**AVIONICS GLOSSARY**

**ACARS** Aircraft Communications Addressing and Reporting System

**ACAS** Airborne Collision Avoidance System

**ACP** Audio Control Panel

**ACS** Audio Control System

**A/D** Analog-to-Digital

**ADAHRS** Air Data and Attitude Heading Reference System

**ADC** Air Data Computer

**ADF** Automatic Direction Finder

**ADI** Attitude Director Indicator

**ADIRS** Air Data Inertial Reference System

**ADIRU** Air Data Inertial Reference Unit

**ADM** Air Data Module

**ADS** (1) Air Data System (2) Automatic Dependent Surveillance

**ADS-A** Automatic Dependent Surveillance–Address

**ADS-B** Automatic Dependent Surveillance–Broadcast

**ADSEL** Address Selective. A SSR system electronically arranged to address each transponder selectively. Only a particular transponder will respond, thus avoiding garbling. ADSEL uses a monopulse technique to provide more accurate bearing measurement.

**ADSP** Automatic Dependent Surveillance Panel

**AEA** Aircraft Electronics Association

**AET** Aircraft Electronics Technician (certified by NCATT)

**AFCS** Automatic Flight Control System

**A/P** Autopilot. A computer-commanded system for controlling aircraft control surfaces.

**APC** Autopilot Computer

**APS** Autopilot System

**ARINC** Aeronautical Radio Inc.

**ASD** Aircraft Situation Display

**ASDL** Aeronautical Satellite Data-Link

**ASR** Airport Surveillance Radar

**ASU** Avionics Switching Unit

**ASTM** American Society for Testing & Materials

**ATCRBS** Air Traffic Control Radar Beacon System

**ATCSS** Air Traffic Control Signaling System. A system to provide information between the pilot and air traffic control using the VHF communications transceiver in conjunction with data-link equipment.

**ATE** Avionics Training Excellence Award, presented by the Aircraft Electronics Association.

**ATI** Instrument Size Unit of Measure (instrument hole, standard 3 1/8 inch instrument cutout is 3ATI)

**ATT** Attitude

**AHRS** Attitude Heading Reference System

**AIR DATA** Those parameters that can be derived from knowledge of the air mass surrounding the aircraft.

**AIRMETS** Advisories of significant weather that describe conditions at intensities lower than those that trigger sigmets.

**ALC** Automatic Level Control. A circuit used to maintain the output of a transmitter regardless of variations in the attenuation of the system.

**ALT** (1) Altimeter (2) Altitude.

**ALT HOLD** Altitude Hold Mode

**ALTS** Altitude Select

**AMLCD** Active Matrix Liquid Crystal Display

**AMO** Aviation Maintenance Organization

**ANC** Acoustic Noise Cancellation

**Annunciator** A system designed to provide warning lights/audio alerts to pilots to warn of off-normal conditions.

**ANR** Active Noise Reduction

**ANT** Antenna

**AHC** Attitude Heading Computer
**Avionics**  Aviation electronics

**Autopilot**  An automated flight control system designed to reduce pilot workload by controlling the aircraft along one or more axis.

**AWG**  American Wire Gauge

**B RNAV**  Basic Area Navigation

**BARO**  Barometric

**Baro-Corrected Altitude**  Pressure altitude-corrected local barometric pressure.

**BCRS**  Back Course

**BDI**  Bearing Distance Indicator

**BGAN**  Broadband Global Area Network

**Boomset**  A lightweight version of a headset used in low-noise cockpits, such as jets.

**CAI**  Caution Annunciator Indicator

**Calibrated Airspeed**  Corrected for instrument errors and errors due to position or location of the pressure source. At standard sea-level conditions, CAS is equal to true airspeed (TAS).

**Carrier**  An AC signal that can be modulated by changing the amplitude, frequency or pulse of the signal.

**CASA**  Civil Aviation Safety Authority (Australia)

**CAT I**  Operational Performance Category I. An ILS facility providing operation down to a 60-meter (200 feet) decision height and with runway visual range not less than 800 meters (2,600 feet) and a high probability of approach success.

**CAT I Enhanced**  An ILS approach to lower-than-standard Category I and, in some cases, to Category II minimums, based on guidance-to-touchdown provided by a Category III-capable head-up guidance system, per FAA Order 8400.13.

**CAT II**  Operational Performance Category II. An ILS facility providing operation down to a 30-meter (100 feet) decision height and with runway visual range not less than 400 meters (1,200 feet) and a high probability of approach success.

