

GYROS

SIGMA-TEK ATTITUDE GYROS (VACUUM)



An air operated instrument which indicates aircraft attitude through 360° in roll & 360° in pitch. The pictorial airplane remains fixed during gyro operation but may be adjusted by the pilot for changing conditions. The upper half of the horizon bar and the mask are light blue color. Sky is blue and ground is brown. Zero pointer and airplane wings are yellow. Numerals and markings are white on dull black background. Vacuum port and air inlet ports 1/4" NPT. Gauge port 1/8" NPT. Size: 3-3/8" x 3-3/8" x 6-3/8". Wt: 1.9lbs. Standard equipment in production Cessna & Piper aircraft. If instrument panel is tilted, special order gyro is required. ***Lighting tray must be purchased to attach to the bezel for lighting.**

Model 5000B.....	P/N 5000B.....
Model 5000B-20 (Black/Blue).....	P/N 10-00389.....
Model 5000B Lighted (tray sold separately).....	P/N 10-01071.....
Model 5000B with 8° panel tilt.....	P/N 5000B-42.....
Model 5000B-F w/Vacuum Failure Flag.....	P/N 5000B-F.....
Model 5000B w/Fail. Flag.....	P/N 10-00132.....
5000B Light Tray 14V.....	P/N 10-00111.....
5000B Light Tray 28V.....	P/N 10-00112.....

RC ALLEN VACUUM HORIZON GYRO



The RCA22 Series of vacuum artificial horizon are controlled by air driven precision gyros to present the pilot with pitch and roll information. The attractive color scheme of blue sky and brown ground presents a realistic spherical display of flight. Unless otherwise indicated all instruments have a dark blue/brown display, fixed pointer and are unlighted. This is the "standard" display. Instruments equipped with a warning flag will let you know when vacuum has dropped below 3.8 inch Hg. Flag retracts from view at 4.3 inch. Hg. Instrument fits in a standard 3 1/8" panel cutout. **Meets or exceeds all requirements of FAA TSO C4c and Aeronautical Standard AS396B.**

Model No.	Description	Part No.	Price
RCA22-7	Standard display, tilt must be specified at time of order.	10-01371	.
RCA22-7-8	Standard Display, with 8° Tilt.	11-03607	.
RCA22-7F	Standard Display with a warning flag.	10-00504	.
RCA22-11	Standard display, lighted 14V, Tilt must be specified at time of order.	10-00502	.
RCA22-11	Standard display, lighted 28V, Tilt must be specified at time of order.	10-01391	.
RCA22-11	Standard display, lighted 28V, 8° tilt	10-03635	.
RCA22-11F	Standard display, lighted, with a warning flag. (14V)	10-00094	.
RCA22-11F	Standard display, lighted, with a warning flag. (28V)	10-03574	.
RCA22-15	Display is blue over black Tilt must be specified at time of order.	10-01109	.

RC ALLEN ATTITUDE GYROS (ELECTRIC)



The RCA26 Series is the top of the line and has been designed for precision and reliability. The RCS26EK Series is a 12-30VDC instrument. You have a choice of a fixed or moveable pointer, and a 14 or 28 volt lighting. Performance characteristics include roll indication of 360°. Pitch ± 30°. Pitch trim range ± 7°. Slip Indicator can be added upon request. Mating connector (MS3116E8-4S) is also available. **Pictured is the RCA26EK-11**

Model No.	Description	Part No.	Price
RCA26EK-6	12-30 VDC, Fixed Pointer, Unlighted	10-01328	.
RCA26EK-7	12-30 VDC, Lighted	10-01329	.
RCA26EK-11	Fixed Pointer, unlit. Tilt must be specified at time of order.	10-02524	.
RCA26EK-12	Fixed Pointer, lighted. Voltage and tilt must be specified at time of order.	10-02526	.
RCA26EK-13	Moveable pointer, unlit. Tilt must be specified at time of order.	10-02527	.
RCA26EK-14	Moveable pointer, lighted. Voltage and tilt must be specified at time of order.	10-02528	.
RCA26AK-1	Standard look, 14 VDC, Lighted, Moveable pointer, Stationary roll dial.	10-00608	.
RCA26AK-2	Standard look, 14 VDC, Lighted, fixed pointer, moveable roll dial.	10-01683	.
RCA26AK-2-8	Standard look, 8° Tilt, 14 VDC, Lighted, fixed pointer, moveable roll dial.	10-00392	.
RCA26AK-3	Standard look, 14 VDC, Moveable pointer, stationary roll dial.	10-01118	.
RCA26AK-4	Standard look, 14 VDC, Fixed Pointer, Moveable roll dial.	10-01392	.
RCA26AK-4-8	Standard look, 8° Tilt, 14 VDC, Fixed Pointer, Moveable roll dial.	10-00391	.
RCA26BK-2	Standard look, 28 VDC, Lighted, Moveable pointer, Stationary Roll Dial.	10-01119	.
RCA26BK-6	Standard look, 28 VDC, Fixed Pointer, Moveable Roll Dial.	10-01393	.
RCA26BK-8	Standard look, 28 VDC, Moveable pointer, Stationary Roll Dial.	10-01120	.
RCA26BK-9	Standard look, 28 VDC, Lighted, Fixed pointer, Moveable Roll Dial.	10-00466	.
RCA26BK-12	5° Tilt, 28 VDC, Lighted, Moveable pointer, fixed roll dial	10-01122	.
MS3116E8-4S	Connector	10-00791	.
44-0007-01	A slip indicator/inclinometer for all the RCA26 series & RC Allen vacuum horizons	10-02586	.

SIGMA-TEK DIRECTIONAL GYRO VERTICAL CARD (VACUUM)



An air operated instrument which indicates compass headings through 360°. The gyro is functional during dives, climbs or banks up to 55 degrees displacement from level flight. Dial has matte white numerals and markings on a dull black background. Vacuum port and air inlet ports 1/4" NPT. Gauge port 1/8" NPT. Size: 3.25" x 3.25" x 6.5; Wt. 2.6 lbs. Standard equipment in production Cessna and Piper aircraft. New manufacture.

Model 4000B (Unlighted).....	P/N 4000B.....
Model 4000B-31 (Lighted - Tray sold separately).....	P/N 10-00588.....
Model 4000B w/ Heading Bug.....	P/N 10-00469.....
4000HR-3 w/Bug (Tray sold separately).....	P/N 10-00095.....
Model 4000C Autopilot DG.....	P/N 4000C.....

SIGMA-TEK 4000D-6 DIRECTIONAL GYRO

Lighted gyro is compatible with S-Tec autopilots (S-Tec Model 6406)
 Gyro Only..... P/N 10-00587.....
 14 Volt Light Tray..... P/N 10-00111.....
 28 Volt Light Tray..... P/M 10-00112.....

SIGMA-TEK FACTORY OVERHAULED GYROS

Factory-overhauled gyros that are like new and carry the same warranty as a new units. Installation must be within 6 months of factory ship date, full replacement warranty is 12 months from date of installation. Exchange core must be a like core* and the core must be returned no later than 45 days from the invoice date to receive core credit. *Like cores include: any 4000B series Sigma Tek/EDO-Aire core as exchange for a 4000B-30 any 5000B series Sigma Tek/EDO-Aire core as exchange for a 5000B-36

Description	Sigma-Tek Model No.	Our PN	Core	Price
Attitude Gyro	5000B-36	10-03360	\$275.00	.
Directional Gyro	4000B-30	10-03359	\$275.00	.



INSIGHT GYRO 4000

Replace Troublesome Learjet DN-101 or DN-104 Gyros with Dependable 10,000 Hour Sperry/Honeywell Gyros The Insight Gyro 4000 is based on the best heading system in the industry, the Sperry/Honeywell C-14A. The C-14A rotors are equipped with long life ceramic bearings rated for 10,000 hours. Combining the C-14A with special interface circuitry in a compatible package, the Gyro 4000 is a plug-in replacement for the old JET DN-101 or DN-104. STC'd for Learjet: 23, 24, 25, 28, 29, 31, 35 and 55 DN-101,104 equipped Learjets as a direct replacement.

P/N 11-05199.....



RC ALLEN DIRECTIONAL GYROS VERTICAL CARD (VACUUM)

The vertical rotating azimuth card is controlled by a precision air-driven gyroscope. This D.G. will give correct heading information through 85° of aircraft attitude in roll and pitch, 360° in yaw. Full-freedom design allows accurate indication, even after extreme maneuvers. Size: 3-3/8" x 3-3/8" x 7". Wt. 2.9 lbs. Fits standard 3-1/8" dia. panel cutout. **Factory new.**

Model No.	Description	Part No.	Price
RCA11A-8	Standard Display	10-01370	.
RCA11A-8F	Standard Display with Flag	10-01680	.
RCA11A-15	Cardinal Heading markers N., S., E., & W. (Piper/cessna display)	10-00390	.
RCA11A-15F	Cardinal Heading markers N., S., E., & W. (Piper/cessna display) With Flag	11-01116	.
RCA11A-16B	Standard Display, Lighted, 14 Volt.	10-01369	.
RCA11A-17B	Standard Display, Lighted, 28 Volt	10-01389	.
RCA11D-4	Single Pointer, 400hz Autopilot with heading bug.	10-01117	.
RCA11D-5	Dual Auto Pilot with Heading Bug	10-03430	.
RCA11D-7	With Heading bug Only	10-02931	.

RC ALLEN DIRECTIONAL GYROS (ELECTRIC)



The RCA15 Series electric directional gyro employs and electrically driven gyro motor and is a direct reading, azimuth indicator. Rotor run up time is 3 min. They have a built in inverter which converts aircraft DC power to the required AC voltage and frequency. May be used in both fixed wing and rotor wing aircraft and is easily installed in standard 3 1/8" panel cut out. Power failure flag drops into view when supply voltage is lost or has dropped below a level for proper operation of the gyro. Azimuth indication range 360°. Altitude operation -1,000 to 40,000 feet. Meets or exceeds all requirements of FAA TSO C5c, and Aeronautical Standard AS397. Mating connector MS3116E8-4S

Model	Description	Part No.	Price
RCA15AK-1	14 VDC, Lighted	10-01681	.
RCA15AK-2	14 VDC	10-01390	.
RCA15BK-1	28 VDC, Lighted	10-01682	.
RCA15BK-2	28 VDC	10-00501	.
RCA15AK-16	14 Volt, 400HZ, 5K.	10-02530	.
RCA15AK-17	14 Volt, Heading Bug only.	10-02529	.
RCA15BK-16	28 Volt, 400HZ, 5K.	10-02533	.
RCA15BK-17	28 Volt, Heading Bug only.	10-02532	.
MS3116E8-4S	Mating Connector	10-00791	.

IN

GYROS



SIGMA-TEK 500EG ELECTRIC GYRO ATTITUDE INDICATOR

Lighted bezels have anti-reflective glass. Lighted gyros do not include lamp trays. All gyros calibrated for zero degree panel tilt. Mating Connector not included with gyro. FAA Certified as a primary or standby gyro (FAA advisory circular AC20-41A) Approved to Replace your turn coordinator (FAA advisory circular AC91-75)

Optional Features: * Panel Tilt Inclination: 0 to 10 degrees, Standard tilts 0°, 5°, 7-1/2°, 8°, & 10° * Lighting L 5, 14, 28 Vdc external lamp tray, 12-inch leads. * Inclimeter: Slip Indicator, ball type, bezel mounted. * Mating Connector: Part No. 10-02756
Specifications: * Panel mount: Standard 3-1/8 inch round cutout, rear mount * Length: 8.1 inches maximum * Weight: 2.6 lbs. maximum, C/G 3.25 inches from mounting face * Input Power: 14Vdc input-1500 mA starting & 1400 mA running; 28Vdc input-600 mA starting & 550 mA running. * Dial Presentation: Fixed pointer, rotating dial, with symbolic airplane. * Operating Temperature Range: -30°C to +50°C, -22°F to +122°F * Certification: FAA TSO-C4c * Limited Warranty: 12 Months from date installed / 6 months shelf life. **All lighted gyros must order tray separately.**

Standard 28 Vdc, Lighted Bezel, and Slip Indicator...	P/N 10-02748
Standard 14 Vdc, Lighted Bezel, and Slip Indicator...	P/N 10-02749
Standard 28 Vdc, Lighted Bezel.....	P/N 10-02750
Standard 14 Vdc, Lighted Bezel.....	P/N 10-02751
Standard 28 Vdc, and Slip Indicator.....	P/N 10-02752
Standard 14 Vdc, and Slip Indicator.....	P/N 10-02754
Standard 28 Vdc.....	P/N 10-02753
Standard 14 Vdc.....	P/N 10-02755
Mating Connector.....	P/N 10-02756
Lamp Tray, 14 Vdc, 12-inch leads.....	P/N 10-02757
Lamp Tray, 28 Vdc, 12-inch leads.....	P/N 10-02758

(Shown with optional slip indicator installed)



CASTLEBERRY ELECTRIC ATTITUDE INDICATOR

The high quality electric attitude indicator replaces the turn and bank and may be installed in the same panel location, freeing up crowded panel space. Installation of these units is straightforward. It has an inclinometer for use in standard rate turns and a failure warning flag to indicate loss of gyro RPM. When used together with the Castleberry Emergency Power Unit, Model EPU 28-24RMT, this instrument provides the pilot with a welcome margin of insurance in case of aircraft electrical power failure. **Features:** • Inclinometer • Power failure flag • Pull to cage knob • Backlit • Standard 3 1/8 in. diameter

Model No.	Description	Part No.	Price
300-14EL	14V Gyro	10-02823	..
300-14EL	28V Gyro	10-02824	..
300-14EL	14V Gyro With 8° Tilt	10-02828	..
300-14EL	28V Gyro With 8° Tilt	10-02829	..
300-14ELP	300-14EL With Auto Pilot outputs.*	10-02826	..

*Please Specify at time of order 14 or 28V or tilt if desired.



CASTLEBERRY EMERGENCY POWER BACK-UP EPU-2

TSO'd emergency power supply, Model EPU 28-24RMT that can replace some older non TSO'd units made by Terra and AIM that are no longer in production. This unit provides a 24 VDC output up to 5 Amps for 30 minutes for emergency buss power to operate the standby attitude gyro with extra capacity of up to 4 amps for other critical instrument or avionics. This is economical insurance in a 7.5 pound package for aircraft frequently involved in IFR operations.

Emergency Power Supply EPU-2	P/N 11-05822
EPU Connector.....	P/N 11-07713
Rack Mount and Connector for EPU-2	P/N 11-05823
Component Maintenance Manual.....	P/N 11-00187

THE "LIFESAVER" ELECTRIC GYRO



The only attitude indicator with a self-contained battery backup, the Lifesaver® provides one hour of emergency attitude reference in the event of power failure. With 7,500 hours MTBF – more than double the competition – it is an exceptional value. TSO approved. Added safety, ease of installation and cost-benefit make this an ideal primary or standby artificial horizon. Custom versions available to match existing instrument/EFIS displays. Anti-reflective glass and long-life lighting are standard on all Mid-Continent indicators.

14V Gyro With Battery.....	P/N 10-00750
28V Gyro With Battery.....	P/N 10-00841
Slip Indicator.....	P/N 10-00764
Remote Battery Mounting Kit	P/N 10-00763
Replacement Battery Pack	P/N 10-01054
3/32" Front Mount Adapter	P/N 10-00765
1/2" Front Mount Adapter	P/N 10-00766
Emergency Power Supply	P/N 11-05540

MID-CONTINENT STANDARD ELECTRIC GYRO



The only attitude indicator with a self-contained battery backup, the Lifesaver® provides one hour of emergency attitude reference in the event of power failure. With 7,500 hours MTBF – more than double the competition – it is an exceptional value. TSO approved. Added safety, ease of installation and cost-benefit make this an ideal primary or standby artificial horizon. Custom versions available to match existing instrument/EFIS displays. Anti-reflective glass and long-life lighting are standard on all Mid-Continent indicators.

14V Gyro Without Battery.....	P/N 10-00751
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FALCON ATTITUDE GYRO (VACUUM)



This Gyro Horizon is controlled by an air driven precision gyroscope to present the pilot with pitch and roll information, through the full 360° "pictorial" presentation leads to faster interpretation of airplane attitude. A zero pitch adjustment knob is provided. Dims: 3-1/8 x 3-1/8 x 8 max. Similar to Air Italia Gyros. Non-TSO'd for Experimental Aircraft Only P/N 10-22955

FALCON ATTITUDE GYRO (ELECTRIC)



This factory new electric attitude gyro fits the standard gyro instrument cut-out. Features push-to-cage knob, low power/power failure flag, longer life & reliability due to lower operating temp.; Black case, black adjustment knob, & bright yellow/green airplane marker with sky blue/brown ground dial. Roll & loop without worry. Size: 6.4", Wt: 2.4 lbs., Power: 14VDC req. MS3116E8 connector (included). Non-TSO'd for Experimental Aircraft Only.

14V, Unlighted.....	P/N 10-00013
14V, Lighted.....	P/N 10-00099
14V, 8° panel tilt	P/N 10-00101
28V, Unlighted.....	P/N 10-00102
28V, Lighted.....	P/N 10-00103
MS3116E8-4S connector.....	P/N 10-00791



MID-CONTINENT 3300-10 ELECTRIC DIRECTIONAL GYRO

FEATURES: • Weighs just 1.9 lbs. – One pound less than most electric directional gyros • Multi-voltage 10–32 volt DC, remains valid until the aircraft main battery discharges to 10VDC • Direct replacement for many AIM205 and RC Allen RC15A units • Designed specifically for use in high vibration applications • Warning flag monitors rotor speed and power input • Anti-reflective glass enhances visibility and reduces fatigue • Approved to FAA TSO-C5e and RTCA DO-160E • Requires less than half the power of standard DG units • Long-life LED lighting, user selectable to 5, 14 or 28 volt input • One year limited warranty **SPECIFICATIONS:** Power Input: 10–32 VDC, Current Rating: At 14 VDC Start: 1.4A Max., Run: 0.44A nominal, At 28 VDC Start: 0.6A Max., Run: 0.22A nominal, Lighting: Internal LED lighting switchable to 5, 14 or 28 VDC input; wired through main connector, Weight: 1.9 lbs., Length: 4.7 inches, MTBF: 2,500 hours, Mating Connector: MS3116F8-4S, Mounting: Rear panel mount in standard 31/8" round panel cutout P/N 10-02821



RCA 2600 SERIES DIGITAL ATTITUDE GYROS

FAA TSO-C4c certified and is designed to be a direct replacement for any Electric Attitude indicator. Contains no mechanical gyro. Ideal for light sport and home built applications. The precision and stability qualities of these instruments also make them suitable for larger aviation applications such as business aircraft and rotorcraft. Capable of aerobatic type maneuvers with a full 360 degrees of pitch and roll without the typical "tumbling" of mechanical gyros and without any harm to the instrument.

RCA2600-2 (2 Inch Gyro)	P/N 11-07324
RCA2600-3 (3 Inch Gyro)	P/N 11-07325
2600 Inclinometer Option.....	P/N 10-03862

FALCON DIRECTIONAL GYRO (VACUUM)



The vertical rotating azimuth card is controlled by a precision gyroscope air-driven. The directional gyro will give correct heading information through ±60° of aircraft attitude in roll and pitch, 360° in yaw. A caging knob is provided to reset the gyro to the magnetic compass. Similar to Air Italia Gyros. Non-TSO'd for Experimental Aircraft Only. P/N 10-22950

FALCON DIRECTIONAL GYRO (ELECTRIC)



The Directional Gyro is a gyroscopic navigation instrument designed to provide the pilot with a constant directional reference that is not subject to characteristics of a magnetic compass that cause errors. The vacuum type is operated by the air flow generated by the aircraft's vacuum system while the electrical type is operated by the aircraft's power supply. Non-TSO'd for Experimental Aircraft Only.

28V Heading.....	P/N 10-01799
14V Electric.....	P/N 10-01798

Falcon gyros can tolerate some aerobatic flight, but aerobatics can reduce the life of the gyro. It is recommended that the gyros be removed when the aircraft will be performing extensive aerobatic maneuvers. The Falcon electric gyros have caging knobs, but the vacuum gyros do not.

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GYROS – STANDBY VACUUM SYSTEMS



MINI 2-INCH ELECTRIC ATTITUDE INDICATORS

The Mini Gyro offers big features in a compact package. At half the cost of the competition, the Mini Gyro not only saves panel space, but also time and money. An ideal standby instrument, this TSO-approved indicator has 10-32 volt DC operation and is an attractive alternative to vacuum systems.

It features unique LED lighting selectable to 5, 14 or 28 volts. Remote emergency power supply available for this indicator (P/N 11-05540).

Standard airplane display P/N 10-01721
Delta airplane display P/N 10-01722
Emergency Power Supply P/N 11-05540



VOLT & VAC ALERT

A gyro instrument can start giving false information in less than one minute, and it is important that the pilot become instantly aware of a vacuum loss. The Volt & Vac Alert monitors instrument vacuum and electrical

voltage. Should either fall below set values, the system will provide an instantly recognizable voice warning directly in the pilots headset, and then flash a light positioned within the normal gyro scan area, providing him with instant recognition of a problem. The Volt & Vac Alert is STC - PMA approved
P/N 10-00393



RAPCO STANDBY PNEUMATIC CLUTCH REPLACEMENTS

400 Series replacement clutches for Rapco standby pneumatic systems are available in 12 volt or 24 volt. They can be purchased either new or as an overhauled exchange. A core charge will be added to the purchase price of exchange units and

refunded with the return of a repairable 400 series core.

Description	Description	Price
400 NEW clutch, 12V	10-02656	.
400 NEW clutch, 24V	10-02656-1	.
400 EXC Clutch, 12V Remanufactured exchange	10-23949	.
400 EXC Clutch, 24V Remanufactured exchange	10-23949-1	.

VACUUM WARNING INDICATOR



The Precise Flight Vacuum Warning Indicator will provide the pilot with immediate warning of failure of the vacuum system, providing valuable time prior to gyro failure. An inexpensive system that can alert the IFR pilot immediately in the event of vacuum failure.

P/N 11-02205

VENTURI

2" VENTURI - This small aluminum venturi provides 2" Hg vacuum for operating turn/bank indicator. Has 1/8" NPT port. Use 1/4" tubing for hookup. Wt. 3.5 oz.
P/N 15045



4" VENTURI - This venturi develops 4" Hg suction from double-throat venturi and 10" long horn. Used to operate a directional gyro or gyro horizon. When operating a directional gyro there is sufficient capacity to also operate a turn/bank. All aluminum construction. May require a suction regulator.
Wt. 0.9 lb. P/N 15050



9" VENTURI - This "super venturi" is similar in appearance to the 4" venturi but with redesigned air passages and a recontoured, long (11-1/4") horn. It pulls enough vacuum to operate a gyro horizon, directional gyro and a turn/bank. Must be used with a suction regulator.
P/N15052



SIGMA TEK CAGEABLE ATTITUDE GYROS



Short stops (engine off less than twelve minutes) and some aerobatic maneuvers may cause your attitude gyro to tumble or precess from its vertical reference. When the rotor is spinning, the gyros normal erection system is slow and can take several minutes to correct a large erection error. This non-locking caging feature allows the pilot to quickly align the gyro display and rotor to gyro case reference. The attitude gyro should only be caged for quick alignment during straight and level VFR flight using well defined earth horizon for reference

or prior to take off. **All lighted gyros must order tray separately.**

P/N	DESCRIPTION	PRICE
5000B	Standard Gyro, Unlighted (non-cageable)	.
5000B-F	Standard Gyro w/Vacuum Failure Flag (non-cageable)	.
5000M-1	With Caging Knob, 0° Panel Tilt	.
5000M	With Caging Knob, 0° Panel Tilt, Lighted	.
5000M-2	With Caging Knob, 8° Panel Tilt	.
5000M-5	With Caging Knob, 8° Panel Tilt, Lighted	.
5000B-46	With Inclinator, 0° Panel Tilt	.
5000B-45	With Inclinator, 0° Panel Tilt, Lighted	.
5000B-51	With Inclinator, 8° Panel Tilt	.
5000B-53	With Inclinator, 8° Panel Tilt, Lighted	.
5000M-3	With Caging & Inclinator, 0° Panel Tilt	.
5000M-6	With Caging & Inclinator, 0° Panel Tilt, Lighted	.
5000M-4	With Caging & Inclinator, 8° Panel Tilt	.
5000M-7	With Caging & Inclinator, 8° Panel Tilt, Lighted	.



VAC-2 VACUUM PUMP ADAPTER

The revolutionary VAC-2 adapter provides a direct replacement for the Lycoming vacuum pump pad adapter casting. The VAC-2 design provides a standard vacuum pump pad with provision for inverted oil pick-ups. Normally there is a T fitting mounted on the firewall that supplies the inverted oil. For many engines when this T fitting is used, the oil pressure will drop down into the yellow on the oil pressure gauge for three to five seconds when inverted. On some aircraft this drop in oil pressure will cause the prop to cycle

because of lack of oil pressure. With the VAC-2 adapter installed you do not have this drop in oil pressure. By using the VAC-2 adapter you have (1) the best inverted oil pickup, (2) a stock vacuum pump pad adapter. Used in place of Christen "T" fitting.

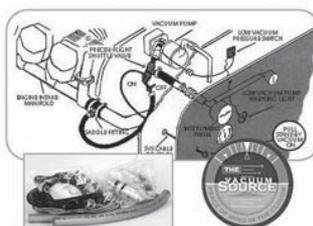
The VAC-2 comes complete with oil seal installed, gaskets, and MS 20822-10D fitting. Just slip vacuum pump gear assembly and washer into VAC-2 and install on engine. The standard Lycoming vacuum pump gear assembly and washer will fit into the B & C adapter. (Gear and washer shown are not included.)

VAC-2-4 for 4 Cylinder Engines P/N 07-06790

VAC-2-6 for 6 Cylinder Engines P/N 07-06795



STANDBY VACUUM SYSTEM SVS V



Manufactured by Precise Flight, Inc., this Standby Vacuum System, SVS V, is a new solution to the old problem of in-flight vacuum pump failures. It operates on a differential between manifold pressure and ambient pressure which is directed through a shuttle valve system to drive the flight instruments. When the vacuum pump fails, the pilot simply turns on the SVS system and adjusts

engine power settings while observing the instrument suction gauge to obtain adequate differential to operate the instruments. Kit includes low vacuum light and installs in 2-4 hours. STC'd for most aircraft. This kit can provide peace of mind on all flights and, if that pump ever fails, can be a real life saver.
P/N 10-00400

AERO SAFE GUARDIAN I STANDBY VACUUM/PRESSURE SYSTEMS



The Aero Safe Guardian I Standby/ Pressure system is designed to provide the pilot with the most reliable standby source of instrument air available for single engine aircraft. STC'd for most Bellanca, Beech, Cessna, and Piper single engine aircraft. Specify aircraft make, model, year, and serial number when ordering.
Vacuum system P/N 10-00267
Pressure system P/N 10-00268

TURN COORDINATORS – TURN & BANKS



RCA TURN COORDINATOR 3 INCH. INDICATORS

Used in many production aircraft. Incorporates an electrical Gyro Turn Indicator with an inclinometer. The inclinometer, by movement of a ball in relation to the lubber lines, indicates the slip angle of aircraft while in a turn. The airplane on the dial rotates with reference to the indices. A power failure flag drops into view whenever the supply voltage is lost or when voltage has dropped below a level acceptable for proper operation of the gyro. Operates on 14 to 28V DC. New manufacture. First installation requires electrical connector and clamp. **DIMENSIONS:** Length: 6 1/5 in. Max, Width: 3 3/8 in Max, Height: 3 3/8 in Max, Weight: 1.9 lbs. Meets or exceeds requirements of FAA TSO C3b

Description	Model	Part No.	Price
Unlighted - Mating Connector: MS3106A-10SL-3S	RCA82A-11	10-01372	.
Lighted (14V) - Mating Connector: MS3106A-10SL-3S	RCA83A-11-14	10-00485	.
Lighted (28V) - Mating Connector: MS3106A-10SL-3S	RCA83A-11-28	10-01685	.
Mating Connector	MS3106A-10SL-3S	10-00789	.
Cable Clap	MS3057-4A	10-00959	.



