which air can be held at a pressure higher than that of the surrounding air.
Plenum Chamber	An enclosed chamber in which air can be held at a pressure slightly higher than that of the surrounding air. Plenum chambers are used to stabilize the pressure of the air before it enters a double entry centrifugal compressor.
Plenum Chamber Burning	PCB. A method of thrust augmentation used on engines with vectored nozzles. Fuel injected into the fan-discharge air is burned to increase thrust.
Plumb Bob	A heavy metal object, cylinder- or cone-shaped, with a sharp point at one end that is suspended by a string to produce a vertical reference line useful in aircraft measurements.
Ply Rating	The rating of an aircraft tire that indicates its relative strength. The ply rating does not indicate the actual number of plies of fabric in the tire; it indicates the number of piles of cotton fabric needed to produce the same strength as the actual piles.

Plywood	A wood product made by gluing several pieces of thin wood veneer together. The grain of the wood in each layer runs at 90° or 45° to the grain of the layer next to it.
PMB	Plastic Media Blasting. A method of removing paint from an aircraft surface by dry-blasting it with tiny plastic beads.
Pneumatics	The system of fluid power which transmits force by the use of a compressible fluid.
Pneumatic System	The power system in an aircraft used for operating such items as landing gear, brakes, and wing flaps with compressed air as the operating fluid.
PNP Transistor	A bipolar transistor made of a thin base of N-type silicon or germanium sandwiched between a collector and an emitter, both of which are made of P-type material.
POH	Pilot's Operating Handbook. A document published by the airframe manufacturer and approved by the FAA that lists the operating conditions for a particular model of aircraft. Engine operating parameters are included in the POH.
Pole Shoe	Inward extensions from the field frame of a generator around which the field coils are wound.
Polyester Fibers	A synthetic fiber made by the polymerization process in which tiny molecules are united to form a long chain of molecules. Polyester fibers are woven into fabrics that are known by their trade names of Dacron, Fortrel, and Kodel. Polyester film and sheet are known as Mylar and Celenar.
Polyester Resin	A thermosetting resin used as a matrix for much of the fiberglass used in composite construction.
Polyurethane Enamel	A hard, chemically resistant finish used on aircraft. Polyurethane enamel is resistant to damage from all types of hydraulic fluid.
Polyvinyl Chloride	PVC. A thermoplastic resin used in the manufacture of transparent tubing for electrical insulation and fluid lines which are subject to low pressures.
Poppet Valve	A T-shaped valve with a circular head. Poppet valves are used to cover the intake and exhaust openings in the cylinder head of a reciprocating engine. The valves are held closed by one or more coil springs and are opened by a cam lobe or a rocker arm pushing on the end of the valve stem.
Porcelain	A hard, white, translucent ceramic material that was used as the insulator in some of the early aircraft spark plugs.
Position Error	The error in pitot-static instruments caused by the static ports not sensing true static air pressure. Position error changes with airspeed and is usually greatest at low airspeeds.
Position Lights	Lights on an aircraft consisting of a red light on the left wing, a green light on the right wing, and a white light on the tail. CFRs require that these lights be displayed in flight from sunset to sunrise.
Positive Number	A number that is greater than zero.
Positive-displacement Pump	A fluid pump that moves a specific volume of fluid each time it rotates. Spur-gear pumps, gerotor pumps, and vane pumps are all positive-displacement pumps.
Pot Life	The length of time a resin will remain workable after the catalyst has been added. If a catalyzed material is not used within its usable pot life, it must be discarded and a new batch mixed up.
Potential Difference	A difference in electrical pressure.
Potential Energy	Energy that is stored.
Potentiometer	A variable tapped resistor that can be used as a voltage divider.

Power	Exponent. A shorthand method of indicating how many times a number, called the base, is multiplied by itself. For example, in the number 4^3, 3 is the power, or exponent, and 4 is the base. That is, 4^3 is equal to 4 × 4 × 4 = 64.
Power	The time rate of doing work. Power is found by dividing the amount of work done, measured in floor-pounds, by the time in seconds or minutes used to do the work. Power may be expressed in foot-pounds of work per minute or in horsepower. One horsepower is 33,000 foot-pounds of work done in one minute, or 550 foot pounds of work done in one second.
Power Brakes	Aircraft brakes that use the main hydraulic system to supply fluid for the brake actuation. Aircraft that require a large amount of fluid for their brake actuation normally use power brakes, and the volume of fluid sent to the brakes is increased by the use of deboosters.
Power Control Valve	A hand-operated hydraulic pump unloading valve. When the valve is open, fluid flows from the pump to the reservoir with little opposition. To actuate a unit, turn the selector valve, and manually close the power control valve. Pressurized fluid flows to the unit, and when it is completely actuated, the power control valve automatically opens.
Power Lever	The cockpit lever connected to the fuel control unit for scheduling fuel flow to the combustion chambers of a turbine engine.
Power Recovery Turbine	PRT. A turbine driven by exhaust gases from several cylinders of a reciprocating engine. Energy extracted from exhaust gases by the turbine is coupled, through a fluid clutch, to the engine crankshaft.
Power-assurance Check	A test run made of a gas turbine engine to determine how its performance compares with its precious performance as new or freshly overhauled.
Powerplant	The complete installation of an aircraft engine, propeller, and all accessories needed for its proper function.
Powers of Ten	Also called scientific notation. It is a shorthand method of depicting very large or very small numbers.
PPI	Plan Position Indicator. A type of radar scope that shows both the direction and distance of the target from the radar antenna. Some radar antenna rotate and their PPI scopes are circular. Other antenna oscillate and their PPI scopes are fan shaped.
Precailing Torque	The torque required to turn a threaded fastener before it contacts the surface it is intended to hold.
Precession	The characteristic of a gyroscope that causes a force to be felt, not at the point of application, but at a point 90° in the direction of rotation from that point.
Precipitation Heat Treatment	A method of increasing the strength of heat-treated aluminum alloy. After the aluminum alloy has been solution-heat-treated by heating and quenching, it is returned to the oven and heated to a temperature lower than that used for the initial heat treatment. It is held at this temperature for a specified period of time, and then removed from the oven and allowed to cool slowly.
Preflight Inspection	A required inspection to determine the condition of the aircraft for the flight to be conducted. It is conducted by the pilot-in-command.
Preignition	Ignition of the fuel-air mixture inside the cylinder of an engine before the time for normal ignition. Preignition is often caused by incandescent objects inside the cylinder.

Preimpregnated Fabric	Prepreg. A type of composite material in which the reinforcing fibers are encapsulated in an uncured resin. Prepreg materials are cut to size and shape and laid up with the correct ply orientation, and the entire component is cured with heat and pressure.
Prepreg	Preimpregnated fabric. A type of composite material in which the reinforcing fibers are encapsulated in an uncured resin. Prepreg materials are cut to size and shape and laid up with the correct ply orientation, and the entire component is cured with heat and pressure.
Press-to-test Light Fixture	An indicator light fixture whose lens can be pressed in to complete a circuit that tests the filament of the light bulb.
Pressure	The amount of force acting on a specific amount of surface area, typically measured in pounds per square inch or psi.
Pressure Altitude	The altitude in standard air at which the pressure is the same as that of the existing air. Pressure altitude is read on an altimeter when the barometric scale is set to the standard sea level pressure of 29.92 inches of mercury.
pressure Carburetor	A carburetor installed on some aircraft reciprocating engines that uses the pressure difference between air inside the venture and ram air entering the carburetor to produce a fuel-metering force. Pressure carburetors have generally been replaced with continuous flow fuel injection systems.
Pressure Cooling	A method of air cooling a reciprocating engine in which the cylinders are enclosed in tight-fitting shrouds. The cowling is divided into two compartments by baffles and seals, with half of each cylinder in each compartment. Ram air is directed into one compartment, and the pressure in the other is decreased by air flowing over a flared exit or adjustable cowl flaps. The pressure difference across the cylinders causes cooling air to be drawn through the fins to remove the unwanted heat.
Pressure Fueling	The method of fueling used by almost all transport aircraft. The fuel is put into the aircraft through a single underwing fueling port. The fuel tanks are filled to the desired quantity and in the sequence selected by the person conducting the fueling operation. Pressure fueling saves servicing time by using a single point to fuel the entire aircraft, and it reduces the chances for fuel contamination.
Pressure Manifold	Hydraulic system component. The portion of a fluid power system from which the selector valves receive their pressurized fluid.
Pressure Plate	Brake component. A strong, heavy plate used in a multiple-disk brake. The pressure plate receives the force from the brake cylinders and transmits this force to the disks.
Pressure Reducing Valve	Oxygen system component. A valve used in an oxygen system to change high cylinder pressure to low system pressure.
Pressure Relief Valve	Oxygen system component. A valve in an oxygen system that relieves the pressure if the pressure reducing valve should fail.
Pressure Vessel	The strengthened portion of an aircraft structure that is sealed and pressurized in flight.
Pressure-demand Oxygen System	A type of oxygen system used by aircraft that fly at very high altitude. This system functions as a diluter-demand system until, at about 40,000 feet, the output to the mask is pressurized enough to force the needed oxygen into the lungs, rather than depending on the low pressure produced when the wearer of the mask inhales to pull in the oxygen. See diluter-demand oxygen system.
Pressure-injection Carburetor	A multibarrel pressure carburetor used on large radial and V-engines. Fuel is metered on the basis of air mass flowing into the engine and is sprayed under pressure into the eye, or center, of the internal supercharger impeller.

Preventive Maintenance	Simple or minor preservation operations and the replacement of small standard parts not involving complex assembly operations.
Primary Lead	P-lead. The wire that connects the primary winding of a magneto to the ignition switch. The magneto is turned off by grounding its P-lead.
Primary Winding	The winding in a magneto or ignition coil that is between the source of voltage and the breaker points. The primary winding is normally made of comparatively large diameter wire, and has a small number of turns, typically about 200.
Primer	Finishing system component. A component in a finishing system that provides a good bond between the surface and the material used for the topcoats.
Product	The result of multiplication.
Profile Drag	Aerodynamic drag produced by skin friction. Profile drag is a form of parasite drag.
Profile Tip	Compressor blade tip. The tip of an axial-flow compressor bladed whose thickness is reduced to give it a higher resonant frequency so it will not be subject to the vibrations that would affect a blade with a squared tip. The profile tip also provides a more aerodynamically efficient shape for the high velocity air that is moved by the blade. Profile tips often touch the housing and make a squealing noise as the engine is shut down. For this reason profile tips are often called squealer tips.
Profilometer	A precision measuring instrument used to measure the depth of the hone marks in the surface of a cylinder wall.
Progressive Inspection	Breaking down the large task of conducting a major inspection into smaller tasks which can be accomplished periodically without taking the aircraft out of service for an extended period of time.
Prony Brake	An instrument used to measure the amount of horsepower an engine is delivering to its output shaft. The engine is operated at a specific rpm, and a brake is applied to its output shaft. The amount of torque applied to the brake is measured, and this, with the rpm, is converted into brake horsepower.
Propeller	A device for propelling an aircraft that, when rotated, produces by its action on the air, a thrust approximately perpendicular to its plane of rotation. It includes the control components normally supplied by its manufacturer.
Propeller Blade Angle	The angle between the propeller chord and the propeller plane of rotation.
Propeller End	The end of a reciprocating engine to which the propeller is attached.
PropFan Engine	The registered trade name by Hamilton Standard of an ultra-high-bypass turbine engine. See UHB engine.
Proportion	A proportion is a statement of equality between two or more ratios. The example of A is to B as C is to D can be represented A:B = C:D or A/B = C/D.
Propulsive Efficiency	A measure of the effectiveness with which an aircraft engine converts the fuel it burns into useful thrust. It is the ratio of the thrust horsepower produced by a propeller to the torque horsepower of the shaft turning the propeller. The nearer the speed of the aircraft is to the speed of the exhaust jet or propeller wake, the less kinetic energy is lost in the jet or wake, and the higher the propulsive efficiency.
PRT	Power recovery turbine. A turbine driven by exhaust gases from several cylinders of a reciprocating engine. Energy extracted from exhaust gases by the turbine is coupled, through a fluid clutch, to the engine crankshaft.
Pulsating DC	Direct current whose voltage periodically changes, but whose electrons flow in the same direction all of the time.