**CAT IIIa**  Operational Performance Category IIIa. An ILS facility providing operation with no decision height limit to and along the surface of the runway with external visual reference during final phase of landing and with a runway visual range of not less than 200 meters (700 feet).

**CAT IIIb**  Operational Performance Category IIIb. An ILS facility providing operation with no decision height limit to and along the surface of the runway without reliance on external visual reference; and subsequently taxiing with external visual range of not less than 50 meters (150 feet).

**CAT IIIc**  Operational Performance Category IIIc. An ILS facility providing operation with no decision height limit to and along the surface of the runway and taxiways without reliance on external visual reference.

**CODEC**  Coder/Decoder

**CDI**  Course Deviation Indicator

**CFIT**  Controlled Flight Into Terrain

**Com or Comm**  Communications Receiver
**AVIONICS GLOSSARY**

**Compass Locator**  A low-power radio beacon, used in conjunction with ILS. A compass locator has a two-letter identification and a range of at least 15 miles.

**Cone of Confusion**  An inverted conical shaped area extending vertically above a VOR ground facility that is void of the bearing signal.

**Contour**  Contour or iso-contour refers to a weather radar display presentation that blanks the echo returns in the center of a storm cell. The area blanked out is called contour and corresponds to the return levels that exceed a predetermined threshold.

**CNS**  Communications, Navigation, Surveillance

**CNS/ATM**  Communications, Navigation, Surveillance / Air Traffic Management

**CPDLC**  Controller-Pilot Data-Link Communications

**CRS**  Certified Repair Station

**CRT**  Cathode Ray Tube

**CTAF**  Common Traffic Advisory Frequency

**CV/DFDR**  Cockpit Voice and Digital Flight Data Recorder

**CVR**  Cockpit Voice Recorder

**CWS**  Control Wheel Steering

**DA**  Drift Angle. The angle between heading and track. It is due to the effect of wind currents. Sometimes called the crab angle.

**Data-Link**  A system that allows exchange of digital data over an RF link. ATCSS is a data-link system used by the air traffic control system. ACARS is a data-link system used by airline command, control and management system, using VHF communication frequencies.

**DER**  Designated Engineering Representative

**DG**  Directional Gyro

**DGPS**  Differential Global Positioning System

**DH**  Decision Height

**DME**  Distance Measuring Equipment. A system that provides distance information from a ground station to an aircraft.

**DNC**  Direct Noise Cancelling


**DP**  Departure Procedures

**DSP**  Digital Signal Processing, used with some ANR headsets.

**DUAT**  Direct User Access Terminal

**Duplex**  A communications operation that uses the simultaneous operation of the transmit and receive equipment at two locations.

**EADI**  Electronic Attitude Director Indicator

**EASA**  European Aviation Safety Agency
Echo  The portion of the radiated energy reflected back to the antenna from the target (WXR).

EFB  Electronic Flight Bag

EFD  Electronic Flight Display

EFIS  Electronic Flight Instrument System

EGPWS  Enhanced Ground Proximity Warning System

EGT  Exhaust Gas Temperature

EHSI  Electronic Horizontal Situation Indicator

EICAS  Engine Indication Crew Alerting System

E-LSA  Experimental Light-Sport Aircraft. Ultralights and unregistered aircraft that fit the description of LSA; kit-built aircraft that do not meet the experimental amateur-built rules; or aircraft originally built as a Special-LSA (S-LSA).

ELT  Emergency Locator Transmitter

ENC  Electronic Noise Cancelling

ENR  Electronic Noise Reduction

FADEC  Full Authority Digital Engine Control

FBO  Fixed Base Operator

FDRS  Flight Data Recorder System

FDU  Flux Detector Unit

FF  Fuel Flow

FIS-B  Flight Information Services–Broadcast

FITS  FAA Industry Training Standard

Flight Director  An enhanced attitude direction indicator equipped with course prompter bars (F/D or FD).

FLIR  Forward-Looking Infrared

FLTA  Forward Looking Terrain Avoidance

FMS  Flight Management System

FREQ  Frequency

FYDS  Flight Director / Yaw Damper System

GCAS  Ground Collision Avoidance System

GDOP  Geometric Dilution of Precision. A term referring to error introduced in a GPS calculation due to the positioning of the satellites and the receiver.

GGS  Global Positioning System Ground Station

GHz  Gigahertz (billion hertz)

Glidepath  The approach path used by an aircraft during an instrument landing or the portion of the glideslope that intersects the localizer. The glidespath does not provide guidance completely to a touch-down point on the runway.

Glideslope  The vertical guidance portion of an ILS system.

