APPENDIX 1. GLOSSARY

The following words and terms represent some of those that are often encountered in the field of aviation. For a more complete list of definitions, a mechanic or technician should consult an aviation dictionary.

abrasion resistant PTFE—a solid insulation wall of PTFE with hard, nonconductive grit positioned midway in the wall thickness, and significantly improves the resistance of the PTFE material to damage from wear.

acetylene—gas composed of two parts of carbon and two parts of hydrogen. When burned in the atmosphere of oxygen, it produces one of the highest flame temperatures obtainable.

acetylene regulator—manually adjustable device used to reduce cylinder pressure to torch pressure and to keep the pressure constant. They are never to be used as oxygen regulators.

adherend—one of the members being bonded together by adhesive.

Airworthiness Directive—a regulation issued by the FAA that applies to aircraft, aircraft engines, propellers, or appliances, when an unsafe condition exists and that condition is likely to exist or develop in other products of the same type design.

airworthy—is when an aircraft or one of its component parts meets its type design and is in a condition for safe operation.

ambient light—the visible light level measured at the surface of the part.

ampere (A)—the basic unit of current flow. One A is the amount of current that flows when a difference of potential of 1 V is applied to a circuit with a resistance of 1 Ω. One coulomb per second.

antenna—a device designed to radiate or intercept electromagnetic waves.

anti-tear strips—strips of fabric of the same material as the airplane is covered with, laid over the wing rib under the reinforcing tape.

apparent power—the product of volts and amperes in AC circuits where the current and voltage are out of phase.

appliance—any instrument, mechanism, equipment, part, apparatus, appurtenance, or accessory, including communications equipment, that is used or intended to be used in operating or controlling an aircraft in flight, is installed in or attached to the aircraft, and is not part of an airframe, engine or propeller.

arm—a measurement of distance, in inches, feet, etc., used in weight and balance calculations. Normally only the longitudinal arm is of practical importance. The three axial arms are longitudinal arm, lateral arm, and vertical arm.

automatic direction finder (ADF)—a radio receiver utilizing a directional loop antenna that enables the receiver to indicate the direction from which a radio signal is being received; also called a radio compass.

automatic flight control system (AFCS)—a flight control system incorporating an automatic pilot with additional systems such as a VOR coupler, an ILS approach coupler, and an internal navigation system that is fully automatic, so the aircraft can be flown in a completely automatic mode.

avionics—the science and technology of electronics as applied to aviation.

azimuth—angular distance measured on a horizontal circle in a clockwise direction from either north or south.

balance—the condition of stability which exists in an aircraft when all weight and forces are acting in such a way as to prevent rotation about an axis or pivot point.

base metal—the metal to be welded, brazed, soldered, or cut.

black light—electromagnetic radiation in the near ultraviolet range of wavelength.

blade station—is a reference position on a blade that is a specified distance from the center of the hub.

bond—the adhesion of one surface to another, with or without the use of an adhesive as a bonding agent.

bonding—a general term applied to the process of electrically connecting two or more conductive objects. In aircraft, the purpose of bonding (except as applied to individual connections in the wiring and grounding systems) is to provide conductive paths for electric currents. This is accomplished by providing suitable low-impedance connections joining conductive aircraft components and the aircraft structure. Another purpose of bonding is to ensure the safe passage of current caused by lightning or static electricity through the aircraft structure.

borescope—a long, tubular optical instrument designed for remote visual inspection of surfaces.

brashness—a condition of wood characterized by low resistance to shock and by an abrupt failure across the grain without splintering.

braze welding—a welding process variation in which a filler metal, having a liquidus above 450 °C (840 °F) and below the solidus of the base metal is used. Unlike brazing, in braze welding the filler metal is not distributed in the joint by capillary action.

brazing—the joining of two pieces of metal by wetting their surface with molten alloy of copper, zinc, or tin.

bus or bus bar—solid copper strips to carry current between primary and secondary circuits; also used as jumpers.

butt joint—a joint between two members aligned approximately in the same plane.

butyrate dope—a finish for aircraft fabric consisting of a film base of cellulose fibers dissolved in solvents with the necessary plasticizers, solvent, and thinners.

cable—(electrical)—assembly of one or more conductors within an enveloping protective sheath so constructed as to permit use of conductors separately or in a group.

calibration—a set of operations, performed in accordance with a definite document procedure, which compares the measurements performed by an instrument or standard, for the purpose of detecting and reporting, or eliminating by adjustment, errors in the instrument tested.

center of gravity—that point about which the aircraft would balance if suspended. For field weight and balance purposes/control, the center of gravity is normally calculated only along its longitudinal axis (nose to tail), disregarding both the lateral and vertical location.

certification—implies that a certificate is in existence which certifies or states a qualification.

check—a lengthwise separation of the wood, the greater part of which occurs across the rings of annual growth.

chemical conversion coating (Specification MIL-C-81706)—is a chemical surface treatment used on aluminum alloys to inhibit corrosion and to provide a proper surface for paint finishing.

chord—an imaginary straight line joining the leading and trailing edges of an airfoil.