Pulse-jet Engine	A type of air-breathing reaction engine used during World War II to power jet-propelled missiles. Fuel is sprayed into the combustion chamber and ignited. As the heated air expands, it closes the one-way shutter valve in the front of the engine and exits the engine through the nozzle at the rear. As soon as the pressure inside the combustion chamber decreases, air enters through the shutter valve and more fuel is ignited. The thrust is produced in a series of pulses.
Pump Control Valve	A control valve in a hydraulic system that allows the pilot to manually direct the output of the hydraulic pump back to the reservoir when no unit is being actuated.
Pureclad	A registered trade name for clad aluminum alloy.
Purge	Air conditioning system operation. To remove all of the moisture and air from a cooling system by flushing the system with a dry gaseous refrigerant.
Push Fit	A fit between pieces in a mechanical assembly that is close enough to require the parts to be pushed together. A push fit is looser than a press fit, but closer than a free fit.
Pusher Engine	An engine installed with the propeller facing the rear of the aircraft. Thrust produced by the propeller mounted on a pusher engine pushes rather than pulls the aircraft.
Pusher Powerplant	A powerplant whose propeller is mounted at the rear of the airplane and pushes, rather than pulls, the airplane through the air.
Pusher Propeller	A propeller installed on an aircraft engine so that it faces the rear of the aircraft. Thrust from the propeller pushes rather than pulls the aircraft.
PV Diagram	A diagram showing the relationship between the volume of a cylinder and the pressure during a cycle of engine operation.
PVC	Polyvinyl chloride. A thermoplastic resin used to make transparent tubing for insulating electrical wires.
Pythagorean Theorem	An equation used to find the length of a third side of any right triangle when the lengths of two sides are known. The Pythagorean Theorem states that a2 + b2 = c2. The square of the hypotenuse (side opposite the right angle) is equal to the sum of the squares of the other two sides (a and b).
Q	
QC	Quality control.
Quartersawed Wood	Wood sawed from a tree in such a way that the annual rings cross the plank at an angle greater than 45°.
Quenching	The rapid cooling of metal in the heat treatment process.
Quick-disconnect Fitting	A hydraulic line fitting that seals the line when the fitting is disconnected. Quick-disconnect fittings are used on the lines connected to the engine-driven hydraulic pump. They allow the pump to be disconnected and an auxiliary hydraulic power system connected to perform checks requiring hydraulic power while the aircraft is in the hangar.
Quill Shaft	A type of shaft used to couple parts of an engine that are subject to torsional loads. A quill shaft is a long, hardened steel shaft with splines on each end. One end splines into the drive shaft and the other end splines into the device being driven. Torsional vibrations are absorbed by the quill shaft twisting.
Quotient	The result of dividing two numbers.
R	

Rack-and-pinion Actuator	A form of rotary actuator where the fluid acts on a piston on which a rack of gear teeth is cut. As the piston moves, it rotates a pinion gear which is mated with the teeth cut in the rack.
Radial	A directional line radiating outward from a radio facility, usually a VOR. When an aircraft is flying outbound on the 330º from the station.
Radial Bearing Load	The load on a bearing perpendicular to the shaft on which the bearing is mounted. Centrifugal loads are radial loads.
Radial Engine	Static radial. A form of reciprocating engine in which the cylinders radiate out from a small central crankcase. The pistons in the cylinders drive a central crankshaft which in turn drives the propeller.
Radial-inflow Turbine	A turbine, similar in appearance to a centrifugal compressor rotor. Radial-inflow turbines are used to drive the compressor in reciprocating engine turbochargers and some of the smaller APU turbine engines. Hot gases flow into the turbine from its outside rim, then radially inward through the vanes and out of the turbine at its center.
Radiant Energy	Electromagnetic waves of certain frequencies produce heat when they are absorbed by the bodies they strike such as x-rays, light rays, and infrared rays.
Radiation	The continuous emission of energy from the surface of all bodies.
Radical Sign	The symbol √, used to indicate the root of a number.
Radiographic Inspection	Inspection using radiography to locate defects or flaws in airframe structures or engines with little or no disassembly.
Radius	Equal to one-half the diameter of a circle.
Radius Dimpling	A process of preparing a hole in sheet metal for flush riveting. A cone-shaped male die forces the edges of the rivet hole into the depression in a female die. Radius dimpling forms a round-edged depression into which the rivet head fits.
Ram Air	Air whose pressure has been increased by the forward motion of the aircraft. Ram air pressure is the same as pitot pressure.
Ram Drag	The loss of thrust produced by a turbojet or turbofan engine caused by the increase of velocity of air entering the engine. Ram drag is the difference between gross thrust and net thrust.
Ram Pressure	Pressure produced when a moving fluid is stopped.
Ramjet Engine	The simplest type of air-breathing reaction engine. Air entering the front of the engine at a high velocity has fuel sprayed into it and ignited. A barrier formed by the incoming air forces the expanding gases to leave through the nozzle at the rear. The energy added by the burning fuel accelerates the air and produces a forward thrust. Ramjet engines are used in some military unmanned aircraft that are initially boosted to a speed high enough for the engine to function.
Ram-recovery Speed	The speed of an aircraft at which the ram effect caused by the forward movement increases the air pressure at the compressor inlet so that it is the same as that of the ambient air.
Range Markings	Colored marks on an instrument dial that identify certain ranges of operation as specified in the aircraft maintenance or flight manual and listed in the appropriate aircraft Type Certificate Data Sheets or Aircraft Specifications. Color coding directs attention to approaching operating difficulties. Airspeed indicators and most pressure and temperature indicators are marked to show the various ranges of operation. These ranges and colors are the most generally used: Red radial line, do not exceed. Green arc, normal operating range. Yellow arc, caution range. Blue radial line, used on airspeed indicators to show best singleengine rate of climb speed. White arc, used on airspeed indicators to show flap operating range.
Ratio	The comparison of two numbers or quantities.

Ratiometer Indicator	An analog temperature measuring instrument in which the pointer deflection is proportional to the ratio between the current flowing in an internal reference circuit and that flowing through the temperature-sensing probe.
RC Engine	Rotating Combustion Engine. A form of internal combustion engine in which a rounded, triangular-shaped rotor with sliding seals at the apexes forms the combustion space inside an hourglass-shaped chamber. Expanding gases from the burning fuel-air mixture push the rotor around and turn a geared drive shaft in its center. The RC engine was conceived in Germany by Felix Wankel in 1955. Also called a Wankel engine.
RDF	Radio Direction Finding.
Reach	Spark plug specification. The length of the threads on the shell of a spark plug.
Reaction Engine	A form of heat engine that produces thrust by heating a mass of air inside the engine and discharging it at a high velocity through a specially shaped nozzle. The amount of thrust is determined by the mass of the air and the amount it is accelerated.
Reactive Power	Wattless power in an AC circuit. It is the power consumed in the inductive and capacitive reactances. Reactive power is expressed in volt-amps reactive (var) or in kilovolt-amps reactive (kvar).
Reamed Fir	The fit of a shaft in a hole in which the hole is drilled undersize and cut with a reamer to the correct diameter. Reamed holes have smooth walls and a consistent diameter.
Reamers	Tools made of either carbon tool steel or high-speed steel that are used to smooth and enlarge holes to exact size.
Rebreather Oxygen Mask	A type of oxygen mask used with a continuous flow oxygen system. Oxygen continuously flows into the bottom of the loose-fitting rebreather bag on the mask. The wearer of the mask exhales into the top of the bag. The first air exhaled contains some oxygen, and this air goes into the bag first. The last air to leave the lungs contains little oxygen, and it is forced out of the bag as the bag is filled with fresh oxygen. Each time the wearer of the mask inhales, the air first exhaled, along with fresh oxygen, is taken into the lungs.
Rebuilt Engine	A used engine that has been completely disassembled, inspected, repaired as necessary, and reassembled, tested, and approved in the same manner and to the same tolerances and limits as a new engine, using either new or used parts. However, all parts used must conform to all production drawings, tolerances, and limits for new parts, or be of approved oversize or undersize dimensions for a new engine. According to 14 CFR part 91, section 91.421, a rebuilt engine is considered to have no precious operating history and may be issued a zero-time logbook. Only the engine manufacturer can rebuild an engine and issue a zerotime record.
Receiver-dryer	The component in a vapor-cycle cooling system that serves as a reservoir for the liquid refrigerant. The receiver-dryer contains a desiccant that absorbs any moisture that may be in the system.
Reciprocating Engine	A type of heat engine that changes the reciprocating (back-and-forth) motion of pistons inside the cylinders into rotary motion of a crank-shaft.
Rectangle	A plane surface with four sides whose opposite sides are parallel and whose angles are all right angles.
Rectification	Arc welding condition. A condition in Acelectric arc welding in which oxides on the surface of the metal act as a rectifier and prevent electrons flowing from the metal to the electrode during the half cycle when the electrode is positive.
Rectifier	A device for converting alternating current to direct current.

Reducing Flame	An oxyacetylene flame produced by an excess of acetylene. This flame is identified by a feather around the inner cone. A carburizing flame is also called a reducing flame.
Reduction Gear	The gear arrangement in an aircraft engine that allows the engine to turn at a faster speed than the propeller.
Reed Valve	A thin, leaf-type valve mounted in the valve plate of an air conditioning compressor to control the flow of refrigerant gases into and out of the compressor cylinders.
Reheat System	The British name for an afterburner. See afterburner.
Reid Vapor Pressure	The amount of pressure that must be exerted on a liquid to keep it from vaporizing. Reid vapor pressure is measured at 100˚F.
Reinforcing Tape	A narrow strip of woven fabric material placed over the fabric as it is being attached to the aircraft structure with rib lacing cord. This tape carries a large amount of the load and prevents the fabric tearing at the stitches.
Rejuvenator	A finishing material used to restore resilience to an old dope film. Rejuvenator contains strong solvents to open the dried-out film and plasticizers to restore resilience to the old dope.
Relative Humidity	The ratio of the amount of water vapor actually present in the atmosphere to the amount that would be present if the air were saturated at the prevailing temperature and pressure.
Relative Wind	The direction the wind strikes an airfoil.
Relay	An electrical component which uses a small amount of current flowing through a coil to produce a magnetic pull to close a set of contacts through which a large amount of current can flow. The core in a relay coil is fixed.
Reliability	The ability of an aircraft engine to perform its designed functions under widely varying operating conditions.
Relief Hole	A hole drilled at the point at which two bend lines meet in a piece of sheet metal. This hole spreads the stresses caused by the bends and prevents the metal cracking.
Relief Valve	A pressure-control valve that relieves any pressure over the amount for which it is set. They are damagepreventing units used in both hydraulic and pneumatic systems. In an aircraft hydraulic system, pressure relief valves prevent damaging high pressures that could be caused by a malfunctioning pressure regulator, or by thermal expansion of fluid trapped in portions of the system.
Remainder	The leftover number in the process of division.
Repair	A maintenance procedure in which a damaged component is restored to its original condition, or at least to a condition that allows it to fulfill its design function.
Repair Station	A maintenance facility certificated under 14 CFR part 145 to perform maintenance functions.
Residual Magnetic Particle Inspection	A form of magnetic particle inspection for small steel parts that have a high degree of retentivity. The part is magnetized, removed, and inspected away from the magnetizing machine.
Residual Magnetism	The magnetism that remains in the field frame of a generator when no current is flowing in the field coils.
Residual Voltage	The voltage produced in a generator armature when the armature is rotated in the residual magnetism.
Resistance	The opposition a device or material offers to the flow or current.
Resistor Spark Plug	A shielded spark plug with a resistor between the ignition lead terminal and the center electrode. The resistor stops the flow of secondary current when its voltage drops to a specified value. The resistor prevents capacitive afterfiring.

Resonance	The increase in amplitude of vibrations of an electric or mechanical system exposed to a periodic force whose frequency is equal or very close to the natural frequency of the system.
Restrictor	A fluid power system component that controls the rate of actuator movement by restricting the flow of fluid into or out of the actuator.
Retard Breaker Points	A set of breaker points in certain aircraft magnetos that are used to provide a late (retarded) spark for starting the engine.
Retarded Sparks	The timing of the firing of the spark plugs used to start a reciprocating engine. The sparks for starting occur later in terms of crankshaft rotation than those used for normal operation. Retarding the sparks prevent the engine from kicking back when it is being started.
Retarder	Finishing system component. Dope thinner that contains certain additives that slow its rate of evaporation enough to prevent dope blushing.
Retentivity	The ability of a magnetizable material to retain the alignment of the magnetic domains after the magnetizing force has been removed. Hard steel normally has a high retentivity, while soft iron and electrical steel both have very low retentivity.
Retread	The replacement of the tread rubber on an aircraft tire.
Retreating Blade	The blade on a helicopter rotor whose tip is moving in the direction opposite to that in which the helicopter is moving.
Retreating Blade Stall	The stall of a helicopter rotor disc that occurs near the tip of the retreating blade. A retreating blade stall occurs when the flight airspeed is high and the retreating blade airspeed is low. This results in a high angle of attack, causing the stall.
Return Manifold	The portion of a fluid power system through which the fluid is returned to the reservoir.
Reverse Polarity Welding	DC-electric arc welding in which the electrode is positive with respect to the work.
Reverse-flow Combustor	A type of combustor in which the air from the compressor enters the combustor outer case and reverses its direction as it flows into the inner liner. It again reverses its direction as it flows into the inner liner. It again reverses its direction before it flows through the turbine. Reverse-flow combustors are used where engine length is critical.
Reversing Propeller	A propeller system with a pitch change mechanism that includes full reversing capability. When the pilot moves the throttle controls to reverse, the blade angle changes to a pitch angle and produces a reverse thrust, which slows the airplane down during a landing.
Revolutions Per Minute	RPM. A measure of rotational speed. One rpm is one revolution made in one minute.
RF Energy	Electromagnetic energy with a frequency high enough to radiate from any conductor through which it is flowing.
Rheostat	A variable resistor used to vary the amount of current flowing in a circuit.
Rib Thread	A series of circumferential grooves cut into the tread of a tire. This tread pattern provides superior traction and directional stability on hard-surfaced runways.
Ribbon Direction	The direction in a piece of honeycomb material that is parallel to the length of the strips of material that make up the core.
Rich Blowout	A condition in which the fire in a gas turbine engine goes out because the fuel-air mixture ratio is too rich to sustain combustion.
Rich Mixture	A fuel-air mixture that contains less than 15 parts of air to 1 part of fuel, by weight.
Riffle File	A hand file with its teeth formed on a curved surface that resembles a spoon.
Rigid Conduit	Aluminum alloy tubing used to house electrical wires in areas where they are subject to mechanical damage.