GLNS  GPS Landing and Navigation System
| **GLNU** | GPS Landing and Navigation Unit |
| **GLONASS** | Global Navigation Satellite System |
| **GLS** | GPS Landing System |
| **GLU** | GPS Landing Unit |
| **GND** | Ground |
| **GNSS** | Global Navigation Satellite System |

**Goniometer**  A device that combines the two signals from two loop antennas. The goniometer (or resolver) contains two fixed coils and one rotating coil. The rotating coil is connected to the ADF bearing indicator needle to indicate the relative bearing from the aircraft to the NDB station. The mechanical position of the rotor represents the bearing of the station, and the position is electrically transmitted to the RMI.

**GPS**  (1) Global Positioning System (See NAVSTAR)  (2) Global Positioning Satellite

**GPWC** | Ground Proximity Warning Computer |
| **GPWS** | Ground Proximity Warning System |

**Gray Code**  Special binary code used to transmit altitude data between framing pulses of a transponder reply. A cyclic code having only one digit change at a time. Used in Mode C to transmit aircraft barometric altitude. Also known as Gilham code.

**GWS** | Graphical Weather Services |

**Gyroscope**  A rotating device that will maintain its original plane of rotation, no matter which direction the gyroscope mount is turned.

**HDG** | Heading |
| **HDG SEL** | Heading Select |
| **HDOP** | Horizontal Dilution of Precision |

**Heading**  The direction of an aircraft path with respect to magnetic or true north.

**Headset**  A tool used in the cockpit to improve communications and reduce hearing loss.

**HF**  High Frequency. The portion of the radio spectrum from 3 to 30 MHz. HF communications systems operate in the 2 to 30 MHz portion of the spectrum.

**HHLD** | Heading Hold |
| **HSD** | High-Speed Data |

**HSI** | Horizontal Situation Indicator. An indicator that displays bearing, glideslope, distance, radio source, course and heading information. |
| **HSL** | Heading Select |
| **HUD** | Head-Up Display |
| **Hz** | Hertz (cycles per second) |

**IAS**  Indicated Airspeed. The speed indicated by a differential pressure airspeed indicator that measures the actual pressure differential in the pitot-static head. It is the actual instrument indication for a given flight condition.

**ID** | Identifier |
**Ident**  The action of the transponder transmitting an extra pulse along with its identification code (at the request of a controller).

**IDS**  (1) Integrated Display System  (2) Information Display System

**IFE**  In-Flight Entertainment

**IFR**  Instrument Flight Rules

**ILS**  Instrument Landing System. The system provides lateral, along-course and vertical guidance to aircraft attempting a landing.

**IMC**  Instrument Meteorological Conditions

**in. hg.**  Inches of Mercury

**IND**  Indicator

**Indicated Altitude**  The altitude above mean sea level (uncorrected for temperature).

**Intercom System**  An electronic device designed to allow headset communication along with transmissions from com, nav and entertainment sources.

**ISA**  International Standard Atmosphere

**ISP**  Integrated Switching Panel

**IVSI**  Instantaneous Vertical Speed Indicator

**kHz**  Kilohertz (1000 cycles per second)

**LAAS**  Local Area Augmentation System

**LADGPS**  Local Area Differential GPS

**LCD**  Liquid Crystal Display

**LDGPS**  Local Area Differential Global Positioning Satellite

**LMM**  Locator Middle Marker. An NDB co-located at the same site as the 75 MHz middle-marker beacon.

**LOC**  Localizer. The lateral guidance portion of an ILS system.

**Lock-On**  The condition that exists when the DME receives reply pulses to at least 50 percent of the interrogations. Valid distance information is then available.

**LOM**  Locator Outer Marker. An NDB co-located at the same site as the 75 MHz outer-marker beacon.

**LORAN**  Long-Range Navigation. A system using a ground facility composed of a master station and a slave station. The airborne receiver computes the position of the aircraft by using two or more received master-slave pairs of signals.