MID-CONTINENT TURN COORDINATOR (ELECTRIC)

Engineered for a long service life, the new "B" model turn coordinator features a proven AC rotor powered by a solid-state inverter. This creates less heat behind the panel. By utilizing a brushless rotor design, this instrument has one of the top ratings in the industry – 4800 hours MTBF. A direct replacement for most 3-pin turn coordinators, it is perfect for use in high-performance aircraft and cold-climate applications. The well-known "Z" models are an industry standard. Value priced and reliable they are in more aircraft than any other brand. All 3-inch turn coordinators operate from 10 to 32 volts DC for convenience and reliability.

1394T100-7Z 12-32v, UNLIT P/N 1394T100
1394T100-3Z 14v, LIT P/N 10-22514
1394T100-10RB (Cessna Autopilot) P/N 10-02311
MS3106A-10SL-3S Electrical Plug Connector. P/N 10-00789
MS3057-4A Cable Clamp P/N 10-00959
Note: 3A & 8A models have brushless rotors to reduce air noise

MID-CONTINENT TURN COORDINATORS (ELECTRIC) -B MODELS

Certified to FAA TSO C3b. OEM standard - proven reliability. Includes power warning indicator. Features: •4500 hours MTBF, more than double the original "Z" design • Brushless AC rotor operates on 14 or 28 VDC. •Proven reliability through HALT (Highly Accelerated Life Testing) requirements and OEM usage since 1999. • Improved "Off" warning flag pulls out of view when rotor is up to speed. • Is a direct replacement for the popular 1394T100-7Z and most standard 3-pin turn coordinators.

1394T100-7B Unlighted 12-32V P/N 10-02108
28V unit- 14V Bezel Lighting P/N 10-01024
Unlighted G300A Autopilot, ARC P/N 10-02653

FALCON TURN COORDINATOR (ELECTRIC)

3-1/8" cut out, 3-3/4" long. Small and lightweight, excellent for homebuilt aircraft. For 14V or 28V systems. Features power out warning flag. Unlighted. Includes electrical plug connector and cable clamp.

UNLIT 0° PANEL P/N 10-22510
UNLIT 8° PANEL P/N 10-02261
LIT 0° PANEL P/N 10-02262
LIT 8° PANEL P/N 10-02263
Connector MS3106A-10SL-3S P/N 11-04968
Cable Clamp MS3057-4A P/N 11-04969



BANK INDICATORS (BALL TYPE)

Bank indicators show the lateral inclination relative to the horizon. In turning, instantly register slightest departure from the correct banking angle. Bank scale has white markings on black background. New manufacture. Available in 2 models:

10°-10° Scale, 2.25" between mounting holes. P/N 10-00600
20° - 20° Scale, 5" between mounting holes... P/N 10-00700

WINTER SLIP INDICATORS

The basic flight instrument for co-ordinated turns. Available in two styles: Rectangular model fits easily in cramped panel space. Square model matches a 2-1/4" instrument hole, fits on either side of the panel. Both feature finely crafted metal cases and precision ball and tube assemblies.

Square P/N 10-03812
Rectangle P/N 10-03857

MID-CONTINENT TURN & BANK (ELECTRIC)

Built-in voltage regulator allows it to be used in either 14V or 28V systems. Small, compact unit and weighs only 1.2 lbs. Incorporates a small "power out" warning window which is black when normal current is being supplied but turns red in the case of electrical power failure. This turn and bank is now being used in many production aircraft. New installation requires electrical connector and cable clamp. New manufacture by Electrical Gyro Corp. Size: 3-3/8" x 3-3/8" x 3-3/4" long.

Unlighted P/N 1234T100
14V Bezel-Lit P/N 10-22614
28V Bezel-Lit P/N 10-22628
MS3106A-10SL-3S Electrical Plug Connector
MS3057-4A Cable Clamp

FALCON TURN & BANK (ELECTRIC)

The unit is an electrically-driven gyroscope. The inclinometer, by movement of a ball in relation to the lubber lines, indicates the slip angle of the aircraft while in a turn. A power flag drops into view whenever the voltage drops below a level which is required for proper operation of the gyro. It incorporates a built-in voltage regulator so it can be used with either 14VDC or 28VDC power supply system. It has a DC-AC-DC converter. Power Supply: 10-30VDC, Electrical Consumption:

Max. 1.0A at 11-26VDC Max. 0.35A at 26 to 30VDC, Operating Range: 2 min. Turn, Weight: 18 oz./0.5 kg, Length: approx. 5 inches
Unlit P/N 10-22515



RCA TURN & BANK (ELECTRIC)

Instrument is powered by an electrically driven DC precision gyro with an inclinometer. It gives the pilot turn and bank information. The RCA56 series is an all volt instrument, with a power warning flag, a black or white ball inclinometer and either lighted or non-lighted. DIMENSIONS: Length: 6 1/4 in. Max Width: 3 3/8 in. Max Height: 3 3/8 in. Max Weight: 1.9 lbs.

Meets or exceeds requirements of FAA TSO C3b New manufacture by A.I.D. RC Allen. New installation requires plug connector & cable clamp.
RCA56-3B, UNLIT P/N 10-01684
RCA56-3BL, LIT P/N 10-02138
Plug Connector P/N MS3106A-10SL-3S
Cable Clamp P/N MS3057-4A0



RCA MINIATURE TURN/BANK (ELECTRIC)

Similar to the air driven model but the gyroscope is electrically driven. Connection is by electrical plug. Power: 14 or 28V DC. New manufacture.

28V, 4 Min Turn Yellow markings P/N 10-03429
14V, 2 Minute Turn P/N 10-00499
14v, 2 Minute Turn 14/28 V Lit P/N 10-02587
Plug Connector P/N MS3106A-10SL-3S
Cable Clamp P/N MS3057-4A

AN5820-1 TURN & BANK (VACUUM)

AN5820-1 Turn & Bank indicator completely overhauled and certified to FAA requirements. Fresh matte-white dial markings with "doghouses". Power: 1.8" to 2.2" Hg vacuum produced by a 2" venturi or vacuum pump. Size: 3.25"x 3.25"x 4.75" long. Weight: 1.5 lbs. 1 year warranty.
P/N AN5820-1



TURN & BANK KIT

Consists of an overhauled and certified Turn & Bank indicator, 2" venturi, hoses, fittings and instrument screws.
P/N 10-00300

MINIATURE 2-1/4" TURN & SLIP INDICATOR

Widely used in the turbo-prop market as standard equipment, this dependable instrument fits into the tightest panel space. The AC brushless rotor offers great reliability. Internal lighting options of 5, 14 and 28 volt offer greater flexibility. These were factory installed on the DeHavilland Dash 8 and Boeing Chinook CH47

14V Turn & Slip P/N 10-00305
28V Turn & Slip P/N 10-00310
Plug Connector P/N MS3106A-10SL-3S
Cable Clamp P/N MS3057-4A



2-1/4" INCLINOMETER

This in-dash mounted inclinometer is lightweight and fits a standard 2-1/4" instrument hole. Used on Kifox aircraft & ideal for virtually any homebuilt. P/N 10-00705

IN

TEMPEST DRY AIR PUMPS



TEMPEST TORNADO 3000 DRY AIR PUMPS

New revolutionary LRT oil drain, patent pending feature is designed to drain oil, caused by a leaking Garlock Seal, before it reaches the drive coupler. Provides a tell tale leak path. Closed front ends, designed to eliminate oil and oil residues from entering into the pump. Helps prevent pump failures caused by oil entering into the drive mechanism or rotor and vanes.

- Tempest Tornado 3000 Model AA3215CC P/N 10-00609..... .
- Tempest Tornado 3000 Model AA3216CW P/N 10-00610..... .
- Tempest Tornado 3000 Model AA3215CC-9... P/N 10-00611..... .

TEMPEST VACUUM PUMP COOLING SHROUDS



10-02796

Cooling shrouds have been proven to reduce pump operating temperature and therefore extend service life. Testing has proven reduction in operating temperature by as much as 15%. Saves money - extends service life of dry air pumps. AA20T fits all 200/240 series pumps. AA40T fits all 400 series pumps. Sigma - Tek® pumps are not eligible.

- AA20TP/N 10-02796
- AA40TP/N 10-02797



TEMPEST ELECTRIC AUX. DRY AIR PUMPS

Electric auxiliary dry air pumps are recommended for single engine aircraft flown in IFR conditions as a back-up in the event the primary vacuum pump fails. These pumps are FAA-PMA approved as direct replacements for Airborne pumps previously installed under STC eligibility and STC approval for these pumps for many additional aircraft is pending. Add \$200 core charge on both models. Electric Auxiliary Dry Air Pump Model AA4A2-1 P/N 10-00585.....

Electric Auxiliary Dry Air Pump Model AA4A3-1 P/N 10-00584.....



TEMPEST DRY AIR PUMPS

Tempest dry air pumps, from Aero Accessories, are 100% new production and use all new components. They are FAA-PMA approved replacements for like and similar models on many installations. These pumps are available in the 200, 240, and 400 series.

The AA211CC series come with a 1-year, unlimited hour warranty and the AA241CC, AA242CW, and the AA441CC and AA442CW series come with a 1-year, 500 hour warranty. Warranties expire 2-years from date of manufacture. \$100.00 Core Charge applied to Overhauled Pumps

***Core Rebate available for new pumps.**



TEMPEST DRY AIR PUMPS - OVERHAULED

MODEL	DESCRIPTION	PART NO.	PRICE
215CCWIP	Overhauled Dry Air Pump w/WIP	10-24000-1	.
216CWWIP	Overhauled Dry Air Pump w/WIP	10-24600-1	.
241CC	Overhauled Dry Air Pump	10-24700-1	.
241CC-13	Overhauled Dry Air Pump	10-01969	.
241CC-15	Overhauled Dry Air Pump	10-01968	.
242CW	Overhauled Dry Air Pump	10-24800-1	.
242CW-4	Overhauled Dry Air Pump	10-01971	.
242CW-10	Overhauled Dry Air Pump	10-01972	.
441CC	Overhauled Dry Air Pump	10-01976	.
441CC-3	Overhauled Dry Air Pump	10-01974	.
441CC-7	Overhauled Dry Air Pump	10-01975	.
441CC-7A	Overhauled Dry Air Pump	10-01976	.
441CC-9	Overhauled Dry Air Pump	10-01977	.
441CC-11	Overhauled Dry Air Pump	10-01978	.
441CC-17	Overhauled Dry Air Pump	10-01979	.
441CC-23	Overhauled Dry Air Pump	10-01980	.
442CW	Overhauled Dry Air Pump	10-23600-1	.
442CW-4	Overhauled Dry Air Pump	10-01981	.
442CW-6	Overhauled Dry Air Pump	10-01982	.
442CW-8	Overhauled Dry Air Pump	10-01983	.
442CW-10	Overhauled Dry Air Pump	10-01984	.
442CW-12	Overhauled Dry Air Pump	10-01146	.
442CW-14	Overhauled Dry Air Pump	10-01985	.
442CW-20	Overhauled Dry Air Pump	10-01986	.
AA215CWHK	Overhauled Dry Air Pump	10-01554	.
AA216CCHK	Overhauled Dry Air Pump	10-01155	.

TEMPEST DRY AIR PUMPS - NEW

MODEL	DESCRIPTION	PART NO.	PRICE
AA241CC	New Dry Air Pump	10-24700	.
AA241CC-13	New Dry Air Pump	10-01987	.
AA241CC-15	New Dry Air Pump	10-01988	.
AA242CW	New Dry Air Pump	10-24800	.
AA242CW-4	New Dry Air Pump	10-01989	.
AA242CW-10	New Dry Air Pump	10-01990	.
AA3215CC	New Dry Air Pump	10-00609	.
AA3216CW	New Dry Air Pump	10-00610	.
AA215CC-9	New Dry Air Pump	10-00611	.
AA441CC	New Dry Air Pump	10-23500	.
AA441CC-3	New Dry Air Pump	10-01991	.
AA441CC-7	New Dry Air Pump	10-01992	.
AA441CC-9	New Dry Air Pump	10-01993	.
AA441CC-11	New Dry Air Pump	10-01994	.
AA441CC-17	New Dry Air Pump	10-01995	.
AA442CW	New Dry Air Pump	10-23600	.
AA442CW-4	New Dry Air Pump	10-01996	.
AA442CW-6	New Dry Air Pump	10-01997	.
AA442CW-8	New Dry Air Pump	10-01998	.
AA442CW-10	New Dry Air Pump	10-01999	.
AA442CW-12	New Dry Air Pump	10-02001	.
AA442CW-14	New Dry Air Pump	10-02002	.
AA442CW-20	New Dry Air Pump	10-02003	.

IN

TEMPEST PNEUMATIC COMPONENTS

PNEUMATIC FITTINGS

MODEL	DESCRIPTION	PART NO.	PRICE
AA1K1-4-6	Fitting -1/4 NPT x 3/8 Hose	10-00914	.
AA1K1-4-8	Fitting -1/4 NPT x 1/2 Hose	10-01923	.
AA1K1-6-6	Fitting -3/8 NPT x 3/8 Hose	10-01924	.
AA1K1-6-8	Fitting -3/8 NPT x 1/2 Hose	10-00915	.
AA1K1-6-10	Fitting -3/8 NPT x 5/8 Hose	10-00916	.
AA1K1-8-10	Fitting -1/2 NPT x 5/8 Hose	10-00917	.
AA1K1-8-12	Fitting -1/2 NPT x 3/4 Hose	10-01925	.
AA1K8-6-8	Fitting -3/8 NPT x 1/2 Hose	10-01926	.
AA1K8-6-10	Fitting -3/8 NPT x 5/8 Hose	10-01147	.
AA1K9-4-6	Fitting -1/4 NPT x 3/8 Hose (A-45O)	10-01927	.
AA1K9-6-10	Fitting -3/8 NPT x 5/8 Hose (A-45O)	10-01928	.
AA1K10-2-4	Fitting -1/8 NPT x 1/4 Hose	10-01929	.
AA1K10-4-4	Fitting -1/4 NPT x 1/4 Hose	10-01930	.
AA1K10-4-6	Fitting -1/4 NPT x 3/8 Hose	10-00918	.
AA1K10-4-8	Fitting -1/4 NPT x 1/2 Hose	10-01932	.
AA1K10-6-10	Fitting -3/8 NPT x 5/8 Hose	10-01933	.
AA1K10-6-12	Fitting -3/8 NPT x 3/4 Hose	10-01934	.
AA1K10-8-12	Fitting -1/2 NPT x 3/4 Hose	10-01935	.
AA1K14-6-6-6	Fitting -3/8 NPT x 3/8 x 3/8 Hose	10-01936	.
AA1K14-10-10	Fitting -5/8 NPT x 5/8 x 5/8 Hose	10-01937	.
AA1K17-4-8-6-4	Fitting -1/4 NPTx1/2x3/8x1/4Hose	10-01938	.
AA1K22-10-10	Fitting -5/8 NPT x 5/8 Hose	10-01148	.
AA1K24-2	Fitting -3/4 Hose Flange	10-01939	.
AA1K30-6-6-4	Fitting -3/8 x 3/8 x 1/4 Hose	10-01940	.
AA1K30-10-6-6	Fitting -5/8 x 3/8 x 3/8 Hose	10-01942	.
AA1K31-4-6-4	Fitting -1/4 NPTx1/2x3/8x1/4 Hose	10-01943	.
AA1K43-10-10	Fitting -5/8 x 5/8 Hose	10-01949	.
AA1K43-12-12	Fitting -3/4 x 3/4 Hose	10-01944	.

PNEUMATIC FILTERS

MODEL	DESCRIPTION	PART NO.	PRICE
AA09-14-3	Filter	10-00923	.
AA09-14-5	Filter	10-00924	.
AA09-18-1	Filter	10-01354	.
AA2J4-4	Filter	10-02677	.
AA2J4-6	Line Mounted Filter	10-01946	.
AA2J4-7	Line Mounted Filter	10-01947	.
AA1J7-1	Gyro Filter Assembly	10-01948	.
AA1J7-2	Gyro Filter Assembly	10-01949	.
ARB3-5-1	Garner Filter	10-01333	.

MISCELLANEOUS PARTS

MODEL	DESCRIPTION	PART NO.	PRICE
82-06768	Coupling	10-01951	.
82-50130B	Flange Gasket	10-01952	.
82-50130BP	Flange Gasket-Package of 10	10-01953	.
82-50195	WIP Plug-New Pumps Only	10-01954	.
82-50195P	WIP Plug-New Pumps Only-Pkg. of 10	10-01955	.
82-50195A	WIP Plug-O/H Pumps Only	10-01958	.
82-50195AP	WIP Plug-O/H Pumps Only-Pkg. of 10	10-01959	.
82-50155DP	LRT Diverter Kit	10-01961	.
AA9144	Prop Govenner Gasket	10-01962	.
AA05-77-1	WIP Plug-O/H Pumps Only-Pkg. of 10	10-01963	.
AAF7-236-1	Aux. Switch 14 Volt DC	10-01964	.
AAF7-236-2	Aux. Switch 28 Volt DC	10-01965	.

VACUUM REGULATORS

MODEL	DESCRIPTION	PART NO.	PRICE
AA1H5-25A	Regulating Valve	10-03457	.
AA2H3-2	Regulating Valve	10-03458	.
AA2H3-5	Regulating Valve	10-03459	.
AA2H3-6	Regulating Valve	10-03460	.
AA2H3-12	Regulating Valve	10-03461	.
AA2H3-23	Regulating Valve	10-03462	.
AA2H3-48	Regulating Valve	10-03463	.
O/H 2H3-20	Overhauled Regulating Valve	10-03399	.

OVERHAULED AIRBORNE SOLENOIDS

MODEL	DESCRIPTION	PART NO.	PRICE
1H15-6	Solenoid	10-01860	.

OVERHAULED AIRBORNE VACUUM MANIFOLDS

MODEL	DESCRIPTION	PART NO.	PRICE
1H5-1	Vacuum Manifold	10-01861	.
1H5-2	Vacuum Manifold	10-01862	.
1H5-3	Vacuum Manifold	10-01863	.
1H5-4	Vacuum Manifold	10-01864	.
1H5-6	Vacuum Manifold	10-01865	.
1H5-8	Vacuum Manifold	10-01866	.
1H5-9	Vacuum Manifold	10-01867	.
1H5-10	Vacuum Manifold	10-01868	.
1H5-13	Vacuum Manifold	10-01869	.
1H5-14	Vacuum Manifold	10-01870	.
1H5-18	Vacuum Manifold	10-01871	.
1H5-19	Vacuum Manifold	10-01872	.
1H5-20	Vacuum Manifold	10-01873	.
1H5-21	Vacuum Manifold	10-01874	.
1H5-22	Vacuum Manifold	10-01875	.
1H5-23	Vacuum Manifold	10-01876	.
1H5-24	Vacuum Manifold	10-01877	.
1H5-25A	Vacuum Manifold	10-03457	.

OVERHAULED AIRBORNE PRESSURE MANIFOLDS

MODEL	DESCRIPTION	PART NO.	PRICE
1H24-3	Pressure Manifold	10-01879	.
1H24-6	Pressure Manifold	10-01880	.
1H24-7	Pressure Manifold	10-01881	.
1H24-8	Pressure Manifold	10-01882	.
1H24-10	Pressure Manifold	10-01883	.
1H24-11	Pressure Manifold	10-01884	.
1H24-12	Pressure Manifold	10-01885	.
1H24-18	Pressure Manifold	10-01886	.
1H24-20	Pressure Manifold	10-01887	.

\$200 CORE CHARGE

OVERHAULED AIRBORNE CHECK VALVES

MODEL	DESCRIPTION	PART NO.	PRICE
1H37-1	De-Ice Valve	10-01888	.
1H37-3	De-Ice Valve	10-01889	.
1H37-4	De-Ice Valve	10-01890	.

\$200 CORE CHARGE

OVERHAULED AIRBORNE CHECK VALVES

MODEL	DESCRIPTION	PART NO.	PRICE
1H43-11	De-Ice Valve	10-01891	.
1H43-12	De-Ice Valve	10-01892	.
1H43-13	De-Ice Valve	10-01893	.
1H43-14	De-Ice Valve	10-01894	.
1H43-15	De-Ice Valve	10-01895	.
1H43-16	De-Ice Valve	10-01896	.
1H43-20	De-Ice Valve	10-01897	.
1H43-21	De-Ice Valve	10-01898	.
1H44-12	De-Ice Valve	10-01899	.
1H44-16	De-Ice Valve	10-01906	.
1H44-17	De-Ice Valve	10-01907	.
1H44-18	De-Ice Valve	10-01908	.
2H22-11	De-Ice Valve	10-01909	.
2H22-16	De-Ice Valve	10-01910	.
2H48-14	De-Ice Valve	10-01911	.
2H48-22	De-Ice Valve	10-01913	.
2H48-23	De-Ice Valve	10-01914	.
2H48-24	De-Ice Valve	10-01916	.
2H59-3	De-Ice Valve	10-01917	.
2H59-4	De-Ice Valve	10-01919	.
2H59-8	De-Ice Valve	10-01920	.
2H59-16	De-Ice Valve	10-01921	.

\$200 CORE CHARGE

IN

TEMPEST PNEUMATIC COMPONENTS

TEMPEST OVERHAULED AIRBORNE VACUUM REGULATORS

Model	Description	Superseded by
133A2	Overhauled Airborne Vacuum Regulators	2H3-1
133A3	Overhauled Airborne Vacuum Regulators	2H3-2
133A4	Overhauled Airborne Vacuum Regulators	2H3-12
133A6	Overhauled Airborne Vacuum Regulators	2H3-4
133A7	Overhauled Airborne Vacuum Regulators	2H3-7
133A8	Overhauled Airborne Vacuum Regulators	2H3-25
133A13	Overhauled Airborne Vacuum Regulators	2H3-11
133A16	Overhauled Airborne Vacuum Regulators	2H3-16
133A17	Overhauled Airborne Vacuum Regulators	2H3-13
133A18	Overhauled Airborne Vacuum Regulators	2H3-14
133B3	Overhauled Airborne Vacuum Regulators	2H3-6
133B4	Overhauled Airborne Vacuum Regulators	2H3-22
133B5-1	Overhauled Airborne Vacuum Regulators	2H3-8
133B5-2	Overhauled Airborne Vacuum Regulators	2H3-9
133C1	Overhauled Airborne Vacuum Regulators	2H3-5
133C3	Overhauled Airborne Vacuum Regulators	2H3-10

TEMPEST VACUUM MANIFOLD

Model	Description	Part No.	Price
2H3-1	Vacuum Manifold	10-02970	.
2H3-4	Vacuum Manifold	10-02972	.
2H3-5	Vacuum Manifold	10-02973	.
2H3-6	Vacuum Manifold	10-02974	.
\$200 CORE CHARGE			

TEMPEST PRESSURE MANIFOLD

Model	Description	Part No.	Price
2H3-7	Pressure Manifold	10-02976	.
2H3-8	Pressure Manifold	10-02977	.
2H3-9	Pressure Manifold	10-02978	.
2H3-10	Pressure Manifold	10-02979	.
2H3-11	Pressure Manifold	10-02980	.
2H3-12	Pressure Manifold	10-02981	.
2H3-13	Pressure Manifold	10-02982	.
2H3-14	Pressure Manifold	10-02983	.
2H3-15	Pressure Manifold	10-02984	.
\$200 CORE CHARGE			

TEMPEST CHECK VALVE

Model	Description	Part No.	Price
2H3-16	Check Valve	10-03004	.
2H3-19	Check Valve	10-03006	.
2H3-22	Check Valve	10-03007	.
\$200 CORE CHARGE			

TEMPEST DE-ICE VALVE

Model	Description	Part No.	Price
2H3-25	De-Ice Valve	10-03013	.
2H3-27	De-Ice Valve	10-03015	.
2H3-32	De-Ice Valve	10-03017	.
2H3-35	De-Ice Valve	10-03018	.
2H3-38	De-Ice Valve	10-03019	.
2H3-44	De-Ice Valve	10-03022	.
2H3-45	De-Ice Valve	10-03023	.
2H3-46	De-Ice Valve	10-03024	.
2H3-48	De-Ice Valve	10-03025	.
\$200 CORE CHARGE			

Due to a shortage of cores Vacuum / Pressure regulators may not be in stock. Customer may need to ship their unit to Aircraft Spruce for overhaul.

TEMPEST OVERHAULED AIRBORNE CROSS-REFERENCE

Model	Description	Superseded by
1H30-1	Overhauled Airborne Pressure Regulators	2H30-1
1H30-2	Overhauled Airborne Pressure Regulators	2H30-2
1H30-3	Overhauled Airborne Pressure Regulators	2H30-3
1H30-6	Overhauled Airborne Pressure Regulators	2H30-6
1H30-8	Overhauled Airborne Pressure Regulators	2H30-8
1H30-9	Overhauled Airborne Pressure Regulators	2H30-9
1H30-11	Overhauled Airborne Pressure Regulators	2H30-11
1H30-13	Overhauled Airborne Pressure Regulators	2H30-13
1H30-14	Overhauled Airborne Pressure Regulators	2H30-14

TEMPEST PRESSURE REGULATORS

Model	Description	Part No.	Price
2H30-1	Pressure Regulators	10-03029	.
2H30-2	Pressure Regulators	10-03037	.
2H30-3	Pressure Regulators	10-03039	.
2H30-6	Pressure Regulators	10-03042	.
2H30-8	Pressure Regulators	10-03043	.
2H30-9	Pressure Regulators	10-03045	.
2H30-11	Pressure Regulators	10-03047	.
2H30-13	Pressure Regulators	10-03053	.
2H30-14	Pressure Regulators	10-03054	.
2H30-17	Pressure Regulators	10-03056	.
2H30-27	Pressure Regulators	10-03057	.
2H30-28	Pressure Regulators	10-03060	.
2H30-32	Pressure Regulators	10-03066	.
\$200 CORE CHARGE			

Due to a shortage of cores Vacuum / Pressure regulators may not be in stock. Customer may need to ship their unit to Aircraft Spruce for overhaul.