Rigidity in Space	The characteristic of a gyroscope that prevents its axis of rotation tilting as the earth rotates. This characteristic is used for attitude gyro instruments.
Rime Ice	A rough ice that forms on aircraft flying through visible moisture, such as a cloud, when the temperature is below freezing. Rime ice disturbs the smooth airflow as well as adding weight.
Rivet Cutters	Special cutting pliers that resemble diagonal cutters except that the jaws are ground in such a way that they cut the rivet shank, or stem, off square.
Rivet Set	A tool used to drive aircraft solid rivets. It is a piece of hardened steel with a recess the shape of the rivet head in one end. The other end fits into the rivet gun.
RMI	Radio Magnetic Indicator.
RMS	Root Mean Square. A dimension that is the square root of the average of an infinite number of varying values. An rms dimension is used to indicate the allowable surface roughness of a reciprocating engine cylinder wall.
Rocker Arm	A pivoted arm on the cylinder head of a reciprocating engine. The pushrod forces one end of the rocker arm up, and as the other end moves down, it forces the poppet valve off of its seat.
Rocker Box	The enclosed part of a reciprocating engine cylinder that houses the rocker arm and valve mechanism.
Rocket Engine	A form of reaction engine whose fuel and oxidizer contain all of the oxygen needed for the release of heat energy. The released heat expands the gases which are ejected at a high velocity from a nozzle at the rear of the rocket. Because rocket engines carry their own oxygen, they can operate in outer space where there is no atmosphere.
Rocking Shaft	A shaft used in the mechanism of a pressure measuring instrument to change the direction of movement by 90º and to amplify the amount of movement.
Roll	Aircraft maneuver. Rotation of an aircraft about its longitudinal axis.
Root	A number that when multiplied by itself a specified number of times will produce a given number. The two most commonly used roots are the square root and the cube root.
Root Mean Square	RMS. A dimension that is the square root of the average of an infinite number of varying values. An rms dimension is used to indicate the allowable surface roughness of a reciprocating engine cylinder wall.
Roots-type Air Compressor	A positive-displacement air pump that uses two intermeshing figure-8-shaped rotors to move the air.
Rosette Weld	A method of securing one metal tube inside another by welding. Small holes are drilled in the outer tube and the inner tube is welded to it around the circumference of the holes.
Rotary Actuator	A fluid power actuator whose output is rotational. A hydraulic motor is a rotary actuator.
Rotary Radial Engine	A form of reciprocating engine used in some early aircraft. The crankshaft is rigidly attached to the airframe, and the propeller, crankcase, and cylinders all revolve as a unit.
Rotating Combustion Engine	RC engine. A form of internal combustion engine in which a rounded, triangular-shaped rotor with sliding seals at the apexes forms the combustion space inside an hourglass-shaped chamber. Expanding gases from the burning fuel-air mixture push the rotor around and turn a geared drive shaft in its center. The RC engine was conceived in Germany by Felix Wankel in 1955. Also called a Wankel engine.
Rotor	A complete system of rotating airfoils creating lift for a helicopter.

Rotor Brake	A device used to stop the rotor blades during shutdown.
Routine Inspection	A visual examination or check of an item in which no disassembly is required.
Roving	A lightly twisted roll or strand of fibers.
RPM	Revolutions Per Minute. A measure of rotational speed. One rpm is one revolution made in one minute.
Rudder	The movable primary control surface mounted on the trailing edge of the vertical fin of an airplane. Movement of the rudder rotates the airplane about its vertical axis.
Ruddervators	The two movable surfaces on a V-tail empennage. When these two surfaces are moved together with the in-and-out movement of the control yoke, they act as elevators, and when they are moved differentially with the rudder pedals, they act as the rudder.
Run In	A time of controlled operation of a new or freshly overhauled engine that allows the moving parts to wear together.
Run Up	A procedure in which an aircraft engine is operated on the ground to determine its condition and performance.
Runout	A measure of the amount a shaft, flange, or disk is bent or fails to run true. Runout is normally measured with a dial indicator.
S	
Sachometer	An instrument that measures the rotational speed of an object.
Sack Coat	A coat of finishing material sprayed on the surface and allowed to dry until the solvents evaporate. As soon as the solvents evaporate, a wet full-bodied coat of material is sprayed over it.
Sack Rag	A clean, lintless rag, slightly damp with thinner. A tack rag is used to wipe a surface to prepare it to receive a coat of finishing material.
Sack Weld	A method of holding parts together before they are permanently welded. The parts are assembled, and small spots of weld are placed at strategic locations to hold them in position.
Sacky	Slightly sticky to the touch.
Saddle Gusset	A piece of plywood glued to an aircraft structural member. The saddle gusset has a cutout to hold a backing block or strip tightly against the skin to allow a nailing strip to be used to apply pressure to a glued joint in the skin.
SAE	Society of Automotive Engineers. A professional organization that has formulated standards for the automotive and aviation industries.
Safety Gap	A location in a magneto that allows a spark to jump to ground from the secondary circuit before the voltage rises high enough to damage the secondary insulation.
Sailplane	A high-performance glider.
Sand Casting	A method of molding metal parts in a mold made of sand. A pattern that duplicates the part to be molded is made of wood and is covered with a special casting sand that contains a resin to bind it. The mold is separated along a special parting line, and the pattern is removed. The mold is put back together, and molten metal is poured into the cavity. When the metal cools, the sand is broken away from the molded part. Sand casting is less expensive than permanent-mold casting.
Sandwich material	A type of composite structural material in which a core material is bonded between face sheets of metal or resin-impregnated fabric.

Satin-weave Fabric	Fabric in which the warp threads pass under one fill thread and over several others. Satin-weave fabrics are used when the lay-up must be made over complex shapes.
Saybolt Seconds Universal Viscosity	SSU viscosity. A measurement of viscosity (resistance to flow)of a lubricating oil. The number of seconds needed for 60 milliliters of oil at a specified temperature to flow through a calibrated orifice. The viscosity number used for commercial aviation engine lubricating oil relates closely to the SSU viscosity of the oil at 210˚F.
Scarf Joint	A joint in a wood structure in which the ends to be joined are cut in a long taper, normally about 12:1, and fastened together by gluing. A glued scarf joint makes a strong splice because the joint is made along the side of the wood fibers rather than along their ends.
Scavenge Subsystem	The subsystem in the lubrication system of a gas turbine engine that collects oil after it has lubricated the bearings and gears and returns it to the oil tank.
Schematic Diagram	A diagram of an electrical system in which the system components are represented by symbols rather than drawings or pictures of the actual devices.
Schrader Valve	A type of service valve used in an air conditioning system. This is a spring-loaded valve much like the valve used to put air into a tire.
Scientific Notation	Used as a type of shorthand to express very large or very small numbers. For example, to express 1,250,000,000,000 in scientific notation is 1.25 × 10^12.
Scimitar Shape	The shape of the blades of the propellers mounted on UHB engines. The name is derived from the shape of a curved Asian sword that has its edge on the convex side. See UHB engine.
Scissors	The hinged link between the piston and cylinder of an oleo-type landing gear shock absorber. The torque links allow the piston to move freely in and out of the landing gear cylinder, but prevent it rotating. The torque links can be adjusted to achieve and maintain the correct wheel alignment. Torque links are also called scissors and nutcrackers.
SCR	Silicon Controlled Rectifier. A semiconductor electron control device. An SCR blocks current flow in both directions until a pulse of positive voltage is applied to its gate. It then conducts in its forward direction, while continuing to block current in its reverse direction.
Scramjet	Supersonic Combustion Ramjet. A special type of ramjet engine whose fuel can be ignited while the vehicle is mobbing at a supersonic speed.
Scuffing	Severe damage to moving parts caused when one metal part moves across another without sufficient lubricant between them. Enough heat is generated by friction to cause the high points of the surfaces to weld together; continued movement tears, or scuffs, the metal.
Scupper	A recess around the filler neck of an aircraft fuel tank. Any fuel spilled when the tank is being serviced collects in the scupper and drains to the ground through a drain line rather than flowing into the aircraft structure.
Sea Level Pressure	The atmospheric pressure at sea level. Average sea level pressure is 29.92 inches of mercury, or 1013.25 millibars.
Sea-level Boosted Engine	Sea level engine. A reciprocating engine that has had its sea-level rated horsepower increased by supercharging. This is the same as a ground-boosted engine.

Secondary Winding	The winding in a magneto or ignition coil that connects to the distributor rotor. The secondary winding is normally made of very small diameter wire and has a large number of turns, typically about 20,000.
Sectional View	A view obtained by cutting away part of an object to show the shape and construction at the cutting plane.
Sector Gear	A part of a gear wheel containing the hub and a portion of the rim with teeth.
Segmented-rotor Brake	A heavy-duty, multiple-disk brake used on large, high-speed aircraft. Stators that are surfaced with a material that retains its friction characteristics at high temperatures are keyed to the axle. Rotors which are keyed into the wheels mesh with the stators. The rotors are made in segments to allow for cooling and for their large amounts of expansion.
Selcal System	Selective Calling System. Each aircraft operated by an airline is assigned a particular four-tone audio combination for identification purposes. A ground station keys the signal whenever contact with that particular aircraft is desired. The signal is decoded by the airborne selcal decoder and the crew alerted by the selcal warning system.
Selective Calling System	Selcal System. Each aircraft operated by an airline is assigned a particular four-tone audio combination for identification purposes. A ground station keys the signal whenever contact with that particular aircraft is desired. The signal is decoded by the airborne selcal decoder and the crew alerted by the selcal warning system.
Selector Valve	A flow control valve used in hydraulic systems that directs pressurized fluid into one side of an actuator, and at the same time directs return fluid from the other side of the actuator back to the reservoir. There are two basic types of selector valves: open-center valves and closed-center valves. The four-port closed-center valve is the most frequently used type. See closed-center selector valve and open-center selector valve.
Self-accelerating Speed	The speed attained by a gas turbine engine during start-up that allows it to accelerate to its normal idling speed without assistance from the starter.
Selsyn System	A DC synchro system used in remote indicating instruments. The rotor in the indicator is a permanent magnet and the stator is a tapped toroidal coil. The transmitter is a circular potentiometer with DC power fed into its wiper which is moved by the object being monitored. The transmitter is connected to the indicator in such a way that rotation of the transmitter shaft varies the current in the sections of the indicator toroidal coil. The magnet in the indicator on which the pointer is mounted locks with the magnetic field produced by the coils and follows the rotation of the transmitter shaft.
Selvage Edge	The woven edge of fabric used to prevent the material unraveling during normal handling. The selvage edge, which runs the length of the fabric parallel to the warp threads, is usually removed from materials used in composite construction.
Semiconductor	Any device based on either preferred conduction through a solid in one direction, as in rectifiers, or on a variation in conduction characteristics through a partially conductive material, as in a transistor.
Semiconductor Diode	A two-element electrical component that allows current to pass through it in one direction, but blocks its passage in the opposite direction. A diode acts in an electrical system in the same way a check valve acts in a hydraulic system.
Semiconductor Transducer	A piezoelectric crystal that converts input energy of one form, such as pressure, into output energy of another, such as an electrical signal.
Semimonocoque Structure	A form of aircraft stressed skin structure. Most of the strength of a semimonocoque structure is in the skin, but the skin is supported on a substructure of formers and stringers that give the skin its shape and increase its rigidity.
Sensible Heat	Heat that is added to a liquid causing a change in its temperature but not its physical state.