circuit—a closed path or mesh of closed paths usually including a source of EMF.

circuit breaker—a protective device for opening a circuit automatically when excessive current is flowing through it.

close-grained wood—wood with narrow and inconspicuous annual rings. The term is sometimes used to designate wood having small and closely-spaced pores, but in this sense the term “fine-textured” is more often used.

coil shot—production of longitudinal magnetization accomplished by passing current through a coil encircling the part being inspected.

compass—a device used to determine direction on the Earth’s surface. A magnetic compass utilizes the Earth’s magnetic field to establish direction.

compression wood—identified by its relatively wide annual rings, usually eccentric, and its relatively large amount of summer wood, usually more than 50 percent of the width of the annual rings in which it occurs. Compression wood shrinks excessively lengthwise as compared with normal wood.

conductor—a wire or other material suitable for conducting electricity.

conduit—a rigid metallic or nonmetallic casing, or a flexible metallic casing covered with a woven braid or synthetic rubber used to encase electrical cables.

contact—electrical connectors in a switch, solenoid or relay that controls the flow of current.

control panel—an upright panel, open or closed, where switches, rheostats, meters, etc., are installed for the control and protection of electrical machinery.

corrosion—the electrochemical deterioration of a metal resulting from chemical reaction to the surrounding environment.

crack—is a partial separation of material caused by vibration, overloading, internal stresses, nicks, defective assemblies, fatigue, or rapid changes in temperature.

creepage—is the conducting of electrical current along a surface between two points at different potentials. The current's ability to pass between two points increases with higher voltage and when deposits of moisture or other conductive materials exist on the surfaces.

cross grain—grain not parallel with the axis of a piece. It may be either diagonal or spiral grain or a combination of the two.

cross coat—a double coat of dope or paint. It is sprayed on in one direction, and then immediately after the solvent flash-off, it is sprayed at right angles to the first coat.

cure—to change the properties of a thermosetting resin irreversibly by vulcanization or chemical reaction. May be accomplished by the addition of curing (cross-linking) agents, with or without a catalyst, and with or without heat or pressure.

curing temperature—temperature to which a resin or an assembly is subjected in order to cure the resin.

cutting torch—a device used in gas cutting of metals.

damping—limiting the duration of vibration by either electrical or mechanical means.

data—information that supports and/or describes the original aircraft design, alteration or repair including the following: (1) drawings, sketches, and or photographs; (2) engineering analysis; (3) engineering orders; and (4) operating limitations.

datum—imaginary vertical plane from which all horizontal measurements are made or indicated when the aircraft is in level flight attitude.

derating—is a technique whereby a part is stressed in actual usage at values well below the manufacturer's rating for the part. By decreasing mechanical, thermal, and electrical stresses, the probability of degradation or catastrophic failure is lessened.

direct current electrode negative—the arrangement of direct current arc welding leads in which the work is the positive pole and the electrode is the negative pole of the welding arc.

direct current electrode positive—the arrangement of direct current arc welding leads in which the work is the negative pole and the electrode is the positive pole of the welding arc.

discontinuity—an interruption in the normal physical structure or configuration of a part, such as a crack, lap, seam, inclusion, or porosity.

distal tip—the tip, lens end, of a borescope.

dope—liquid applied to fabric to tauten it by shrinking, strengthen it, and render it airtight by acting as a filler.

Dope-proofing—protecting a surface from the chemicals and chafing qualities of dope and doped fabrics.

drape—the ability of tape and broad goods to conform to a contoured shape.

drip loop—a bundle installation method used to prevent water or other fluid contaminants from running down the wiring into a connector.

dry rot—a term loosely applied to many types of wood decay but especially to that which, when in an advanced stage, permits the wood to be easily crushed to a dry powder. The term is actually a misnomer for any decay, since all fungi require considerable moisture for growth.

dwell time—the total time that a penetrant, emulsifier (or remover), or developer remains on the surface of the test part.

dye penetrant inspection—an inspection method for surface cracks in which a penetrating dye is allowed to enter any cracks present and is pulled out of the crack by an absorbent developer. A crack appears as a line on the surface of the developer.

edge grain—edge-grain lumber has been sawed parallel with the pith of the log and approximately at right angles to the growth rings; that is, the rings form an angle of 45 degrees or more with the surface of the piece.

electricity—one of the fundamental quantities in nature consisting of elementary particles, electrons and protons, which are manifested as a force of attraction or repulsion, and also in work that can be performed when electrons are caused to move; a material agency which, when in motion, exhibits magnetic, chemical, and thermal effects, and when at rest is accompanied by an interplay of forces between associated localities in which it is present.

electromagnet—temporary magnet which is magnetized by sending current through a coil of wire wound around an iron core.