IN

VACUUM PUMP FITTINGS – VACUUM PUMPS

AIRBORNE VACUUM PUMP REPAIR KITS



Basic Kits – These FAA/PMA kits include rotor, vanes, gasket, and drive coupling.

For Airborne 211/212 Pumps
P/N 10-00901

For Airborne 200 cc/cw Pumps
P/N 10-00902

For Airborne 241/242 Pumps P/N 10-00903

For Airborne 441/442 Pumps P/N 10-01001

Deluxe Kits – These FAA/PMA kits include rotor, coupler, external spline, bushing, blades, nut, cushion washer and band gaskets. Washer and gaskets not included on 200CC kits. Installation instructions included.

For Airborne 211/212 pumps P/N 10-01901

For Airborne 241/242 pumps P/N 10-01903

For Airborne 441/442 pumps P/N 10-01904

RAPCO FAA APPROVED FITTINGS

RA1K1-6-10 - This 90° fitting with 5/8" hose and 3/8" NPT is used in most inlet threaded ports of 200 series vacuum pumps and is a FAA PMA direct replacement for the Airborne Model 1K1-6-10. This 90° fitting has superior flow and low pressure loss.
P/N 10-00395

RA1K8-6-10 - This 152° fitting with 5/8" hose and 3/8" NPT is used in most outlet threaded ports of 200 series vacuum pumps and is a FAA PMA direct replacement for the Airborne. P/N 10-00396

RA1K31-4-6-4 - This 3/8" and 1/4" hose, 1/4" NPT, "T" fitting is used in most threaded ports of the flight instruments and is a FAA PMA direct replacement for the Airborne Model 1K31-4-6-4.
P/N 10-00397

RA1K10-4-6 - This 3/8" and 1/4" hose, 1/4" NPT fitting is used in most inlet threaded ports of the flight instruments and is a direct replacement for the Airborne Model 1K10-4-6.
P/N 10-00398

RA1K10-6-10 - This fitting with 5/8" hose and 3/8" NPT is used in most inlet and outlet threaded ports of the 200 series vacuum pump. The fitting is 5/8" hose out with 3/8" NPT threads. The Rapco, Inc. fitting is a FAA PMA direct replacement for the Airborne Model 1K10-6-10..
P/N 10-01849

RA1K1-4-6 - This 90° fitting with 3/8" hose, 1/4" NPT is used in most threaded ports of the flight instruments and is a FAA PMA direct replacement for the Airborne. P/N 10-01130

PUMP STATOR HOUSINGS

215/216 Pump Stator Housing 82-50122A
P/N 10-00919

\$15.00 Core Charge

241/242 Pump Stator Housing 82-50122-1
P/N 10-00920

\$35.00 Core Charge

441/442 Pump Stator Housing 82-50122-2
P/N 10-00921

\$15.00 Core Charge

RAPCO RA-1H5-1 MANIFOLD CHECK VALVE



This valve is used in many Multi-Engine General Aviation applications. The Rapco, Inc. FAA PMA Multi-Engine manifold check valve is a direct replacement for the Airborne Model 1H5-1.

P/N 10-01131

RAPCO VACUUM SYSTEM KIT



This Vacuum System Kit is ideal for use on experimental aircraft, allowing the kit builder to obtain all of the necessary components of their vacuum system in one convenient kit. The price of this kit reflects a substantial discount over the individual prices of the components if purchased separately.

ately.

This Kit Includes:

- 1 RA215CC Vacuum Pump w/Gasket
- 1 RA2H3-12 Vac. Regulator w/Garter Filter
- 1 RA-IJ7-1 Filter Assembly
- 1 RA1K1-6-10 90° 5/8" Fitting
- 1 RA1K8-6-10 152° 5/8" Fitting
- 2 RA1K31-4-6-4 3/8" and 1/4" T-Fitting
- 2 RA1K10-4-6 3/8" Fitting
- 1 - 5/8" x 3' Hose
- 1 - 3/8" x 5' Hose
- 1 - 1/4" x 6' Hose
- 10 - 04 5/8" Hose Clamp
- 4 - 06 7/8" Hose Clamp
- 1 Installation Diagram
- 1 Suction Gauge

Kit with RA215CC Pump - For engines with **COUNTER CLOCKWISE** turning accessory drives. P/N 11-00099

Kit with RA216CW Pump - For engines with **CLOCKWISE** turning accessory drives. P/N RA-VAC-K2

Kit Without Pump P/N 10-02010

AIRWOLF VACUUM REGULATOR & FIREWALL ADAPTER

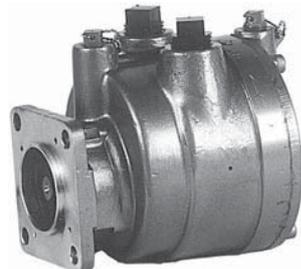
Fully adjustable, cleanable, and rebuildable. (2) 1/2" NPT ports make it fully adaptable to all aircraft.

Vacuum Regulator/Firewall Adapter P/N 10-00769

Adapter, 5/8" x 1/2" hose P/N 10-00770

Adapter, 5/8" x (2) 1/2" hoses P/N 10-00771

Adapter, 5/8" x (2) 3/8" hoses P/N 10-00772



GARWIN / PESCO REMANUFACTURED WET PUMPS

Our supplier remanufactures run-out Pesco and Garwin wet pumps to factory specifications. FAA Approved. These wet pumps do not include the pump drives. Order separately.

Note: Pump Drive is included.

Pesco 194 pump P/N 10-00028

Pesco 207 pump P/N 10-00029

Garwin G455 pump P/N 10-00027

Garwin G450 pump P/N 10-00026

Add . core charge to purchase price. Like cores in repairable condition may be returned to Aircraft Spruce West for full core credit. Return cores via UPS and reference invoice number.

AIRWOLF 3P194-AFC WET VACUUM PUMP



The Airwolf 3P194-F pump incorporates new manufacturing techniques, employs superior bearings to those found in dry pumps, an air machine to extremely tight tolerances. Replaces all 211/212, 215/216, 242/244 Series Airborne / Champion / Rapco / Tempest / Dry Vacuum Pumps, Pesco 3P194-F Garwin G-455 Wet Vacuum Pumps & Sigma Tek 1U128-006 Dry Vacuum Pumps, regardless of direction of pump rotation. This pump works on ALL aircraft that do not have deice boots. Comes with a 2,000 hr, 10 year warranty Airwolf Factory Warranty. \$200 Core charge applies.
P/N 10-00707

VACUUM PUMPS



RAPCO DRY AIR/VACUUM PUMPS

Rapco dry air pumps are FAA approved and available new or overhauled. Committed to quality and customer satisfaction Rapco offers new improved design features backed by an outstanding warranty.

NEW RAPCO DRY AIR PUMPS are FAA – PMA approved. All models come with cooling fins and an inspection port to help determine replacement time. The warranty is for or two years with unlimited hours. No Core Charge on New pumps.

Rapco New Dry Air Vacuum Pumps			
Description	Rapco Part Number	Our Part Number	Price
RA215CC New Rapco Pump	RA215CC	10-23925	.
RA215CC-9 New Rapco Pump	RA215CC-9	10-03401	.
RA216CW New Rapco Pump	RA216CW	10-23935	.
RA241CC New Rapco Pump	RA241CC	10-23950-1	.
RA241CC-13 New Rapco Pump	RA241CC-13	10-03447	.
RA241CC-15 New Rapco Pump	RA241CC-15	10-03448	.
RA242CW New Rapco Pump	RA242CW	10-23960-1	.
RA242CW-4 New Rapco Pump	RA242CW-4	10-03449	.
RA242CW-10 New Rapco Pump	RA242CW-10	10-03450	.
RA441CC New Rapco Pump	RA441CC	10-01126	.
RA441CC-3 New Rapco Pump	RA441CC-3	10-03074	.
RA441CC-7 New Rapco Pump	RA441CC-7	10-03075	.
RA441CC-9 New Rapco Pump	RA441CC-9	10-03076	.
RA441CC-17 New Rapco Pump	RA441CC-17	10-03077	.
RA441CC-23 New Rapco Pump	RA441CC-23	10-03078	.
RA442CW New Rapco Pump	RA442CW	10-01127	.
RA442CW-4 New Rapco Pump	RA442CW-4	10-03079	.
RA442CW-6 New Rapco Pump	RA442CW-6	10-03080	.
RA442CW-8 New Rapco Pump	RA442CW-8	10-03081	.
RA442CW-12 New Rapco Pump	RA442CW-12	10-01128	.
RA442CW-14 New Rapco Pump	RA442CW-14	10-03082	.
RA442CW-20 New Rapco Pump	RA442CW-20	10-03083	.

OVERHAUL DRY AIR PUMPS are FAA approved and come with an FAA 8130-3 form. The warranty is for 1000 hours or one year, which ever comes first on 200 series pumps, and 400 hours or one year which ever comes first on 240 or 400 series pumps.

Rapco Overhauled Dry Air Vacuum Pumps			
Description	Rapco Part Number	Our Part Number	Price
211CC Overhauled Pump	211CC	10-23930	.
211CC-9 Overhauled Pump	211CC-9	10-23931	.
212CW Overhauled Pump	212CW	10-23940	.
215CC Overhauled Pump	215CC	10-03084	.
216CW Overhauled Pump	216CW	10-03085	.
241CC Overhauled Pump	241CC	10-23950	.
241CC-13 Overhauled Pump	241CC-13	10-03086	.
241CC-15 Overhauled Pump	241CC-15	10-03087	.
242CW Overhauled Pump	242CW	10-23960	.
242CW-4 Overhauled Pump	242CW-4	10-03088	.
242CW-10 Overhauled Pump	242CW-10	10-03089	.
441CC Overhauled Pump	441CC	10-02349	.
441CC-3 Overhauled Pump	441CC-3	10-03090	.
441CC-7 Overhauled Pump	441CC-7	10-03091	.
441CC-9 Overhauled Pump	441CC-9	10-03092	.
441CC-11 Overhauled Pump	441CC-11	10-03093	.
441CC-13 Overhauled Pump	441CC-13	10-03094	.
441CC-17 Overhauled Pump	441CC-17	10-03095	.
441CC-23 Overhauled Pump	441CC-23	10-03096	.
442CW Overhauled Pump	442CW	10-02350	.
442CW-4 Overhauled Pump	442CW-4	10-03097	.
442CW-6 Overhauled Pump	442CW-6	10-03098	.
442CW-8 Overhauled Pump	442CW-8	10-03099	.
442CW-10 Overhauled Pump	442CW-10	10-03101	.
442CW-12 Overhauled Pump	442CW-12	10-02351	.
442CW-14 Overhauled Pump	442CW-14	10-03102	.
442CW-16 Overhauled Pump	442CW-16	10-03103	.
442CW-18 Overhauled Pump	442CW-18	10-03104	.
442CW-20 Overhauled Pump	442CW-20	10-03105	.

Add Core Charge on Overhauled Pumps to purchase price.
 200 Series \$100.00 400 Series \$200.00 Return Cores must be Rapco or Airborne aluminum cores, no cast iron cores accepted. Cores must be returned in repairable condition to receive full credit. Return cores via UPS and reference Aircraft Spruce Invoice Number.
 Add Core Charge On Overhauled Pumps to purchase price. 200 Series . 400 Series . Return Cores must be Rapco or Airborne aluminum cores, no cast iron cores accepted. Cores must be returned in repairable condition to receive full credit. Return cores via UPS and reference Aircraft Spruce Invoice No. No core with all new Rapco Pumps.



RAPCO VACUUM PUMP REMOVAL & INSTALLATION TOOL

The RA716 Pump Wrench provides superior access to the vacuum pump flange nuts. This new tool is made from quality hardened steel with corrosion resistant nickel plating. The shank is shaped to provide easy access to tight areas between the pump and accessories. The open end head is laser cut providing a close tolerance fit on the nut. Plastic coating on the handle provides a firm grip. P/N 10-13911



SIGMA-TEK DRY AIR PUMP

The Sigma-Tek 1U128-006 is a pump which carries a warranty for 2-years or 1000 hours. It uses an aluminum rotor and rotor housing, making the pump very resistant to damage from ingestion of foreign objects, excessive loads or engine oil. It provides clean, dry air for operation of air driven instruments in aircraft operating at medium altitudes. Pump rotates clockwise or counterclockwise in vacuum or pressure mode. May be mounted in either a vertical or horizontal position. FAA approved as a direct replacement for all instrument pumps but is not intended for supplying air to deicing boots. Mounting gasket furnished. Install suction regulator in line to instruments. Delivers 6 In. Hg vacuum (2.9-8.5 minimum CEM) or 6 In. Hg pressure (3.7-8.5 minimum CEM) from 1500 to 4000 RPM. No core charge. P/N 10-02778



SIGMA-TEK AEON DRY PISTON AIR PUMP

The Sigma Tek 1U478-003 piston air pump's unique design features give virtually maintenance free operation with unprecedented long life and is backed by a full 5 year/2,000 hours warranty. Will replace 200 series and 1U128 series instrument vacuum pumps. Contains no brittle carbon rotor and vanes to shatter, making this pump highly resistant to damage from foreign objects or excessive loading. This pump operates either clockwise or counterclockwise engine pad rotation in the vacuum or pressure mode. Each port is clearly marked. May be mounted in any orientation. Mounting gasket furnished. Sigma Tek recommends using our high flow fittings, always use P/N 58B423-003 (90 degree long) and 58B423-004 (90 degree short) fittings where applicable. FAA-PMA approved. PN 10-01133

AAA REMANUFACTURED DRY AIR PUMP

Arizona Aircraft Accessories is an FAA Approved overhaul facility which remanufactures run-out Airborne vacuum pumps to factory specifications. Warranty on 211/212 series pumps is 1-year/1000 hours and on 240/440 series pumps warranty is 1-year/400 hours. Weight: 211/212/240 series= 3 lbs.; 441/442 series = 4 lbs.

215cc pump	P/N 10-00068
216cw pump	P/N 10-00069
241cc pump	P/N 10-00070
242cw pump	P/N 10-00071
441cc pump	P/N 10-00072
442cw pump	P/N 10-00073

Call for PMA before sending pump to Aircraft Spruce West for overhaul.



RAPCO DRY AIR PUMP COOLING SHROUD/FLANGE KITS

These kits are easy to install onto Airborne, Edo-Aire, & Sigma-Tek dry air pumps. Keeping the air pump cool can extend pump life and help prevent premature

pump failure.
 Model RA20A, For 200/240 series pump..... P/N 10-23955

VACUUM PUMP SHEAR COUPLINGS

These parts fit Airborne 200 & 400 series pumps.
 Shear Coupling

VACUUM PUMP RETAINING NUT TOOL

This tool efficiently places the retaining nuts on the vacuum pump mounting studs on Lycoming engines, saving time and frustration for the aircraft mechanic. Use this tool to start the nuts on the studs, and complete the operation using the Rapco wrench (10-13911). Made in the U.S.A. P/N 10-01052

TEMPEST VACUUM FILTERS

FAA-PMA Approved

ARB3-5-1	P/N 10-00922
AAD9-14-3	P/N 10-00923
AAD9-14-5	P/N 10-00924
AAD9-18-1	P/N 10-00937

TEMPEST VACUUM PUMP WRENCH

Case hardened steel, with nickel-chrome plating for corrosion resistance. Slip resistant vinyl grip. Rare earth magnet allows efficient and easy installation of hard-to-get-to install nuts. Eligibility: Fits all 200, 240, 400 and 3200 series vacuum pumps.....P/N 10-02654

SUCTION REGULATORS – PNEUMATIC FILTERS

PARKER SUCTION REGULATOR



Constructed of lightweight aluminum. Large air passages minimize the pressure drop through the valve. Valve chatter is virtually eliminated by pneumatically balancing the regulating diaphragm. The simple but effective polyurethane garter filter protects the air pump and may be easily replaced. Beaded hose fittings simplify installation and eliminate expensive AN fittings which unnecessarily restrict air flow.

Has 5/8" & 5/8" Ports (Straight).....P/N 10-02105.....
 Has 5/8" x 3/8" Ports (45° elbow).....P/N 10-02102.....
 Has 5/8" x 3/8" Ports (Straight).....P/N 10-03423.....
 Replace. Filter (replace after 100 hrs operation). P/N B3-5-1.....

TEMPEST VACUUM REGULATORS

FAA/PMMA Approved



AA 2H3-2.....P/N 10-03458.....
 AA 2H3-6.....P/N 10-03460.....
 AA 2H3-12.....P/N 10-03461.....
 AA 2H3-23.....P/N 10-03462.....

RAPCO VACUUM REGULATORS



P/N 10-00289

P/N 10-03009



P/N 10-03147

RAPCO RA2H3-12 VACUUM REGULATOR (PN 10-00289)

This FAA Approved Rapco vacuum regulator is designed to maintain a constant suction at various altitudes and is used in various General Aviation applications. It is a direct replacement for the Airborne Model 2H3-12, and supersedes the 133A16 or 2H3-16. It is adjustable and come preset to 5.0 inches of mercury (HG). This model has two 3/8" hose inlet ports at a 45 degree angle to each other and one 5/8" hose outlet port.

RAPCO RA2H3-23 VACUUM REGULATOR (PN 10-03009)

This FAA Approved Rapco vacuum regulator is designed to maintain a constant suction at various altitudes and is used in various General Aviation applications. It is a direct replacement for the Airborne Model 2H3-23, and supersedes the 133A4. It is adjustable and comes preset to 5.0 inches of mercury (HG). This model has two 3/8" hose inlet ports parallel to each other and one 5/8" hose outlet port.

RAPCO RA2H30-9 PRESSURE REGULATOR (PN 10-03147)

This FAA Approved Rapco pressure regulator is designed to maintain a constant pressure at various altitudes and is used in aircraft with pressure instrument systems such as newer Beechcraft Bonanza. It is a direct replacement for the Airborne Model 2H30-9, and supersedes the 1H30-9. It is adjustable and come preset to 5.0 inches of mercury (HG). This model has a 5/8" hose inlet port and a 5/8" hose outlet port.

Description	Rapco Model No.	Part No.	Price
RAPCO Vacuum Regulator	RA2H3-12	10-00289	.
RAPCO Vacuum Regulator	RA2H3-23	10-03009	.
RAPCO Vacuum Regulator	RA2H30-9	10-03147	.

VACUUM RESTRICTOR VALVE



AN5829-2 manually adjustable needle valve complete with locking collar and mounting flange. For reducing vacuum to 2" Hg for operation of turn/bank. Manufactured by ACS Products Co..... P/N AN5829-2.....



Aircraft Spruce offers RAPCO FAA-PMA approved filter replacements for Airborne assemblies. Destructive contamination abounds within an aircraft environment. Without proper filtration, system dirt and dust from the cabin as well as cigarette smoke will take its toll. This results in the replacement of expensive gyro instruments and other components. Your operating costs can be significantly reduced when filters are changed on a scheduled basis. RAPCO in-line and central filters are constructed to the highest industry standards. They utilize a 0.3 micron filtration media which provides superior filtration without undue air flow restriction. As a RAPCO distributor, Aircraft Spruce offers these replacement filters at exceptionally low prices.

CLEAR VIEW INLINE AIR FILTER



Constructed of high temperature, high impact material, the CV1J4 transparent housing allows the aircraft mechanic, pilot or owner to visually monitor filter contamination when referenced with an internal "Change Indicator" decal. This revolutionary new design will aid in identifying malfunctioning or inoperative system components that cause premature air pump wear and avoid replacement of clean filters usually replaced annually or based on aircraft operating hours. When installed in a "Vacuum" gyro system between the air pump and gyro instruments, the CV1J4 "Clear View" air filter will prevent contamination of gyro instruments from carbon dust created by air pump failure. The CV1J4 filter is a direct replacement for Airborne 1J4-6 and 1J4-7 filters. FAA/PMA approved for Beechcraft Singles & Twins, Piper PA31, 31P, -300, -310, -325, -350, PA-31P-350, PA31T2, PA-34-200T, Grumman GA-7, Rockwell 700, standard equipment on all Mooney aircraft. P/N 10-00450.....

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INLINE AIR FILTER KIT FOR CESSNAS



This FAA-PMA approved kit includes a CV1J4 clear view filter, necessary hardware, a copy of the STC and detailed instructions for smooth installations. An adhesive backed label is provided for recording kit installation data in aircraft log books. P/N 10-00451.....

INLINE AIR FILTER KIT FOR PIPERS

Similar to kit for Cessnas above. FAA approved for most PA-28 and all PA-38. P/N 10-00452.....

Model	Year	A/C Serial No.
150K, L, M	1970-1977	15071129 to 15079405
A150K, L, M	1970-1977	A1500001 to A1500734
152	1978-1985	15279046 to 15286033
A152	1978-1985	A1520735 to A1521049
172 L, K, L, M, N, P, Q	1968-1985	17256513 to 17276516
R172K	1977-1961	R1722000 to R1723454
172RG	1980-1985	172RG0001 to 172RG1191
177, A, B	1968-1978	17700001 to 17702752
177RG	1971-1978	177RG0001 to 177RG1366
182R	1985-1986	18268435 to 18268615
T182	1981-1985	18267716 to 18268541
R182	1983-1986	R18201929 to R18202041
TR182	1983-1986	R18201929 to R18202041



AIRBORNE CENTRAL AIR FILTERS

Increase gyro life with Airborne gyro air filter. Incorporates a 0.3 micron filter element that protects gyro instruments by filtering out tobacco smoke and cabin dust. Small, lightweight, easily installed. Fits most planes. Dual 3/8" beaded tubes simplify 2-gyro installations.

Part No.	Description	Price
1J7-1	Vacuum Instrument Central Gyro Air Filter: 0.3 micron pleated paper element with two 3/8" installation tubes.	.
B3-5-1	Vacuum relief & pump inlet foam garter filter: Foam Garter filter. Fits Airborne 133 & 2H3 Regulating Valves.	.
D9-14-5	Replacement element used in Airborne 1J2 Series Inlet filter (except 1J2-2)	.
D9-14-3	Replacement element used in Airborne 1J2-2.	.
D9-18-1	Replacement Filter for Airborne 1J7-1 Gyro filter Assy.	.
1J10-1	Line mounted Filter 3/8"x3/8" non-beaded tube 5-3/4" long.	.

RAPCO REPLACEMENT PNEUMATIC FILTERS

Description	Airborne Number	RAPCO Number	Part No.	Recommended Replacement	Price
Line Mounted Filter, 1/2"x1/2" Tube	1J4-4	RA 1J4-4	10-23810	500 hrs/1yr	.
Line Mounted Filter, 5/8"x5/8" Tube	1J4-6	RA 1J4-6	10-23820	100 hrs	.
Line Mounted Filter, 5/8"x5/8" Tube Overall length 5-1/2"	1J4-7	RA 1J4-7	10-23830	500 hrs/1yr	.
Vacuum Central Gyro Air Filter Assy	1J7-1	RA 1J7-1	10-23840	500 hrs/1yr	.
Vacuum Pump Inlet Garter Filter	B3-5-1	RA B3-5-1	10-23850	500 hrs/1yr	.
Replacement Element, 1J2-2 filter	D9-14-3	RA D9-14-3	10-23860	500 hrs	.
Rep. Element for 1J2 series (except 1J2-2)	D9-14-5	RA D9-14-5	10-23870	500 hrs	.
Replacement Element, 1J7-1 Filter	D9-18-1	RA D9-18-1	10-23880	500 hrs	.
Bellanca filter-Vacuum Autopilot		RA51A-5	10-02118	.	.
Line Mounted Filter - 3/8" x 3/8"	1510-1	RA1J10-1	10-00287	.	.

GYRO SUCTION - PRESSURE GAUGES



UMA 1" GYRO SUCTION GAUGES

Case: Molded ABS Plastic. Weight: 1.4 oz.

PART NO.	RANGE	DIAL MARKINGS	PRICE
10-02361	3-7 IN.HG	B & W	.
10-00311	3-7 IN.HG	GA 4.5-5.4	.
10-02464	3-7 IN.HG	GA 3.5-5.0, RR 3.5 & 5.0	.



UMA 1-1/4" GYRO SUCTION GAUGES

Case: Molded ABS Plastic. Weight: 1.4 oz.

PART NO.	RANGE	DIAL MARKINGS	PRICE
10-01010	3-7 IN. HG.	GA 4.5-5.2, RR 4.5 & 5.2	.
10-02465	3-7 IN. HG.	GA 4.75-5.25, RR 4.75 & 5.25	.
10-02466	3-7 IN. HG.	GA 4.5-5.0	.
10-02467	2-6 IN. HG.	GA 3.8-4.4, RR 3.8 & 4.4	.
10-02358	3-7 IN. HG.	B & W	.
10-02468	2-6 IN. HG.	GA 4.0-5.0	.
10-02469	2-6 IN. HG.	GA 4.5-5.4, YA 2.0-4.5, RR 6.0	.
10-02470	2-6 IN. HG.	GA 3.5-5.0, RR3.5	.
10-02471	0-10 IN. HG.	B & W	.



UMA 2-1/4" UMA GYRO SUCTION

Case: Cast Aluminum. Weight: 4.7 oz.

PART NO.	RANGE	DIAL MARKINGS	PRICE
10-00090	2-8 IN. HG.	GA 4.6-5.4	.
10-01000	0-10 IN. HG.	B & W	.
10-02359	0-10 IN. HG.	GA 4-5, RR 5	.
10-02360	0-10 IN. HG.	GA 4.2-4.4, RR 4.2 & 5.3	.



UMA 1-1/4" PNEUMATIC PRESSURE

Case: Molded ABS Plastic. Weight: 1.4 oz.

PART NO.	RANGE	DIAL MARKINGS	PRICE
10-02364	0-25 PSI	GA 5.0-10, YA 10-21	.
10-02365	0-25 PSI	GA 15-21, YA 21-25, RR 14.9	.
10-12305	0-25 PSI	GA 15-21, RR 24	.
10-02366	0-25 PSI	GA 2.5-7.5, YA 7.5-21	.



VARGA 1" INCH ROUND SUCTION GAUGE

Miniature 1" round case instrument. Used in many production aircraft. A real space saver.
P/N 10-01100

**FOR EXPERIMENTAL AIRCRAFT ONLY.
NOT FAA APPROVED**



1-1/4 INCH GYRO PRESSURE GAUGE

These units are designed to save space in cockpit panels. These gauges utilize an internal diaphragm for accuracy and reliability. Miniature 1-1/4" instrument. Case: Molded ABS Plastic. Weight: 1.4 oz.

PART NO.	RANGE	DIAL MARKINGS	PRICE
10-01105	3-7 IN. HG.	GA 4.25-6.25	.
10-02462	3-7 IN. HG.	GA 4.25-5.2, RR 4.25 & 5.2	.
10-02463	3-7 IN. HG.	GA 4.5-5.2, YA 3.8-4.5, RR 3.8 & 5.2	.



UMA 2-1/4" GYRO PRESSURE GAUGES

These units are designed to save space in cockpit panels. These gauges utilize an internal diaphragm for accuracy and reliability. Case: Cast Aluminum. Weight: 4.7 oz.

PART NO.	RANGE	DIAL MARKINGS	PRICE
10-02362	2-8 IN. HG.	B & W	.
10-02363	2-8 IN. HG.	GA 4.5-5.5	.