**LORAN-A**  Operates at 1850, 1900 and 1950 kHz. LORAN-C operates at 100 kHz. LORAN-A was replaced by LORAN-C in 1980.

**LORAN-C**  Long-Range Navigation System

**LRU**  Line Replaceable Unit

**LSA**  Light-Sport Aircraft. Small, simple, low-performance, low-energy aircraft limited to 1,320 pounds maximum takeoff weight; one or two occupants; single engine; maximum stall speed of 45 knots; maximum airspeed in level flight of 120 knots; fixed landing gear; and fixed propeller. Includes airplanes, gliders, gyroplanes, balloons, airships, weight-shift-control and powered parachutes.
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubber Line</td>
<td>A fixed line placed on an indicator to indicate the front-to-rear axis of the aircraft.</td>
</tr>
<tr>
<td>MAP</td>
<td>Missed Approach Point</td>
</tr>
<tr>
<td>Marker Beacon</td>
<td>A transmitter operating at 75 MHz that provides identification of a particular position along an airway or on the approach to an instrument runway. The marker beacon is continuously tone-modulated by a 400-Hz, a 1,300-Hz or a 3,000-Hz tone. Marker beacons along an instrument runway provide along-course (range) guidance and designate when an aircraft should be at a certain altitude if the aircraft is following the glideslope.</td>
</tr>
<tr>
<td>MB</td>
<td>Marker Beacon</td>
</tr>
<tr>
<td>MCBF</td>
<td>Mean Cycles Between Failures</td>
</tr>
<tr>
<td>MDA</td>
<td>Minimum Descent Altitude</td>
</tr>
<tr>
<td>MEL</td>
<td>Minimum Equipment List. The list of equipment the FAA requires onboard and working on an aircraft before flying.</td>
</tr>
<tr>
<td>MF</td>
<td>Medium Frequency. The portion of the radio spectrum from 300 kHz to 3 MHz.</td>
</tr>
<tr>
<td>MFD</td>
<td>Multi-Function Display</td>
</tr>
<tr>
<td>MFDS</td>
<td>Multi-Function Display System</td>
</tr>
<tr>
<td>MHz</td>
<td>Megahertz (million cycles per second)</td>
</tr>
<tr>
<td>MIC</td>
<td>Microphone. Also refers to the output signal of the microphone.</td>
</tr>
<tr>
<td>MILSPEC</td>
<td>Military Specifications</td>
</tr>
<tr>
<td>MKR</td>
<td>(1) Marker (2) Marker Beacon</td>
</tr>
<tr>
<td>MLS</td>
<td>Microwave Landing System</td>
</tr>
<tr>
<td>MOA</td>
<td>Military Operations Area</td>
</tr>
<tr>
<td>Mode A</td>
<td>The pulse format for an identification code interrogation of an ATC RBS transponder.</td>
</tr>
<tr>
<td>Mode B</td>
<td>An optional mode for transponder interrogation.</td>
</tr>
<tr>
<td>Mode C</td>
<td>The pulse format for an altitude information interrogation of an ATC RBS transponder.</td>
</tr>
<tr>
<td>Mode D</td>
<td>An unassigned, optional transponder mode.</td>
</tr>
<tr>
<td>Mode S</td>
<td>(1) Mode Select (a transponder format to allow discrete interrogation and data-link capability (2) Selective interrogation mode of SSR</td>
</tr>
<tr>
<td>Moving-Map Display</td>
<td>An electronic display that provides course and position information, frequently superimposed over ground features, including nav sources, airports and roads for improved flying situational awareness.</td>
</tr>
<tr>
<td>MRO</td>
<td>Maintenance Repair and Overhaul</td>
</tr>
<tr>
<td>MSG</td>
<td>Message</td>
</tr>
<tr>
<td>MSP</td>
<td>Mode S Specific Protocol</td>
</tr>
<tr>
<td>MSSS</td>
<td>Mode S Specific Services</td>
</tr>
</tbody>
</table>
MTBF  Mean Time Between Failures. A performance figure calculated by dividing the total unit flying hours (airborne) accrued in a period of time by the number of unit failures that occurred during the same time. Where total unit hours are available, this may be used in lieu of total unit flying hours.

MTTF  Mean Time To Failure. A performance figure calculated by dividing the summation of times to failure for a sample of failed items by the number of failed items in the sample. The same item failing N times constitutes N failed items in the sample. This is different from mean time between failures since no allowance is given to items that have not failed.

Muting  The process of either automatically or manually reducing the volume of a source. Typically found on music inputs for the pilot and co-pilot (automatic on receipt of transmissions) and on marker-beacon receivers (manual following station passage).

NACO  National Aeronautical Chart Office

Nautical Mile  (nmi) Equivalent to 6,076.1 feet, or approximately 1.15 statute miles.

NAS  National Airspace System

Nav  Navigation or Navigation Receiver

Navaid  Navigation Aid

Nav/Com  A combination navigation and communications receiver.

Navigation Datacard  A medium holding the customized navigation database.

NAVSTAR  The NAVSTAR global positioning system (GPS) is a system using 24 satellites, all reporting precise time signals, along with location keys. Eight satellites are in each of three 63-degree inclined plane circular orbits at 11,000 nmi in altitude. The system is used for navigation and determining exact position.