Electromagnetic/Radio Frequency Interference (EMI/RFI)—frequency spectrum of electromagnetic radiation extending from subsonic frequency to X-rays. This term should not be used in place of the term Radio Frequency Interference (RFI). (See radio frequency interference.) Shielding materials for the entire EMI spectrum are not readily available.

electromotive force (EMF)—difference of electrical potential measured in volts.

electron—a negative charge that revolves around the nucleus of an atom; a unit of a negative electrical charge.

electronics—general term that describes the branch of electrical science and technology that treats the behavior and effects of electron emission and transmission.

electron Volt (eV)—a unit of energy equal to the energy aquired by an electron falling though potential differences of one volt, approximately 1.602X 10-19 joule.

emulsion-type cleaner—a chemical cleaner which mixes with water or petroleum solvent to form an emulsion (a mixture which will separate if allowed to stand). It is used to loosen dirt, soot, or oxide films from the surface of an aircraft.

epoxy—one of various usually thermosetting resins capable of forming tight cross-linked polymer structures marked by toughness, strong adhesion, high corrosion, and chemical resistance, used especially in adhesives and surface coating.

epoxy primer—a two-part catalyzed material used to provide a good bond between a surface and a surface coating.

epoxy resin—a common thermosetting resin which exhibits exceptionally good adhesion, low cure shrinkage, and low water-absorption properties.

erosion—loss of metal from metal surfaces by the action of small particles such as sand or water.

ETFE—(Frequently referred to by the trade name, *TEFZEL*) a copolymer of PTFE and polyethylene.

exciter—small generator for supplying direct current to the alternator's field windings.

exfoliation corrosion—a form of intergranular corrosion that attacks extruded metals along their layer-like grain structure.

expandable sleeving—open-weave braided sleeving used to protect wire and cables from abrasion and other hazards (commonly known by trade name *EXPANDO*).

FEP—fluorinated ethylene propylene (commonly known by the trade name, *TEFLON*). A melt extrudable fluorocarbon resin, very similar in appearance and performance to PTFE, but with a maximum temperature rating of 200 °C.

ferrous metal—iron, or any alloy containing iron.

fiberglass—the most common material used to reinforce structures in home-built and experimental aircraft. Available as mat, roving, fabric, etc. It is incorporated into both thermoset and thermoplastic resins. The glass fibers increase mechanical strength, impact resistance, stiffness, and dimensional stability of the matrix.

fill—threads in a fabric that run crosswise of the woven material.

filiform corrosion—a thread, or filament-like corrosion which forms on aluminum skins beneath the finish.

finish—external coating or covering of an aircraft or part.

flat grain—lumber has been sawed parallel with the pith of the log and approximately tangent to the growth rings; that is, the rings form an angle of less than 45 degrees with the surface of the piece.

fluorescent—a substance is said to be fluorescent when it will glow or fluoresce when excited by ultraviolet light. Some types of dye-penetrant material use fluorescent dyes which are pulled from the cracks by a developer and observed under "black" ultraviolet light.

flux—materials used to prevent, dissolve, or facilitate removal of oxides and other undesirable surface substances. Also, the name for magnetic fields.

fretting corrosion—corrosion damage between close-fitting parts which are allowed to rub together. The rubbing prevents the formation of protective oxide films and allows the metals to corrode.

fuse—a protective device containing a special wire that melts when current exceeds the rated value for a definite period.

functional check—this test may require the use of appropriate test equipment.

galvanic corrosion—corrosion due to the presence of dissimilar metals in contact with each other.

gas cylinder—a portable container used for transportation and storage of a compressed gas.

gas tungsten arc welding—(GTAW) an arc welding process which produces coalescence of metals by heating them with an arc between a tungsten (nonconsumable) electrode and the work. Shielding is obtained from a gas or gas mixture. Pressure may or may not be used and filler metal may or may not be used.

generator—a device for converting mechanical energy into electrical energy.

global positioning system (GPS)—a navigation system that employs satellite transmitted signals to determine the aircraft's location.

grain—the direction, size, arrangement, appearance, or quality of the fibers in wood or metal.

grain - diagonal—annual rings in wood at an angle with the axis of a piece as a result of sawing at an angle with the bark of the tree.

grommet—an insulating washer that protects the sides of holes through which wires must pass/or a metal or plastic drain attached to fabric on aircraft.

gross weight —the total weight of the aircraft including its contents.

grounding—the term is usually applied to a particular form of bonding that is the process of electrically connecting conductive objects to either conductive structure or some other conductive return path for the purpose of safely completing either a normal or fault circuit.

harness—a cable harness is a group of cables or wires securely tied as a unit.

honeycomb—manufactured product consisting of a resin-impregnated sheet or metal material which has been corrugated or expanded into hexagon-shaped and other structural-shaped cells. Primarily used as core material for sandwich constructions.

inductance (L)—the ability of a coil or conductor to oppose a change in current flow.

insulator—a material that will not conduct current to an appreciable degree.

integrated circuit—small, complete circuit built up by vacuum deposition and other techniques, usually on a silicon chip, and mounted in a suitable package.

intergranular corrosion—the formation of corrosion along the grain boundaries within a metal alloy.

interlocked-grained wood—wood in which the fibers are inclined in one direction in a number of rings of annual growth, then gradually reverse and are inclined in an opposite direction in succeeding growth rings, then reverse again.

inverter—a device for converting direct current to alternating current.

laminate—a product obtained by bonding two or more laminae of the same material or of different materials.

laminated wood—a piece of wood built up of plies or laminations that have been joined either with glue or with mechanical fastenings. The term is most frequently applied where the plies are too thick to be classified as veneer and when the grain of all plies is parallel.

leakage field—the magnetic field forced out into the air by the distortion of the field within a part, caused by the presence of a discontinuity or change in section configuration.

linter—the short fiber left on the cotton seed after ginning.

localizer—that section of an ILS that produces the directional reference beam.