Sensitivity	A measure of the signal strength needed to produce a distortion-free output in a radio receiver.
Sequence Valve	A valve in a hydraulic system that requires a certain action to be completed before another action can begin. Sequence valves are used to assure that the hydraulically actuated wheel-well doors are completely open before pressure is directed to the landing gear to lower it.
Series Circuit	The most basic electrical circuit in which there is only one possible path for current to flow. Current must pass through the circuit components, the battery and the resistor, one after the other, or in series.
Series-parallel DC Circuits	A grouping of parallel resistors connected in series with other resistors.
Series-parallel Circuit	An electrical circuit in which some of the components are connected in parallel and others are connected in series.
Series-wound Motor	An electric motor with field coils connected in series with the armature.
Serviceable Limits	Limits included in a reciprocating engine overhaul manual. If a part measures outside of the new-parts limits, but within the serviceable limits, it will not likely wear to the point of causing engine failure within the next TBO interval.
Servo	An electrical or hydraulic actuator connected into a flight control system. A small force on the flight deck control is amplified by the servo and provides a large force to move the control surface.
Servo Amplifier	An electronic amplifier in an autopilot system that increases the signal from the autopilot enough that it can operate the servos that move the control surfaces.
Servo System	A type of automatic control system in which part of the output is fed back into the input.
Servo Tab	A small movable tab built into the trailing edge of a primary control surface of an airplane. The flight deck controls move the tab in such a direction that it produces an aerodynamic force moving the surface on which it is mounted.
Setback	The distance the jaws of a brake must be set back from the mold line to form a bend. Setback for a 90° bend is equal to the inside radius of the bend plus the thickness of the metal being bent. For a bend other than 90°, a K-factor must be used. See also K-factor.
Shaft Horsepower	The horsepower actually available at a rotating shaft.
Shake	Wood defect. Longitudinal cracks in a piece of wood, usually between two annual rings.
Shear Section	A necked-down section of the drive shaft of a constant-displacement engine-driven fluid pump. If the pump should seize, the shear section will break and prevent the pump from being destroyed or the engine from being damaged. Some pumps use a shear pin rather than a shear section.
Shear Strength	The strength of a riveted joint in a sheet metal structure in which the rivets shear before the metal tears at the rivet holes.
Shelf Life	The length of time a product is good when it remains in its original unopened container.
SHF	Super-high frequency.
Shielded Wire	Electrical wire enclosed in a braided metal jacket. Electromagnetic energy radiated from the wire is trapped by the braid and is carried to ground.
Shielding	The electrically conductive covering placed around an electrical component to intercept and conduct to ground any electromagnetic energy radiated from the device.
Shimmy	Abnormal, and often violent, vibration of the nose wheel of an airplane. Shimmying is usually caused by looseness of the nose wheel support mechanism or an unbalanced wheel.

Shimmy Damper	A small hydraulic shock absorber installed between the nose wheel fork and the nose wheel cylinder attached to the aircraft structure.
Shock Mounts	Resilient mounting pads used to protect electronic equipment by absorbing low-frequency, high amplitude vibrations.
Shock Wave	A pressure wave formed in the air by a flight vehicle moving at a speed greater than the speed of sound. As the vehicle passes through the air, it produces sound waves that spread out in all directions. But since the vehicle is flying faster than these waves are moving, they build up and form a pressure wave at the front and rear of the vehicle. As the air passes through a shock wave it slows down, its static pressure increases, and its total energy decreases.
Shop Head	The head of a rivet which is formed when the shank is upset.
Short Circuit	A low-resistance connection between two points in an electric circuit.
Shower of Sparks Ignition System	A patented ignition system for reciprocating engines. An induction civrator sends pulsating DC into a set of retard breaker points on one of the magnetos. This provides a hot and retarded spark for starting the engine.
Show-type Finish	The type of finish put on fabric-covered aircraft intended for show. This finish is usually made up of many coats of dope, with much sanding and rubbing of the surface between coats.
Shunt Winding	Field coils in an electric motor or generator that are connected in parallel with the armature.
Shuttle Valve	An automatic selector valve mounted on critical components such as landing gear actuation cylinders and brake cylinders. For normal operation, system fluid flows into the actuator through the shuttle valve, but if normal system pressure is lost, emergency system pressure forces the shuttle over and emergency fluid flows into the actuator.
Sidestick Controller	A flight deck flight control used on some of the fly-by-wire equipped airplanes. The stick is mounted rigidly on the side console of the flight deck, and pressures exerted on the stick by the pilot produce electrical signals that are sent to the computer that flies the airplane.
Sight Glass	Air conditioning system component. A small window in the high side of a vapor-cycle cooling system. Liquid refrigerant flows past the sight glass, and if the charge of refrigerant is low, bubbles will be seen. A fully charged system has no bubbles in the refrigerant.
Sight Line	A line drawn on a sheet metal layout that is one bend radius from the bend-tangent line. The sight line is lined up directly below the nose of the radius bar in a cornice brake. When the metal is clamped in this position, the bend tangent line is in the correct position for the start of the bend.
Signed Numbers	A signed number can be either a positive or negative number. A positive number is a number that is greater than zero. A negative number is a number that is less than zero.
Silicon Controlled Rectifier	SCR. A semiconductor electron control device. An SCR blocks current flow in both directions until a pulse of positive voltage is applied to its gate. It then conducts in its forward direction, while continuing to block current in its reverse direction.
Silicone Rubber	An elastomeric material made from silicone elastomers. Silicone rubber is compatible with fluids that attack other natural or synthetic rubbers.
Sine	A trigonometric function comparing two sides of a right triangle as follows: Sine = opposite side/hypotenuse .
Sine Wave	A continuous waveform with a constant frequency and amplitude.

Single-acting Actuator	A linear hydraulic or pneumatic actuator that uses fluid power for movement in one direction and a spring force for its return.
Single-action Hand Pump	A hand-operated fluid pump that moves fluid only during one stroke of the pump handle. One stroke pulls the fluid into the pump and the other forces the fluid out.
Single-disk Brakes	Aircraft brakes in which a single steel disk rotates with the wheel between two brake-lining blocks. When the brake is applied, the disk is clamped tightly between the lining blocks, and the friction slows the aircraft.
Single-servo Brakes	Brakes that uses the momentum of the aircraft rolling forward to help apply the brakes by wedging the brake shoe against the brake drum.
Single-shaft Turbine Engine	A turboprop engine in which the propeller reduction gears are driven by the same shaft that drives the compressor for the gas generator.
Single-spool Gas-turbine Engine	A type of axial-flowcompressor gas turbine engine that has only one rotating element.
Sintered Metal	A porous material made by fusing powdered metal under heat and pressure.
Sketch	A simple rough drawing that is made rapidly and without much detail.
Skid Shoes	Plates attached to the bottom of skid landing gear, protecting the skid.
Skin Radiator	A type of radiator used on some early liquid-cooled racing airplanes. The radiator was made of two thin sheets of brass, slightly separated so the heated coolant could flow between them. Skin radiators were mounted on the surface of the wing, on the sides of the fuselage, or on the floats of seaplanes. Air flowing over the smooth surface of the radiator removed heat from the coolant.
Skydrol Hydraulic Fluid	The registered trade name for a synthetic, nonflammable, phosphate ester-base hydraulic fluid used in modern high-temperature hydraulic systems.
Slat	A secondary control on an aircraft that allows it to fly at a high angle of attack without stalling. A slat is a section of leading edge of wing mounted on curved tracks that move into and out of the wing on rollers.
Slide Caliper	Often used to measure the length of an object. It provides greater accuracy than a ruler.
Slip	Propeller specification. The difference between the geometric and effective pitch of a propeller.
Slip Ring	A smooth, continuous ring of brass or copper mounted on the rotor shaft of an electrical generator or alternator. Brushes riding on the smooth surface of the slip ring carry current into and out of the rotor coil.
Slip Roll Former	A shop tool used to form large radius curves on sheet metal.
Slippage Mark	A paint mark extending across the edge of an aircraft wheel onto a tube-type tire. When this mark is broken, it indicates the tire has slipped on the wheel, and there is a good reason to believe the tube has been damaged.
Slipstream Area	For the purpose of rib stitch spacing, the slipstream area is considered to be the diameter of the propeller plus one wing rib on each side.
Slot	Aerodynamic device. A fixed, nozzle-like opening near the leading edge of an airplane wing ahead of the aileron. A slot acts as a duct to force high-energy air down on the upper surface of the wing when the airplane is flying at a high angle of attack.

	The slot, which is located ahead of the aileron, causes the inboard portion of the wing to stall first, allowing the aileron to remain effective throughout the stall.
Slow-blow Fuse	An electrical fuse that allows a large amount of current to flow for a short length of time but melts to open the circuit if more than its rated current flows for a longer period.
Sludge	A heavy contaminant that forms in an aircraft engine lubricating oil because of oxidation and chemical decomposition of the oil.
Sludge Plugs	Spool-shaped sheet metal plugs installed in the hollow throws of some engine crankshafts.
Slug	The unit of mass equal to that which experiences an acceleration of one foot per second, per second when a force of one pound acts on it. It is equal to 32.174 pounds, or 14.5939 kilograms, of mass. Also called a G-pound.
Smoke Detector	A device that warns the flight crew of the presence of smoke in cargo and/or baggage compartments. Some smoke detectors are of the visual type, others are photoelectric or ionization devices.
Snubber	A device in a hydraulic or pneumatic component that absorbs shock and/or vibration. A snubber is installed in the line to a hydraulic pressure gauge to prevent the pointer fluctuating.
SOAP	Spectrometric oil analysis program. An oil analysis program in which a sample of oil is burned in an electric arc and an analysis is made of the wavelength composition of the resulting light. Each chemical element in the oil, when burned, produces light containing a unique band of frequencies. A computer analyzes the amount of each band of frequencies and prints out the number of parts of the element per million parts of the entire sample. SOAP can predict engine problems by warning the engine operator of an uncharacteristic increase of any elements in the oil.
Society of Automotive Engineers	SAE. A professional organization that has formulated standards for the automotive and aviation industries.
Softwood	Wood from a tree that bears cones and has needles rather than leaves.
Soldering	A method of thermally joining metal parts with a molten nonferrous alloy that melts at a temperature below 800°F. The molten alloy is pulled up between close-fitting parts by capillary action. When the alloy cools and hardens, it forms a strong, leak-proof connection.
Solenoid	A loop of wire, often wrapped around a metal core, which produces a magnetic field when an electrical current is passed through it.
Solenoid	An electrical component using a small amount of current flowing through a coil to produce a magnetic force that pulls an iron core into the center of the coil. The core may be attached to a set of heavy-duty electrical contacts, or it may be used to move a valve or other mechanical device.
Solidity	Helicopter rotor characteristic. The solidity of a helicopter rotor system is the ratio of the total blade area to the disc area.
Solution Heat Treatment	A type of heat treatment in which the metal is heated in a furnace until it has a uniform temperature throughout. It is then removed and quenched in cold water. When the metal is hot, the alloying elements enter into a solid solution with the base metal to become part of its basic structure. When the metal is quenched, these elements are locked into place.

Sonic Venture	A venture in a line between a turbine engine or turbocharger and a pressurization system. When the air flowing through the venture reaches the speed of sound, a shock wave forms across the throat of the venture and limits the flow. A sonic venture is also called a flow limiter.
Sound Suppressor	The airframe component that replaces the turbine engine tail pipe. It reduces the distance the sounds made by the exhaust gases propagate by converting low frequency vibrations.
Span	The dimension of a rotor blade or airfoil from root to tip.
Specific Fuel Consumption	Number of pounds of fuel consumed in 1 hour to produce 1 HP.
Specific Gravity	The ratio of the mass of a solid or liquid to the mass of an equal volume of water.
Specific Heat	The quantity of heat necessary to increase the temperature of a unit of the mass of a substance 1°C. The specific heat of a substance is the ratio of its specific heat capacity to the specific heat capacity of water.
Specific Weight	The ratio of the weight of an aircraft engine to the brake horsepower it develops.
Spectrometric Oil Analysis Program	SOAP. An oil analysis program in which a sample of oil is burned in an electric arc and an analysis is made of the wavelength composition of the resulting light. Each chemical element in the oil, when burned, produces light containing a unique band of frequencies. A computer analyzes the amount of each band of frequencies and prints out the number of parts of the element per million parts of the entire sample. SOAP can predict engine problems by warning the engine operator of an uncharacteristic increase of any elements in the oil.
Speed Brakes	A secondary control of an airplane that produces drag without causing a change in the pitch attitude of the airplane. Speed brakes allow an airplane to make a steep descent without building up excessive forward airspeed.
Speed of Sound	The speed of sound at sea level under standard temperature and pressure conditions is 1,108 feet per second or 658 knots.
Speed Ring	A type of ring cowling used over a single-row radial engine. The cross section of the ring is in the form of an airfoil that produces enough forward thrust to compensate for the cooling drag of the engine. Also called townend rings.
Spike Knot	A knot that runs through the depth of a beam perpendicular to the annual rings. Spike knots appear most frequently in quartersawed wood.
Spin	A flight maneuver in which an airplane descends in a corkscrew fashion. One wing is stalled and the other is producing lift.
Spirit Level	A leveling instrument placed on or against a specified place on the aircraft. Spirit levels have vials that are full of liquid, except for a small air bubble. When the air bubble is centered between the two black lines, a level condition is indicated.
Splayed Patch	Wood structure repair. A type of patch made in an aircraft plywood structure in which the edges of the patch are tapered for approximately five times the thickness of the plywood. A splayed patch is not recommended for use on plywood less than 1⁄10 inch thick.
Spline	Parallel slots cut in the periphery of a shaft, parallel to its length. Matching slots, cut into the hub or wheel that fits on the shaft, lock the shaft into the device to transmit torque.
Split	Wood defect. A longitudinal crack in a piece of wood caused by externally induced stress.
Split Bus	A type of electrical bus that allows all of the voltage-sensitive avionic equipment to be isolated from the rest of the aircraft electrical system when the engine is being started or when the ground-power unit is connected.