NCATT  National Center for Aircraft Technician Training

ND  Navigation Display. An EFIS presentation substituting for the horizontal situation indicator (HSI).

NDB  Non-Directional Radio Beacon. A ground station designed specifically for ADF use that operates in the 190-to-550-kHz range. Transmits a continuous carrier with either 400 or 1020 Hz modulation (keyed) to provide identification.

Nearest  Function of GPS and LORAN units to find the nearest airport, navaid, intersection, etc., used to reduce pilot stress in abnormal situations.

Nexcom  Next Generation Communications

NFF  No Fault Found

Nexrad  Next Generation Radar

NGATS  Next Generation Air Transportation System

NM or NMI  Nautical Mile

Noise  Undesired random electromagnetic disturbances or spurious signals that are not part of the transmitted or received signal.

NPA  Non-Precision Approach

OAT  Outside Air Temperature. The uncorrected reading of the outside temperature gauge.
OBS  Omnibearing Selector. A panel instrument that contains the controls and circuits to select an omni bearing and determine the to/from indication.

OEM  Original Equipment Manufacturer

OM  Outer Marker

Omnibearing  The bearing indicated by a navigational receiver on transmissions from an omnidirectional radio range (VOR).

OrbComm  Low earth orbit satellite system used for weather-data transmissions, among other things.

P-Code  The GPS precision code.

Paired Channels  DME channels are paired with a VORTAC or ILS frequency and are automatically selected when the VORTAC or ILS frequency is selected. Most navigation controls have this feature.

PAPI  Precision Approach Path Indicators

PAR  Precision Approach Radar. X-band radar that scans a limited area and is part of the ground-controlled approach system.

PD  Profile Descent

PDOP  Position Dilution of Precision. A GPS term for error introduced into the GPS calculations.

Performance Index  A relative number used to compare the performance of different radar systems. It is calculated from transmitter peak power, antenna gain, pulse width, prf, antenna beam width and the receiver noise figure.

PFD  (1) Primary Flight Director (2) Primary Flight Display. An EFIS presentation substituting for the ADI.

Phase Modulation  A signal in which the phase varies (with respect to the original signal) with the amplitude of the modulatory signal, while the amplitude of the carrier wave remains constant. Similar to a modified frequency modulated signal.

Pitot Pressure  The sum of the static and dynamic pressures, and is the total force per unit area exerted by the air on the surface of a body in motion.

Pitot Tube  A forward-facing probe attached to the outside of the aircraft to sense the relative pressure of the aircraft moving through the atmosphere. Named for Henri Pitot who first used this method of measuring fluid-flow pressure.

PMA  (1) Parts Manufacturing Approval (2) Permanent Magnet Alternator

PMG  Permanent Magnet Generator

PND  Primary Navigation Display

PNR  Passive Noise Reduction

POS  Position

PRAIM  Predictive Receiver Autonomous Integrity Monitoring

Pressure Altitude  The altitude measured above standard pressure level. Based on the relationship of pressure and altitude with respect to a standard atmosphere.

PSR  Primary Surveillance Radar. The part of the ATC system that determines the range and azimuth of an aircraft in a controlled airspace.

PTT  Push To Talk. Also refers to the switching signal that enables the transmitter.

Rabbit Tracks  (1) Rabbit Tracks, or running rabbits, refer to the distinctive display produced by another (alien radar) radar system transmission. (2) The small dots left on the display of handheld GPS units that show the previously flown course.

Radar  Radio Detecting and Ranging. A system that measures distance and bearing to an object.

Radar Mile  The time interval (approximately 12.359 microseconds) required for radio waves to travel one nautical mile and return (total of 2 nm).

Radial  A line of direction going out from a VOR station measured as a bearing with respect to magnetic north.

Radome  The protective cover on the aircraft nose that fits over the weather radar system antenna. The radome is transparent at radar frequencies.

RAI  Radio Altimeter Indicator

RAIM  Receiver Autonomous Integrity Monitoring

RALT  Radio Altimeter

RCVR  Receiver

RDMI  Radio Distance Magnetic Indicator

RDP  Radar Data Processing (system)

RDR  Radar

REF  Reference

Reflectivity Factor (Z)  This is a measurement of the ability of a target to reflect the energy from a radar beam.

REL  Relative

Relative Bearing  The bearing of a ground station relative to the direction the aircraft nose points, or the direction of an aircraft to or from an NDB.
**Resolution Advisory**  A display indication given to the pilot recommending a maneuver to increase vertical separation relative to an intruding aircraft. A resolution advisory also is classified as corrective or preventive.