LORAN (Long-Range Navigation)—a radio navigation system utilizing master and slave stations transmitting timed pulses. The time difference in reception of pulses from several stations establishes a hyperbolic line of position that may be identified on a LORAN chart. By utilizing signals from two pairs of stations, a fix in position is obtained.

magnetic field—the space around a source of magnetic flux in which the effects of magnetism can be determined.

marker beacon—a radio navigation aid used in an instrument approach to identify distance to the runway. As the aircraft crosses over the marker-beacon transmitter, the pilot receives an accurate indication of the airplane's distance from the runway through the medium of a flashing light and an aural signal.

master switch—a switch designed to control all electric power to all circuits in a system.

moisture content of wood—weight of the water contained in the wood usually expressed in percentage of the weight of the kiln-dry wood.

multiconductor cable—consists of two or more cables or wires, all of which are encased in an outer covering composed of synthetic rubber, fabric, or other material.

nick—a sharp notch-like displacement of metal surface.

nomex braid—*NOMEX* is the trade name for a high-temperature polyamide thread that is braided over the larger sizes (# 8 gage and larger) of many of the military specification wires. It can be encountered in either an off-white or black/green color.

normalizing—reforming of the grain structure of a metal or alloy by proper heat treatment to relieve internal stresses.

open circuit—an incomplete or broken electrical circuit.

open-grained wood—common classification of painters for woods with large pores, such as oak, ash, chestnut, and walnut. Also known as "coarse-textured."

operational check—this is an operational test to determine whether a system or component is functioning properly in all aspects in conformance with minimum acceptable manufacture design specifications.

optical fiber—any filament or fiber made of dielectric materials that guides light whether or not it is used to transmit signals.

rifice—opening through which gas or air flows. It is usually the final opening controlled by a valve.

oxidizing—combining oxygen with any other substance. For example, a metal is oxidized when the metal is burned, i.e., oxygen is combined with all the metal or parts of it

oxidizing flame—an oxy-fuel gas flame having an oxidizing effect due to excess oxygen.

oxygen cutting—cutting metal using the oxygen jet which is added to an oxygen-acetylene flame.

oxygen regulator—manually-adjustable device used to reduce cylinder pressure to torch pressure and to keep the pressure constant. They are never to be used as fuel gas regulators.

peel ply—a layer of resin-free material used to protect a laminate for later secondary bonding (sometimes referred to as a release film).

pickling—the treatment of a metal surface by an acid to remove surface corrosion.

pitch—is the distance, in inches, that a propeller section will move forward in one revolution, or the distance a nut will advance in one revolution of the screw in a single thread.

pitch distribution—is the gradual twist in the propeller blade from shank to tip.

pitted—small irregular shaped cavities in the surface of the parent material usually caused by corrosion, chipping, or heavy electrical discharge.

pitting—the formation of pockets of corrosion products on the surface of a metal.

plastic—an organic substance of large molecular weight which is solid in its finished state and, at some stage during its manufacture or its processing into a finished article, can be shaped by flow.

polyester braid—a plastic braiding thread, when used as the outer surface of a wire, provides a cloth-like appearance.

polyimide tape—a plastic film (commonly referred to by the trade name, *KAPTON*). The tape has a dark brown color, and is frequently coated with a polyimide varnish that has a very distinct mustard yellow color. At times, the spiral edge of the outermost tape is apparent under the varnish topcoat. It may be used for wire insulation. Total polyimide tape insulated wire constructions are inactive for new design on military aircraft and are subject to the procedures defined in FAA Advisory Circular AC 29-2A Change 2 Paragraph 29.1359 in Civil Aircraft.

polyimide varnish—a liquid form of polyimide that is applied to the outer surface of a wire through the process of repeated dipping through the varnish bath with subsequent heat curing. The successive layers rarely reach a total buildup of 1 mil.

polymerization—basic processes for making large (high-polymer) molecules from small ones, normally without chemical change; can be by addition, condensation, rearrangement, or other methods.

porosity—cavity-type discontinuities in metal formed by gas entrapment during solidification.

prepreg—a mat, a fabric, or covering impregnated with resin that is ready for lay up and curing.

propeller—is a rotating airfoil that consists of two or more blades attached to a central hub which is mounted on the engine crankshaft.

protractor—is a device for measuring angles.

PTFE Tape (Insulation)—polytetrafluoroethylene tape (commonly known by the trade name, *TEFLON*), wrapped around a conductor and then centered with heat, fusing the layers into a virtually homogeneous mass. It is used both as a primary insulation against the conductor, and as an outer layer or jacket over a shield. Maximum temperature rating is 260 °C.