UMA 2-1/4" CABIN ALTITUDE DIFFERENTIAL PRESSURE GAUGE

Case: Valox 420 Plastic Weight: 7.4 oz.

PART NO.	RANGE	DIAL MARKINGS	PRICE
10-02370	0-25,000 Ft. 0-6 PSI	B & W	.
10-02371	0-30,000 Ft. 0-6 PSI	GA 0-10, YA 10-28	.
10-02460	0-30,000 Ft. 0-6 PSI	GA 0-10, YA 10-28	.
10-02461	0-35,000 Ft. 0-8 PSI	B & W	.

IN

AIRSPEED INDICATORS



UMA AIRSPEED INDICATORS (NON-TSO'D)

These quality UMA, non-TSO'd airspeed indicators are available in MPH, Knots or Dual Scales.

Description	Dial	Part No.	Price
3-1/8"	20-80 mph	10-04905	.
3-1/8"	20-100 mph	10-04910	.
3-1/8"	20-120 mph	10-04915	.
3-1/8"	20-140 mph	10-04920	.
3-1/8"	20-160 mph	10-04925	.
3-1/8"	40-180 mph	10-04930	.
3-1/8"	40-200 mph	10-01029	.
3-1/8"	40-240 mph	10-00512	.
3-1/8"	40-260 mph	10-01030	.
3-1/8"	40-280 mph	10-01031	.
3-1/8"	40-300 mph	10-01032	.
3-1/8"	20-80 mph Knots	10-01033	.
3-1/8"	20-100 mph Knots	10-01034	.
3-1/8"	20-120 mph Knots	10-04950	.
3-1/8"	20-140 mph Knots	10-04955	.
3-1/8"	20-160 mph Knots	10-01035	.
3-1/8"	40-180 mph Knots	10-04965	.
3-1/8"	40-200 mph Knots	10-04970	.
3-1/8"	40-240 mph Knots	10-00514	.
3-1/8"	40-260 mph Knots	10-01036	.
3-1/8"	40-280 mph Knots	10-01037	.
3-1/8"	40-300 mph Knots	10-01038	.
3-1/8" Dual	20-140 mph/20-120 Knots	10-00511	.
3-1/8" Dual	40-160 mph/20-135 Knots	10-02200	.
3-1/8" Dual	40-180 mph/20-150 Knots	10-02300	.
3-1/8" Dual	40-200 mph/40-170 Knots	10-02400	.
3-1/8" Dual	40-240 mph/40-205 Knots	10-02600	.
3-1/8" Dual	40-260 mph/40-225 Knots	10-01039	.
3-1/8" Dual	40-300 mph/40-250 Knots	10-01040	.
3-1/8" Dual	40-350 mph/40-300 Knots	10-01041	.
3-1/8" Dual	40-260 Knots/50-300 mph	10-01042	.
3-1/8" Dual	40-300 Knots/40-340 mph	10-01043	.
Range Markings	UMA Range Markings on NON-TSO Units	10-02792	.



UMA 3-1/8" AIRSPEED INDICATORS (TSO'd)

These quality UMA airspeed indicators are available in MPH, Knots or Dual Scales.

Single Scale	P/N	Price	Dual Scale	P/N	Price
3-1/8" 40-160MPH TSO'D	10-03250	.	3-1/8" 160MPH TSO'D	10-03270	.
3-1/8" 40-180MPH TSO'D	10-03251	.	3-1/8" 180MPH TSO'D	10-03271	.
3-1/8" 40-200MPH TSO'D	10-03252	.	3-1/8" 200MPH TSO'D	10-03272	.
3-1/8" 40-240MPH TSO'D	10-03253	.	3-1/8" 240MPH TSO'D	10-03273	.
3-1/8" 40-260MPH TSO'D	10-03254	.	3-1/8" 260MPH TSO'D	10-03274	.
3-1/8" 40-280MPH TSO'D	10-03255	.			
3-1/8" 40-300MPH TSO'D	10-03256	.			

Single Scale	P/N	Price	Dual Scale	P/N	Price
3-1/8" 40-160K Not TSO'D	10-03257	.	3-1/8" 205K Not TSO'D	10-03276	.
3-1/8" 40-180K Not TSO'D	10-03258	.	3-1/8" 240K Not TSO'D	10-03277	.
3-1/8" 40-200K Not TSO'D	10-03259	.	3-1/8" 260K Not TSO'D	10-03278	.
3-1/8" 40-240K Not TSO'D	10-03260	.	3-1/8" 300K Not TSO'D	10-03279	.
3-1/8" 40-260K Not TSO'D	10-03261	.	3-1/8" 300MPH TSO'D	10-03275	.
3-1/8" 40-280K Not TSO'D	10-03262	.			
3-1/8" 40-300K Not TSO'D	10-03263	.			



UMA 2-1/4" MINIATURE AIRSPEEDS

A fine quality instrument of new manufacture for the exceptional homebuilt aircraft. Matte-white dial markings. Fits standard 2-1/4" instrument panel opening. Space saving dims: 2-3/8"x2-3/8"x3.25"L. All ranges available in knots.

Range	P/N	Range	P/N	Range	P/N
20-100 MPH	10-03992	40-160 MPH	10-03996	40-240 MPH	10-04000
20-120 MPH	10-03993	40-180 MPH	10-03997	40-260 MPH	10-04001
20-140 MPH	10-03994	40-200 MPH	10-03998	40-300 MPH	10-04002
0-120 Knot	10-03995	40-140 Knot	10-00507	40-160 Knot	10-01787
40-180 Knot	10-00508	40-200 Knot	10-00509	40-240 Knot	10-00510

ALL MODELS.....



UNITED AIRSPEED INDICATORS (TSO'D)

These 8000 series United airspeeds are TSO'd for installation on certificated aircraft. Factory new. Available in dual scale MPH/knots, or in MPH or knots only. Fits standard 3-1/8" panel hole. Wt: 0.7 lb. Not Lighted.

Range	Part No.	Price	Range	Part No.	Price
40-200mph/40-170kts	10-00190	.	0-170 knots	10-00198	.
0-250mph/40-200 kts	10-00191	.	0-210 knots	10-00199	.
40-300mph/40-260 kts	10-00192	.	0-200mph	10-00194	.
0-260 knots	10-00201	.	0-300 mph	10-00196	.
0-250mph	10-00195	.			

Available with custom range marks P/N 10-02614

LIGHTED UNITED AIRSPEEDS

Add -1 to P/N's above for internally lighted airspeed indicators. For an additional \$128.00

UNITED TRUE AIRSPEED INDICATORS

The true airspeed indicator corrects the indicated airspeed for changes in temperature and pressure encountered as aircraft changes altitude. By aligning outside temperature and pressure altitude with setting knob, movable airspeed scale is rotated proper amount so pointer registers true airspeed. Factory new 8100 series by United. TSO'D for certificated aircraft. Dual scale. Not Lighted.

Add . for custom range marks

& specify exact range marks needed.

Series	Range	Part No.	Price
8100	0-200mph/170kt	10-00203	.
8125	0-250mph/215kt	10-00204	.
8130	60-300mph/260kt	10-00207	.
8130	0-300 mph	10-00214	.
8100	40-170 Knots	10-00216	.
8125	0-200mph/170kt	10-00217	.
8130	0-260 Knots	10-00218	.
8140	60-350 Knots	10-00219	.

LIGHTED UNITED AIRSPEEDS

Add -1 to P/N's above for internally lighted airspeed indicators.



UMA 2-1/4 TSO'D AIRSPEED INDICATORS

Dual Scale (MPH/Knots) with multicolor markings

UMA indicators are FAA TSO'd to C2d specifications. Installable in a fixed wing aircraft with a reciprocating or Turboprop Engine. Must be installed in a temperature controlled environment from -55 to +85 °C, to a max altitude of 25,000 ft. UMA offers indicators with full scale ranges available, from 160 to 300 in MPH or Knots.

UMA Part NO.	Range	Part No.	Price
T16-210-121	20-120 MPH	10-03577	.
T16-211-121	20-120 Knots	10-03578	.
T16-210-141	20-140 MPH	10-03579	.
T16-211-141	20-140 Knots	10-03580	.
T16-210-142	30-140 MPH	10-03582	.
T16-211-142	30-140 Knots	10-03583	.
T16-210-160	40-160 MPH	10-03584	.
T16-211-160	40-160 Knots	10-03585	.
T16-210-161	20-160 MPH	10-03586	.
T16-211-161	20-160 Knots	10-03587	.
T16-210-180	40-180 MPH	10-03588	.
T16-211-180	40-180 Knots	10-03589	.
T16-210-200	40-200 MPH	10-03590	.
T16-211-200	40-200 Knots	10-03591	.
T16-210-240	40-240 MPH	10-03592	.
T16-211-240	40-240 Knots	10-03593	.
T16-210-260	40-260 MPH	10-03594	.
T16-211-260	40-260 Knots	10-03595	.
T16-210-300	40-300 MPH	10-03596	.
T16-211-300	40-300 Knots	10-03597	.
T16-210-400	40-400 MPH	10-03598	.
T16-211-400	40-400 Knots	10-03599	.
T16-212-240	40-240 KmH	10-03602	.
T16-212-260	40-260 KmH	10-03603	.
T16-212-280	40-280 KmH	10-03604	.
T16-212-300	40-300 KmH	10-03605	.
T16-212-320	40-320 KmH	10-03606	.
T16-212-380	40-380 KmH	10-03607	.
T16-212-400	40-400 KmH	10-03608	.
T16-212-440	40-440 KmH	10-03609	.

IN

AIRSPEED INDICATORS



FALCON 3 1/8" SINGLE RANGE AIRSPEEDS

Falcon Gauge Airspeed Indicators have been one of the most chose flight instruments by kit plane builders and pilots. There are many great advantages to using these gauges: excellent slow speed characteristics; very progressive increments; a variety of ranges, light weight; short length, and affordable price. All Falcon Gauge Airspeed Indicators are housed in an aluminum case and consist of all metal parts.

Available ranges: mph, knots, km/hr; single range reading or dual range readings. Size: 3-1/8". Non-Tso'd

Range	Length	Weight	Part No.	Price
0-80 MPH	2.2"/56.5mm	10.2 oz/290g	10-02905	.
0-100 MPH	2.2"/56.5mm	10.2 oz/290g	10-02910	.
0-120 MPH	2.2"/56.5mm	10.2 oz/290g	10-02915	.
0-140 MPH	2.2"/56.5mm	10.2 oz/290g	10-02916	.
0-150 MPH	2.2"/56.5mm	10.2 oz/290g	10-02225	.
20-160 MPH	3.5"/97.3mm	13.1 oz/372g	10-02917	.
20-180 MPH	3.5"/97.3mm	13.1 oz/372g	10-03000	.
20-200 MPH	3.5"/97.3mm	13.1 oz/372g	10-02918	.
0-80 KNOTS	2.2"/56.5mm	10.2 oz/290g	10-02896	.
0-100 KNOTS	2.2"/56.5mm	10.2 oz/290g	10-02897	.
0-120 KNOTS	2.2"/56.5mm	10.2 oz/290g	10-02898	.
0-140 KNOTS	3.5"/97.3mm	13.1 oz/372g	10-02899	.
20-160 KNOTS	3.5"/97.3mm	13.1 oz/372g	10-02900	.
20-180 KNOTS	3.5"/97.3mm	13.1 oz/372g	10-02217	.
30-200 KNOTS	3.5"/97.3mm	13.1 oz/372g	10-02218	.
30-200 KNOTS	3.5"/97.3mm	13.1 oz/372g	10-02219	.
0-120 KNOTS	2.2"/56.5mm	10.2 oz/290g	10-02220	.
0-150 KPH	2.2"/56.5mm	10.2 oz/290g	10-02221	.
0-200 KPH	2.2"/56.5mm	10.2 oz/290g	10-02222	.
0-300 KPH	2.2"/56.5mm	10.2 oz/290g	10-02223	.

FALCON 3 1/8" DUAL RANGE AIRSPEEDS

Falcon Gauge Airspeed Indicators have been one of the most chose flight instruments by kit plane builders and pilots. There are many great advantages to using these gauges: excellent slow speed characteristics; very progressive increments; a variety of ranges, light weight; short length, and affordable price. All Falcon Gauge Airspeed Indicators are housed in an aluminum case and consist of all metal parts.

Falcon Gauge Dual Dial Airspeed Indicators provide dual readings and are suitable for higher performance type aircraft flying at moderate to high speeds. Matte-white dial markings, housed in a sturdy protective aluminum case.

Weight: approx. 10.5 oz./301g Length: 3.5" or 97.3 mm
Size: 3-1/8"

Range	Part No.	Price
20-160 MPH/140 KNOTS	10-02227	.
30-180 MPH/160 KNOTS	10-02228	.
30-200 MPH/180 KNOTS	10-02901	.
40-250 MPH/220 KNOTS	10-02229	.
40-300 MPH/260 KNOTS	10-02230	.
20-300 MPH/160 KNOTS	10-02231	.
40-120 KNOTS/ 240 MPH	10-02233	.



THE KIT COLE CLARIFIER

The Kit Cole Clarifier Removable

The Kit Cole Clarifier is a non FAA approved coated, high quality glass lens provided in a kit that allows you to temporarily attach it to your altimeter face for all of your VFR & LSA flying needs. The kit comes complete with a non-permanent, clear bonding gel and instructions for installation. This product is sold as a removable visual aid and is not intended for IFR use on TSO'd altimeters. The Kit Cole Clarifier is not sold to be permanently bonded to your altimeter face by any non FAA approved techniques.

The FAA Approved Kit Cole Clarifier

The Kit Cole Clarifier (US Patent No 7,313,962, 7,404,322) is a FAA approved coated, high quality glass lens provided in a kit that is attached to your altimeter face for all of your VFR & LSA flying needs. This product is sold as a visual aid and is intended for IFR use on TSO'd altimeters. Special order only must send in altimeter to have bonded.

Kit Cole Clarifier RemoveableP/N 10-02838
Kit Cole Clarifier - FAA Approved.....P/N 11-07785



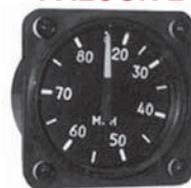
FALCON 3 1/8' TRUE AIRSPEEDS

Falcon Gauge True Airspeed Indicators have a sub-dial and window. The pilot can set the dial to coincide the outside temperature with the flight altitude for immediate and accurate true airspeed reference. It is a high precision airspeed indicator which makes for a nice feature and impression in an experimental aircraft cockpit. It also features all parts made with metal, aluminum case housing, short length and light weight. Non-Tso'd

Dual Range: mph inside/knots outside or knots inside/mph outside
Single Range: mph or knots Size: 3-1/8"
Length: 2.2" or 56.5mm Weight: 10.5 oz. or 301g

Range	Lighting	Part No.	Price
40-240 MPH/210 KNOTS		10-00001	.
40-240 MPH/210 KNOTS	LIT	10-02214	.
40-210 KNOTS/240 MPH		10-00002	.
40-260 MPH /220KNOTS		10-00004	.
40-260 MPH/220 KNOTS	LIT	10-02234	.
40-200 KNOTS/260 MPH		10-00003	.
40-200 KNOTS/260 MPH	LIT	10-02216	.
40-240 MPH		10-02248	.
40-240 MPH	LIT	10-02249	.
40-260 MPH		10-02235	.
40-260 MPH	LIT	10-02236	.
40-210 KNOTS		10-02237	.
40-210 KNOTS	LIT	10-02238	.
40-220 KNOTS		10-02240	.
40-220 KNOTS	LIT	10-02239	.

FALCON 2 1/4" MINIATURE AIRSPEEDS



Falcon Gauge Miniature Airspeed Indicators are designed for ultralights. They offer ultralight pilots an affordable alternative to other higher priced indicators found in the market today without compromising the pilot's needs for a quality gauge that provides accuracy, light weight, compactness and safety. Their excellent slow speed performance provides an extra measure of safety by assuring accurate speed readings when flying low or critical stall speeds.

Weight: approx. 2.8 oz. or 80g
Length: 2-9/16" or 41mm

Range	Part No.	Price
0-80 MPH	10-02605	.
0-100 MPH	10-02610	.
0-120 MPH	10-02615	.
0-140 MPH	10-02620	.
0-120 MPH	10-02625	.
0-140 MPH	10-02226	.



SIGMA-TEK AIRSPEEDS (TSO'D)

Sigma-Teks precision airspeeds are original equipment on a variety of aircraft and over 144,000 have been delivered worldwide. Select from a single MPH scale or dual scale showing MPH / Knots. New manufacture. TSO'd for certificated aircraft unlit. Add \$95 for custom range markings. (Specify exactly)

Description	Part No.	Price
SIGMA TEK AIRSPEED 40-200MPH	10-03100	.
SIGMA TEK D/S AIRSPEED 40-200MP	10-03200	.
SIGMA TEK AIRSPEED 40-250MPH	10-03110	.
SIGMA TEK D/S AIRSPEED 40-250MP	10-03210	.
SIGMA TEK AIRSPEED 40-300MPH	10-03115	.
SIGMA TEK D/S AIRSPEED 40-300MP	10-03215	.



AIRSPEED INDICATOR 2 INCH CERTIFIED-14V

• All units approved to FAA TSO (C10b,C2b and C4c) • Anti-reflective glass enhances visibility and reduces pilot fatigue • Rear-mounted in standard 2 1/4" cutouts horizontally, vertically or individually • Airspeed available in 250, 350 or 400 knots • All instruments are made in the USA • One year limited warranty.

2" 250 Knot 14V.....P/N 10-02687
2" 350 Knot 14V.....P/N 10-02688
2" 400 Knot 14V.....P/N 10-02689

AIRSPEED INDICATORS - ALTIMETERS

WINTER AIRSPEED INDICATORS

3-1/8" airspeeds are supplied and marked in MPH and knots scales. Indicators feature 360 degrees sweep for easy reading at a glance. All Winter Airspeeds come complete with mounting screws.



Size	Range	Style	Part No.	Price
2-1/4	0-75 MPH	Pitot	10-02920	.
2-1/4	0-100 MPH	Pitot	10-02925	.
2-1/4	0-120 MPH	Pitot	10-02930	.
2-1/4	0-160 MPH	Pitot	10-02935	.
3-1/8	0-75 MPH	Venturi	10-02940	.
3-1/8	0-75 MPH	Pitot	10-02945	.
3-1/8	0-100 MPH	Pitot	10-02950	.
3-1/8	0-120 MPH	Pitot	10-02955	.
3-1/8	0-160 MPH	Pitot	10-02960	.
3-1/8	0-200 MPH	Pitot	10-02965	.

HALL WINDMETER



Designed for hang gliders but can be mounted on low speed aircraft as an airspeed indicator. Easy to read. Mounting bracket clamps to 7/8 or 1 1/8" dia. tube. Short bracket is 3" long, Long bracket 15" long.

Wind Meter (0-55 mph).....P/N 10-04100
 Wind Meter (0-80 mph).....P/N 10-04105
 Short BracketP/N 10-04200
 Long Bracket.....P/N 10-04300

MINI 2-INCH AIRSPEED INDICATORS

Certified Airspeed with Internal LED Lighting



DESCRIPTION	P/N	PRICE
2" CERT 200 KNOT 14V	10-01723	.
200KT 25020-0179 28V	10-01728	.
250KT 25025-0177 14V	10-01729	.
250KT 25025-0177 28V	10-01730	.
350KT 25035-0181 14V	10-01731	.
350KT 25035-0181 28V	10-01732	.
400KT 25040-0180 14V	10-01733	.
400KT 25040-0180 28V	10-01734	.

WESTACH AIRSPEED



This new innovative electric airspeed from Westach is a complete kit including a 2-1/4" round 0-60 MPH airspeed indicator which is clamped on tubing near the pilot, a bullet case for the instrument, two clamps, wire, an electric generator-type sender and a 6" dia. 3-bladed generator prop.

Remote Kit.....P/N K2M6RH.....

OPERATING RANGE DECALS

Yellow, red, green and white, pressure sensitive. Just pull off backing and place on instrument lens.

P/N 10-03905 /set



WINTER MINIATURE ALTIMETERS



The mini altimeter is a remarkable instrument. Through the use of an accurate single pointer design, the 0-5,000 and 0-10,000 altimeters are able to squeeze precision and reliability into a 2-1/4" instrument which is less than 2" deep. All altimeters are designed with Kollsman windows, glass faces, precision jewelled movements and a rugged combination metal and plastic case. Static porting is standard.

0-5000 ft. Altimeter, Inches..... P/N 10-24100
 0-5000 ft. Altimeter, Millibar..... P/N 10-24105
 0-10000 ft. Altimeter, Inches..... P/N 10-24115
 0-10000 ft. Altimeter, Millibar..... P/N 10-24125

MINI 2-INCH ALTIMETERS

Certified Altimeters with Internal LED Lighting



Description	Scale	Knob Position	Voltage	Part No.	Price
14V-20K HG	20,000 ft.	Left	14	10-01735	.
14V-20K MB	20,000 ft.	Left	14	10-01737	.
14V-20K HG	20,000 ft.	Right	14	10-01743	.
14V-20K MB	20,000 ft.	Right	14	10-01745	.

TASKEM 2000 DIGITAL ALTIMETER



The Series 2000 Digital Altimeter is a precision instrument providing altitude readings from -100 to +30700 feet in 10' steps. A standard 3-1/8" instrument powered from 11-35V DC & uses a highly visible backlit liquid crystal display. Displayed data includes Altitude, Baro Ref & Vertical Speed. A programmable altitude alert function combines both audio and visual (LED) outputs. An oxygen alert cautions when over 12500 feet. All data is output in computer compatible RS-232 format. Model 2000 devices display pressure in Hg while Model 2001 units are in mBar. 2 options can be added to the basic (-1) model; OAT (-2) includes temperature sender and also computes and displays Density Altitude, Mode C (-4) is a standard TSO-C88a compatible encoder. Both options are included in the (-3) versions. Wt., 8 oz. Depth behind back of instrument panel, 3-7/8". 2-yr factory warranty.

Model	P/N	Price	Model	P/N	Price
2000-1	10-24040	.	2001-1	10-24041	.
2000-2	10-24050	.	2001-2	10-24051	.
2000-3	10-24060	.	2001-3	10-24061	.
2000-4	10-24070	.	2001-4	10-24071	.

TASKEM 5000 DIGITAL ALTIMETER



Unlike mechanical altimeters, the Taskem 5000 is insensitive to the high vibration of 2-stroke engines frequently used on ultralight aircraft. This has literally shaken many mechanical altimeters. The 5000 is all solid state and can withstand severe shock and vibration without damage. It has a full 4.5 digit liquid crystal (LCD) display with large, 1/2" high characters. Because the LCD uses direct drive, it is easily readable from most viewing angles and does not disappear when viewed from an angle or does not washout in bright sunlight. Includes a backlight for night or dusk viewing. The altitude range extends from below sea level to well above the need for supplementary oxygen. The limits are -1000 to 19,990 ft. (-305 to 6,093 meters). Increments are in 10 ft./1m steps. The instrument is powered from DC in the range of 7-30V and is protected for accidental polarity reversal. A 9V battery is a common power source and a battery holder for this is provided on the back, external to the case. An alkaline battery will provide over 40 hours of operation, without the backlight illuminated. The backlight is not powered in the ON power switch position to conserve battery life.

Feet.....P/N 10-24010
 Meters....P/N 10-24020

ALTLERT ALTITUDE ALERT



Designed for general aviation use, the Altlert is a portable device to help the pilot maintain an assigned or desired altitude. It's use is simple. Fly to your desired altitude and turn the unit on. The Altlert learns your current altitude (by sampling barometric pressure, just like your altimeter) and stores this information. As your altitude drifts, an error signal is generated. At approximately +/- 100 ft. (or 50 ft. in Precision Mode), the red indicator flashes quickly and is accompanied by a piezo horn. The horn can be silenced by pressing the push button switch. Alarms will clear upon return to your original altitude. A new desired altitude can be set by turning the unit off and back on at any time. SPECIFICATIONS: • Size: 1.5" h x 4" L • Wt: 5 oz. (including battery) • Battery: 9V (not included) • Battery Life: 24 hrs+ • Dual Sensitivity Levels • Audible Alarm.

P/N 10-01727

ALTIMETERS



UNITED SENSITIVE ALTIMETERS

Designed to help the pilot determine altitude by measuring existing atmospheric pressure, this altimeter translates this measurement into "height-above-sea-level." This is indicated on the dial of the instrument in feet, which requires setting the barometric pressure in the Kollsman window.

Standard 3-1/8" size.

Range	Scale	Manufacturer	P/N	Price Ea.
0-20000 ft.	Inches	United (TSO)	10-04550	.
0-35000 ft.	Inches	United (TSO)	10-04570	.
0-20000 ft.	Millibar	United (TSO)	10-04560	.
0-20000 ft.	Inches	United (Lighted)	10-00929	.
0-35000 ft.	Inches	United (Lighted)	10-00930	.
0-20000 ft.	Millibar	United (Lighted)	10-00931	.
0-20000 ft.	In/Mil	United (Lighted)	10-00932	.
0-20000 ft.	In/Mil	United (Unlighted)	10-00933	.
0-35000 ft.	In/Mil	United (Unlighted)	10-02696	.
0-35000 ft.	In/Mil	United (Lighted)	10-02697	.
0-35000 ft.	Millibar	United (Lighted)	10-02698	.
0-35000 ft.	Millibar	United (Unlighted)	10-02699	.



UNITED ALTIMETER, 3-INCH COUNTER DRUM POINTER

Aerosonic Common in turboprop and jet aircraft that require high quality instruments, this 3-inch, 35K counter drum pointer (CDP) has many features. The easy-to-read altitude window shows the aircraft height above sea level while the needle provides additional altitude precision. Requires 28 VDC power for operation.

Millibars P/N 10-02690
Inches P/N 10-02691



UNITED ALTIMETER WITH CORRECTED BAROMETRIC OUTPUT

True airspeed all the time! No need to correct the barometer, the altimeter does it automatically for the pilot. • Compatible with most Air Data Systems • 35,000 ft., dual barometric scale • Internally lighted – light tray included • TSO C10d certified • Standard D.C. voltage barometric output • Mounts in standard 3 1/8" panel cutout • Requires just 5" depth behind the panel • 1/8" NPT static port • Connector included • Manufactured by United Instruments. P/N 10-02718
Encoded P/N 10-02716



ALTIMETER, 2-INCH

Aerosonic - Reliable for primary or standby use, these altimeters provide flight critical data with a three-pointer or counter drum pointer display. The compact, 2-inch size is ideal for complex panel installations. Lighting is included. These altimeters are used in many popular OEM and STC packages. Call for application assistance.