**RF**  Radio Frequency. A general term for the range of frequencies above 150 kHz to the infrared region (1012 Hz).

**RFI**  Radio Frequency Interference

**RHSM**  Reduced Horizontal Separation Minima

**RLG**  Ring Laser Gyro

**RLY**  Relay

**RMI**  Radio Magnetic Indicator

**R-NAV**  Area Navigation

**RNG**  Range

**RNP**  Required Navigation Performance

**ROC**  Rate of Climb

**ROD**  Rate of Descent

**RPM**  Revolutions Per Minute

**RTE**  Route

**RTCA**  Radio Technical Committee on Aeronautics

**RSTP**  Repair Station Training Program

**Runway Incursion**  The act of inadvertently crossing the runway holding point without ATC clearance.

**RVR**  Runway Visual Range

**RVSM**  Reduced Vertical Separation Minimum

**Rx**  Receiver

**SA**  Selective Availability (Refers to government detuning of GPS signal for national defense purposes.)

**SAT**  Static Air Temperature is the total air temperature corrected for the Mach effect. Increases in airspeed cause probe temperature to rise presenting erroneous information. SAT is the outside air temperature if the aircraft could be brought to a stop before measuring temperatures.

**Satcom**  Satellite Communications

**Satnav**  Satellite Navigation

**SD**  Secure Digital

**Search**  In this mode, the DME scans from 0 mile to the outer range for a reply pulse pair after transmitting an interrogation pulse pair.

**Sensitivity Level Command**  An instruction given to the TCAS equipment for control of its threat volume.

**SID**  Standard Instrument Departure

**Sidetone**  The reproduction of sounds in a headset (or speaker) from the transmitter of the same communications set. This allows a person to hear his/her own voice when transmitting.

**SIGMETS**  Significant Meteorological Advisories

**Simplex**  A communications operation that uses only a single channel for transmit and receive operations. Communications can take place in only one direction at a time.

**SIU**  Satellite Interface Unit

**Skybound Datawriter**  A Jeppesen product designed to allow pilots to update the database of selected aviation GPS receivers and MFDs for reduced cost.

**Skywave**  A radio wave reflected by the ionosphere. The reflected radio wave may propagate along the layer of the ionosphere or be reflected at some angle.

**S-LSA**  Special Light-Sport Aircraft. An aircraft that may be used for personal use and for compensation while conducting flight training, rental or towing.

**SL**  Sensitivity Level

**Slant Range**  The line-of-sight distance from the aircraft to a DME ground station.

**SMS**  (1) Short Messaging Service (2) Safety Management System

**SNR**  Signal-to-Noise Ratio

**SPKR**  Speaker

**Split or Split Mode**  Feature of new audio panels that allows concurrent pilot and co-pilot transmissions on two radios with two antennas at the same time.

**Spoking**  Refers to a display presentation that radiates outward from the display origin like the spokes on a wagon wheel.

**SQ or Sql**  Squelch

**Squall Line**  A squall line is a line of thunderstorms and developing thunderstorms.

**Squawk**  Reply to interrogation signal (XPD).

**Squelch**  A control and/or circuit that reduces the gain in response of a receiver. The squelch is used to eliminate the output noise of the receiver when a signal is not being received.
### AVIONICS GLOSSARY

**Squitter**  (1) The random pulse pairs generated by the ground station as a filler signal. (2) The transmission of a specified reply format at a minimum rate without the need to be interrogated. (Filler pulses transmitted between interrogations) [XPD]. (3) Spontaneous transmission generated once per second by transponders.

**SSCV/DR**  Solid-State Cockpit Voice/Data Recorder

**SSCVR**  Solid-State Cockpit Voice Recorder

**SSFDR**  Solid-State Flight Data Recorder

**SSR**  Secondary Surveillance Radar. A radar-type system that requires a transponder to transmit a reply signal.

**Standard Atmosphere**  Represents the mean or average properties of the atmosphere. At sea level, static pressure is 29.92 in Hg and temperature is +15° C.

**Standby Mode**  A DME mode that applies power to the DME RT but the unit does not transmit.

**STAR**  Standard Terminal Arrival Routes

**STARS**  Standard Terminal Automation Replacement System

**Static Ports**  Flush-mounted openings in the skin of the aircraft fuselage used to sense static pressure.

**Static Pressure**  Ambient atmospheric pressure or static-pressure is the force per unit area exerted by the air on the surface of a body at rest relative to the air.