PVF_2 Polyvinylidine Fluoride—a fluorocarbon plastic, that when used in aircraft wire, is invariably radiation cross-linked and employed as the outer layer.

radar (radio detecting and ranging)—radio equipment that utilizes reflected pulse signals to locate and determine the distance to any reflecting object within its range.

radome—a nonmetallic cover used to protect the antenna assembly of a radar system.

rectifier—a device for converting alternating current to direct current.

reinforcing tape—a narrow woven cotton or polyester tape used over aircraft fabric to reinforce it at the stitching attachments.

relay—an electrically-operated remote-control switch.

resin—vast profusion of natural and increasingly, synthetic materials used as adhesives, fillers, binders and for insulation.

resistance—the opposition a device or material offers to the flow or current.

resonance method (ringing) of ultrasonic inspection—a method of detecting material thickness or indications of internal damage by injecting variable frequency ultrasonic energy into a material. A specific frequency of energy will produce the clearest indication of damage in a given thickness of material. When the equipment is calibrated for a specific thickness, and this thickness changes, an aural or visual alert is given.

resonant frequency—the frequency of a source of vibration that is exactly the same as the natural vibration frequency of the structure.

resonate—a mechanical system is said to resonate when its natural vibration frequency is exactly the same as the frequency of the force applied. When an object resonates at a particular frequency, the amplitude in its vibration will increase immensely as that frequency is reached and will be less on either side of that frequency.

rib—part of primary structure, whose purpose is to maintain profile of airfoil and support fabric or thin wood covering.

sacrificial corrosion—a method of corrosion protection in which a surface is plated with a metal less noble than itself. Any corrosion will attack the plating rather than the base metal.

sandwich construction—a structural panel concept consisting in its simplest form of two relatively thin, parallel sheets (face sheets) of structural material bonded to and separated by a relatively thick, lightweight core. High strength-to-weight ratios are obtained with sandwiched materials.

scarf joint—a joint made by cutting away similar angular segments of two adherents and bonding the adherents with cut areas fitted together.

score—a surface tear or break on a surface that has a depth and length ranging between a scratch and a gouge.

scratch—a superficial small cut on a surface.

semiconductor device—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.

severe wind and moisture problem (SWAMP) areas—areas such as wheel wells, wing folds, and near wing flaps, and areas directly exposed to extended weather conditions are considered SWAMP areas on aircraft.

silicone rubber—a high temperature (200 °C) plastic insulation that has a substantial silicone content.

soldering—a group of welding processes that produces coalescence of materials by heating them to the soldering temperature and by using a filler metal having a liquidus not exceeding 450 °C (840 °F) and below the solidus of the base metals. The filler metal is distributed between the closely-fitted surfaces of the joint by capillary action.

solenoid—a tubular coil for the production of a magnetic field; electromagnet with a core which is able to move in and out.

spar—main spanwise structural member(s) of an aircraft wing or rotorcraft rotor. A wing may have one or two made into a single strong box to which secondary leading and trailing structures are added.

spiral grain—a type of growth in wood which the fibers take a spiral course about the bole of a tree instead of the normal vertical course. The spiral may extend right-handed or left-handed around the tree trunk.

stator—the part of an AC generator or motor which contains the stationary winding.

stress corrosion—corrosion of the intergranular type that forms within metals subject to tensile stresses which tend to separate the grain boundaries.

surface tape—pinked-edge strips of fabric doped over all seams, rib stitching, and edges of fabric covering (also called finishing tape).

switch—a device for opening or closing an electrical circuit.

tape—a tape or a “narrow fabric” is loosely defined as a material that ranges in width from 1/4 inch to 12 inches.

TCAS—traffic alert and collision avoidance system. An airborne system that interrogates mode A, C, and S transponders in nearby aircraft and uses the replies to identify and display potential and predicted collision threats.

thermocouple—device to convert heat energy into electrical energy.

thermoplastic material—a material that can be repeatedly softened by an increase in the temperature and hardened by a decrease in the temperature with no accompanying chemical change. For example, a puddle of tar on the road in the summer during the heat of day: the tar is soft and fluid; however, when cooler in the evening, it becomes solid again.

thermoset material—a material which becomes substantially infusible and insoluble when cured by the application of heat or by chemical means. A material that will undergo, or has undergone, a chemical reaction (different from a thermoplastics physical reaction) by the action of heat, catalysts, ultraviolet light, etc. Once the plastic becomes hard, additional heat will not change it back into a liquid as would be the case with a thermoplastic.

tip—part of the torch at the end where the gas burns, producing the high-temperature flame.

transceiver—a unit serving as both a receiver and a transmitter.

transformer—a device for raising or lowering AC voltage.

transmitter—an electronic system designed to produce modulated RF carrier waves to be radiated by an antenna; also, an electric device used to collect quantitative information at one point and send it to a remote indicator electrically.

transponder—an airborne receiver-transmitter designed to aid air traffic control personnel in tracking aircraft during flight.