Range	Scale	Description	Part No.	Price
35K	Inches	3-PTR, Left hand knob, 14V Lighted	10-01739	.
35K	Inches	3-PTR, Left hand knob, 28V Lighted	10-01740	.
35K	Millibars	3-PTR, Left hand knob, 14V Lighted	10-01741	.
35K	Millibars	3-PTR, Left hand knob, 28V Lighted	10-01742	.
35K	Inches	3-PTR, Right hand knob, 14V Lighted	10-01747	.
35K	Inches	3-PTR, Right hand knob, 28V Lighted	10-01748	.
35K	Millibars	3-PTR, Right hand knob, 14V Lighted	10-01749	.
35K	Millibars	3-PTR, Right hand knob, 28V Lighted	10-01750	.
50K	In/Mil	CDP, Lighted 5V Gray	10-02709	.
50K	In/Mil	CDP, Lighted 5V Black	10-02710	.
50K	In/Mil	CDP, Lighted 28V Gray	10-02711	.
50K	In/Mil	CDP, Lighted 5V Black	10-02713	.

FALCON 3 1/8" SENSITIVE ALTIMETERS



1. Three Pointer Altimeter with Barometric Window and Low Altitude Warning Stripes is a modern type. The easy to read striped sector will show while flying below 16,000 ft. 2. Three Pointer Altimeter with a Barometric Window enables the pilot to adjust the altimeter to the barometric conditions existing at the point of landing. 3. Two Pointer Altimeter without Barometric Window. This type of altimeter is designed to meet the demands of some pilots who either live or fly the area's barometric pressure beyond 28.1 to 31 inches of mercury, or 950 to 1050 millibars, or some pilots prefer to set the altimeter to "0" altitude before taking off without regard to the barometric pressure. By installing this altimeter, the pilot can fly anywhere in the world without having to care about the barometric pressure changes. Non-TSO'd.

Part No.	Description	Range	Price
10-04400	3 Pointer, Baro-Window, Warning Stripes	20,000 ft., In.	.
10-04500	3 Pointer, Baro-Window, Warning Stripes	20,000 ft., MB	.
10-02260	3 Pointer, Baro-Window, Warning Stripes	20,000 ft., In. & MB	.
10-02204	3 Pointer, w/Baro-Window	20,000 ft., In.	.
10-02256	3 Pointer, w/Baro-Window	20,000 ft., MB	.
10-02257	3 Pointer, w/Baro-Window	6,000 meter, MB	.
10-02259	2 Pointer, No Window	10,000 ft.	.



UMA 3-1/8" ALTIMETERS

This UMA standard altimeter utilizes a single pointer and is designed to meet the needs of the low-cost Non-IFR user. This altimeter utilizes a single pointer and adjustable barometric scale, viewed through a Kollsman Window. Can be ordered in inches of mercury or millibar. Available in feet or meters. Aluminum case. . ea

Part No.	Range	Dial Markings	Scale
10-22965	0-20,000 Ft.	B & W	w/ IN HG
10-02436	0-10,000 Ft.	B & W	w/ IN HG
10-02369	0-5,500 Ft.	B & W	w/ IN HG
10-05120	0-5,500 Ft.	B & W	w/ Miliibar
10-05125	0-10,000 Ft.	B & W	w/ Miliibar
10-05126	0-20,000 Ft.	B & W	w/ Miliibar
10-05127	0-3,000 M	B & W	w/ Miliibar



UMA 2-1/4" ALTIMETERS

This UMA standard altimeter utilizes a single pointer and is designed to meet the needs of the low-cost Non-IFR user. This altimeter utilizes a single pointer and adjustable barometric scale, viewed through a Kollsman Window. Can be ordered in inches of mercury or millibar. Scale is available in feet or meters. . ea

Part No.	Range	Dial Markings	Scale
10-05131	0-10,000 Ft.	B & W	w/ IN HG
10-05132	0-20,000 Ft.	B & W	w/ IN HG
10-05133	0-10,000 Ft.	B & W	w/ Miliibar
10-05134	0-20,000 Ft.	B & W	w/ Miliibar



FALCON 3 1/8" NON-SENSITIVE ALTIMETERS

Falcon Gauge light weight altimeters feature a non-sensitive altimeter on a 3-1/8", single pointer, and a barometric window. A setting knob allows the pilot to set the barometric reading to the correct field elevation or barometric pressure setting. They are weight conservative, economical, yet very precision and accurate instruments that provide excellent altitude measuring capabilities; designed for ultra-light airplanes. 3-1/8" is non-sensitive. Standard Types are either feet reading with barometric window inches of mercury or millibars reading; or meters reading with barometric window millibars reading. Length: 2 3/8" Weight: 10.7 oz.

PART NO.	RANGE	PRICE
10-05100	6,000 ft./12,000 ft Inches	.
10-03422	10,000 ft./20,000 ft. Inches	.
10-02251	6,000 ft., Millibars	.
10-02252	10,000 ft., Millibars	.

FALCON 2 1/4" SENSITIVE ALTIMETERS

2-1/4" is sensitive. Single Pointer, and a barometric window. A setting knob allows the pilot to set the barometric reading to the correct field elevation or barometric pressure setting. They are weight conservative, economical, yet very precision and accurate instruments. It is suitable where space and weight is a consideration. This type is available in Feet or Meter reading, the baro-metric window can be either in inches of mercury or in millibars reading. Length: 2 3/8" Weight: 3.6 oz.

PART NO.	RANGE	PRICE
10-02205	5,500 ft, Inches	.
10-04510	10,000 ft, Inches	.
10-02207	3,000 Meters, Millibars	.
10-02254	6,000 Meters, Millibars	.

WRIST INSTRUMENTS – BUGS – REDUCING MASKS



VECTOR WRIST-TOP COMPUTER

The Vector combines an altimeter, vertical speed indicator, barometer, compass and a precision timepiece in one compact wristwatch-sized case. The instrument allows altitude measurement in feet or meters, up to a max. 27,000 ft., accurate to plus or minus 10 ft. It also provides instantaneous vertical ascent & descent rates in either feet/second or meters/second. The backlit display is easy to see in all lighting conditions. The barometer displays current barometric pressure and trends for accuracy, and deviation adjustment to correct for differences between true and magnetic north. Reliable & accurate, this new instrument provides time, day and date, as well as three daily alarms, a stopwatch and countdown timer. The unit is also waterproof to 100 ft. P/N 10-19325

MICROTIM™ BAROMETRIC ALTIMETER



Features: * Extreme sensitivity. Registers changes in altitude of 2 feet or less. * Calibrated from -2000 feet MSL (2000 feet BELOW sealevel) to +20000 feet MSL (20000 feet ABOVE sealevel). * Low Power. Single AAA battery lasts for months. Battery monitor gives several DAYS of low-battery notice. * One foot resolution, barometric-pressure and field-elevation adjustable. * AGL(relative, MSL(sealevel) or BOTH alternately every 2 seconds. * Selectable units: feet/inHg or meter/kPa or feet/mbar(hPa). * Excellent ultralight altimeter or backup unit. Small (3"x1.5"x3/4") with large easy-to-read numbers (3/8" high numbers). Very durable (resin encapsulated internals), resists shock, vibration, and moisture. * EASY TO USE right out of the box. The 3 primary key functions allow you to o 1) Raise the barometric pressure setting o 2) Lower the barometric pressure setting o 3) Zero the ground-level altitude (AGL) * Then three additional functions are accessed by holding down one key for 5 seconds which allows you to o 4) Change units o 5) Change the display mode (AGL, MSL, or BOTH) o 6) Reset MicroTim to factory defaults (AGL only, feet, 29.92 inHg). ...and that's all there is to it! P/N 10-01726

INSTRUMENT BUGS



"Bugs" are perfect for pilots who rent aircraft, and for owners. The transparent suction cup works on all instruments. A thumb screw friction lock lets the yellow pointer tip rotate 360°. Fly with it day & night. Includes: 2 "Bugs" in a plastic reusable storage box with instructions and 4 disposable alcohol swabs, which are used to clean the instrument face and bugs so that they stick well. P/N 10-00114

AIRCRAFT INSTRUMENT COVER



The instrument cover is a plastic disk approximately 2 3/4" in diameter and 1/16" thick. By use of the attached suction cup, the cover will mask the face of most general aviation flight instruments. It is useful in many training situations one of which is partial panel work. As a safety aid, the cover can be used to mask an instrument when it is non-functional, as is required by Regulations. Each package has two covers. P/N 13-04968

INSTRUMENT COVERS



The suction cup on the back of this soft rubber disc enables the pilot or instructor to cover up one or more flight instruments for partial panel instruction or to cover a failed instrument during flight. Measures 3-1/8" in diameter. Flight instructors and IFR pilots should have several of these handy covers in their flight bags. P/N 13-00088

INOPERATIVE INSTRUMENT AID

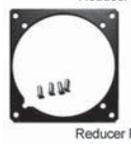


Designed with static cling polyester, the IIA will stick to your glass instrument face without licking and will stay there until you want to remove it. Practicing instrument failures during flight is a requirement by the Federal Aviation Administration for your practical test. One package includes four Inoperative Instrument Aids. Developed by a Certified Instrument Flight Instructor with the intent to improve instrument instruction. measures 3" in diameter. P/N 13-04173

3ATI REDUCER PLATES



3ATI Reducers to 3 1/8" - Use a 3ATI hole cut out to mount 3 1/8" diameter instrument. Plate can be shimmed to instrument panel thickness. Simple installation. Heat-treated aluminum .080 thick with black anodize finish. P/N 07-01331



3ATI Reducers to 2 1/4" - Use a 3ATI hole cut out to mount 2 1/4" diameter instruments. Plate can be shimmed to instrument panel thickness, comes with 4 rivets. Simple installation. Heat-treated aluminum .080 thick with black anodize finish. BACK PLATE 3.8 X 3.8 P/N 07-01330

REDUCING MASKS



Precision die-cut black anodized aluminum masks simplify installation of small instruments in large instrument panel cut-outs. 3 types available.

- #1: Large AN-type artificial horizon cut-out to 3-1/8" size P/N 10-05900
- #2: Large AN-type directional gyro cut-out to 3-1/8" size. P/N 10-06000
- #3: 3-1/8" size cut-out to 2-1/4" size P/N 10-06100



DRILL JIG AND FILING TEMPLATE FOR THE 3 ATI INSTRUMENT CUT

A handy much needed tool to have for those difficult to make 3 ATI cut outs that everyone complains about. A rugged tool made of alloy steel with a 58-60 RC hardness for long life. Simply drill mounting holes and cut opening file to P/N 10-00153



MOUNTING PLATE FOR THE 3 ATI INSTRUMENT

Quick fix for a hard to cut out opening. Plate is .500 wider than instrument. For easy mounting, material is .080 aluminum P/N 10-00154



REDUCING PLATE FROM 2-1/4" DIA. REDUCE FROM 2.25" TO 2" DIAMETER INSTRUMENT. FOR OIL PRESSURE, AMMETER GAUGE ETC. P/N 10-00155



INSTRUMENT COVERS FOR PARTIAL PANEL PRACTICE

Sold in 4 packs of 25 (for a total of 100 sticky notes). These round pads are white with a light blue ASA logo, and fit any aviation instrument. Perfect for partial panel practice or jotting down quick notes. P/N 13-21776



ANGLED INSTRUMENT MOUNTS

This angled instrument mount allows replacement of a 3-1/8" gauge with a 2-1/4" gauge. It places the gauge at a 20° angle toward the pilot for easier reading and reduced glare. Made from 20% glass fiber filled Lexan. P/N 10-06800



INSTRUMENT PANEL COVER-UPS

These white stick on instrument size covers are ideal for partial panel practice or to cover an actual failed instrument. These covers are reusable and are furnished in a package of 5 covers P/N 10-00066



INSTRUMENT PANEL COVER-UPS FOR PFD / MFD

Cover ups for PFD and MFD screens for glass cockpit training. For partial panel practice & actual instrument failures. * Reusable, 3 per pack * "Cling" type plastic covers, with lift tab * Zip lock plastic bag for convenient storage. P/N 13-06116



INSTRUMENT HOLE COVER PLATES

Use these plates to attractively cover unused panel cut-outs. Aluminum and plastic plates have raised center, which brings the plug face about even with the front surface of the panel.

- Plastic plate for 2-1/4" Cut-Out..... P/N 10-06900
- Plastic plate for 3-1/8" Cut-Out..... P/N 10-07000
- Plastic plate for standard altimeter hole..... P/N 10-07100
- Aluminum plate for 2-1/4"hole, black wrinkle P/N 10-00427
- Aluminum plate for 2-1/4"hole, no paint P/N 10-00428
- Aluminum plate for 3-1/8"hole, black wrinkle P/N 10-00429
- Aluminum plate for 3-1/8"hole, no paint..... P/N 10-00430
- Plastic plate for 3ATI hole, black fire retardant ... P/N 10-00433
- Aluminum plate for 3ATI hole, black wrinkle..... P/N 10-00434
- Aluminum plate for 3ATI hole, no paint..... P/N 10-00436
- Plastic plate for half ATI hole, black fire resist.... P/N 10-00437



INSTRUMENT PANEL LAYOUT TEMPLATE

Use this template for precise positioning of instrument holes and mounting screw holes in panel. For both 2-1/4" & 3-1/8" dia. instruments. With transfer punch for marking screw hole centers and instructions. P/N 12-14600

IN

VSI - ACCELEROMETERS

FALCON ACCELEROMETER (G-METER)



Accelerometers register to "g" forces acting on the airframe during turbulence or aerobatic maneuvers. One pointer gives a continuous reading, the other two indicate maximum positive and negative loads. Easy to reset by pushing the "push to reset" knob.

All models are mechanical and offer precision, accuracy, reliability and durability. They are very easy to operate with no wiring necessary.

Whether flying acrobatic or not, this G-Meter provides the pilot valuable information for a

winged airplane and helicopter without having to spend astonishing figures.

Size	PART NO.	LIGHTING	RANGE	PRICE
3-1/8"	10-00936	UNLIT	-5g to +10g	.
3-1/8"	10-00935	UNLIT	-2g to +5g	.
2-1/4"	10-09800	UNLIT	-5g to +10g	.
2-1/4"	10-02049	LIT	-5g to +10g	.
2-1/4"	10-00840	UNLIT	-2g to +5g	.

MECHANICAL ACCELEROMETER ("G" METERS)



This instrument registers "G" forces acting on the airframe during turbulence or aerobatic maneuvers. One pointer gives a continuous reading, the other 2 indicate maximum positive & negative loads. A reset knob is provided. In smooth, level flight the instrument indicates +1 "G". Large "G" Meter - Range: -5G to +12G.

Fits 3-1/8" dia. panel cutout. Wt 0.8 lb.

Overhauled & Certified - w/Matte-White Dial Markings.

P/N 10-09710

FLIGHT DATA G-METER GT50 12/28



The GT-50 is a Six Function: Accelerometer - Clock - Voltmeter - Temperature for Experimental Aircraft.

G-Meter:

* Continuous Instantaneous Display to +12/-10 G's

* Records and Saves Max and Min G's

* 30 Degree (Sonex) Tilted Panel Compatible

Flight Timer: Automatically Records Flight Time

Clock: 12 or 24 Hour Format

Timer/Stopwatch Voltmeter

Features:

* Best G-Meter Value Available

* Extreme Operating Temperature Display

* Soft Orange Backlight

* 2-1/4" Panel Mounted

* Weighs 2.5oz

* Includes Pre-Wired Connector

* 12-28 Volt Compatible P/N 10-03691.....

Flight Data OAT Probe GT50 P/N 10-03694.....



WINTER VARIOMETERS

These extremely sensitive Winter instruments provide instantaneous indication of changes in vertical speed. Mechanical operation, with vario flask included. 2 1/4" and 3 1/8" sizes, 1000 fpm, 10 knot and 1500 fpm ranges

Description	Part No.	Price
2-1/4" 1000 FPM	10-03813	.
2-1/4" 1500 FPM	10-03819	.
2-1/4" 10 KNOT	10-03815	.
3-1/8" 1000 FPM	10-03830	.
3-1/8" 1500 FPM	10-03839	.
3-1/8" 100 KNOT	10-03832	.

UNITED VERTICAL SPEED INDICATORS



The vertical speed indicator is a precision instrument which provides an accurate indication of rate of change of altitude. This instrument is temperature compensated and is provided with a zero adjustment screw on the face of the case in the seven o'clock position. Power: Static system.

Manufactured by United Instruments. Used in most production aircraft.

Size: 3-1/8" x 3-1/8" x 4", Wt. 0.7 lb. TSO-C8b.

Unlighted VSI's

0-2000 FPM P/N 10-05200

0-3000 FPM P/N 10-20400

0-4000 FPM P/N 10-20500

0-6000 FPM P/N 10-05250

Lighted VSI's

0-2000 FPM P/N 10-00925

0-3000 FPM P/N 10-00926

0-4000 FPM P/N 10-00927

0-6000 FPM P/N 10-00928

3-1/8" UMA VERTICAL SPEED INDICATORS



Part No.	Name	Range	Price
10-20505	Vertical Speed	0-2,000 Ft.	.
10-02368	Vertical Speed	0-3,000 Ft.	.
10-20506	Vertical Speed	0-4,000 Ft.	.
10-20508	Vertical Speed	0-6,000 Ft.	.
11-07239	Optional internal lighting		.



UMA MINIATURE 2 1/4" VERTICAL SPEED INDICATORS

This instrument mounts in a standard 2-1/4" instrument panel cutout. New manufacture with brilliant easy-to-read matte-white numerals on black background. Size: 23/8"x 23/8"x 31/4" long.

Part No.	Name	Range	Price
10-05500	Vertical Speed	0-2,000 Ft.	.
10-00079	Vertical Speed	0-3,000 Ft.	.
10-05550	Vertical Speed	0-4,000 Ft.	.
10-05560	Climb	0-4,000 Ft.	.
10-05570	Rate of Change	0-4,000 Ft.	.
10-05580	Cabin Climb	0-4,000 Ft.	.
10-05600	Vertical Speed	0-6,000 Ft.	.
10-05610	Climb	0-6,000 Ft.	.
10-06910	Rate of Change	0-6,000 Ft.	.
11-07239	Optional internal lighting		.

FALCON VERTICAL SPEED INDICATORS



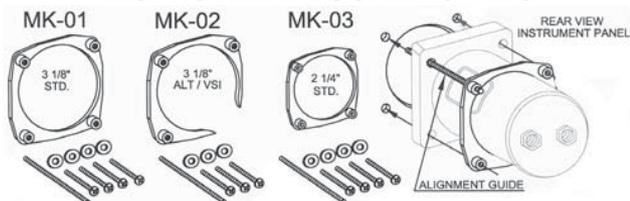
Falcon Gauge Vertical Speed Indicators (Rate of Climb), have been installed in thousands of planes. Available in climb ranges from 2,000 feet per minute to 4,000 feet per minute, and 10 meters per second. This precision aircraft instrument provides immediate climb and descent information with an easy to read dial and is extremely reliable and durable. Over several decades, they have been servicing and satisfying pilots and kit plane builders worldwide.

The 2-1/4" altimeter is perfect for the ultra-light models and where space and weight are a factor of consideration.

PART NO.	SIZE	RANGE	PRICE
10-05205	3 1/8"	2,000 ft. / Min.	.
10-05210	3 1/8"	3,000 ft. / Min.	.
10-02246	3 1/8"	10,000 ft. / Min.	.
10-01643	2 1/4"	2,000 ft. / Min.	.
10-00983	2 1/4"	10 Meters / Sec.	.

INSTRUMENT MOUNTING & ADAPTER KITS

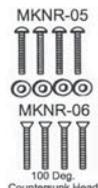
INSTRUMENT MOUNTING KITS



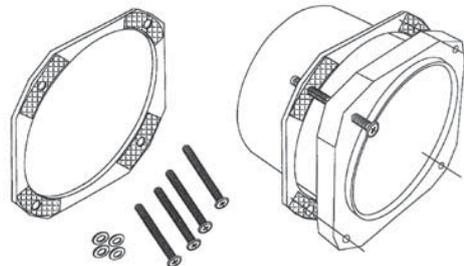
Kits come with "special" self-locking black pan head screws nylon washers, and alignment guide pin.

Precision machined "Nut Ring" instrument mounting kit. Designed to slide on from the back side of the instrument using the alignment guide pin inserted through a screw hole. Pulling on the alignment pin from the front side of the panel allows you to hold the instrument in correct alignment in the panel. Specially designed self-locking pan head black brass mounting screws and nylon washers are then easily installed from the front. Countersunk self-locking black brass screws are also available. Extra screws & washers are sold in packs of 12. The nylon washer keeps from chipping the instrument panel. All self-locking screws are extra long to accommodate the extra thickness of light wedges and internally lighted instruments. Nut Rings can be installed without removing hoses, tubing, or electrical connections. Designed to replace "grasshopper nuts". PMA'd. Alignment guide pin sold separately. (P/N 10-03696)

Model	Description	Part No.	Price
MK-01	3-1/8" Std.	10-00335	.
MK-02	3-1/8" ALT/VSI	10-00336	.
MK-03	2-1/4" Std.	10-00337	.
MKNR-05	Pan Head Screws	10-00338	.
MKNR-06	Countersunk Screws	10-00339	.
Accessories			
AP-01	Alignment Mounting Kit	10-03696	.



"EZ NUTS" INSTRUMENT MOUNTING SYSTEM BY SPT



Take the frustration out of mounting instruments with the use of Superior Panel Technology's EZ Nuts. Adhesive tape securely holds nut ring in place. No realignment if instrument is later removed. Includes four

1-1/2" non-magnetic black oxide stainless steel, pan-head screws. Stronger than brass. Includes four black nylon washers to prevent marring of the panel. Aluminum bezel is treated to prevent corrosion. The pressed in stainless steel inserts eliminate the problem of striped threads. Simply cut off one corner if only three screws are needed. Save labor time when compared to "grasshopper nuts". 100 degree countersunk screws available and are sold in packs of eight.

3-1/8" Bezel.....	P/N 11-01830	.
2-1/4" Bezel.....	P/N 11-01831	.
Countersunk screw package (set of 8)	P/N 11-06546	.

PITOT TUBE PROTECTORS



These hinged pitot tube protectors open automatically in take off at speed of about 40 mph and close automatically at end of landing roll.

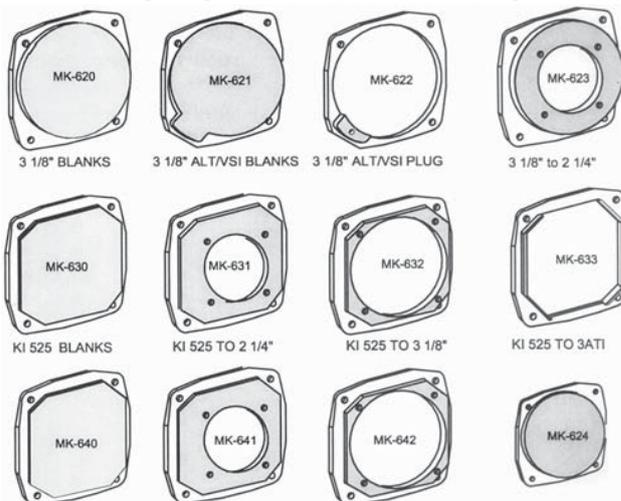
Model #1	Model #2		
Model No.	Part No.	Fits Pitot Tube Sizes	Price
1	10-02000	3/16" by 1/4" O.D.	.
2	10-02100	3/8" by 1/2" O.D.	.

REMOVE BEFORE FLIGHT RIBBON



This 3" x 24" orange vinyl streamer with black letters, features a grommet for a clip ring to attach anywhere on the aircraft. High visibility, fire resistant material. P/N 15200

INSTRUMENT ADAPTER KITS



CNC Machined from aircraft grade aluminum. The adapter face is raised .075" to give the flush panel look. Easy to install and easily painted.

Model	Description	Part No.	Price
MK-620	3-1/8" Blank	10-00340	.
MK-621	3-1/8" ALT/VSI Blank	10-00341	.
MK-622	3-1/8" ALT/VSI Plug	10-00342	.
MK-623	3-1/8" to 2-1/4"	10-00343	.
MK-624	2-1/4" Blank	10-00344	.
MK-630	KI525 Blank	10-00345	.
MK-631	KI525 to 2-1/4"	10-00346	.
MK-632	KI525 to 3-1/8"	10-00347	.
MK-633	KI525 to 3 ATI	10-00348	.
MK-640	3 ATI Blank	10-00349	.
MK-641	3 ATI to 2-1/4"	10-00350	.
MK-630	3 ATI to 3-1/8"	10-00351	.

PITOT TUBE COVERS



PITOT TUBE BOOTY - Durable leather-like cover provides optimum protection. Velcro strap attaches booty to 5/8" or 11/16" dia. L-shaped pitot tube. Bright red "Remove Before Flight" streamer. Made of flame-proof & weather-resistant National Aerospace material. P/N 15210

SLIP-ON PITOT TUBE COVER - Not shown. Same as above except is slip fit over 1/4" or 1/2" dia. pitot tube. Red "Remove Before Flight" streamer is attached to cover. Made of flame-proof and weather-resistant National Aerospace material. P/N 15220

DEGROFF'S PITOT SHIELDS



PITOT SHIELDS are a "fail-safe" pitot tube cover that will protect the pitot tube from contamination by insects, debris and ice while the airplane is on the ground. It is friction-fit to the pitot tube and has a calibrated "flat-plate-forward" design that, upon reaching a specific velocity, will release from the pitot tube and fall harmlessly away, allowing for normal airspeed indications. The cover utilizes EVA foam that is UV resistant and stable at temperatures reached by heated pitot tubes. It is a highly visible color with the words

"REMOVE BEFORE FLIGHT" printed and visible from all directions. This pitot tube cover is soft, but tough. It will not damage aircraft surfaces when it comes off during ground roll, nor will it be a potentially hazardous foreign-object on the runway.

For 5/8" pitot tube.....	P/N 10-00491	.
For 3/4" pitot tube.....	P/N 10-00492	.
For Piper pitot tube	P/N 10-00493	.

PITOT TUBES

UNHEATED PITOT TUBES

STRAIGHT TYPE - Flange-mounted through leading edge of spar. Aluminum tube 24" long, 1/4" dia. May be cut to shorten.

P/N 15133

L-SHAPED TYPE - Flange mounted L-shaped model for under-the-wing mounting. 1/4" dia. aluminum tube.

P/N 15135

L-SHAPED PITOT-STATIC TUBE - Same design with static tube added. For pitot tube cover order #15220 or 10-02100 (flip up).

P/N 15144

STRAIGHT TYPE PITOT-STATIC TUBE - Clamp-mounted for leading edge of wing. 14-1/2" long. May be shortened, formed or shaped to best angle of attack. 1/4" dia. aluminum tubes. All installation hardware furnished.

P/N 10-01800

STRUT TYPE PITOT-STATIC TUBE - Simple L-shaped design for clamping to strut. 1/4" dia. aluminum tubes.

P/N 10-01900

MAST-MOUNT PITOT TUBE - Designed for mounting in 3/4" O.D. x .049" wall aluminum tubing (not furnished). Machined from solid aluminum. Polyethylene fitting for 1/4" I.D. hose included. P/N 15170

RAVEN PITOT STATIC TUBE

Pitot system combines pitot and static functions in one tube. Used for years on many different aircraft. Comes complete with mounting block to install it.

P/N 10-00476

PITOT STATIC SUMP BOTTLE

This pitot-static sump bottle collects moisture in the aircraft's static system which prevents water damage to panel mounted instruments. Used in many Cessna aircraft. Measures 1.625" dia. x 4.75" long.