**Static Source Error Correction**  (SSEC) A correction applied to static source pressure measurements to partly or completely correct for pressure errors that are caused by airflow changes. It is computed as a function of Mach and altitude based on measured errors for a particular static system.

**STC**  Supplemental Type Certificate

**STOL**  Short Takeoff and Landing

**STP**  Standard Temperature and Pressure

**SUA**  Special Use Airspace

**Super-Heterodyne Receiver**  A receiver through which the incoming RF signal is mixed to produce a lower intermediate frequency.

**Suppressor Pulse**  A pulse used to disable L-band avionics during the transmitting period of another piece of L-band airborne equipment. It prevents the other avionics onboard the aircraft from being damaged or interfered with by the transmission and any noise associated with that transmission.

**SVS**  Synthetic Vision System

**TA**  Traffic Advisory (TCAS)

**TACAN**  Tactical Air Navigation System, which provides azimuth and distance information to an aircraft from a fixed ground station (as opposed to DME distance information).

**Tach**  Tachometer

**TAD**  Terrain Awareness Display

**TAF**  Terminal Area Forecast (ICAO)

**Target**  An aircraft within the surveillance range of TCAS.

**TAS**  True Airspeed

**TAT**  (1) Total Air Temperature. The air temperature including heat rise due to compressibility. (2) True Air Temperature.

**TAU**  TAU is the minimum time a flight crew needs to discern a collision threat and take evasive action. It represents the performance envelope (speed and path of aircraft) divided by the closure rate of any intruder aircraft (TCAS).

**TAWS**  Terrain Awareness Warning System

**TBO**  Time Between Overhauls

**TC**  Transport Canada

**TCCA**  Transport Canada Civil Aviation

**TCA**  (1) Terminal Control Area (2) Throttle Control Assembly

**TCAS**  Traffic Alert Collision Avoidance System

**TCAS I**  A baseline system that provides a warning (TA) to the flight crew of the presence of another aircraft (potential collision threat) within the surveillance area. No avoidance maneuver is suggested.

**TCAS II**  A collision avoidance system providing traffic information (within 30 nmi) to the flight crew, in addition to the resolution advisories for vertical maneuvers only. A TCAS II-equipped aircraft will coordinate with TCAS II-equipped intruder aircraft to provide complementary maneuvers.

**TCF**  Terrain Clearance Floor

**TCN**  TACAN

**TCU**  (1) TACAN Control Unit (2) Telephone Conversion Unit

**TDOP**  Time Dilution of Precision. A term used to describe the error introduced by variances in the calculated time.

**TDR**  Transponder

**Temperature Probe**  A sensor protruding into the airstream to sense air temperature. Requires correct ion to get static air temperature.

**TERPS**  (1) Terminal En Route Procedures (2) Terminal Instrument Procedures

**TFR**  Temporary Flight Restrictions
TFT  Thin Film Transistor
TGT  Target
THDG True Heading
Threat  A target that has satisfied the threat detection logic, and thus requires a traffic or resolution advisory (TCAS).
TIAS True Indicated Airspeed
TIS Traffic Information Service
TK Track Angle
TKE Track Angle Error
To/From Indicator Indicates whether the omnibearing selected is the course to or from the VOR ground station.
Touchdown The point at which the predetermined glidepath intercepts the runway.
TPR Transponder
T/R (1) Transceiver (see RT) (2) Transmitter Receiver
Track (1) The actual path, over the ground, traveled by an aircraft (navigation). (2) In this mode, the DME transmits a reduced pulse pair rate after acquiring lock-on (DME). (3) Estimated position and velocity of a single aircraft based on correlated surveillance data reports (TCAS).
TRACON Terminal Radar Approach Control
Traffic Advisory Information given to the pilot pertaining to the position of another aircraft in the immediate vicinity. The information contains no suggested maneuvers. (Traffic advisory airspace is 1,200 feet above and below the aircraft and approximately 45 seconds distant with respect to closure speed of the aircraft.) [TCAS]
TRANS Transition
Transceiver A receiver and transmitter combined in a single unit. Same as RT.
Transponder Avionics equipment that returns an identifying coded signal.
TRK Track
TRP Mode S Transponder
True Airspeed The true velocity of the aircraft through the surrounding air mass.
True Altitude The exact distance above mean sea level (corrected for temperature).
True Bearing The bearing of a ground station with respect to true north.
True North The direction of the north pole from the observer.
TSA Transportation Security Administration
TSO Technical Standard Order. Every unit built with a TSO nameplate must meet TSO requirements. TSO operating temperature extremes are not the same as the manufacturing burn-in limits.
TTR TCAS II Receiver/Transmitter
TTS Time To Station. An indication that displays the amount of time for an aircraft to reach a selected DME ground station while traveling at a constant speed.
TVE Total Vertical Error
TWDL (1) Terminal Weather Data-Link (2) Two-Way Data-Link
TWDR Terminal Doppler Weather Radar
TWIP Terminal Weather Information for Pilots
TWR Turbulence Weather Radar
TX Transmit (see XMIT)
UART Universal Asynchronous Receiver/Transmitter
UHF Ultra-High Frequency. The portion of the radio spectrum from 300 MHz to 3 GHz.
ULB Underwater Locator Beacon
Ultralight A vehicle that is manned by one occupant for recreation or sport purposes.
Unpaired Channel A DME channel without a corresponding VOR or ILS frequency.
Uplink The radio transmission path upward from the earth to the aircraft.
USB Universal Serial Bus
UTC Universal Coordinated Time
VASI Visual Approach Slope Indicator
VDL VHF Data-Link
VDR VHF Digital Radio
Vertical Speed The rate of change of pressure altitude, usually calibrated in hundreds of feet per minute.
VFO Variable Frequency Oscillator
VFR Visual Flight Rules
VG/DG Vertical Gyro/Directional Gyro
VGA Video Graphics Array
VHF Very High Frequency. The portion of the radio spectrum from 30 to 300 MHz.
V/L VOR / Localizer
**AVIONICS GLOSSARY**