unbonding—adhesive or cohesive failure between laminates. Compare definitions of adhesive, cohesive debond, and disbond.

very high frequency (VHF)—a frequency between 30 and 300 MHz

VHF omnirange (VOR)—an electronic air navigation system that provides accurate direction information in relation to a certain ground station.

videoscope—a type of borescope.

visible light—electromagnetic radiation that has a wavelength in the range from about 3,900 to 7,700 angstroms and that may be seen by the unaided human eye.

visual check—utilizing acceptable methods, techniques, and practices to determine physical condition and safety item.

volt—unit of potential, potential difference, or electrical pressure.

voltage regulator—device used in connection with generators to keep the voltage constant as load or speed is changed.

warp—threads in a fabric that run the length of the woven material as it comes from the mill.

watt—the unit of power; equal to a joule per second.

wattmeter—an instrument for measuring electrical power.

waveguide—a hollow, typically rectangular, metallic tube designed to carry electromagnetic energy at extremely high frequencies.

wavy-grained wood—wood in which the fibers collectively take the form of waves or undulations.

welding—a materials-joining process used in making welds.

welding rod—a form of welding filler metal, normally packaged in straight lengths.

welding torch—the device used in gas welding.

wood decay—disintegration of wood substance through the action of wood-destroying fungi.

wood decay - incipient—the early stage of decay in which the disintegration has not proceeded far enough to soften or otherwise perceptibly impair the hardness of the wood.

wood decay - typical or advanced—the stage of decay in which the disintegration is readily recognized because the wood has become punky, soft and spongy, stringy, pitted, or crumbly.

x-ray—a radiographic test method used to detect internal defects in a weld.

XL-ETFE—A process of radiation cross-linking the polymer chains is used to thermally set the plastic. This prevents the material from softening and melting at elevated temperature.

XL-Polyalkene—an insulation material based on the polyolefin family that has its normally thermomelt characteristic altered by the radiation cross-linking process to that of a nonmelt, therm-set material.

APPENDIX 2. ACRONYMS AND ABBREVIATIONS

The acronyms and abbreviations listed are some of many that are likely to be encountered by the aviation mechanic or technician involved in the maintenance of aircraft.

429—ARINC 429 data bus standard
629—ARINC 629 data bus standard
A/D—analog/digital; analog-to -digital
A/D CONV—analog-to -digital converter
A/L—autoland
AC—Advisory Circular
ac—alternating current
ACARS—ARINC Communication Addressing and Reporting System
ACO—Aircraft Certification Office
AD—Airworthiness Directive
ADC—air-data computer
ADCP—ATC dual-control panel
ADEDS—advanced electronic display system
ADF—automatic direction finder
ADI—attitude-director indicator; air data instrument
AFC—automatic frequency control
AFCS—automatic flight control system
AFDS—autopilot flight director system
AIM—Aeronautical Information Manual
AIRCOM—air/ground communications
AM—amplitude modulation
AMP or **AMPL**—amplifier
AMP—amperes
AMS—Aerospace Material Specification
AN—Army/Navy
AND—Army Navy Design
ANSI—American National Standards Institute
ANT—antenna
AP—autopilot
APB—auxiliary power breaker
APCU—auxiliary power control unit
APU—auxiliary power unit
ARINC—Aeronautical Radio Incorporated
ARNC IO—ARINC I/O error
ARNC STP—ARINC I/O UART data strip error
ASTM—American Society for Testing Materials
ATA—Air Transport Association
ATC—air traffic control
ATCT—ATC transponder
ATCTS—ATC transponder system
AUX—auxiliary
AVC—automatic volume control
AWG—American Wire Gauge
AWS—Air Weather Service
B/CU—battery/charger unit
BAT or **BATT—**battery
BCD—binary-coded decimal
BIT—binary digit; built-in test
BITE—built-in test equipment
BITS—bus interconnect transfer switch
BNR—binary numerical reference; binary
BP—band-pass
BPCU—bus power control unit
BT—bus tie
BTB—bus tie breaker
BTC—before top center
BUS—electrical bus; 429 digital data bus
C.G.—Center of Gravity
CAC—caution advisory computer
CAGE—commercial and government entity code
CAWS—central aural warning system; caution and warning system
CB, C/B, or **CKT/BKR—**circuit breaker
CDI—course-deviation indicator
CDU—central display unit
CFC—carbon fiber composite
CFDIU—centralized fault display interface unit
CFDS—centralized fault display system
CH or **CHAN—**channel
CHGR—charger
CKT—circuit
CLK—clock
CLR—clear
CMCS—central maintenance computer system
CMPTR—computer
CO—carbon monoxide
COAX—coaxial
COP—copper
CP—control panel
CRT—cathode-ray tube; circuit
CSE or **CSEU** —control system electronics unit
CSEUP—control system electronics unit panel
CT—computed tomography
CT—current transformer
CTN—caution
CU—control unit; copper
CVR—cockpit voice recorder
CW—continuous wave
D/A—digital-to-analog
DAC—digital-to analog converter
DADC—digital air-data computer
DBT—dead bus tie
dc—direct current