Cessna.....P/N 10-00630

STATIC PORTS

Aluminum static port for mounting through 1/4" dia. hole in side of fuselage. Base has 1/8" NPT female port for connecting to static line (polyethylene fitting included). Install with 3/32" dia. flush rivets.

P/N 15160

Aluminum static port mounts from outside of fuselage through 9/16" dia. hole. Secure to skin with 9/16" Pal nut & lock washer on inside. Includes (1) 0700-153 polyethylene fitting.

P/N 15165.....

Aluminum static port mounts from outside of fuselage through .560 dia hole. Secure with four countersunk 1000 3/32" rivets. Includes one 0700-153 polyethylene fitting.

P/N 15175.....

Aluminum single engine cessna type static port. External mounted through a 19/64" hole. Can be used on fabric, composite or aluminum. No need for rivets. 1-3/8" dia.x1" depth. Ideal for homebuilts of all types.

P/N 10-00250.....

BOND-IN STATIC PORT SET

This aluminum static port is designed for high performance composite aircraft. Simply bond through the fuselage from the outside. Base has a 1/8" NPT for connecting to the static line. Furnished with installation instructions. Sold in set of 2.

P/N 10-00229

PITOT PAL

The Pitot Pal is a precision machined adapter that is installed in the nose of the aircraft by simply drilling a 1/2" diameter hole, inserting the adapter, and locking in place by a nut on the backside. The adapter has a barbed fitting to which the airspeed indicator tubing is attached. The aluminum Pitot Tube slides into the adapter and locks in place with a press fit. The added benefit to this is that the Pitot tube can be easily removed at a fly-in or similar event to prevent it from getting bent. Deluxe kit includes tubing & a fitting to connect Pitot Pal to the airspeed indicator. Pitot Pal.....

P/N 10-00062

Deluxe Kit..... P/N 10-00063

FALCON HEATED PITOT TUBES

The AN5812 heated pitot tube has been used on a wide variety of aircraft over the years and is now available for experimental aircraft. Made from brass and weighing 1.5 lbs, these imported pitot tubes meet the AN specifications.

12V, 7ampsP/N 10-00984

24V, 3.5ampsP/N 10-00985

HEATED PITOT TUBES

AN5812 PITOT TUBE - This heated pitot tube mounts under the wing. Used on Mooney, Beech, Piper, Maule, American Aviation aircraft, Glasair & Glastar. Threaded outlet fits 1/4" size AN tube fittings. Use 2.023x.857x.049 4130 Streamline Tubing to fabricate mount.

AN5812-12 (12V) (10 amp.)

AN5812-1 (24V) (15 amp.)

Phenolic connector receptacle P/N 10-00032.....

AN5814 PITOT-STATIC TUBE - Same design as AN5812 pitot tube but with heated static tube added. Used on Glasair & Glastar (Piper No. 305-12).

AN5814-12 (12V) (20 amp.)

AN5814-2 (24V) (15 amp.)

AN5813-1 PITOT TUBE - The AN5813-1 (PH500) is the standard replacement heated pitot tube for twin Cessnas with 24V systems. Draws 3-4 amps and measures 9.75" long. Mounts in 1.18" diameter tube. Available with or without sleeve With Sleeve.....P/N 10-00064

SPACEAGE PITOT

SpaceAge Control miniature heated pitot or pitot-static probes offer the lowest power consumption and lowest weight available to the general aviation market. A small tip diameter of .31 inches allows the sensing tip to remain free of ice under severe in-flight icing conditions at only 50 watts of power - which is about 25% of the power of those bulky probes with similar anti-icing capability. Probes are constructed of highquality corrosion resistant materials - a stainless steel outer shell on the nose section, aluminum body, stainless steel pressure lines, and aircraft grade lead wires.

Straight			L-Shaped		
Description	Part No.	Price	Similar Items	Part No.	Price
28 VDC 4254-05	10-02682		28VDC 4254-01	10-02678	
12 VDC 4254-06	10-02683		12VDC 4254-02	10-02679	
STAT28V 4254-07	10-02684		STAT28V 4254-03	10-02680	
STAT12V 4254-08	10-02685		STAT12V 4254-04	10-02681	

GRETZ GA-1000 HEATED PITOT TUBE

The Gretz Aero GA-1000 is a totally new design of heated pitot tube. It is molded from a very high-tech polymer material that has nearly the same thermal conductivity as that of metal. This new design has electronics embedded in the Pitot tube.

It also comes with a small electronic control module to control the heat of the Pitot as well as to provide information to the pilot regarding thermal and heater performance of the Pitot tube. This done by way of a 3/16" diameter multi-conductor cable that has a LED board already attached that will mount conveniently on the panel. The GA-1000 will fit the Gretz mounting bracket kits that were designed for other popular Pitot tubes. The GA-1000 Pitot tubes come with the electronic control module, the LED board and cable, Pitot mounting screws, electronic control module mounting hardware, and of course, complete instructions for installation and use. P/N 10-01715

GRETZ GA-500 UNHEATED PITOT TUBE

The Gretz GA-500 is the same shape and color as the heated GA-1000 Pitot tube, but does not include the heater, electronic instructions, etc. It will mount into the same Gretz mounting bracket kits.

P/N 10-01716

GRETZ AERO PITOT TUBE BRACKETS

These chrome plated bracket kits include all of the parts needed to install AN5814 or AN5812 pitot tubes into any of the Vans RV series aircraft or into most other metal winged aircraft with some slight alteration of the kit. Complete instructions included. Kits for homebuilders pitot tubes (below) are bare metal (paintable) and undrilled.

Kit for AN5812 pitot tubesP/N 10-01950

Kit for AN5814 pitot tubesP/N 10-01960

Pitot Tube Bracket Undrilled/PaintableP/N 10-01188

HOMEBUILDERS HEATED PITOT TUBES

These heated pitot tubes are similar to AN5812 pitot tubes but are 1/4" deeper and 1/2" longer. Available in 12 volt or 24 volt models. Not FAA approved for certified aircraft. Note: Mounting holes will need to be drilled and taped.

AN5812-12 Type 12V P/N 10-01022

AN5812 Type 24V..... P/N 10-01023

PBK-ND - Paintable Non-drilled Bracket..... P/N 10-01188

FALCON GAUGE PITOT TUBE MOUNTING BRACKET

This Falcon Gauge Mounting Bracket for Pitot Tubes works with heated and non-heated tubes. Material: Aluminum Alloy Standard Mounting Bracket.....P/N 10-01063

Mounting Bracket for RV'sP/N 10-02276

PITOT TUBES - ANGLE OF ATTACK INDICATORS



AEROGIZMOS PITOT TUBE

Incorporates the mount and the tube in one convenient unit, making it no longer necessary to have a separate mount. This unit further enhances the building experience as there is no protruding mast from the wing if it is to be stored during the building process. Made from a single piece of 6061 aluminum making it strong and long lasting. The unit has been lightened in the interest of weight savings. Not for IFR use.

P/N 10-03633



THE REDDISH STALL WARNER

Developed in the UK by Nigel Reddish, these stall warners have been installed in many RV series aircraft. The vane is ground adjustable and installation is simple. Includes a micro switch and vane. For experimental aircraft only. The Mark 2 Version is practically the same as the Mark 1, the only difference is the vane on the Mark 2 is longer. The installation is the same as the Mark 1 only.

Mark I P/N 10-00189

Mark II P/N 10-02686



RIGHT ANGLE BUDDY AOA

The RiteAngle "Buddy" is a modern, up to date system that accurately determines your aircraft's angle of attack. This series uses an improved easy-to-understand LED display. Green indicates Safe, Amber indicates Caution

and Red indicates Danger. In addition to the color of the LED's the flashing "arrows" show which way to put the nose to prevent stalling the aircraft. The horizontal line of Green LED's indicate the "On Speed" AOA, 1.3 Vso regardless of bank angle density altitude or any of the other variables where the airspeed is inaccurate. We will not sell this system to aircraft with flaps.

P/N 11-06626



NON-HEATED NON-IFR WELDED PITOT TUBE ASSEMBLY

This non-heated non-IFR welded pitot tube assembly. It is intended for the experimental VFR aircraft market.

The tube and mast are from 4130 tube welded in a fixture to assure alignment. The orifice is produced from aircraft grade aluminum. The pressure tube is polyethylene for easy connection to the aircraft pitot system. Dimension: 6" x 5" x 2-1/2"

P/N 10-03637



SAFE FLIGHT PRE-STALL WARNER

Warns by light and horn of any danger of an approaching stall regardless of the flight maneuver. Never signals unless a stall is imminent. Consists of an instrument panel unit (fits standard 2.25" hole) containing a warning horn & signal light, and a small vane wing unit which operates a relay. Operation

of the instrument doesn't depend upon air speed but rather on the air flow conditions of the wing. Complete with installation kit & instructions. Installation time: 2-6 hours.

	M	Part N	Pri
COMPLETE KIT	164R (12V)	164R	
	164S (24V)	164S	
LIFT DETECTOR	164	164	
HORN & LIGHT	R (12V)	10-22712	
	S (24V)	10-22724	



ACI STALL WARNER

Few pilots need reminding of the catastrophic consequences of an unintentional stall at low level. A frequent sequence of events is distraction of pilot attention, leading to lack of speed control, with the stall rapidly followed by rotational entry into a spin. Steep ground impact follows all too quickly. We all know about this, but why do stall accidents continue to kill pilots and their passengers year after year?

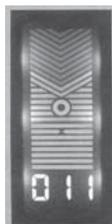
Factors include the rapidity with which our low inertia aircraft lose airspeed, their sensitivity to gusts, the higher frequency of engine failure - and so on. However, very few Experimental and PFA aircraft are fitted with audible stall warners, and yet we are flying aircraft that need them. Virtually every certified production light aircraft has a stall warning system as standard. The ACI Stall Warner is for experimental aircraft only. P/N 10-00235



MPL 503 AIR PRESSURE SWITCH

MPL 500 Series switches offer pressure, vacuum, and differential sensors, sensitive to as low as 0.05 in/H²O. Their accuracy and reliability offer the designer an excellent general purpose low pressure to electric interface for monitoring and control applications. Miniature size and low cost make the 500 Series ideal for OEM applications. MPL 503 is a Range B switch, which is 0.50 to 3.00 in/H²O

P/N 11-02379



AOA PROFESSIONAL MODEL

This angle of attack instrument is designed for experimental aircraft pilots. Angle-of-Attack unlocks Navy carrier pilots secrets and puts a priority on safety. All approaches should be flown at the same optimum approach angle of attack not the same IAS. We can now do precision approaches just like the military and airline pilots and accurately gauge Vx, Vy, Best glide, L/D max, and maximum endurance AOA because angle of attack is not a function of weight, bank angle, fuel load, density altitude and etc. This revolutionary angle of attack instrument is based on a long known aerodynamic principle. The AOA Professional includes a four color liquid crystal display and a aural voice system which warns of critically high AOA, gear position errors and installation/hardware errors. There are no ugly probes, vanes or protrusions to slow you down or accumulate ice. For Composite Construction..... P/N 10-00016

For Metal Construction..... P/N 10-00736



AOA SPORT MODEL

Designed for those tight panels, requiring simplified features but still uses revolutionary patent pending sensing techniques. This angle of attack instrument is only 1/2" wide by 1-3/4" by 1-1/4" deep overall and will fit on or under your glare shield or between instruments as a panel mount in either the vertical or horizontal position. Enhance safety by installing the ultimate aerodynamic performance instrument. The display is a three color LED ladder and includes the same aural voice warnings as the AOA Professional. It can be powered with a 9V battery or by standard 14 or 28 aircraft bus systems. There are no ugly probes, vanes or protrusions to slow you down. This instrument has more resolution than the Navy's indexer used by Naval and Marine aviators today. Excellent for RV's, Glasairs, Lancairs, and other homebuilts.

P/N 10-00017

ALPHA SYSTEMS AOA KITS



AOA-5060K MECHANICAL KIT (3-1/8" MOUNT) - The Alpha System AOA mechanical kit includes everything needed to install an angle of attack gauge in any aircraft. This kit includes probe, probe mounting plate, all fittings, 21 feet of hoses and the AOA gauge with a 3-1/8" standard panel instrument opening mount. PN 11-05601

AOA-5070K MECHANICAL KIT (DASH MOUNT) - The Alpha Systems AOA Mechanical Kit includes everything needed to install an angle of attack gauge in any aircraft. This kit includes probes, probe mounting plate, all fittings, 21ft. of hoses, the AOA gauge, and custom dash mount with mounting plate. PN 11-06446

AOA-5050K MECHANICAL KIT (2-1/4" MOUNT) - The Alpha Systems AOA mechanical kit includes everything needed to install an angle of attack gauge in any aircraft. This kit includes probe, probe mounting plate, all fittings, 21 feet of hoses and the AOA gauge with a 2-1/4" standard panel instrument opening mount. PN 11-05599

AOA-2000K ELECTRONIC KIT (2-1/4" ROUND DISPLAY) - The Alpha Systems AOA electronic kit includes everything needed to install an angle of attack display in any aircraft. This kit includes probe, probe mounting plate, all fittings, 21 feet of hoses, the AOA digital control module with audio beeper, power cord and round LED display with a 2-1/4" standard panel instrument opening mount. PN 11-05596

AOA-3000VK ELECTRONIC KIT (VERTICAL DISPLAY) - The Alpha Systems AOA electronic kit includes everything needed to install an angle of attack display in any aircraft. This kit includes probe, probe mounting plate, all fittings, 21 feet of hoses, AOA digital control module with audio beeper, power cord and 4" bar graph LED vertical display. PN 11-05597

AOA-3000HK ELECTRONIC KIT (HORIZONTAL DISPLAY) - The Alpha System AOA electronic kit includes everything needed to install an angle of attack display in any aircraft. This kit includes probe, probe mounting plate, all fittings, 21 feet of hoses, AOA digital control module with audio beeper, power cord and 4" bar graph LED horizontal display. PN 11-05598



PITOT TUBES - COMPASSES

SPACEAGE HEATED PITOT-STATIC PROBES



Avionics engineers needing AN5812-mount pitot tube and AN5814-mount pitot-static tube compatibility but requiring the latest in low-power, low-mass, and small-size technology can now specify SpaceAge Control 4380-type air data probes. Unlike legacy-design AN-type products, the new 4380 and 4420 series probes meet FAA TSO C16a deicing requirements. The 4380 and 4420 series air data probes reduce the impact of air data systems on the aircraft's power and mass budgets, weigh in at just 1/4 pound, and have a power consumption of just 45 watts continuous.

Description	Drain Hole	Part N	Pri
4450-01 Pitot 28V	Top	10-03638	
4450-02 Pitot 28V	Bottom	10-03639	
4450-03 Pitot-Static 28V	Top	10-03640	
4450-04 Pitot-Static 28V	Bottom	10-03641	



AIRPATH COMPASSES

Factory-new Airpath compasses are used in almost all production aircraft. 2.25" size.

For compasses for use in the Southern Hemisphere, add "-SO" to Airpath part no. and add 15.00 to price.

M	Mounting	Lighting	P.N	Pri
C2300	Panel	None	10-01340	
C2300-L4	Panel	12V Red	10-01341	
C2400-L4P	Pedestal	12V Red	10-01343	
C2400-L4VT	Overhead	12V Red	10-01345	

BULBS FOR AIRPATH COMPASSES

14V P/N 11-04016 a 28V P/N 11-04015..... a

FALCON AIRCRAFT COMPASSES



These compasses are very similar to the Airpath C2300 & C2400 style compasses above but are priced more economically. New manufacture. Not certified.

C2300 Style Compass (Panel Mount) P/N 10-02067.....
 C2300-L4 Style Lit Compass (Panel Mount) P/N 10-02069.....
 C2400 Style Compass (12V Lit) (Pedestal Mount) .. P/N 10-02070.....
 C2400 Style Compass (Unlit) (Pedestal Mount) ... P/N 10-02071.....

SOUTHERN HEMISPHERE COMPASSES

C2300 Style, Unlit Compass P/N 10-02068.....
 C2300 Style, Lit Compass P/N 10-02243.....
 C2400 Style, Unlit Compass P/N 10-01704.....

NON-MAGNETIC SCREWDRIVER FOR COMPASSES



This small non-magnetic screwdriver blade is ideal for adjusting magnetic compasses. This blade is durable, corrosion resistant, & can be put on a key chain until needed.

P/N 10-07930.....

AIRPATH COMPASS REPAIR KIT



Kit consists of diaphragm, 1/2pt of compass fluid & face glass gasket.

Repair Kit (with fluid) P/N 10-08000.....
 Repair Kit (without fluid) P/N 10-08020.....
 Compass Fluid: 1/2 Pint P/N 10-08100.....
 Diaphragm P/N 10-08200.....
 Airpath Compass Deviation Card Holder ... P/N 10-01658.....
 Deviation Card P/N 10-01659.....
 CB21-914H - Inner gasket P/N 10-00505.....
 C21-915G Spacer gasket P/N 10-00368.....
 Diaphragm Only P/N 10-01386.....
 Glass Compass Lens for C2300/C2400 series compasses. P/N 10-08010.....

PRECISION VERTICAL CARD COMPASS



The Precision Vertical Card Compass is a totally new concept for today's aircraft. It is a dry compass, designed to replace the float/liquid type compass no more leaking fluid or backward azimuth readings. It uses eddy current damping and as such has no overshoot. It consists of a 2" vertical rotating dial which is compared with a fixed miniature airplane (lubber line) to present the magnetic heading of the aircraft at all times. Heading information is more natural because the heading is read at the 12 o'clock position and off the nose of the miniature aircraft. The compass card rotates and presents all quadrants in their true relation to line of flight. Requires no power (except for lighting) to operate. Fully TSO'd. Installed in many current production aircraft and helicopters. Size: 2-7/8"H x 2-3/8"W x 2-1/8"D. Wt. 0.6 lb. After installation, compass must be compensated using standard compensation procedures. Also used in sailplanes.

14V P/N 10-00421.....
 28V P/N 10-00423.....

REPLACEMENT LIGHT BARS FOR PAI-700

14V P/N 10-00092.....
 28V P/N 10-00093.....
 5V Light Assy. P/N 10-02956.....

PRECISION COMPASS MOUNTS

- Universal mount for many aircraft using a glare shield or deck mount. Models include Beech Baron and Bonanza, Cessna Skyhawk, Skylane and Cardinal..... P/N 10-07500.....
- Universal overhead bracket kit for customer adaptation. P/N 10-07600.....

PACMO-CESNO - Custom mount for several Cessna models using one-piece windshield & compass mounting block. Models include Cessna 150, 152, 170, 180, 182, 185 & 210. P/N 10-07700.....

- Custom mount for several Piper models with 5/8" hat-section center windshield post. Models include Piper Cherokee, Warrior, Arrow, Archer, Lance, Comanche, Navajo & Cherokee Six. P/N 10-07800.....
- Custom mount for use in Piper Apache, Aztec, & Cessna 421..... P/N 10-07910.....
- S Custom mount for use in Beech Sierra using windshield mount. P/N 10-07920.....
- Beech King Air..... P/N 10-07921.....
- Early Bellanca. Compass mounted overhead. P/N 10-07922.....
- L Late Bellanca. Compass mounted on windshield. P/N 10-07923.....

PACMO-2CN - Cessna early 172, 182 with compass mounted on windshield with 1" center with 1" divider strip..... P/N 10-07924.....

PACMO-340R - Cessna 340 Twin..... P/N 10-07925.....

PACMO-310RN - Cessna 310 Twin..... P/N 10-07926.....

PACMO-GTR - Grumman Tiger, Cheetah. P/N 10-07936.....

- Mooney compass mounted on housing covering center post. P/N 10-07927.....
- Mooney compass mounted on center post with horizontal screws. P/N 10-07928.....

PACMO-VMN - Mooney compass mounted on center post with vertical screws. P/N 10-07929.....

- Comanche with no center post use PACMG-2, twin, SE. P/N 10-07931.....
- Robinson R22..... P/N 10-07932.....
- Robinson R44..... P/N 10-07933.....

PACMO-RV6C - RV6 kit. (Sliding Canopy only, not tip-up) P/N 10-07934.....

- S 32.50 40.63 Schweizer 300 & 300 CB. P/N 10-07935.....
- w/ a 3/4" post P/N 10-00426.....
- w/ a 5/8" post P/N 10-00431.....
- w/ a 7/8" post P/N 10-00432.....
- Ercoupe P/N 10-00435.....

COMPASS COMPENSATOR



The Precision vertical card compass is very sensitive to stray magnetic fields within the aircraft. If the compensators of the compass will not bring the compass within tolerances, it will be necessary to install the HBB47S compensator ("balanced balls"). These balls contain magnets which permit the compass to be properly compensated. Instructions furnished. P/N 10-07900.....

MAGNETIC COMPASS SHIELD (MU METAL)



Use this .005" x 5" x 12" metal strip to shield the precision PAI-700 compass from magnetic interference in the instrument panel.

P/N 11-00973.....

COMPASSES ENGINE GAUGES



S.I.R.S. "PEGASUS" (TSO'D)

The S.I.R.S. "Pegasus" compass utilizes the most advanced technology and manufacturing methods to produce the most accurate compass in the industry. It utilizes high quality components throughout, including Silicone rubber seals, metal expansion bellows, and Tungsten Carbide pivots. The "Pegasus" has a high-visibility spherical display, and can be viewed over a 140 arc instead of the standard 90. Fits standard 2-1/4" panel hole (by 2-1/4" deep) and weighs only 30% of a typical liquid compass. The "Pegasus" comes in blue/white lighted or unlighted versions, and has a 3-yr. warranty.

of the standard 90. Fits standard 2-1/4" panel hole (by 2-1/4" deep) and weighs only 30% of a typical liquid compass. The "Pegasus" comes in blue/white lighted or unlighted versions, and has a 3-yr. warranty.

S					
P N	LIGHT	PRICE	P N	LIGHT	PRICE
PG-2A	NONE		PG2C-28	28V BLUE	
PG2C-12	12V BLUE				
S					
P N	LIGHT	PRICE	P N	LIGHT	PRICE
PG-2ASH	NONE		PG2C-12SH	12V LIT	
PG2C-28SH	28V LIT				

S.I.R.S. "NAVIGATOR" (TSO'D)



The S.I.R.S. "Navigator" delivers extremely accurate readings due to its fully integrated, 4 magnet correction facility. A similar design is used on the Concord, and many civil and military aircraft. Same features as "Pegasus", but is mounted with a fully adjustable bracket that allows attachment to a variety of positions including the glare-shield or the windshield. This allows the compass to be located away from magnetic influences. Size: 20-3/8" h x 2-1/4" w. "Navigator" comes in lighted or unlighted versions 3yr. warranty.

S					
P N	LIGHT	PRICE	P N	LIGHT	PRICE
NV-2A	NONE		NV2C-28	28V BLUE	
NV2C-12	12V BLUE				
S					
P N	LIGHT	PRICE	P N	LIGHT	PRICE
NV2C-12SH	NONE		NV2C-28	28V LIT	
NV2C-12V-SH	12V LIT				

NAVIGATOR MOUNTING BRACKETS & ACCESSORIES

Description	Part N.	Pri
Install Kit for Pegasus Compass	10-02124	
C1/200 Cessna Single bracket	10-00272	
C3/400 Cessna Twin bracket	10-00271	
M20/21 Mooney bracket	10-00273	
PA28/30 Piper bracket	10-00274	
GS1 Glareshield Mount	10-00276	
MF1 Short foot (self adhesive)	10-00277	

S.I.R.S. NAVIGATOR NV2-2400X



Navigator NV2-2400 by SIRS is designed to replace older, less stable compasses. The NV2-2400 bolts onto the aircraft's glareshield. The Navigator houses a compass rose suspended in a silicone-based fluid and features silicone seals to eliminate the problem of leaks and fluid evaporation common to older compasses and reduces lead and lag errors inherent in liquid-filled compasses. Metal expansion bellows allow

for flexing in high-altitude, unpressurized flight. The display shows 140 of heading, as opposed to the 90 view offered by standard compasses. The TSO'd Navigator comes in 6, 12, & 28V configurations, with a 3 year warranty.

Description	Part N.	Pri
NV2A-2400 UNLIT COMPASS	10-00401	
NV2C-2400 LIT COMPASS 6V	10-00402	
NV2C-2400 LIT COMPASS 12V	10-00467	
NV2C-2400 LIT COMPASS 28V	10-00468	
S		
Description	Part N.	Pri
NAV TSOD COMPASS 28V LIT SH	10-02131	
NAV NV2A-2400 UNLIT COMPASS SH	10-02132	
NV2C-2400 LIT COMPASS 28V SH	10-02134	
NV2C-2400 LIT COMPASS 12V SH	10-02133	
NAV TSOD COMPASS UNLIT SH	10-02129	
Accessories		
Description	Part N.	Pri
INSTALL KIT NAV SERIES COMPASS	10-02123	



MD-11 CARBURETOR TEMPERATURE

The MD-11-6 carburetor temperature gauge & B-5 temp. probe are designed to help eliminate carburetor icing by early detection, reduce spark plug fouling, extend engine life, increase range & power, and maximize fuel economy. Use with all Marvel-Schebler & Bendix float type carburetors. FAA approved. Mounts in 2-1/4" instrument hole.

14V carb air temp indicator only	P/N MD-11-3
28V carb air temp indicator only	P/N MD-11-4
B-5 probe only	P/N B-5
Mating Connector	P/N 10-01563
14V Carburetor Air Temperature Kit	P/N 10-02759
28V Carburetor Air Temperature Kit	P/N 10-02760



ICEMAN CARBURETOR ICE DETECTION SYSTEM

Fits into a 2-1/4" or 3-1/8" instrument cut-out (or optional bracket) on the panel. The system works on normal 12 or 24V aircraft electrical systems. No temp gauge, no worries about humidity, no graph. Enables an interface with the audio panel, effectively "piping" the ice alert warning sound right into the headset. The ICEMAN is a sealed, solid state unit weighing only 5oz and is currently approved by the FAA in the United States, certified by the CAA, by Transport Canada, and validated in Australia. Probe is included with the system. The Iceman is approved for most general aviation aircraft. Approval list available on request

Iceman System (2-1/4")	P/N 10-00057
Replacement Probe	P/N 10-00059
Remote Mounting Brckt (for 2-1/4" only)	P/N 10-00060
Patch Cord kit	P/N 10-00057-1
3" Front Plate	P/N 10-02163

ARP CARBURETOR ICE DETECTION SYSTEM



Made in USA. Available in three (3) different mounting configurations (Panel Mount, Remote Mount and Universal Mount) thus providing flexibility for any aircraft installation. GIVES UP TO 5 MINUTES WARNING TIME by illuminating a RED visual ice warning light. LIGHT WEIGHT less than 13 ounces. SIMPLIFIED INSTALLATION keeps installation cost down - approx. 1 to 3 man-hours. WARRANT 3-ears on Electronics Box and 1-ear on Probe. FAA-STC SA489EA APPROVED for normal, utility and acrobatic airplanes and helicopters equipped with Continental, Franklin and Lycoming type engines and Precision Air-Motive (Facet or Marvel-Schebler) MA-2, MA-3, MA-3A, MA-3SPA, MA-4, MA-4-5, MA-4SPA, MA-5, MA-6, MA-6AA and MA-6 series carburetors. Installation on other aircraft not specified on the STC may be performed via FAA Form 337. FAA-PMA APPROVED for installation on Type Certificated aircraft.