**VMC** (1) Visual Meteorological Conditions (2) Minimum Control Speed with Critical Engine Out

**V/NAV** Vertical Navigation

**VNE** Never Exceed Speed

**VNO** Maximum Structural Cruising Speed

**VNR** VHF Navigation Receiver

**VOR** VHF Omnidirectional Radio Range. A system that provides bearing information to an aircraft.

**VOR/DME** A system in which a VOR and DME station are co-located.

**VOR/MB** VOR/Marker Beacon

**VORTAC** A system in which a VOR and a TACAN station are co-located.

**VOX** Voice Transmission

**VPATH** Vertical Path

**VREF** Reference Velocity

**V/S** Vertical Speed

**VSI** Vertical Speed Indicator

**VSL** Advisory Vertical Speed Limit Advisory. May be preventive or corrective (TCAS).

**VSM** Vertical Separation Minimum

**VSO** Stalling Speed in the Landing Configuration

**VSWR** Voltage-Standing Wave Ratio. The ratio of the amplitude of the voltage (or electric field) at a voltage maximum to that of an adjacent voltage minimum. VSWR is a measurement of the mismatch between the load and the transmission line.

**V/TRK** Vertical Track

**VX** Speed for Best Angle of Climb

**VY** Speed for Best Rate of Climb

**WAAS** Wide Area Augmentation System (method of differential GPS)

**WADGNSSS** Wide Area Differential Global Navigation Satellite System

**Waypoint** A position along a route of flight.

**WD** Wind Direction

**Whisper-Shout** A sequence of ATC RBS interrogations and suppressions of varying power levels transmitted by TCAS equipment to reduce severity of synchronous interference and multipath problems.

**WINDMG** Wind Magnitude

**WINDR** Wind Direction

**Wing Leveler** Rudimentary autopilot that maintains the wings of the plane level.

**WMA** WXR Antenna Pedestal and WXR Waveguide Adapter

**WMI** WXR Indicator Mount

**WMS** Wide-Area Master Station

**WMSC** Weather Message Switching Center

**WMSCR** Weather Message Switching Center Replacement

**WPT** Waypoint

**WRT** WX R Receiver/Transmitter

**WX** Weather

**WXR** Weather Radar System

**WYPT** Waypoint Altitude

**X-Channel** A DME channel. There are 126 X-Channels for DME operation. For the first 63 channels, the ground-to-air frequency is 63 MHz below the air-to-ground frequency. For the second 63-X channels, the ground-to-air frequency is 63 MHz above the air-to-ground frequency.

**XCVR** Transceiver

**XFR** Transfer

**XMIT** Transmit

**XMTR** Transmitter

**XPDR** Transponder

**XTK** Crosstrack (crosstrack error)

**Yagi Antenna** An antenna with its maximum radiation parallel to the long axis of its array, consisting of a driven dipole, a parasitic dipole reflector, and one parasitic dipole director or more.

**YD** Yaw Damper

**Z-Marker** A marker beacon, sometimes referred to as a station locator, that provides positive identification to the pilot when the aircraft is passing directly over a low-frequency navigation aid.

* Portions reprinted with permission from Rockwell Collins.*