DCDR—decoder
DDB—digital data bus
DEMOD—demodulator
DEMUX—demultiplexer
DFDR—digital flight data recorder
DG—directional gyro
DGTL—digital
DH—decision height
DISC SOL—disconnect solenoid
DISC—disconnect
DISTR—distribution
DMA—direct memory access
DMB—dead main bus
DMC—display management computer
DME—distance-measuring equipment
DMEA—distance-measuring equipment antenna
DN—down
DU—display unit
E/E—or E & E electrical/electronic
E1-1—first shelf, number 1 equipment rack
E2-2—second shelf, number 2 equipment rack
EADF—electronic automatic direction finder
EADI—electronic attitude-director indicator
EAROM—electrically alterable read-only memory
EC—EICAS computer
ECAM—electronic centralized aircraft monitoring
EDSP—EICAS display select panel
EDU—EICAS display unit
EEC—electronic engine control
EFI—electronic flight instrument
EFIS—electronic flight instrument system
EFISCP—EFIS control panel
EFISCU—EFIS comparator unit
EFISG EFIS—symbol generator
EFISRLS EFIS—remote light sensor
EHSI—electronic horizontal-situation indicator
EHSID—electronic horizontal-situation indicator display
EHSV—electrohydraulic servo value
EICAS—engine indicating and crew alerting system
ELCU—electrical load control unit
ELEC—electric; electronic
ELECT—electrical
ELEX—electronics; electrical
ELT—Emergency Locator Transmitter
EMER GEN—emergency generator
emf—electromotive force
EMFI—electromechanical flight instrument
EMI—Electromagnetic interference
EP AVAIL—external power available
EP—external power
EPC—external power contactor
EPCS—electronic power control switch
EPROM—erasable programmable read-only memory
eV—electron volt
EXCTR—exciter
EXT PWR—external power
FAA—Federal Aviation Administration
FAA-PMA—Federal Aviation Administration Parts Manufacturer Approval
FM—frequency modulation
FM/CW—frequency modulation continuous wave
FMC—flight management computer
FMCD—flight management computer control display unit
FMCS—flight management computer system
FMS—flight management system
FOD—foreign object damage
FREQ—frequency
FSEU—flap/slat electronic unit
FW or FWD—forward
G/S—glide slope
GAL or GALY—galley
GCR—generator control relay auxiliary contact
GCU—generator control unit
GEB—generator circuit breaker
GEN—generator
GLR—galley load relay
GMAW—gas metal arc welding
GMT—Greenwich mean time; cordinated Universal time
GND PWR—ground power
GND RET—ground return
GND SVCE—ground service
GND or **GRD**—ground
GPCU—ground power control unit
GPS—global positioning system
GPSW—gear opposition switch
GPU—ground power unit
GPW—ground proximity warning
GPWS—ground proximity warning system
GSR—ground service relay
GSSR—ground service select relay
GSTR—ground service transfer relay
GTAW—gas tungsten arc welding
GWPC—ground proximity warning computer
H/L—high/low
HEA—high-frequency radio antenna
HF (hf) —high frequency (3 to 30 MHz)
HFCP—high-frequency radio control panel

HI Z—high impedance
HZ—hertz
I.D.—inner diameter
I/O—input/output
IAPS—integrated avionics processor system
IAS—indicated airspeed
IDG—integrated drive generator
IF—intermediate frequency
IFR—instrument flight rules
IGN—ignition
IIS—integrated instrument system
ILS—instrument landing system
INDL—indicator light
INST—instrument
INSTR—instrument
INTCON—interconnect
INTEC—interface
INTER—interrogation
INTPH—interphone
INV—inverter
IR ILS—receiver
kHz—kilohertz
KSI—thousands of pounds per square inch
kV—kilovolts
kVA—kilovoltamperes
kVAR—kilovoltampere reactive
L-Band—radio frequency band (390 to 1550 MHz)
LCD—liquid-crystal display
LD—load
LED—light-emitting diode
LF (lf) —low frequency (30 to 300 kHz)
LO Z—low impedance
LOC—localizer
LRU—line replaceable unit
LS—loudspeaker
LSB—lower sideband
LSPTM—limit switch position transmitter module
LT—light
LTS— lights
MAC—mean aerodynamic chord
MAN/ELEC—manual/electric
MBA—marker-beacon antenna
MCDP—maintenance control and display panel
MCDU—multipurpose control and display unit
MDE—modern digital electronics
MEC—main equipment center; main engine control
MEG or **MEGA**—million
MEK—methylethylketone
MEM—memory
METO—Maximum except-take off
MF—(mf) medium frequency (300 kHz to 3 MHz)
MHz—megahertz
MIC—microphone
MICRO-P—microprocessor
MIG—metal inert gas
MILLI—one one-thousandth (0.001)
MKR BCN—marker beacon
MS—military standard
MSDS—Material Safety Data Sheets
MSEC—(ms) milliseconds
MSG—message
MTBF—mean time-between-failure
MUX—multiplexer
mV—millivolts
NAS—National Aerospace Standard
NAV—navigation
NC—normally closed; not connected; no connection
NDB—nondirectional beacon
NDI—Nondestructive Inspection
NEG—negative
NSEC— (ns) nanoseconds
NTSB—National Transportation Safety Board
NVM—nonvolatile memory
OAM—original aircraft manufacturer
OBS—omni bearing selection
OC—overcurrent
OEM—original equipment manufacturer
OF—over-frequency
OVV or **OV**—overvoltage
OVVCO or **OVCO**—overvoltage cutout
P-S—parallel to series
PA—passenger address; power amplifier
PARA/SER—parallel to serial
PCU—passenger control unit; power control unit
PFD—permanent-magnet generator
PMA—Parts Manufacturer Approval
POS—positive
POT—potentiometer; plan of test
PR—power relay
PRL—parallel
PROM—programmable read-only memory
PROX—proximity
PSEU—proximity switch electronic unit
PSI—pounds per square inch
PWR—power
PWR SPLY—power supply
QPL—Qualified Products List
QTY—quantity
r-t—receiver-transmitter
RA—radio altimeter; radio altitude
RAD—radio