Panel Mount, 12V (107AP-12)	P/N 10-09900
Panel Mount, 24V (107AP-24)	P/N 10-03707
Remote Mount, 12V (107AP-R-12)	P/N 10-03708
Remote Mount, 24V (107AP-R-24)	P/N 10-03709
Universal Mount, 12 (107AP-U-12)	P/N 10-03697
Universal Mount, 24 (107AP-U-24)	P/N 10-03698
Spare Probe (107AP-P)	P/N 10-03710



FLIGHT DATA SYSTEMS FC-10

Flow: Instantaneous Display of Fuel Flow, Used: Fuel Used, Remaining: Fuel Remaining, Endurance: Time or Distance Remaining, Required: Fuel Required to Active GPS Waypoint, Reserve: Fuel or Time Remaining at Active GPS Waypoint, Efficiency: Miles Per Gallon (or Liter) Displays Fuel Flow and Fuel Used for Each Engine (Two Engine Systems) ea e Communicates with Handheld or Panel Mount GPS, User Selectable Units (Gallons, Liters, Nautical Miles, Statute Miles), Low Fuel Warning, Best Fuel Computer Value Available, Large Extreme Operating Temperature Display, Soft Orange Backlight with Automatic Brightness, Weighs 2.6oz 12-28 Volt Compatible, Includes Floscan 201B6 Transducer 0.6-60 Gallons/Hour, Includes Pre-Wired Harness, Connector is pin to pin compatible with many PI, Hoskins, and Shadin Systems.

FC-10 Single Engine (additional sender req.)	P/N 10-03150
FC-10 Twin Engine	P/N 10-03151
FC-10 With Out Sender	P/N 10-03152



FLIGHT DATA SYSTEMS AFP-30 FUEL COMPUTER

Designed for the experimental aircraft owner who wants instantaneous flight information previously reserved only for transports and private ets. The Air Data Computer function features complete Winds Aloft information, Airspeed information including True Airspeed and Mach number, Altitude information such as Density Altitude and Vertical speed, and both Total and Saturated Air Temperature. Complete with GPS communication enabling it to display fuel computer data. The Performance Computer function calculates, instantaneously, Percent Horsepower based on the engine manufacturer's power chart. It also provides backup Tachometer and Manifold Pressure indications. Compatible with most handheld and panel mount GPS units. P/N 10-03154

ENGINE GAUGES

28 VOLT K.M.C 2" OIL TEMP. GAUGE



Housed in a 2" diameter case, this top quality Kelly Manufacturing Co. oil temperature gauge is operated by an MS28034-1 resistance bulb and is available in C or F scale. Size: 2" dia. x 3.12" long. Wt. 4lbs Power: 28VDC Connector: MS3112E8-4P. Add -C or -F to part no. for C or F.
Gauge only round.....P/N 10-02077

Resistance bulb.....P/N 10-00953
Square bezel.....P/N 10-00943

K.M.C 2 INCH TEMP/OIL PRESSURE GAUGE



High accuracy 2" pressure gauge that qualifies per mil-g-7734c, and has standard wet-line connection. Oil temperature is sensed by a MS28034-1 resistance bulb. Dimensions: 2-3/8" 2-3/8" 2 Weight: .5 lbs. Power: 0 to 200 PSI & 0-300 PSI.....P/N 10-02075
Ms28034-1 Resistance bulb.....P/N 10-00953

COMBINATION MANIFOLD PRESSURE FUEL FLOW GAUGE



This space saving 3-1/8" gauge provides manifold pressure (10"-50" Hg) and fuel flow (4-36 GPH). New manufacture by United Instruments. Direct connections. No transducer required.....P/N 10-10200

2-1/4" UMA MANIFOLD PRESSURE GAUGES



Manifold pressure is one factor used to obtain correct power setting of the engine. The indicators are temperature and altitude compensated. Matte-white dials. Units are new. Manufactured by UMA.

2-1/4" Gauge, 10-50 Hg.....P/N 10-11200

2-1/4" Gauge, 10-35 Hg.....P/N 10-11250

UMA optional internal lighting.....P/N 11-07239

FALCON 3 1/8" MANIFOLD GAUGE



Falcon Gauge Manifold Pressure Gauge is designed and manufactured for use on aircrafts and is a standard diaphragm pressure instrument. This indicator is temperature and altitude compensated. Manifold pressure is one of the factors required to obtain the correct power setting of the

aircraft engine.
10-50 IN HG.....P/N 10-02269
10-35 IN HG.....P/N 10-02270

3-1/8" UMA MANIFOLD PRESSURE GAUGES



3-1/8" Gauge, 10-35Hg.....P/N 10-00080
3-1/8" Gauge, 10-50Hg.....P/N 10-11300

UMA optional internal lighting.....P/N 11-07239

UMA FUEL/AIRBOX DIFFERENTIAL PRESSURE GAUGE



Displays the differential pressure between the fuel system and air box on turbo charge engines where it is necessary to maintain constant fuel pressure that is above the airbox pressure. Sender sold separate. (Requires the use of a 1EU007D UMA different pressure sneder.)

1 1/4".....P/N 10-00979
Sender 0-7 PSI.....P/N 10-00980

FUEL PRESSURE GAUGES



Mechanical gauge with round case mounts in 2-1/8" dia. hole. Matte-white dial markings, chrome bezel. Internal lighting available. New manufacturer (Datcon).

0-15 PSI.....P/N 100169
Light Kit.....P/N 06215-00

MINI WATER PRESSURE GAUGE



Range	P.N	Pri
(-5)-25 PSI	10-22241	
(-15)-15 PSI	10-22248	

ROCHESTER OIL TEMPERATURE GAUGES



Rochester oil temperature gauges have matte-white dial with black bezel. Mount in 2-1/16" dia. hole. New manufacture. Furnished with 5/8-18 UNF 2A adapter nut. Available in the following temperature ranges and capillary lengths.

P/N 10-11600.....100-250 F.....60" Cap.....
P/N 10-11700.....100-250 F.....72" Cap.....
P/N 10-11800.....00-250 F.....144" Cap.....
10-11900.....100-250 F.....48" Cap.....
dap e.....44-0024 5/8-18UNF x 5/8-18UNF.....

SCOTT OIL

TEMPERATURE GAUGE



A quality gauge which is complete with all installation fittings. Range is 100 -250 F. 5/16-18 female capillary adapter fitting. 60" lead length.

P/N 10-00954

OIL TEMPERATURE BULB ADAPTER



Brass fitting used to shorten long capillary bulbs for use in light aircraft engines. Internal 5/8-18 threads mate with fitting on bulb. External 5/8-18 threads fit into engine.

P/N 95527

ROCHESTER OIL PRESSURE GAUGES

Rochester oil pressure gauges have matte-white dial with black bezel. Mount in 2-1/16" dia. hole. 1/8" NPT port fits AN910-1D coupling. New mfg.

0-50 PSI.....P/N 10-22301
0-80 PSI.....P/N 10-00015
0-120 PSI.....P/N 10-22302

h e e e

MILITARY OIL PRESSURE GAUGE

AN5771-2 Military style gauge with sq. case. Mounts in 2-1/4" dia. hole. New surplus. Matte-White Dial (0-150 PSI)

P/N 10-00955

SCOTT OIL PRESSURE GAUGE

Scott's quality Oil Pressure Gauge features 0-120 PSI range and 1/8 NPT thread on flared tube fitting.

P/N 10-00956

OIL PRESSURE INSTALLATION KIT

This kit contains 4 Weatherhead brass fittings with 1/8" pipe thread & 6 ft. of 1/8" Nylo-Seal tubing. Compatible with most mechanical oil pressure gauge installations.

P/N 10-12000

MS28034-3 ENGINE TEMPERATURE SENSOR

Presently in use in government and general aviation industry under liquid and gaseous conditions, this sensing device exceeds stringent U.S. Military Specifications for response time, burst pressure, and AC high potential tests.

P/N 10-01668

3-IN-1 GAUGES

(ELECTRIC OIL TEMP)

Oil temperature range is -50 to 150 C, oil pressure 200 psi, fuel pressure 0-25 psi. The pressure gauges operate by direct connection to the appropriate system and the oil temperature by an electrical resistance bulb probe. New installation requires Cannon plugs & cable clamps for instrument and resistance bulb.

Certified Overhauled Unit - Gauge.....P/N 10-12800

3-IN-1 White Electric Gauge Fahrenheit.....P/N 10-03144

MS3106A-14S-2S Cannon Plug.....P/N 10-00790

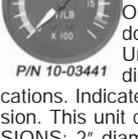
MS3057-6A Cable Clamp for Instrument.....P/N 10-00957

MS28034-1 Res. Bulb, 1-7/8" (#563BH).....P/N 10-00953

MS3106A-12S-3S Cannon Plug (Res.Bulb).....P/N 10-00958

MS3057-4A Cable Clamp for Res. Bulb.....P/N 10-00959

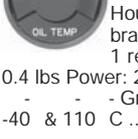
KELLY MANUFACTURING TORQUE INDICATORS



Our Torque Indicators are a wet line, direct reading bourdon tube type instrument, housed in a 2" diameter case. Unit can be calibrated over a wide range of PSI input to direct read torque. Units can be furnished to your specifications. Indicate needed pressure input and pressure-to-torque conversion. This unit cannot be damaged by oil back up in vent line. DIMENSIONS: 2" diameter x 2.125" length, Weight: 0.4 lbs, Power: Wet line direct reading pressure gage

M Part N	Description	Pri
27-3007-1 P/N 10-03441	0 to 1800 FT/LB, Green Arc 0 - 1628, Red Line at 1628	
27-3007-4 P/N 10-03442	0 to 75 P.S.I., Green Arc 0 - 64.4, Red Line 64.4	
27-2007-5 P/N 10-03444	0 to 75 P.S.I., Green Arc, Red Line at 53	
27-3007-7 P/N 10-03443	0 to 75 P.S.I 0 to 53	

KELLY MANUFACTURING OIL TEMPERATURE INDICATOR



Housed in a 2" diameter case, this instrument can be calibrated in C or F. Oil Temperature is sensed by a MS28034-1 resistance bulb. DIMENSIONS: 2" Dia. x 3.12" L Weight: 0.4 lbs Power: 28VDC Connector: MS3112E8-4P

- Green Arc 0 C -110 C,ellow Arc -40 C -0 C Red Line

-40 & 110 C.....P/N 10-03445

UMA ENGINE GAUGES

UMA 2-1/4" SINGLE EGT & CHT GAUGES

These highly reliable and lightweight gauges are self-contained, requiring no external power source. Specify probe size and type. Made in the USA.

	- a e pe e	Range 100-600 F.....	P/N 10-02057.....
		10mm Spark Plug Ring.....	P/N 10-00960.....
		12mm Spark Plug Ring.....	P/N 10-00961.....
		14mm Spark Plug Ring.....	P/N 10-00962.....
		18mm Spark Plug Ring.....	P/N 10-00963.....
		3/8"-24 Bayonet w/snap.....	P/N 10-00795.....
	- a e pe e	Range: 700-1700 F.....	P/N 10-22275.....
		1-5/8" - 2-1/2" Clamp.....	P/N 10-00828.....
		1-2" Clamp.....	P/N 10-00966.....
		8mm, Bayonet-Rotax.....	P/N 10-00967.....
		Optional internal lighting for all UMA 2-1/4", 3-1/8" instruments (except altimeter).....	P/N 11-07239.....

ELECTRONIC UMA 2-1/4" FUEL PRESSURE GAUGE



This reliable and rugged instrument is designed using a moving coil type movement for aircraft use. The electronic pressure gauge connects to pressure transducer which mounts directly to aircraft engine. Made in USA. Order transducer separately.

0-15 PSI.....	P/N 10-22209.....
0-30 PSI.....	P/N 10-22210.....
0-80 PSI.....	P/N 10-02060.....
UMA Pressure Sender N1EU35G for 0-80 PSI (P/N 10-02060).....	P/N 10-01058.....
UMA Pressure Sender 1E1 for 0-50 and 0-80 PSI Gauge.....	P/N 10-00007.....

ELECTRONIC UMA 2-1/4" OIL PRESSURE GAUGE



This reliable and rugged instrument is designed using a moving coil type movement for aircraft use. The electronic pressure gauge connects to pressure transducer which mounts directly to aircraft engine. Made in USA. Order transducer separately.

0-80 PSI.....	P/N 10-22245.....
Pressure Sensor (0-130).....	P/N 3060-18.....
0-80 Transducer Only.....	P/N 10-00007.....

UMA 2-1/4" WATER TEMPERATURE GAUGE



This instrument is designed to be durable yet lightweight. Excellent for a wide variety of homebuilt aircraft applications. Made in USA. Order probe separately.

0-300 F.....	P/N 10-02058.....
Probes	
1/8" NPT (Rotax).....	P/N 10-00968.....
3/8-24 (automotive).....	P/N 10-00969.....

UMA 2-1/4" OIL TEMPERATURE GAUGE



This instrument is designed to be durable yet lightweight. Excellent for a wide variety of homebuilt aircraft applications. Made in USA. Order probe separately.

80-280 F.....	P/N 10-22285.....
Probes	
1/8" NPT (Rotax).....	P/N 10-00968.....
3/8-24 (automotive).....	P/N 10-00969.....
5/8-18 (Lycoming, Continental).....	P/N 10-00418.....
10mm (Rotax 912, 914).....	P/N 10-00973.....

UMA OPTIONAL INTERNAL LIGHTING

Optional internal lighting for all UMA 2-1/4", 3-1/8" instruments (except altimeter)..... P/N 11-07239.....

UMA DUAL AMP VOLTMETERS



These 2-1/4" dual amp voltmeters are ideal for any aircraft where panel space is limited. Amperage is displayed at all times, and simply push a button to display voltage. Complete with gauge and shunt. Voltage range 0-30 volts.

Range:	30 amp.....	P/N 10-14680.....
	60 amp.....	P/N 10-14685.....
	80 amp.....	P/N 10-14690.....
	100 amp.....	P/N 10-14695.....
	0-150 amp.....	P/N 10-00082.....

UMA Optional internal lighting..... P/N 11-07239.....

MECHANICAL UMA 2-1/4" FUEL PRESSURE GAUGE



These factory new fuel pressure gauges from UMA fit standard 2-1/4" panel hole. They are mechanical, wet-line gauges and require no sending unit.

0-25 PSI.....	P/N 10-02356.....
0-50 PSI.....	P/N 10-00316.....
0-10 PSI.....	P/N 10-22201.....
0-30 PSI.....	P/N 10-22203.....
0-100 PSI.....	P/N 10-22205.....

MECHANICAL UMA 2-1/4" OIL PRESSURE GAUGE



These factory new oil pressure gauges from UMA fit standard 2-1/4" panel hole. They are mechanical, wet-line gauges and require no sending unit.

0-50 PSI.....	P/N 10-22240.....
0-130 PSI.....	P/N 10-22242.....
10-100 PSI.....	P/N 10-02357.....

UMA 1" PRESSURE GAUGES



This mechanical, direct hook-up pressure indicator is ideal for monitoring the engine pump cooling system. Suitable to a wide variety of homebuilt aircraft applications. Made in USA.

Range	Size	Part No.	Price
0-10 PSI (water)	1"	P/N 10-22247	

UMA 1" OIL PRESSURE GAUGE



Case is molded ABS plastic. Wt: 1.4oz.

Part No.	Range	Dial Mrkg	Price
10-22251	25-125 PSI	B&W	

UMA 1" FUEL PRESSURE GAUGE



Case is molded ABS plastic. Wt: 1.4oz.

Part No.	Range	Dial Mrkg	Price
10-22252	0-10 PSI	B&W	

MECHANICAL UMA 2 1/4" WATER PRESSURE GAUGE



This mechanical, direct hook-up pressure indicator is ideal for monitoring the engine pump cooling system. Suitable to a wide variety of homebuilt aircraft applications. Made in USA.

Range	Size	Part No.	Price
-15 to 15 PSI	2-1/4"	10-22249	

2-1/4 INCH UMA WATER TEMPERATURE 100-300F



2-1/4 inch UMA Electronic (UMA P/N 12-360-300F) Water Temperature Gauge, Range: 100-300 deg. F P/N 10-02058.....

UMA 2 1/4" FLAP POSITION INDICATOR



This 2-1/4" flap indicator uses a resistance potentiometer as a flap position sensor. Transmitter required. Wt: 9.8 oz.

Indicator (0-30).....	P/N 10-02441.....
Indicator (0-40).....	P/N 10-22250.....
Indicator (0-50).....	P/N 10-22265.....
Indicator (0-60).....	P/N 10-02442.....
Transmitter.....	P/N AN5785.....

UMA OPTIONAL INTERNAL LIGHTING

Optional internal lighting for all UMA 2-1/4", 3-1/8" instruments (except altimeter)..... P/N 11-07239.....

MINI OIL PRESSURE GAUGE



Miniature mechanical instrument, only 1-1/4" dia., as used in many production aircraft. New manufacture.

0-125 PSI Oil Press.....	P/N 10-12400.....
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MINI FUEL PRESSURE GAUGES



1-1/4" Dia. New manufacture by UMA.

0-10 PSI Fuel Press.....	P/N 10-12100.....
0-35 PSI Fuel Press.....	P/N 10-12200.....
0-50 PSI Fuel Press.....	P/N 10-12300.....

IN

UMA ENGINE GAUGES



UMA 2-1/4" ELECTRONIC WATER PRESSURE 270° GAUGE

Electronic Water Pressure Gauges connect to a pressure transducer and connects to the gauge with wires. Standard dial markings are black and white.

- 2-1/4", 0-15 PSI.....P/N 10-02372.....
- 2-1/4", 0-30 PSI.....P/N 10-02373.....

Gauge Case: Valox



UMA 2-1/4" ELECTRONIC OIL PRESSURE 270° GAUGE

Electronic Oil Pressure Gauges connect to a pressure transducer and connects to the gauge with wires. Standard dial markings are black and white.

- 2-1/4", 0-60 PSI, TSO'd....P/N 10-02415.....
- 2-1/4", 0-80 PSI, TSO'd....P/N 10-02416.....
- 2-1/4", 0-100 PSI, TSO'd...P/N 10-02417.....
- 2-1/4", 0-100 PSI.....P/N 10-02424.....
- 2-1/4", 150 PSI.....P/N 10-02761.....

Case: Valox 420



UMA ELECTRONIC FUEL PRESSURE 270° GAUGE

Electronic Fuel Pressure Gauges connect to a pressure transducer and connects to the gauge with wires. Standard dial markings are black and white.

- 2-1/4", 0-7 PSI, TSO'd..... P/N 10-02412.....
- 2-1/4", 0-15 PSI, TSO'd.... P/N 10-02413.....
- 2-1/4", 0-60 PSI, TSO'd.... P/N 10-02414.....
- 2-1/4", 0-15 PSI..... P/N 10-02421.....
- 2-1/4", 0-30 PSI..... P/N 10-02422.....
- 2-1/4", 0-60 PSI..... P/N 10-02423.....

2-1/4 inch
UMA Electronic Fuel Pressure Gauge
Case: Valox 420 Plastic
Weight: 4.7 oz.



UMA ELECTRONIC 2-1/4" HYDRAULIC PRESSURE 270° GAUGE

Electronic Hydraulic Pressure gauge connects to a precision, high pressure transducer which mounts directly to the aircraft's hydraulic system. Standard markings are black and white.

- 2-1/4", 0-2000 PSI, TSO'd.....P/N 10-02459.....
- 2-1/4", 0-2000 PSI.....P/N 10-02458.....

Gauge Case: Valox



UMA 2-1/4" ELECTRONIC OIL TEMPERATURE 270° GAUGE

These rugged aircore gauges work with either thermocouple or thermister probes. Standard markings are black and white.

- 2-1/4", 100-300 F, TSO'd.....P/N 10-02443.....
- 2-1/4", 100-300 F..... P/N 10-22285.....

Gauge Case: Valox



UMA 3 IN 1 ELECTRONIC INSTRUMENT

While rumors have been circulating regarding a new way to maximize on space, saving instruments, UMA has now developed a product line that can combine any three electronic instruments into a 3-1/8 case.

Standard product is with black and white dials, but UMA's reputation is to provide custom range markings and to meet customer demand for specific design. The 3-in-1 can now satisfy space saving, custom markings, and combine any selection of 3 instruments into a 3-1/8 opening to fit your needs...Customization is Great

- *Note - Senders are required and sold separately.
- P/N 10-03452.....
- UMA Range Markings.....P/N 10-02792.....



UMA ELECTRONIC 2-1/4" WATER TEMPERATURE 270° GAUGE

2-1/4 inch UMA Electronic (UMA P/N T12212U300F000) Water Temperature Gauge Range: 100-300 deg. F TSO2-1/4", 100-300 F TSO'd. P/N 10-02428.....



UMA ELECTRONIC 2-1/4" CHT 270° GAUGE

These gauges are available for either thermocouple or thermistor probes. Standard markings are black and white.

- 2-1/4", 100-600 F Moving Coil.....P/N 10-02429.....
- 2-1/4", 100-300 F.....P/N 10-02426.....
- 2-1/4", 100-600 F.....P/N 10-02057.....



UMA ELECTRONIC 2-1/4" EGT 270° GAUGE

These highly reliable and lightweight gauges are self-contained, requiring no external power source. Specify probe size and type. Standard markings are black and white. Exhaust Gas Temp Gauge Case: Valox 420

- Plastic Weight: 4.7 oz.
- 2-1/4", 700-1700 F Moving coil.....P/N 10-22275.....
- 2-1/4", 700-1700 F.....P/N 10-02427.....

UMA ELECTRONIC 2-1/4" CARBURETOR AIR TEMPERATURE 270° GAUGE

These gauges use either thermistor or electronic sensors. Standard markings are black and white.

- 2-1/4", -60-120 F TSO'd.....P/N 10-02379.....
- 2-1/4", -20-120 F.....P/N 10-02391.....



UMA TSO'D 2-1/4" CARBURATOR AIR TEMPERATURE GAUGE

TSO'd Carburetor Temperature 2 1/4" gauge. Range from -60 - 120 F.

- UMA Color Range Markings.....P/N 10-03465.....
- UMA Color Range Markings.....P/N 10-02792.....



UMA 2-1/4" ELECTRONIC MANIFOLD PRESSURE 270° GAUGE

Electronic Manifold Pressure gauges connect to a pressure transducer which connects to the aircraft's engine and indicates the absolute pressure in the intake manifold of the aircraft. These units are very precise and avoid plumbing issues. Standard markings are black and white.

- 2-1/4", 5-35 IN. HG.....P/N 10-02389.....
- 2-1/4", 5-50 IN/ HG.....P/N 10-02390.....



UMA 2-1/4" ELECTRONIC OUTSIDE AIR TEMPERATURE

The digital Outside Air Temperature (O.A.T.) is available in either Fahrenheit or Celsius. Standard models use a Red LED display.

- 2-1/4", -40-60 C, 270.....P/N 10-02387.....
- 2-1/4", -40-140 F, 270.....P/N 10-02388.....
- 2-1/4", 0-100 C.....P/N 10-00205.....
- 2-1/4", -40-165 F.....P/N 10-00206.....



UMA AMMETER SHUNT 30/60/80/100AMP

WUMA Ammeter shunt 30AMP, 60AMP, 80AMP, and 100AMP.

- Shunt 30AMP 1C1.....P/N 10-02072.....
- Shunt 60AMP 1C2.....P/N 10-02073.....
- Shunt 80 AMP 1C3.....P/N 10-02352.....
- Shunt 100AMP 1C4.....P/N 10-02074.....

UMA OPTIONAL INTERNAL LIGHTING

Optional internal lighting for all UMA 2-1/4", 3-1/8" instruments (except altimeter). P/N 11-07239.....

UMA ENGINE GAUGES



UMA 2-1/4" FUEL FLOW 270° GAUGE

These affordable indicators display gallons/hour fuel flow in a conventional analog instrument package. Standard markings are black and white.

- 2-1/4" 08- GPH P/N 10-02407
- 2-1/4" 0-20 GPH P/N 10-02408
- 2-1/4" 0-30 GPH P/N 10-02409
- Turbing Flow Transducer 0.6-60 GPH P/N 10-02406



UMA 2-1/4" FUEL AIR BOX 270° PRESSURE

Electronic, Fuel/Air-box Differential Pressure gauges and senders are designed for the Rotax 914 engine but have other applications where differential pressures need to be measured. It eliminates having to calculate the fuel/air-box differential pressure by looking at two separate gauges and having two separate senders.

2-1/4" 0-7 diff. PSI (U)
P/N 10-00979

SENDER NOT INCLUDED



Case: Valox 420

UMA 2-1/4" ELECTRONIC FUEL QUANTITY GAUGE

SENDER NOT INCLUDED



Description	Part N	Pri
2-1/4 inch UMA Electronic Fuel quantity Indicator Range/Sweep: E-F/270 Sender: (C) 0-5V	10-02392	.
2-1/4 inch UMA Electronic Fuel quantity Indicator Range/Sweep: E-F/180 Sender: (C) 0-5V	10-02393	.
2-1/4 inch UMA Electronic Fuel quantity Indicator Range/Sweep: E-F/270 Sender: (F) 240/30 ohms	10-02394	.
2-1/4 inch UMA Electronic Fuel quantity Indicator Range/Sweep: E-F/180 Sender: (F) 240/30 ohms	10-02395	.
2-1/4 inch UMA Electronic Fuel quantity Indicator Range/Sweep: E-F/180 Sender: (F) 0-30 ohms	10-02396	.
2-1/4 inch UMA Electronic Fuel quantity Indicator Range/Sweep: E-F/270 Sender: (F) 0-90 ohms	10-02397	.
2-1/4 inch UMA Electronic Fuel quantity Indicator Range/Sweep: E-F/180 Sender: (F) 0-90 ohms	10-02398	.
2-1/4 inch UMA Electronic Fuel quantity Indicator Range/Sweep: E-F/270 Sender: (F) 78-6 ohms	10-02399	.
2-1/4 inch UMA Electronic Fuel quantity Indicator Range/Sweep: E-F/180 Sender: (F) 78-6 ohms	10-02401	.
2-1/4 inch UMA Electronic Fuel quantity Indicator Range/Sweep: E-F/ Sender: (C) 0-5V	10-02410	.
2-1/4 inch UMA Electronic Fuel quantity Indicator Range/Sweep: E-F/ Sender: (F) 240/30 ohms	10-02411	.

UMA OPTIONAL INTERNAL LIGHTING

Optional internal lighting for all UMA 2-1/4", 3-1/8" instruments (except altimeter). P/N 11-07239

UMA PRESSURE SENDERS

UMA's pressure senders offer high reliability and accuracy at an affordable cost. They use precision solid state sensors and are designed for rugged use in just about any environment.