Split Needles	A term used to describe the position of the two needles on the engine/rotor tachometer when the two needles are not superimposed.
Split-rocker Switch	An electrical switch whose operating rocker is split so one half of the switch can be opened without affecting the other half. Split-rocker switches are used as aircraft master switches. The battery can be turned on without turning on the alternator, but the alternator cannot be turned on without also turning on the battery. The alternator can be turned off without turning off the battery, but the battery cannot be turned off without also turning off the alternator.
Spoilers	Flight controls that are raised up from the upper surface of a wing to destroy, or spoil, lift. Flight spoilers are used in conjunction with the ailerons to decrease lift and increase drag on the descending wing. Ground spoilers are used to produce a great amount of drag to slow the airplane on its landing roll.
Spongy Brakes	Hydraulic brakes whose pedal has a spongy feel because of air trapped in the fluid.
Spontaneous Combustion	Self-ignition of a material caused by heat produced in the material as it combines with oxygen from the air.
Spool	A shaft in a turbine engine which drives one or more compressors with the power derived from one or more turbines.
Sprag Clutch	A freewheeling, nonreversible clutch that allows torque to be applied to a driven unit in one direction only.
Springback	A condition in the rigging of an aircraft engine control in which the stop at the engine is reached before the stop in the flightdeck. The flightdeck control moves slightly after the stop in the engine is reached, and when it is released, it springs back slightly.
Springwood	The portion of an annual ring in a piece of wood formed principally during the first part of the growing season, the spring of the year. Springwood is softer, more porous, and lighter than the summerwood.
Spur-gear Pump	A form of constant-displacement fluid pump that uses two meshing spur-gears mounted in a close fitting housing. Fluid is taken into the housing where it fills the space between the teeth of the gears and is carried around the housing as the gears rotate. On the discharge side of the pump, the teeth of the two gears mesh, and the fluid is forced out of the pump.
Square	A four-sided plane figure whose sides are all the same length, whose opposite sides are parallel, and whose angles are all right angles.
Square Root	A non-negative number that must be multiplied by itself to equal a given number.
Squat Switch	An electrical switch actuated by the landing gear scissors on the oleo strut. When no weight is on the landing gear, the oleo piston is extended and the switch is in one position; but when weight is on the gear, the oleo strut compresses and the switch changes its position. Squat switches are used in antiskid brake systems, landing gear safety circuits, and cabin pressurization systems.
Squealer Tip	Compressor blade tip. The tip of an axial-flow compressor bladed whose thickness is reduced to give it a higher resonant frequency so it will not be subject to the vibrations that would affect a blade with a squared tip. The profile tip also provides a more aerodynamically efficient shape for the high velocity air that is moved by the blade. Profile tips often touch the housing and make a squealing noise as the engine is shut down. Also called a profile tip.
Squeeze Film Bearings	Another name for oil-damped bearings. See oil-damped bearings.
Squib	An explosive device in the discharge valve of a high-rate-discharge container of fire-extinguishing agent. The squib drives a cutter into the seal in the container to discharge the agent.

SRM	Structural Repair Manual.
SSU Viscosity	Saybolt Seconds Universal viscosity - A measurement of viscosity (resistance to flow)of a lubricating oil. The number of seconds needed for 60 milliliters of oil at a specified temperature to flow through a calibrated orifice. The viscosity number used for commercial aviation engine lubricating oil relates closely to the SSU viscosity of the oil at 210˚F.
Stabilator	A flight control on the empennage of an airplane that acts as both a stabilizer and an elevator. The entire horizontal tail surface pivots and is moved as a unit.
Stability	The characteristic of an aircraft that causes it to return to its original flight condition after it has been disturbed.
Stabilons	Small wing-like horizontal surfaces mounted on the aft fuselage to improve longitudinal stability of airplanes that have an exceptionally wide center of gravity range.
Stage Length	The distance between landing points in airline operation.
Stage of a Compressor	One disk of rotor blades and the following set of stator vanes in an axial-flow compressor.
Staggered Timing	Ignition timing that causes the spark plug nearest the exhaust valve to fire a few degrees of crankshaft rotation before the spark plug nearest the intake valve.
Stagnation Point	The point on the leading edge of a wing at which the airflow separates, with some flowing over the top of the wing and the rest below the wing.
Stall	A flight condition in which an angle of attack is reached at which the air ceases to flow smoothly over the upper surface of an airfoil. The air becomes turbulent and lift is lost.
Stall Strip	A small triangular metal strip installed along the leading edge of an airplane wing near the wing root. Stall strips cause the root section of the wing to stall before the portion of the wing ahead of the ailerons.
Standard Day Conditions	Conditions that have been decided upon by the ICAO for comparing all aircraft and engine performance. The most basic standard day conditions are: temperature, 15 ºC or 52 ºF; altitude, mean sea level; pressure, 29.92 inches of mercury.
Standard Empty Weight	The weight of the airframe, engines, all permanently installed equipment, and unusable fuel. Depending upon the part of the Federal regulations under which the aircraft was certificated, either the undrainable oil or full reservoir of oil is included.
Standard J-1	A World War I training airplane powered by a Curtiss OX-5 engine.
Standard Weights	Values used in weight and balance calculations if specific weight for an item is unknown. The following are examples: Aviation gasoline (6 pounds per gallon), Crew and passengers (170 pounds per person), Lubricating oil (7.5 pounds per gallon), Turbine fuel (6.7 pounds per gallon), and Water (8.35 pounds per gallon).
Standpipe	A pipe which protrudes upward from the base of an oil tank and through which oil used for normal engine lubrication is drawn. In the event of a catastrophic leak when all oil available to the engine-driven pump is lost overboard, enough oil is available from an outlet below the standpipe to feather the propeller.
Starter-generator	A single-component starter and generator used on many smaller gas-turbine engines. It is used to start the engine, and when the engine is running, its circuitry is shifted so that it acts as a generator.
Static	Still, not moving.
Static Air Pressure	Pressure of the ambient air surrounding the aircraft. Static pressure does not take into consideration any air movement.

Static Dischargers	Devices connected to the trailing edges of control surfaces to discharge static electricity harmlessly into the air. They discharge the static charges before they can build up high enough to cause radio receiver interference.
Static Load	The load imposed on an aircraft structure due to the weight of the aircraft and its contents.
Static Pressure	The pressure of an unmoving fluid.
Static RPM	The number of revolutions per minute an aircraft engine can produce when the aircraft is not moving.
Static Stability	The characteristic of an aircraft that causes it to return to straight and level flight after it has been disturbed from that condition.
Static Stop	A device used to limit the blade flap, or rotor flap, at low rpm or when the rotor is stopped.
STC	Supplemental Type Certificates. A document issued by the FAA approving a product (aircraft, engine, or propeller) modification.
Steam Cooling	Also referred to as evaporative cooling. A method of liquid cooling in which the coolant, normally water, is allowed to absorb enough heat that it boils. The steam gives up its heat when it condenses back into a liquid.
Stellite	A nonferrous alloy of cobalt, chromium, and tungsten. Stellite is hard, water resistant, and corrosion resistant, and it does not soften until its temperature is extremely high. Stellite is welded to the faces of many reciprocating engine exhaust valves that operate at very high temperatures.
Stepping Motor	A precision electric motor whose output shaft position is changed in steps by pulses from the control device. Stepping motors can make high-torque changes in small angular increments to their output shaft.
Stick Puller	A device that applies aft pressure on the control column when the airplane is approaching the maximum operating speed.
Stick Pusher	A device that applies an abrupt and large forward force on the control column when the airplane is nearing an angle of attack where a stall could occur.
Stick Shaker	An artificial stall warning device that vibrates the control column.
Stoddard Solvent	A petroleum product, similar to naphtha, used as a solvent and a cleaning fluid.
Stoichiometric Mixture	The fuel-air mixture ratio that, when burned, leaves no uncombined oxygen nor any free carbon. It releases the maximum amount of heat, and therefore produces the highest exhaust gas temperature. A stoichiometric mixture of gasoline and air contains 15 pounds of air for 1 pound of gasoline.
STOL	Short Takeoff and Landing.
Stop Drilling	A method of stopping the growth of a crack in a piece of metal or transparent plastic by drilling a small hole at the end of the crack. The stresses are spread out all around the circumference of the hole rather than concentrated at the end of the crack.
Straight Polarity Welding	DC-electric arc welding in which the electrode is negative with respect to the work.
Straight-through Combustor	A combustor in a gas turbine engine through which the air from the compressor to the turbine flows in an essentially straight line.
Strain	A deformity or change in an object due to stress.

Stratosphere	The upper part of the Earth's atmosphere. The stratosphere extends upward from the tropopause, which is approximately 36,000 feet above the surface of the Earth, to approximately 85,000 feet. The temperature of the air in the stratosphere remains constant at -56.5˚C (-69.7˚F).
Stress	The internal resistance of an object to external forces attempting to strain or deform that object. Measured in pounds per square foot or pounds per square inch (psi).
Stress Corrosion	Occurs as the result of the combined effect of sustained tensile stresses and a corrosive environment.
Stress Riser	A location where the cross-sectional area of the part changes abruptly. Stresses concentrate at such a location and failure is likely. A scratch, gouge, or tool mark in the surface of a highly stressed part can change the area enough to concentrate the stresses and become a stress riser.
Stressed Skin Structure	A type of aircraft structure in which all or most of the stresses are carried in the outside skin. A stressed skin structure has a minimum of internal structure.
Stringer	A part of an aircraft structure used to give the fuselage its shape and, in some types of structure, to provide a small part of fuselage strength. Formers give the fuselage its cross-sectional shape and stringers fill in the shape between the formers.
Stroboscopic Tachometer	A tachometer used to measure the speed of any rotating device without physical contact. A highly accurate variable-frequency oscillator triggers a high-intensity strobe light. When the lamp is flashing at the same frequency the device is rotating, the device appears to stand still.
Stroke	The distance the piston moves inside the cylinder.
Sublimation	A process in which a solid material changes directly into a vapor without passing through the liquid stage.
Subsonic Flight	Flight at an airspeed in which all air flowing over the aircraft is moving at a speed below the speed of sound.
Subtraction	The process where the value of one number is taken from the value of another.
Sum	The resulting answer in the addition process.
Summerwood	The less porous, usually harder portion of an annual ring that forms in the latter part of the growing season, the summer of the year.
Sump	Aircraft engine component. A low point in an aircraft engine in which lubricating oil collects and is stored or transferred to an external oil tank. A removable sump attached to the bottom of the crankcase of a reciprocating engine is often called an oil pan.
Sump	Fuel tank component. A low point in an aircraft fuel tank in which water and other contaminants collect and are held until they can be drained out.
Super Heterodyne Circuit	A sensitive radio receiver circuit in which a local oscillator produces a frequency that is a specific difference from the received signal frequency. The desired signal and the output from the oscillator are mixed, and they produce a single, constant intermediate frequency. This IF is amplified, demodulated, and detected to produce the audio frequency that is used to drive the speaker.
Supercharged Engine	A reciprocating engine that uses a mechanically driven compressor to increase the air pressure before it enters the engine cylinders.
Supercharger	An air compressor used to increase the pressure of the air being taken into the cylinders of a reciprocating engine.

Supercooled Water	Water in its liquid form at a temperature well below its natural freezing temperature. When supercooled water is disturbed, it immediately freezes.
Superheat	Heat energy that is added to a refrigerant after it changes from a liquid to a vapor.
Supersonic Flight	Flight at an airspeed in which all air flowing over the aircraft is moving at a speed greater than the speed of sound.
Supplemental Type Certificates	STC. A document issued by the FAA approving a product (aircraft, engine, or propeller) modification.
Surface Corrosion	Caused by either direct chemical or electrochemical attack, it appears as a general roughening, etching, or pitting of the surface of a metal, frequently accompanied by a powdery deposit of corrosion products.
Surface Roughness	The condition of the surface of a reciprocating engine cylinder wall that has been honed to make it hold lubricating oil. Surface roughness is measured in micro-inches rms.
Surface Tape	Strips of aircraft fabric that are doped over all seams and places where the fabric is stitched to the aircraft structure. Surface tape is also doped over the wing leading edges where abrasive wear occurs. The edges of surface tape are pink, or notched, to keep them from raveling before the dope is applied. Also called finishing tape.
Surfactant	A surface active agent, or partially soluble contaminant, which is a by-product of fuel processing or of fuel additives. Surfactants adhere to other contaminants and cause them to drop out of the fuel and settle to the bottom of the fuel tank as sludge.
Surge	A condition of unstable airflow, through the compressor of a gas turbine engine, in which the compressor blades have an excessive angle of attack. Surge usually affects an entire stage of compression.
Surveyor's Transit	An instrument consisting of a telescope mounted on a flat, graduated, circular plate on a tripod. The plate can be adjusted so it is level, and its graduations oriented to magnetic north. When an object is viewed through the telescope, its azimuth and elevation may be determined.
Swaged Fittings	These fittings create a permanent connection that is virtually maintenance free. Swaged fittings are used to join hydraulic lines in areas where routine disconnections are not required and are often used with titanium and corrosion resistant steel tubing.
Swashplate	The component in a helicopter control system that consists basically of two bearing races with ball bearings between them. The lower, or nonrotating, race is tilted by the cyclic control, and the upper, or rotating, race has arms which connect to the control horns on the rotor blades. Movement of the cyclic pitch control is transmitted to the rotor blades through the swashplate. Movement of the collective pitch control raises or lowers the entire swashplate assembly to change the pitch of all the blades at the same time.
Symmetrical Airfoil	An airfoil that has the same shape on both sides of its chord line, or center line.
Symmetry Check	A check of an airframe to determine that the wings and tail are symmetrical about the longitudinal axis.
Synchro System	A remote instrument indicating system. A synchro transmitter is actuated by the device whose movement is to be measured, and it is connected electrically with wires to a synchro indicator whose pointer follows the movement of the shaft of the transmitter.