RAIND radio altimeter indicator
RAM—random-access memory
RART—radio altimeter receiver-transmitter
RAT—ram air turbine
RCCB—remote-control circuit breaker
RCL—recall
RCVR—receiver
RCVR/XMTR—receiver/transmitter
RDMI—radio distance magnetic indicator
RF (rf) —radio frequency
RFI—radio-frequency interference
RLS—remote light sensor
RMI—radio magnetic indicator
rpm—revolution per minute
RTV—room temperature vulcanizing
SAE—Society of Automotive Engineers
SAT—static air temperature
SATCOM—satellite communication
SCR—silicon-controlled rectifier
SDI—source destination identifier
SELCAL—selective calling system
SER DL—serial data link
SG—symbol generator
SITA—Société International de Telecommunications Aeronautiques
SMAW—shielded metal arc welding
SMD—surface mounted device
SNR—signal-to-noise ratio
SOL—solenoid
SOLV—solenoid valve
SOM—start of message
SOT—start of transmission
SPKR—speaker
SPR—software problem report
SQL—squelch
SSB—single sideband
SSID—Supplemental Structural Inspection Documents
SSM—sign status matrix
ST—synchro transmitter
STAT INV—static inverter
STBY—standby
STC—Supplemental Type Certificate
SW—switch
SYM GEN—symbol generator
T-R—transformer-rectifier
TAT—true air temperature
TBDP—tie bus differential protection
TC—Type Certificate
TCAS—traffic alert and collision avoidance system
TCDS—Type Certificate Data Sheets
TDC—top dead center
TFR—transfer
TIG—tungsten inert gas
TMC—thrust management computer
TMS—terminal marking sleeve
TMS—thrust management system
TMSP—thrust mode select panel
TRU—transformer-rectifier unit
TSO—Technical Standard Order
TXPDR—transponder
µ—micro
UBR—utility bus relay
UF—underfrequency
UHF—ultrahigh frequency (300 MHz to 3 GHz)
UNDF—underfrequency
UNDV—undervoltage
US—underspeed
USB (us)—upper sideband
USEC—microseconds
UV—undervoltage
UV—utraviolet
V ac, Vac, or **VAC—**volts alternating current
V dc, Vdc, or **VDC** —volts direct current
V—volts; voltage; vertical; valve
VA—volt-amperes
VAR—volt-ampere reactive
VFR—visual flight rules
VHF (vhf) —very high frequency (30 TO 300 MHz)
VLSI—very large-scale integration
VOR—VHF omnirange; visual omnirange
VORTAC—VOR tactical air navigation
VR—voltage regulator
VRMS—volts root means square
W—watts
WARN—warning
WCP—weather radar control panel
WEA—weather
WEU—warning electronics unit power supply
WPT—waypoint
WX (WXR)—weather radar
XCVR—transceiver
XDCR—transducer
XFMR—transformer
XFR—transfer
XMIT—transmit
XMTR—transmitter
XPDR—transponder

APPENDIX 3. METRIC-BASED PREFIXES AND POWERS OF 10

Atto (a)	=	quintillionth of	=	10^{-18} times
Femto (f)	=	quadrillionth of	=	10^{-15} times
Pico (p), or $\mu\mu$	=	trillionth of	=	10^{-12} times
Nano (n), or mμ	=	billionth of	=	10^{-9} times
Micro (μ)	=	millionth of	=	10^{-6} times
Milli (m)	=	thousandth of	=	10^{-3} times`
Centi (c)	=	hundredth of	=	10^{-2} times
Deci (d)	=	tenth of	=	10^{-1} times
		unity	=	$10^{0} = 1$
Deka (da)	=	ten times	=	10 times
Hecto (h)	=	hundred times	=	10^{2} times
Kilo (k)	=	thousand times	=	10^{3} times
Mega (M)	=	million times	=	10^{6} times
Giga (G), or kM	=	billion times	=	10^{9} times
Tera (T)	=	trillion times	=	10^{12} times