Synthetic Oil	Oil made by chemical synthesis of a mineral, animal, or vegetable base. Synthetic oils have appropriate additives that give them such characteristics as low volatility, low pour point, high viscosity index, good lubricating qualities, low coke and lacquer formation, and low foaming.
System-pressure Regulator	Hydraulic system component. A type of hydraulic system-pressure control valve. When the system pressure is low, as it is when some unit is actuated, the output of the constant-delivery pump is directed into the system. When the actuation is completed and the pressure builds up to a specified kick-out pressure, the pressure regulator shifts. A check valve seals the system off and the pressure is maintained by the accumulator. The pump is unloaded and its output is directed back into the reservoir with very little opposition. The pump output pressure drops, but the volume of flow remains the same. When the system pressure drops to the specified kick-in pressure, the regulator again shifts and directs fluid into the system. Spool-type and balanced-pressure-type system pressure regulators are completely automatic in their operation and require no attention on the part of the flight crew.
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TACAN	Tactical Air Navigation. A radio navigation facility used by military aircraft for both direction and distance information. Civilian aircraft receive distance information from a TACAN on their DME.
Tactical Air Navigation	TACAN. A radio navigation facility used by military aircraft for both direction and distance information. Civilian aircraft receive distance information from a TACAN on their DME.
TAI	Thermal anti-ice. A system used to prevent the formation of ice on an aircraft by flowing heated air inside the structure.
Tail Pipe	The portion of the exhaust system of a gas turbine engine through which the gases leave. The tail pipe is often called the exhaust duct, or exhaust pipe.
Tail Rotor	A rotor turning in a plane perpendicular to that of the main rotor and parallel to the longitudinal axis of the fuselage. It is used to control the torque of the main rotor and to provide movement about the yaw axis of the helicopter.
Tailets	Small vertical surfaces mounted underside of the horizontal stabilizer of some airplanes to increase the directional stability.
Takeoff Warning System	An aural warning system that provides audio warning signals when the thrust levers are advanced for takeoff if the stabilizer, flaps, or speed brakes are in an unsafe condition for takeoff.
Tan	Tangent . A trigonometric function comparing two sides of a right triangle as follows: Tan = opposite side/adjacent side.
Tang	A tapered shank sticking out from the blade of a knife or a file. The handle of a knife or file is mounted on the tang.
Tangent	Tan. A trigonometric function comparing two sides of a right triangle as follows: Tan = opposite side/adjacent side .
Tap	Instrument used to cut threads on the inside of a hole.
Tare Weight	The weight of any chocks or devices used to hold an aircraft on scales when it is weighed. The tare weight must be subtracted from the scale reading to get the net weight of the aircraft.
TAS	True Air Speed. Airspeed shown on the airspeed indicator (indicated airspeed) corrected for position error and nonstandard air temperature and pressure.
TBO	Time Between Overhaul. A time period specified by the manufacturer of an aircraft engine as the maximum length of time an engine should be operated between overhauls without normal wear causing parts of the engine to be worn beyond safe limits. TBO depends upon proper operation and maintenance in accordance with the engine manufacturer's

	recommendations. The overhaul of an engine when it reaches its TBO hours is not mandatory, except for certain commercial operators that have the requirement written into their operations manual.
TCAS	Traffic Alert Collision Avoidance System.
TCDS	Type Certificate Data Sheet. The FAA issues a type certificate when a new aircraft, engine, propeller, etc., is found to meet safety standards set forth by the FAA. The TCDS lists the specifications, conditions and limitations under which airworthiness requirements were met for the specified product, such as engine make and model, fuel type, engine limits, airspeed limits, maximum weight, minimum crew, etc.
TCP	Tricresyl phosphate. A colorless, combustible compound, $(CH_3C_6H_4O)_3PO$, that is used as a plasticizer in aircraft dope and an additive in gasoline and lubricating oil. TCP aids in scavenging lead deposits left in the cylinders when leaded fuel is burned.
TDC	Top Dead Center. The position of a piston in a reciprocating engine when the piston is at the top of its stroke and the wrist pin, crankpin, and center of the crankshaft are all in line.
Teflon	The registered trade name for a fluorocarbon resin used to make hydraulic and pneumatic seals, hoses, and backup rings.
TEL	Tetraethyl Lead.
Tempered Glass	Glass that has been heat-treated to increase its strength. Tempered glass is used in bird-proof, heated windshields for high-speed aircraft.
Tempering	Process that reduces the brittleness imparted by hardening and produces definite physical properties within the steel. Tempering always follows, never precedes, the hardening operation.
Terminal Strips	A group of threaded studs mounted in a strip of insulating plastic. Electrical wires with crimped-on terminals are placed over the studs and secured with nuts.
Terminal VOR	A low-powered VOR that is normally located on an airport.
Test Club	A wide-blade, short-diameter propeller used on a reciprocating engine when it is run in a test cell. A test club applies a specific load to the engine and forces the maximum amount of air through the engine cooling fins.
Tetraethyl Lead	TEL. A heavy, oily, poisonous liquid, $Pb(C_2H_5)^4$, that is mixed into aviation gasoline to increase its critical pressure and temperature.
TEV	Thermostatic Expansion Valve. The component in a vapor-cycle cooling system that meters the refrigerant into the evaporator. The amount of refrigerant metered by the TEV is determined by the temperature and pressure of the refrigerant as it leaves the evaporator coils. The TEV changes the refrigerant from a high-pressure liquid into a low-pressure liquid.
Therapeutic Mask Adapter	A calibrated orifice in the mask adapter for a continuous-flow oxygen system that increases the flow of oxygen to a mask being used by a passenger who is known to have a heart or respiratory problem.
Thermal Anti-ice	TAI. A system used to prevent the formation of ice on an aircraft by flowing heated air inside the structure.
Thermal Dimpling	A process used to dimple, or indent, the hole into which a flush rivet is to be installed. Thermal dimpling is done by clamping the metal between heating elements and forcing the dies through the holes in the softened metal. Thermal dimpling prevents hard metal from cracking when it is dimpled. Also called hot dimpling.

Thermal Efficiency	The ratio of the amount of useful work produced by a heat engine, to the amount of work that could be done by all of the heat energy available in the fuel burned.
Thermal Expansion	The increase in size of a material as temperature increases.
Thermal Expansion Coefficient	A number that relates to the change in the physical dimensions of a material as the temperature of the material changes. The thermal expansion coefficient of aluminum is approximately twice that of steel.
Thermal Relief Valve	A relief valve in a hydraulic system that relieves pressure that builds up in an isolated part of the system because of heat. Thermal relief valves are set at a higher pressure than the system pressure relief valve.
Thermal Shock	The sudden change in engine operating temperature that occurs when engine power is suddenly reduced at the same time the airspeed, thus the cooling, is increased. Thermal shock occurs when an aircraft is required to rapidly descend to a lower altitude.
Thermistor	A semiconductor material whose electrical resistance varies with its temperature.
Thermistor Material	A material with a negative temperature coefficient that causes its resistance to decrease as its temperature increases.
Thermocouple	A device used to generate an electrical current. A thermocouple is made of two dissimilar metal wires whose ends are welded together to form a loop. A voltage exists in the loop proportional to the difference in temperature of the junctions at which the wires are joined. The amount of current flowing in the loop is determined by the types of metals used for the wires, the temperature difference between the junctions, and the resistance of the wires.
Thermocouple Fire-detection System	A fire-detection system that works on the principle of the rate-of-temperature rise. Thermocouples are installed around the area to be protected, and one thermocouple is surrounded by thermal insulation that prevents its temperature changing rapidly. In the event of a fire, the temperature of all the thermocouples except the protected one will rise immediately and a fire warning will be initiated. In the case of a general overheat condition, the temperature of all the thermocouples will rise uniformly and there will be no fire warning.
Thermoplastic Resin	A type of plastic material that becomes soft when heated and hardens when cooled.
Thermosetting Resin	A plastic resin that, once it has been hardened by heat, cannot be softened by heating again.
Thermostatic Valve	A temperature-sensitive valve that controls the temperature of oil in an aircraft engine. When the oil is cold, the valve shifts and directs the oil through the oil cooler.
Thermostatic Expansion Valve	TEV. The component in a vapor-cycle cooling system that meters the refrigerant into the evaporator. The amount of refrigerant metered by the TEV is determined by the temperature and pressure of the refrigerant as it leaves the evaporator coils. The TEV changes the refrigerant from a high-pressure liquid into a low-pressure liquid.
Thermoswitch	An electrical switch that closes a circuit when it is exposed to a specified high temperature.
Thixotropic Agents	Materials, such as microballoons, added to a resin to give it body and increase its workability.
Three-dimensional Cam	A drum-shaped cam in a hydromechanical fuel control whose outer surface is ground so that followers riding on the surface, as the cam is moved up and down and rotated, can move mechanical linkages to control the fuel according to a preprogrammed schedule.
Throttle	The control in an aircraft that regulates the power or thrust the pilot wants the engine to produce.
Throttle	The valve in a carburetor or fuel control unit that determines the amount of fuel-air mixture that is fed to the engine.

Throw	Crankshaft design. Crank arms on a reciprocating engine crankshaft. The arms, or throws, to which the connecting rods and pistons are attached are offset from the center of the crankshaft to move the pistons in and out of the cylinder. The amount of the offset determines the stroke of the engine. Also called offset throw.
Thrust	The aerodynamic force produced by a propeller or turbojet engine as it forces a mass of air to the rear, behind the aircraft. A propeller produces its thrust by accelerating a large mass of air by a relatively small amount. A turbojet engine produces its thrust by accelerating a smaller mass of air by a much larger amount.
Thrust Horsepower	The horsepower equivalent of the thrust produced by a turbojet engine. Thrust horsepower is found by multiplying the net thrust of the engine, measured in pounds, by the speed of the aircraft, measured in miles per hour, and then dividing this by 375.
Thrust Reversers	Devices which redirect the flow of jet exhaust to reverse the direction of thrust.
Tire Cord	Woven metal wire laminated into the tire to provide extra strength. A tire showing any cord must be replaced prior to any further flight.
Thrust Specific Fuel Consumption	TSFC. A measure of efficiency of a turbojet or turbofan engine. It is a measure of the number of pounds of fuel burned per hour for each pound of thrust produced.
TIG Welding	Tungsten inert welding is a form of electric arc welding in which the electrode is a nonconsumable tungsten wire. TIG welding is now called GTA (gas tungsten arc) welding.
Time Between Overhauls	TBO. A time period specified by the manufacturer of an aircraft engine as the maximum length of time an engine should be operated between overhauls without normal wear causing parts of the engine to be worn beyond safe limits. TBO depends upon proper operation and maintenance in accordance with the engine manufacturer's recommendations. The overhaul of an engine when it reaches its TBO hours is not mandatory, except for certain commercial operators that have the requirement written into their operations manual.
Time-Rite Indicator	A patented piston-position indicator used to find the position of the piston in the cylinder of a reciprocating engine. The body of the Time-Rite indicator screws into a spark plug hole, and as the piston moves outward in the cylinder, it contacts the arm of the indicator. A pointer contacted by the arm moves across a calibrated scale to show the location of the piston in degrees of crankshaft rotation before top center.
Timing Light	An indicator light used when timing magnetos to an engine to indicate when the breaker points open. Some timing lights incorporate an oscillator or buzzer that changes its pitch when the points open.
TIT	Turbine Inlet Temperature. The temperature of the gases from the combustion section of a gas turbine engine as they enter the turbine inlet guide vanes or the first stage of the turbine.
TMC	Thrust Management Computer.
Toe-in	A condition of landing gear alignment in which the front of the tires are closer together than the rear. When the aircraft rolls forward, the wheels try to move closer together.
Toe-out	A condition of landing gear alignment in which the front of the tires are further apart than the rear. When the aircraft rolls forward, the wheels try to move farther apart.
Toggle	A T-shaped handle fitted onto the end of a cable used to engage a simple starter with an overrunning clutch.

Tolerance	The sum of the plus and minus allowance figures.
Top Dead Center	TDC. The position of a piston in a reciprocating engine when the piston is at the top of its stroke and the wrist pin, crankpin, and center of the crankshaft are all in line.
Top Overhaul	An overhaul of the cylinders of an aircraft engine. The valves, pistons, and cylinders are overhauled, but the crankcase is not opened.
Toroidal Coil	An electrical coil wound around a ring-shaped core of highly permeable material.
Torque	A force that produces or tries to produce rotation.
Torque Links	The hinged link between the piston and cylinder of an oleo-type landing gear shock absorber. The torque links allow the piston to move freely in and out of the landing gear cylinder, but prevent it rotating. The torque links can be adjusted to achieve and maintain the correct wheel alignment. Torque links are also called scissors and nutcrackers.
Torque Meter	An indicator used on some large reciprocating engines or on turboprop engines to indicate the amount of torque the engine is producing.
Torque Tube	A tube in an aircraft control system that transmits a torsional force from the operating control to the control surface.
Torsion Rod	A device in a spring tab to which the control horn is attached. For normal operation, the torsion rod acts as a fixed attachment point, but when the control surface loads are high, the torsion rod twists and allows the control horn to deflect the spring tab.
Total Air Pressure	The pressure a column of moving air will have if it is stopped.
Total Air Temperature	The temperature a column of moving air will have if it is stopped.
Total Pressure	The pressure a column of moving fluid would have if it were stopped from its motion. Total pressure is the sum of dynamic pressure and static pressure.
Total Temperature	The temperature of moving fluid that has been stopped from its motion. Total temperature is the sum of static temperature and the temperature rise caused by the ram effect as the fluid was stopped.
Townend Ring	A type of ring cowling used over a single-row radial engine. The cross section of the ring is in the form of an airfoil that produces enough forward thrust to compensate for the cooling drag of the engine. In the United States, townend rings are often called speed rings.
TR Unit	Transformer-rectifier Unit. A TR unit reduces the voltage of AC and changes it into DC.
Track	The path followed by a blade segment of a propeller or helicopter rotor in one rotation.
Tractor Engine	An engine installed with the propeller facing the front of the aircraft. Thrust produced by the propeller mounted on a tractor engine pulls the aircraft through the air. Tractor propeller. A propeller mounted on an airplane in such a way that its thrust pulls the aircraft.
Tractor Powerplant	An airplane powerplant in which the propeller is mounted in the front, and its thrust pulls the airplane rather than pushes it.
Trailing Edge	The thin edge at the rear of a propeller blade.
Trammel	Verb. To square up the Pratt truss used in an airplane wing. Trammel points are set on the trammel bar so they measure the distance between the center of the front spar, at the inboard compression strut, and at the center of the rear spar at the next compression strut outboard. The drag and antidrug wires are adjusted until the distance between the center of the

	rear spar at the inboard compression strut and the center of the front spar at the next outboard compression strut is exactly the same as that between the first points measured.
Trammel Bar	A wood or metal bar on which trammel points are mounted to compare distances.
Trammel Points	A set of sharp-pointed pins that protrude from the sides of a trammel bar.
Transducer	A device that changes energy from one form to another. Commonly used transducers change mechanical movement or pressures into electrical signals.
Transformer	A device that changes electrical energy of a given voltage into electrical energy at a different voltage level. It consists of two coils that are not electrically connected, but arranged so that the magnetic field surrounding one coil cuts through the other coil.
Transformer	An electrical component used to change the voltage and current in an AC circuit.
Transformer Rectifier	A component in a large aircraft electrical system used to reduce the AC voltage and change it into DC for charging the battery and for operating DC equipment in the aircraft.
Transformer-rectifier Unit	TR unit. A TR unit reduces the voltage of AC and changes it into DC.
Transistor	A three-terminal device primarily used to amplify signals and control current within a circuit.
Transition Liner	The portion of the combustor that directs the gases into the turbine plenum.
Translational Lift	The additional lift produced by a helicopter rotor as the helicopter changes from hovering to forward flight.
Transonic Flight	Flight at an airspeed in which some air flowing over the aircraft is moving at a speed below the speed of sound, and other air is moving at a speed greater than the speed of sound.
Transonic Range	Flight at Mach numbers between 0.8 and 1.2. In this range, some air passing over the aircraft is subsonic, and some is supersonic.
Transverse Pitch (rivet)	The distance between rows of rivets in a multirow seam. Gauge is also called transverse pitch.
Trapezoid	A four-sided figure with one pair of parallel sides.
Trend Monitoring	A system for comparing engine performance parameters with a baseline of these same parameters established when the engine was new or newly overhauled. Parameters such as EGT, rpm, fuel flow, and oil consumption are monitored on every flight, and the baseline is plotted. Any deviation from a normal increase or decrease warns the technician of an impending problem.
Triangle	A three-sided figure in which the sum of the three angles equal 180°.
Tricresyl Phosphate	TCP. A colorless, combustible compound, $(CH_3C_6H_4O)_3PO$, that is used as a plasticizer in aircraft dope and an additive in gasoline and lubricating oil. TCP aids in scavenging lead deposits left in the cylinders when leaded fuel is burned.
Tricycle Gear	Landing gear employing a third wheel located on the nose of the aircraft.
Trigonometry	The study of the relationships between the angles and sides of a triangle.
Trim Tab	A small control tab mounted on the trailing edge of a movable control surface. The tab may be adjusted to provide an aerodynamic force to hold the surface on which it is mounted deflected in order to trim the airplane for handsoff flight at a specified airspeed.

Trimmed Flight	A flight condition in which the aerodynamic forces acting on the control surfaces are balanced and the aircraft is able to fly straight and level with no control input.
Trip-free Circuit Breaker	A circuit breaker that opens a circuit any time an excessive amount of current flows, regardless of the position of the circuit breaker's operating handle.
Troubleshooting	A procedure used in aircraft maintenance in which the operation of a malfunctioning system is analyzed to find the reason for the malfunction and to find a method for returning the system to its condition of normal operation.
True Airspeed	TAS. Airspeed shown on the airspeed indicator (indicated airspeed) corrected for position error and nonstandard air temperature and pressure.
True Power	The power dissipated in the resistance of a circuit, or the power actually used in the circuit.
Trunnion	Projections from the cylinder of a retractable landing gear strut about which the strut pivots retract.
Truss-type Structure	A type of structure made up of longitudinal beams and cross braces. Compression loads between the main beams are carried by rigid cross braces. Tension loads are carried by stays, or wires, that go from one main beam to the other and cross between the cross braces.
TSFC	Thrust Specific Fuel Consumption. A measure of efficiency of a turbojet or turbofan engine. It is a measure of the number of pounds of fuel burned per hour for each pound of thrust produced.
T-tail	An aircraft with the horizontal stabilizer mounted on the top of the vertical stabilizer, forming a T.
Turbine	A wheel fitted with vanes, or buckets, radiating outward from its circumference. The reactive or aerodynamic force caused by the fluid flowing through the vanes is converted into mechanical power that spins the shaft on which the wheel is mounted.
Turbine Blades	The portion of the turbine assembly that absorbs the energy of the expanding gases and converts it into rotational energy.
Turbine Engine	See gas turbine engine.
Turbine Inlet Guide Vanes	A series of stator vanes immediately ahead of the first-stage turbine. The function of the inlet guide vanes is to divert the hot gases in the proper direction to enter the turbine, and to provide a series of convergent ducts which increase the velocity of the gases. Also called nozzle guide vanes and turbine nozzle.
Turbine Inlet Temperature	TIT. The temperature of the gases from the combustion section of a gas turbine engine as they enter the turbine inlet guide vanes or the first stage of the turbine.
Turbine Nozzle	A series of stator vanes immediately ahead of the first-stage turbine. The function of the inlet guide vanes is to divert the hot gases in the proper direction to enter the turbine, and to provide a series of convergent ducts which increase the velocity of the gases. Also called nozzle guide vanes and turbine inlet guide vanes.
Turbine Plenum	The portion of the combustor where the gases are collected to be evenly distributed to the turbine blades.
Turbine Rotors	The portion of the turbine assembly that mounts to the shaft and holds the turbine blades in place.
Turbocharger	An exhaust-driven air compressor used to increase the power of a reciprocating engine. A turbocharger uses a small radial inflow turbine in the exhaust system to drive a centrifugal-type air compressor on the turbine shaft. The compressed air is directed into the engine cylinders to increase power.

Turbo-compound Engine	A reciprocating engine that has power recovery turbines in its exhaust system. The power extracted from the exhaust by these turbines is directed into the engine crankshaft through a fluid coupling.
Turbofan Engine	A type of gas turbine engine that has a set of lengthened blades on the low-pressure compressor or low-pressure turbine. Air moved by these special blades bypasses the core engine and produces between 30% and 75% of the total thrust.
Turbojet Engine	A gas turbine engine that produces thrust by accelerating the air flowing through it. A minimum of energy is extracted by the turbine, with the majority used to produce an exhaust velocity much greater than the inlet velocity. The amount of thrust produced by the engine is determined by the amount the air is accelerated as it flows through the engine.
Turboprop Engine	A turbine engine in which several stages of turbines are used to extract as much energy as possible. The turbines drive reduction gears which in turn drive a propeller.
Turboshaft Engine	A turbine engine in which several stages of turbines are used to extract as much energy as possible. The turbines drive shafts which are used to drive helicopter rotors, generators, or pumps.
Turbosupercharger	A centrifugal air compressor driven by exhaust gases flowing through a turbine. The compressed air is used to increase the power produced by a reciprocating engine at altitude.
Turn and Slip Indicator	A rate gyroscopic flight instrument that gives the pilot an indication of the rate of rotation of the aircraft about its vertical axis. A ball in a curved glass tube shows the pilot the relationship between the centrifugal force and the force of gravity. This indicates whether or not the angle of bank is proper for the rate of turn. The turn and slip indicator shows the trim condition of the aircraft and serves as an emergency source of bank information in case the attitude gyro fails. Turn and slip indicators were formerly called needle and ball and turn and bank indicators.
Turnbuckle	A component in an aircraft control system used to adjust cable tension. A turnbuckle consists of a brass tubular barrel with right-hand threads in one end and left-hand in the other end. Control cable terminals screw into the two ends of the barrel, and turning the barrel pulls the terminals together, shortening the cable.
Twist Drill	A metal cutting tool turned in a drill press or handheld drill motor. A twist drill has a straight shank and spiraled flutes. The cutting edge is ground on the end of the spiraled flutes.
Twist Grip	The power control on the end of the collective control.
Twist Rope	A stripe of paint on flexible hose that runs the length of the hose. If this stripe spirals around the hose after it is installed, it indicates the hose was twisted when it was installed. Twist stripes are also called lay lines.
Two-spool Engine	An axial-flow turbine engine that has two compressors, each driven by its own stage or stages of turbines. Also called dual-spool turbine engine.
Two-stroke Cycle	A constant-volume cycle of energy transformation that completes its operating cycle in two strikes of the piston, one up and one down. When the piston moves up, fuel is pulled into the crankcase, and at the same time the fuel-air mixture inside the cylinder is compressed. When the piston is near the top of its stroke, a spark plug ignites the compressed fuel-air mixture, and the burning and expanding gases force the piston down. Near the bottom of the stroke, the piston uncovers an exhaust port and the burned gases leave the cylinder. When the piston moves further down, it uncovers the intake port, and a fresh charge of fuel and air are forced from the crankcase into the cylinder.

Two-terminal Spot-type Fire Detection System	A fire detection system that uses individual thermoswitches installed around the inside of the area to be protected. These thermoswitches are wired in parallel between two separate circuits. A short or an open circuit can exist in either circuit without causing a fire warning.
Type Certificate Data Sheet	TCDS. The FAA issues a type certificate when a new aircraft, engine, propeller, etc., is found to meet safety standards set forth by the FAA. The TCDS lists the specifications, conditions and limitations under which airworthiness requirements were met for the specified product, such as engine make and model, fuel type, engine limits, airspeed limits, maximum weight, minimum crew, etc.
U	
UDF Engine	Un-ducted Fan™ engine- The trade name registered by General Electric for a type of ultra-high-bypass turbofan engine that drives one or more wide-blade propellers that have between eight and twelve blades. These blades, which are not enclosed in a duct or shroud, are very thin, have wide chords, and are highly swept back in a scimitar shape that enables them to power airplanes flying in the speed range near Mach 0.8.
UHB Engine	Ultra-high-bypass engine - A turbine that drives a pair of ducted or un-ducted contrarotating propellers which have eight to 12 variable-pitch blades. These blades are very thin, have wide chords, and are swept back with a scimitar shape that allows them to power airplanes flying in the speed range of Mach 0.8. The blades are made of advanced composites for high strength and light weight. USH engines may be of either the tractor or pusher type, and have a bypass ratio in excess of 30:1.
UHF	Ultrahigh Frequency.
Ultimate Tensile Strength	The tensile strength required to cause a material to break or to continue to deform under a decreasing load.
Ultra-high-bypass Engine	UHB engine. A turbine that drives a pair of ducted or un-ducted contrarotating propellers which have eight to 12 variable-pitch blades. These blades are very thin, have wide chords, and are swept back with a scimitar shape that allows them to power airplanes flying in the speed range of Mach 0.8. The blades are made of advanced composites for high strength and light weight. USH engines may be of either the tractor or pusher type, and have a bypass ratio in excess of 30:1.
Ultrasonic Inspection	Uses high frequency sound energy to conduct examinations and make measurements. Ultrasonic inspection can be used for flaw detection/evaluation, dimensional measurements, and material characterization.
Ultraviolet-blocking Dope	Dope that contains aluminum powder or some other pigment that blocks the passage of ultraviolet rays of the sun. The coat of dope protects the organic fabrics and clear dope from deterioration by these rays.
Undamped Oscillation	Oscillation that continues with an unchanging amplitude once it has started.
Underslung	A rotor hub that rotates below the top of the mast, as on semirigid rotor systems.
Underslung Rotor	A helicopter rotor whose center of gravity is below the point at which it is attached to the mast.
Underspeed Condition	A speed condition in which the engine is turning at an RPM lower than that for which the propeller governor is set.
Un-ducted Fan™ Engine	UDF engine. The trade name registered by General Electric for a type of ultra-high-bypass turbofan engine that drives one or more wide-blade propellers that have between eight and twelve blades. These blades, which are not enclosed in a duct or shroud, are very thin, have wide chords, and are highly swept back in a scimitar shape that enables them to power airplanes flying in the speed range near Mach 0.8.

Unidirectional Fabric	Fabric in which all the threads run in the same direction. These threads are often bound with a few fibers run at right angles, just enough to hold the yarns together and prevent their bunching.
Unidirectional Fibers	Fibers in a piece of composite material arranged so that they sustain loads in only one direction.
Unloading Valve	This is another name for system pressure regulator. See system pressure regulator.
Updraft Carburetor	A carburetor that mounts on the bottom of a reciprocating engine. Air entering the engine flows upward through the carburetor.
Upper-deck Pressure	The absolute pressure of air at the inlet to the fuel metering system of a turbocharged engine. Upper-deck pressure is the same as the turbocharger discharge pressure.
Useful Load	Fuel, any other fluids that are not part of empty weight, passengers, baggage, pilot, copilot, and crewmembers. It is determined by subtracting the empty weight from the maximum allowable gross weight.
Utility Finish	The finish of an aircraft that gives the necessary tautness and fill to the fabric and the necessary protection to the metal, but does not have the glossy appearance of a show-type finish.
V	
Valence Electrons	Electrons in the outer shell, or ring, around the nucleus of an atom. It is the valence electrons that give an atom its electrical characteristics and are the electrons that may be pulled loose from an atom to cause electrical current.
Valve Overlap	The portion of the operating cycle of a fourstroke-cycle reciprocating engine during which both the intake and exhaust valves are off of their seats at the same time.
Vapor Lock	A condition of fuel starvation that can occur in a reciprocating engine fuel system. If the fuel in the line between the tank and carburetor is heated enough for the fuel to vaporize, a bubble will form in the line. If the vapor pressure of the bubble is high enough, it will block the fuel and keep it from flowing to the engine.
Vapor Pressure	The portion of atmospheric pressure that is exerted by the moisture in the air, expressed in tenths of an inch of mercury.
Vapor Pressure	The amount of pressure needed above a liquid to prevent it from evaporating.
Vaporize	The changing of a liquid into a vapor.
Variable Displacement Pump	A fluid pump whose output is controlled by the demands of the system. These pumps normally have a built-in system pressure regulator. When the demands of the system are low, the pump moves very little fluid, but when the demands are high, the pump moves a lot of fluid. Most variable displacement pumps used in aircraft hydraulic systems are piston-type pumps.
Varnish	Aircraft finishing material. A material used to produce an attractive and protective coating on wood or metal. Varnish is made of a resin dissolved in a solvent and thinned until it has the proper viscosity to spray or brush. The varnish is spread evenly over the surface to be coated, and when the solvents evaporate, a tough film is left.
Varsol	A petroleum product similar to naphtha used as a solvent and cleaning fluid.
V-blocks	A fixture that allows a shaft to be centered and rotated to measure any out-of-round condition.
Vectored-thrust Engine	A turbojet or turbofan engine with the fan and/or exhaust nozzles mounted in such a way that they may be rotated in flight to produce forward, vertically upward, or rearward thrust.

Vectoring in Forward Flight	VIFF. A method of enhancing the maneuverability of an airplane by vectoring the exhaust gases and/or fan-discharge air to produce thrust components not parallel to the longitudinal axis of the aircraft.
Velocity	A vector quantity that expresses both the speed an object is moving and the direction in which it is moving.
Velocity Turbine	A turbine driven by forces produced by the velocity, rather than the pressure, of gases flowing through the vanes.
V-engine	A form of reciprocating engine in which the cylinders are arranged in two banks. The banks are separated by an angle of between 45˚ and 90˚. Pistons in two cylinders, one in each bank, are connected to each throw of the crankshaft.
Veneer	Thin sheets of wood peeled from a log. A wideblade knife held against the surface of the log peels away the veneer as the log is rotated in the cutter. Veneer is used for making plywood. Several sheets of veneer are glued together, with the grain of each sheet placed at 45° or 90° to the grain of the sheets next to it.
Venture	A specially shaped restrictor in a tube designed to speed up the flow of fluid passing through it. According to Bernoulli's principal, any time the flow of fluid speeds up without losing or gaining any energy from the outside, the pressure of the fluid decreases.
Vernier Coupling	A timing coupling used with base mounted magnetos. The vernier coupling allows the timing to be adjusted in increments of considerably less than one degree.
Vertical Axis	An imaginary line, passing vertically through the center of gravity of an airplane.
Vertical Fin	The fixed vertical surface in the empennage of an airplane. The vertical fin acts as a weathervane to give the airplane directional stability.
Vertical Tape Instrument	A tall rectangular instrument that displays the quantity of the parameter being measured by a movable strip of colored tape. The presentation resembles a vertical bar graph.
Vertical Vibration	A vibration in which the movement is up and down, or vertical, as in an out-of-track condition.
VFR	Visual Flight Rules.
VHF	Very High Frequency
VI	Viscosity Index. A measure of change in viscosity of an oil as it changes temperature. The higher the viscosity index, the less the viscosity changes.
Vibration Loop	A loop in a rigid fluid line used to prevent vibration from concentrating stresses that could cause the line to break.
Vibrator-type Voltage Regulator	A type of voltage regulator used with a generator or alternator that intermittently places a resistance in the field circuit to control the voltage. A set of vibrating contacts puts the resistor in the circuit and takes it out several times a second.
VIFF	Vectoring in forward flight. A method of enhancing the maneuverability of an airplane by vectoring the exhaust gases and/or fan-discharge air to produce thrust components not parallel to the longitudinal axis of the aircraft.
Viscosimeter	An instrument used to measure the viscosity of a liquid. The time required for a given volume of liquid at a specified temperature to flow through a calibrated orifice is used to indicate the viscosity of the liquid.
Viscosity	The resistance of a fluid to flow. Viscosity is the stiffness of the fluid, or its internal friction.
Viscosity Cup	A specially shaped cup with an accurately sized hole in its bottom. The cup is submerged in the liquid to completely fill it. It is then lifted from the liquid and the time in seconds is measured from the beginning of the flow through the hole until the first break in this flow. The viscosity of the liquid relates to this time.

Viscosity Index	VI. A measure of change in viscosity of an oil as it changes temperature. The higher the viscosity index, the less the viscosity changes.
Viscosity Index Improver	An additive used to produce a multi-viscosity lubricating oil. The polymer additive expands as temperature increases and contracts as temperature decreases. VI improvers cause viscosity to increase as oil heats and decrease as it cools.
Vixen File	A metal-cutting hand file that has curved teeth across its faces. Vixen files are used to remove large amounts of soft metal.
Volatile Liquid	A liquid that easily changes into a vapor.
Volatile Memory	Computer memory that is lost when the power to the computer is turned off.
Volatility	The characteristic of a liquid that relates to its ability to vaporize or change into a gas.
Volt	The basic unit of electrical potential or electromotive force. A potential of one volt appears across a resistance of one ohm when a current of one ampere flows through that resistance.
Voltmeter	A current-measuring instrument, designed to indicate voltage by measuring the current flow through a resistance of known value.
Voltmeter Multiplier	A precision resistor in series with a voltmeter mechanism used to extend the range of the basic meter or to allow a single meter to measure several ranges of voltage.
Volume	The amount of space within a three-dimensional solid.
Volumetric Efficiency	The ratio of the volume of the charge of the fuel and air inside the cylinder of a reciprocating engine to the total physical volume of the cylinder.
Von Ohain, Dr. Hans Pabst	The designer and developer of the first turbojet engine to power an airplane. His HeS3b engine was built in Germany by the Heinkel Company and it flew in a Heinkel He178 airplane on August 27, 1939.
VOR	Very high frequency Omni Range navigation.
Vortex	A whirling mass of air that sucks everything near it toward its center.
Vortex Dissipater	A high-velocity stream of compressor bleed air blown from a nozzle into an area where vortices are likely to form. Vortex dissipaters destroy the vortices that would otherwise suck debris from the ground into engines mounted in pods that are low to the ground.
W	
Wake	The high-velocity stream of turbulent air behind an operating aircraft engine.
Wankel Engine	A form of internal combustion engine in which a rounded, triangular-shaped rotor with sliding seals at the apexes forms the combustion space inside an hourglass-shaped chamber. Expanding gases from the burning fuel-air mixture push the rotor around and turn a geared drive shaft in its center. The RC engine was conceived in Germany by Felix Wankel in 1955. Also called a rotating combustion (RC) engine.
Waste Gate	A controllable butterfly valve in the exhaust pipe of a reciprocating engine equipped with an exhaust-driven turbocharger. When the waste gate is open, exhaust gases leave the engine through the exhaust pipe, and when it is closed, they leave through the turbine.
Waterline	WL. A horizontal reference plane used to locate vertical positions on an aircraft. Positions are usually given in inches above or below the waterline.

Watt	The basic unit of power in the metric system. One watt is the amount of power needed to do one joule (0.7376 footpound of work) in one second. One watt is 1⁄746 horsepower.
Weighing Points	Locations on an aircraft that the manufacturer designates for the placement of scales when weighing aircraft.
Weight	A measure of the pull of gravity acting on the mass of an object.
Wet-sump Engine	An engine that carries its lubricating oil supply in a reservoir that is part of the engine itself.
Wet-sump Lubrication System	A lubrication system in which the oil supply is carried within the engine itself. Return oil drains into the oil reservoir by gravity.
Whittle, Sir Frank	The British Royal Air Force flying officer who in 1929 filed a patent application for a turbojet engine. Whittle's engine first flew in a Gloster E.28 on May 15, 1941. The first jet flight in America was made on October 2, 1942, in a Bell XP-59A that was powered by two Whittletype General Electric I-A engines.
Whole Numbers	The numbers: 0, 1, 2, 3, 4, 5, and so on.
Windmilling Propeller	A propeller that is rotated by air flowing over the blades rather than powered by the engine. work. The product of a force times the distance the force is moved.
Wing	Airfoil attached to each side of the fuselage and are the main lifting surfaces that support the airplane in flight.
Wing Area	The total surface of the wing (square feet), which includes control surfaces and may include wing area covered by the fuselage (main body of the airplane), and engine nacelles.
Wing Span	The maximum distance from wingtip to wingtip.
Wiring Diagrams	A diagram that shows the electrical wiring and circuitry, coded for identification, of all the electrical appliances and devices used on aircraft.
WL	Waterline. A horizontal reference plane used to locate vertical positions on an aircraft. Positions are usually given in inches above or below the waterline.
Work	The amount of energy transferred by a force.
Worm Gear	A helical gear mounted on a shaft. The worm meshes with a spur gear whose teeth are cut at an angle to its face. A worm gear is an irreversible mechanism. The rotation of the shaft, on which the worm gear locks the spur gear so its shaft cannot be rotated.
Wrist Pin	The hardened steel pin that attaches a piston to the small end of a connecting rod. Also called piston pin.
X	
Xc	Capacitive reactance. The measure of a capacitor's opposition to alternating current.
Y	
Yaw	Rotation of an aircraft about its vertical axis.
Z	
Zero Fuel Weight	The weight of an aircraft without fuel.
Zero-lash Valve Lifter	A hydraulic valve lifter that maintains zero clearance in the valve actuating mechanism.
Zone Numbers	On drawings, these are similar to the numbers and letters printed on the borders of a map, used for locating a particular point in the drawing.

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