VDO Pressure Sender (V)
1/8" NPTM Connection



Se de e e
1/8"-27 NPTF Connection(s)
1' Cable 5/8-18 Mounting Thread



h e
Se de e
1/8" NPTM Connection w/9' Cable

Description	PSI	Part N	Pri
VDO Pressure Sender (V)	80 PSI (0-5 BAR)	10-00007	.
VDO Pressure Sender (V)	150 PSI (0-10 BAR)	3060-18	.
UMA 1E3 PSI Sender (U)	0-30 PSI	10-03464	.
UMA Pressure Sender (U)	0-7 PSI Differential	10-00980	.
UMA Pressure Sender (U)	0-7 PSI	10-01057	.
UMA Pressure Sender (U)	0-35 PSI	10-01058	.
UMA Pressure Sender (U)	0-70 PSI	10-01059	.
UMA Pressure Sender (U)	0-100 PSI	10-01060	.
UMA Pressure Sender (U)	0-150 PSI	10-01061	.
UMA Pressure Sender (U)	0-60 InHg Absolute	10-01062	.
UMA Pressure Sender T1EU35(G)(D)	0-35 PSI	10-02646	.
UMA Pressure Sender T1EU100(G)(D)	0-100 PSI	10-02647	.
Ashcroft Precision Sender (A)	0-15 PSI	10-00526	.
Ashcroft Precision Sender (A)	0-30 PSI	10-02418	.
Ashcroft Precision Sender (A)	0-100 PSI	10-00529	.
Ashcroft Precision Sender (A)	0-150 PSI	10-00530	.
Ashcroft Precision Sender (A)	0-2000 PSI	10-02420	.

UMA TEMPERATURE PROBES



e pe a e e
contain a thermistor for temperatur sensing. 6' Lead Wires.



e pe a e e
e use Type Thermocouple. 6' Lead Wires.

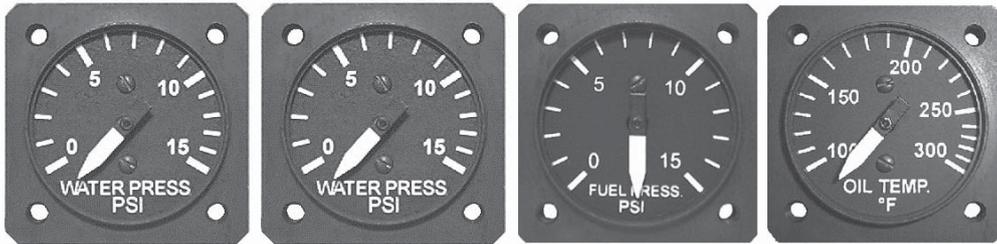


e pe a e e
e use Type K Thermocouple. 6' Lead wires

UMA P N	Sizes	Our P/N	Pri
1B1	Thread: 1/8 NPT, 1/2 Hex Head	10-00968	.
1B2	Thread: 3/8-24, 5/8 Hex Head (Auto)	10-00969	.
1B3	Thread: 5/8-18, 7/8 Hex Head (Lyc.)	10-00418	.
1B4	Thread: 10mm x 1.5 Pitch (Rotax 912 & 914)	10-00973	.
1B5F	Thread: 3/8-24, 2-1/4" OAT F	10-02374	.
1B6	Thread: 16mm x 1.5 Pitch	10-02375	.
1B7	Thread: 12mm x 1.5 Pitch	10-02376	.
1B8	Thread: 1/4-20 (Carb. Temp.)	10-01156	.
1B10	Thread: 1/4-28	10-02377	.
1B11	Thread: 1/4-18 NPT	10-02378	.
2B10	10mm Spark Plug Ring	10-00960	.
2B12	12mm Spark Plug Ring	10-00961	.
2B14	14mm Spark Plug Ring	10-00962	.
2B18	18mm Spark Plug Ring	10-00963	.
2B01	Bayonet Type: 1/8 NPT	10-02448	.
2B02	Bayonet Type: 3/8"-24, w/snap	10-00795	.
2B011	Bayonet Type: 1/4-18 NPT	10-02451	.
2B20	Clamp Size: 1-5/8 - 2-1/2" Length: 1" Tip	10-00828	.
2B21	Clamp Size: 1 - 2" Length: 1" Tip	10-00966	.
2B30	Clamp Size: 8mm, Bayonet Length: (Rotax)	10-00967	.

UMA 1-1/4" TSO'd ENGINE INSTRUMENTS

These 1 1/4" instruments are identical to the 1 1/4" UMA Gauges on previous page, except these are TSO'd for certified aircraft.



UMA N .	Size & Type	Ra g S r S r Ra g	Markings & S	Part N .	Pri
TO4 113V 080P 000	1 1/4" OIL PRESS	0-80 PSI (VDO)	B & W	10-00037	.
TO4 113V 130P 000	1 1/4" OIL PRESS	0-130 PSI (VDO)	B & W	10-00533	.
TO4 1135 060P 000	1 1/4" OIL PRESS	0-60 PSI (ASHCROFT)	B & W	10-00534	.
TO4 1135 100P 000	1 1/4" OIL PRESS	0-100 PSI (ASHCROFT)	B & W	10-00535	.
TO4 1135 150P 000	1 1/4" OIL PRESS	0-150 PSI (ASHCROFT)	B & W	10-00536	.
TO4 1135 010B 000	1 1/4" OIL PRESS	0-10 BAR	B & W	10-00537	.
TO4 112V 015P 000	1 1/4" FUEL PRESS	0-15 PSI (VDO)	B & W	10-00538	.
TO4 112V 030P 000	1 1/4" FUEL PRESS	0-30 PSI (VDO)	B & W	10-00539	.
TO4 112V 080P 000	1 1/4" FUEL PRESS	0-80 PSI (VDO)	B & W	10-00540	.
TO4 1125 015P 000	1 1/4" FUEL PRESS	0-15 PSI (ASHCROFT)	B & W	10-00541	.
TO4 1125 030P 000	1 1/4" FUEL PRESS	0-30 PSI (ASHCROFT)	B & W	10-00542	.
TO4 1125 060B 000	1 1/4" FUEL PRESS	0-60 PSI (ASHCROFT)	B & W	10-00543	.
TO4 1125 100P 000	1 1/4" FUEL PRESS	0-100 PSI (ASHCROFT)	B & W	10-00544	.
TO4 1125 150B 000	1 1/4" FUEL PRESS	0-150 PSI (ASHCROFT)	GA 59-115, RR 59-115	10-00545	.
TO4 115V 015P 000	1 1/4" WATER PRESS	0-15 PSI (VDO)	B & W	10-00546	.
TO4 115V 030P 000	1 1/4" WATER PRESS	0-30 PSI (VDO)	B & W	10-00547	.
TO4 1155 015P 000	1 1/4" WATER PRESS	0-15 PSI (ASHCROFT)	B & W	10-00548	.
TO4 1155 030P 000	1 1/4" WATER PRESS	0-30 PSI (ASHCROFT)	B & W	10-00549	.
TO4 1145 2K0P 000	1 1/4" H DRAULIC PRESS	0-2000 PSI (ASHCROFT)	B & W	10-00550	.
TO4 11A5 100P 000	1 1/4" GEARBO OIL PRESS	0-100 PSI (ASHCROFT)	B & W	10-00551	.
T12 113U 150C 000	1 1/4" OIL TEMP	40-150 0C	B & W	10-00555	.
T12 113U 300F 000	1 1/4" OIL TEMP	100-300 0F	B & W	10-00556	.
T12 115U 150C 000	1 1/4" WATER TEMP	40-150 0C	B & W	10-00557	.
T12 115U 300F 000	1 1/4" WATER TEMP	100-300 0F	B & W	10-00558	.
T12 116U 150C 000	o1 1/4" CHT	40-150 0C	B & W	10-00559	.
T12 116V 300F 000	1 1/4" CHT (VDO)	100-300 0F	B & W	10-00560	.
T12 116 530C 000	1 1/4" CHT	50-300 0C	B & W (Thermocouple)	10-00561	.
T12 117K 1K7F 000	1 1/4" EGT	100-900 0C	B & W (Thermocouple)	10-00562	.
T12 118U 120F 000	1 1/4" CARB. TEMP	-60-120 0F	B & W	10-00563	.
T12 11AU 300F 000	1 1/4" GEARBO TEMP	100-300 0F	B & W	10-00564	.
T12 11T5 1K0C 000	1 1/4" TURBINE TEMP	0-1000 0C	B & W, 5V INPUT	10-00565	.
T18 1125 1C10 000	1 1/4" FUEL T IND.	EMPT TO FULL (cap 5V)	B & W (2700)	10-00566	.
T18 1125 2C10 000	1 1/4" FUEL T IND.	EMPT TO FULL (cap 5V)	B & W (1800)	10-00567	.
T18 112F 1F10 000	1 1/4" FUEL T IND.	EMPT TO FULL (float 240-30 ohms)	B & W (2700)	10-00568	.
T18 112F 1F20 000	1 1/4" FUEL T IND.	EMPT TO FULL (float 0-30 ohms)	B & W (2700)	10-00569	.
T18 112F 1F30 000	1 1/4" FUEL T IND.	EMPT TO FULL (float 0-90 ohms)	B & W (2700)	10-00570	.
T18 112F 1F40 000	1 1/4" FUEL T IND.	EMPT TO FULL (float 78-6 ohms)	B & W (2700)	10-00571	.
T18 112F 1F50 000	1 1/4" FUEL T IND.	EMPT TO FULL (float 10-180 ohms)	B & W (2700)	10-00572	.
T18 112F 2F10 000	1 1/4" FUEL T IND.	EMPT TO FULL (float 240-30 ohms)	B & W (1800)	10-00573	.
T18 112F 2F20 000	1 1/4" FUEL T IND.	EMPT TO FULL (float 0-30 ohms)	B & W (1800)	10-00574	.
T18 112F 2F30 000	1 1/4" FUEL T IND.	EMPT TO FULL (float 0-90 ohms)	B & W (1800)	10-00575	.
T18 112F 2F40 000	1 1/4" FUEL T IND.	EMPT TO FULL (float 78-6 ohms)	B & W (1800)	10-00576	.
T18 112F 2F50 000	1 1/4" FUEL T IND.	EMPT TO FULL (float 10-180 ohms)	B & W (1800)	10-00577	.
15 11S0 P30A 000	1 1/4" AMMETER (2700) (w/shunt)	-30 to 30 A	B & W	10-00041	.
15 11S0 P60A 000	1 1/4" AMMETER (2700) (w/shunt)	-60 to 60 A	B & W	10-00581	.
15 11S0 P80A 000	1 1/4" AMMETER (2700) (w/shunt)	-80 to 80 A	B & W	10-00582	.
15 11S0 P1CA 000	1 1/4" AMMETER (2700) (w/shunt)	-100 to 100A	B & W	10-00583	.

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IN

KELLY MANUFACTURING CO. INSTRUMENTS



KELLY MANUFACTURING CO. AMMETERS

This ammeter is similar to 12-1200 series except that zero amps are positioned at the left of the scale. To be used with 50 MV shunt. Dimensions: 2-3/8 x 2-3/8 x 2. Weight: .4 lbs approx. Voltage: 14 or 28 VDC

Moving coil type, designed for aircraft use. Requires 50 MV shunt (12-902 series). Dimensions: 2-3/8 x 2-3/8 x 2 Weight: .4 lbs approx. Voltage: 14 or 28 VDC

M N .	Range (Amps)	Part N .	Pri
12-1100-1	0 to 30 amps	10-02555	.
12-1100-2	0 to 60 amps	10-02556	.
12-1100-3	0 to 80 amps	10-02557	.
12-1100-4	0 to 120 amps	10-02558	.
12-1100-5	0 to 150 amps	10-02559	.



KELLY MANUFACTURING CO. VOLTMETERS

M N .	Range (Amps)	Part N .	Pri
12-5000-1	0 to 16 VDC	10-02567	.
12-5000-2	0 to 30 VDC	10-02568	.
12-5000-3	0 to 60 VDC	10-02569	.
12-5000-4	0 to 100 VDC	10-02570	.
12-5000-5	0 to 200 VDC	10-02571	.



KELLY MANUFACTURING CO. SHUNTS

For use with ammeters and voltmeters with a 50 MV rating. Dimensions: 2 x 1-1/4 x 1-5/8 Weight: .5 lbs approx.

Description	M N .	Part N .	Pri
Shunt - 30 amps	12-902-1	10-02574	.
Shunt - 50 amps	12-902-2	10-02575	.
Shunt - 55 amps	12-902-8	10-02576	.
Shunt - 60 amps	12-902-3	10-02577	.
Shunt - 75 amps	12-902-4	10-02578	.
Shunt - 80 amps	12-902-6	10-02579	.
Shunt - 100 amps	12-902-11	10-02580	.
Shunt - 120 amps	12-902-9	10-02581	.
Shunt - 125 amps	12-902-5	10-02582	.
Shunt - 150 amps	12-902-10	10-02583	.



KELLY MANUFACTURING CO. LOW VOLTAGE WARNING SYSTEMS

An amber light will come on at the moment of low voltage condition which will inform the pilot of attention needed to the alternator, generator, or voltage regulator. Any of these conditions allowed to continue will result in a weak or completely discharged battery condition and loss of radio and electrical equipment. Indicator light features a built in dimmer and press to test with amber lens. Lights will trigger at 13 volts for 14V systems and 25 volts for 28V system. Accuracy, plus or minus 0.2 volts. Size: 1/2" Dia. 3" Depth required behind panel. Weight: .2 lbs., Power: less than 1/10 amp. Fuse supplied with kit.

M N .	Description	Part N .	Pri
33-2013A	14 Volt, Red Lens Lo Voltage Warning System	10-02572	.
33-2013	14 Volt, Amber Lens with Dimmer Lo Voltage Warning System	33-2013	.
33-2025A	28 Volt, Red Lens Lo Voltage Warning System	10-02573	.
33-2025	28 Volt, Amber Lens with Dimmer Lo Voltage Warning System	33-2025	.

KELLY MANUFACTURING CO. TACHOMETERS



2" Prop Tachometer, Green Arc from 0 RPM to Red Line at 1700 RPM



2" Prop Tachometer, Lighted, Green Arc from 1400 RPM to Red Line at 1700 RPM.



2" Percent Tachometer, Type MU-1 (MIL 25623A)

Many years of experience were drawn upon in the design and development of these tachometers. Only the best time tested and field proven features were used. These instruments use a three phase alternating current synchronous motor powered by a remote tach generator. The simplicity of design results in a twofold gain: increased reliability and ease of overhaul. Dimensions: 2" diameter x 5". Weight: .7 lbs. Power: Tach Generator, MIL-G-9398. Connector: MS3106A-14S-5S

Description	M N .	Part N .	Pri
2" Prop Tachometer	RCA40A-06	10-02616	.
2" Prop Tachometer	RCA40A-07	10-02617	.
2" Prop Tachometer	RCA40A-09	10-02618	.
2" Prop Tachometer	RCA40A-10	10-03431	.
2" Prop Tachometer Lit	RCA40AB-06	10-02619	.
2" Prop Tachometer Lit	RCA40AB-07	10-02621	.
2" Prop Tachometer Lit	RCA40AB-09	10-02622	.
2" Percent Tachometer	RCA41A-06	10-02623	.
2" Percent Tachometer	RCA41A-07	10-02589	.
2" Percent Tachometer	RCA41A-08	10-03433	.
2" Percent Tachometer	RCA41A-09	10-02588	.
2" Percent Tachometer Lit	RCA41AB-06	10-02624	.
2" Percent Tachometer Lit	RCA41AB-07	10-02626	.
2" Percent Tachometer Lit	RCA41AB-09	10-02627	.

HOUR METERS – ENGINE GAUGES

HOBBS HOUR METERS



The quartz series of hour meters provide performance and reliability. Features include a highly reliable drive mechanism and odometer gear train combined with the accuracy of quartz crystal timing. Accurate to +/- 0.02% from -40 to 185 F. Total digital quartz readout is 9999.9 hours. Easy-to-read white numerals on black face dials. Sealed against dirt and moisture. Meets requirements of spec. MIL-L-3971B. Power: 10 – 32 V DC. Models 85094, 85001 and 85011 read "Total Hours". Model 85012 reads "Flight Hours".

- Hobbs Hour Meter 85094 P/N 15000
- Hobbs Hour Meter 85001 P/N 15001
- Hobbs Hour Meter 85011 P/N 15006
- Hobbs Hour Meter 85012 P/N 15007



PRESSURE SWITCH FOR HOBBS HOUR METERS Normally open. Closes at 4 PSI. Single circuit with 2 insulated terminals. Switch has silver contacts enclosed in weatherproof case. 1/8" male pipe thread connection.

- Water Compatible Pressure Switch for Rotax engines. P/N 10-00813.....
- P/N 10-00326.....



TEE CONNECTOR - For pressure switches with 1/8" male pipe threads. For 1/4" O.D. oil pressure lines. P/N 10-13300.....

DATCON HOUR METERS



Standard equipment in most production aircraft. Operate on any DC voltage from 4-40V. These solid-state hour meters are recommended for use on aircraft because they start or stop instantly when power is applied or removed. Furnished with mounting hardware. If meter is connected improperly it will not operate but meter will not be damaged. The running indicator indexes every 6 seconds.

Model 87112/24V P/N 56456-3

Model 87312/24V P/N 56457-3

Model 876 12V P/N 56458-4

TINY TACH TACHOMETER/HOUR METERS



Tiny-Tach is an affordable, accurate, self-contained tachometer/hour meter. Displays RPM while the engine is running and total engine time when the engine is off. The unit is waterproof, shock resistant, and has a built-in battery that lasts up to 8 years. Tiny Tach can be mounted easily using 2 mounting tabs or double sided tape.

- is used when there is one spark plug firing on each revolution of the crankshaft. P/N 10-24420
- is for engines which have a spark every two revolutions of the crankshaft such as those with a distributor driven crankshaft. P/N 10-24430
- is for twin cylinder engines with a spark firing every 180 degrees of the engine crankshaft.....P/N 10-24440



FALCON VOLT METERS

Falcon Gauge Volt Meters are 6-16V and are available in 2-1/4" and 2" Round.

SI F	VOLTAGE	PART NO.	PRICE
2 1/4"	6-16V	10-02271	
2 1/4" ROUND	6-16V	10-02272	

FALCON AMP-METERS



M	Part N	Pri	M	Part N	Pri
A2-001	10-03408		AV60-002	10-03414	
A2-001R	10-03409		AV60-001R	10-03415	
A30-001	10-03410		Falcon Shunt Amp/Volt		
A30-001R	10-03411		M	Part N	
AV30-002	10-03412		SHT-030	10-03416	
AV30-001R	10-03413		SHT-060	10-03417	

ENM VIBRATION ACTIVATED HOUR METERS



Features 6-digits with an hour glass as a running indicator - operates only when engine is vibrating. Install anywhere with no wired connection or power source to operate. Internal battery supplies all the necessary power for the gauge to operate for years of service. Total operating hours are always shown on the LCD display. Compact tamper-proof meter is sealed against the environment to provide years of service.

- ENM Hourmeter Vibration P/N ENMV.....
- ENM Hourmeter DC Power P/N ENMDC.....
- ENM Hourmeter AC Power P/N ENMAC.....

UNIVERSAL DIGITAL TACH/HOURMETER



Now both a digital tachometer and an hourmeter in the same low cost and small size package. No power required yet there is a large 7 segment LCD display. Solid state electronics with quartz crystal technology make this instrument highly reliable. Easy to install - just wrap the attached wire around your spark plug cable. The case is completely sealed, it operates in a wide temperature range and the service interval is programmable..... P/N TLPT14

CURTIS HOURMETER



All solid state. Mount from front or back of panel in 1 3/8" by 7/8" hole. Requires 12 VDC.

- P/N CUR701

VOLTMETERS



These new manufacture voltmeters offer accuracy, rugged construction, and contemporary styling. Made in USA. 2 1/4" Range:

- 9-16V P/N 10-14620
- 20-32V P/N 10-02064

AMMETERS



These new manufactured ammeters offer accuracy, rugged construction, and contemporary styling. Made in U. S. A. Furnished with shunt.

- Range: 0-30 (0 center)..... P/N 10-14650
- 0-60 (0 center)..... P/N 10-14655
- 0-80 (0 center)..... P/N 10-14660

KOBRA TACH/HOUR METER



This tiny and portable RPM meter and hour meter unit is chip controlled, fully programmable, and is suitable for both two and four stroke engines: one product fits all engines. It keeps in memory the max RPM and the time the engine has been running; both values are resettable. Its two small batteries last for years before needing to be replaced. A strong velcro for fixing is included. Features: Velcro set for attaching the RPM-H 2m cable Batteries Included One product fits all engines in the market thanks to programmable chip Battery can be replaced, virtually is a life long product it registers max RPM of the life of the engine, which are resettable. P/N 10-03573.....

ONE TOUCH DIGITAL TACH CHECK



This digital LCD tachometer reads 2, 3, or 4 blade props very accurately. Very easy to use and features auto-shutoff and 10 RPM readout. P/N 10-00749

DIGITAL FLAP INDICATOR



Early-model Cessnas originally utilize older-style, wire-wound transmitters. These transmitters are located in the wing, where they are exposed to humidity and extreme temperatures. After many years in such harsh environments, these transmitters become worn and corroded, causing them to fail or become intermittent.

Owners have been plagued with high maintenance costs, difficulties obtaining replacement parts, as there are compatibility issues the various transmitters and the gauges. The Visual Instruments Flap Indicator system provides a means for owners of these older aircraft to upgrade their troublesome indicators to a modern, more reliable design. The system includes a new transmitter, a modern digital display, and all parts necessary to perform the upgrade. The new display incorporates a color LED bar graph. The appearance is similar to flap indications shown on modern glass cockpits. Positions of more than 10 flap are indicated in a different color. This allows for easy identification during an emergency procedure such as a balked landing (go-around). The LEDs are very viewable from a wide angle. This is particularly useful since the indicator on many Cessna models is located on the right side of the panel. The display automatically adjusts to the ambient light for IFR or night operation. The Flap Indicator system includes all necessary parts and typically takes a mechanic approximately 2 hours to install. 5 year factory warranty. STCd for installation on early model Cessna 172s, 182s, 205s, 206s, & 210s. P/N 10-00240

INSTRUMENTS

INSTRUMENT MOUNTING PODS



An economical, high-quality, easy-to-install solution to your instrument mounting problems. Made of vacuum-molded white and black ABS plastic with attractive black matte ABS faces. The white pod may be easily spray-painted with acrylic enamel to match your aircraft. Two-piece mounting brackets fit snugly around 1" tubing, secured with screws provided. Available for 2, 3, 4 or 5 instruments with the face pre-cut and mounting holes drilled for either 2-1/4" or 2" instruments. Blank face plates also available. May be used horizontal or vertically. When you order, specify either 2-1/4" or 2" instruments holes or blank face plate. Instruments not included.

P N	Instr 2-1/4" Hole	C	r	Pri	P N	Instr. 2" Hole	C	r	Pri
10-01513	2	White			10-01538	2	Black		
10-01517	3	White			10-01539	3	Black		
10-01521	4	White			10-01540	4	Black		
10-01525	5	White			10-01541	5	Black		
10-01529	2	Black				Blank			
10-01530	3	Black			10-01542	2	White		
10-01531	4	Black			10-01543	3	White		
10-01533	5	Black			10-01544	4	White		
	2" Hole				10-01545	5	White		
10-01534	2	White			10-01546	2	Black		
10-01535	3	White			10-01547	3	Black		
10-01536	4	White			10-01548	4	Black		
10-01537	5	White			10-01549	5	Black		

SHOCK MOUNTS

For vibration and shock proofing on instruments and radios.



10-02183 - 1" Square Plate Type Lord Mounts, 6 lb. rating. Monel mounting plate. Base holes .141" dia. for 6-32 screws. Center hole .166" dia. for 8-32 screw. New surplus item - like new mfg.

P/N 10-02183

200P-35 - 2" Square Plate Type Lord Mounts, 35 lb. rating. Steel mounting plate. Base holes .196" dia. for 10-32 screw. Center hole .391" dia. for AN6 bolt.

P/N 10-00034



ROUND MOUNT - As used in Cessna aircraft. Overall length 1.25". Rubber molded on 8-32 threaded projections. New manufacture. Similar to Cessna P/N 6984-8. P/N 10-14700

LORD J-14290-4 INSTRUMENT SHOCK MOUNT -

5 lb rating • Metal mounting plate • .144 dia. base hole (screw size: #6) • .195 dia. center hole (screw size #10) • Aircraft: Cessna 182, 182A-182N

P/N 08-00381



RTC-2 AVIATION REAL TIME CLOCK & OAT DISPLAY

The RTC-2 is a 2.25" aviation Real Time Clock featuring a two time zone system, stopwatch, countdown timer, alarm and OAT (Outside Air Temperature) display. It is primarily intended to show UTC time (also known as Greenwich Mean Time, GMT or ulu time) together with a local time to facilitate ordinary ATC time reporting.

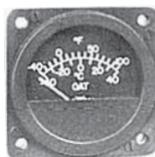
P/N 11-06443



SCOTT TYPE FREE AIR THERMOMETER

Mounts through 3/8" dia. hole in windshield or cowling. Convenient scale reads in both Centigrade and Fahrenheit. Stem length is 4". Face diameter 2-1/8". Sunproof crystal.

P/N 10-15500



KELLY MANUFACTURING CO. OUTSIDE AIR TEMPERATURE GAUGE

This quality manufacture outside air temperature gauge features a moving coil meter movement housed in a 2" diameter case. Operated by MS28034-2 type resistance bulb. Size: 2-3/8" x 2-3/8" x 2-1/4". Wt. 1 lb. Power: 14 or 28 VDC. Range -45 C/-50 to 120 C.

P/N 29-3003-14

P/N 29-3003-28

Connector: P/N 11-02023



KELLY MANUFACTURING CO. CABIN AIR TEMPERATURE GAUGE

This quality new manufacture cabin air temperature gauge features a moving coil meter movement housed in a 2 inch diameter case. Operated by MS28034-2 type resistance bulb. Size: 2-3/8" x 2-3/8" x 2-1/4". Wt. 1 lb. Power: 14 or 28 VDC.

14V 29-4000 29-4000-14

28V 29-4000 10-03146

MS28034-2 Resistance Bulb MS28034-2

KELLY MANUFACTURING 3 INCH ENGINE GAUGES 18-1000 & 18-1002 SERIES

Consists of three independent gages contained within a standard 3" diameter case. Oil temperature and cylinder head temperature gages are moving coil meter movement operated by MS28034-1 and AN5546-1 resistance bulbs respectively. Connection for the temperature gage is by cannon type connector: P/N MS3106A-14S-2S. FAA TSO Approved C47.

P/N 10-03435

M Part N	Description	Pri
18-1000-1	28 VDC Oil Temp. 50 - 250 F, Oil Press. 0-200	
P/N 10-03435	PSI. Cylinder head temperature 100 to 500 F	
18-1000-2	28 VDC Oil Temp. 20 to 120 F, Oil Press. 0 to	
P/N 10-03436	200 PSI. Cylinder head temp. 50 to 250 F	
18-1000-3	14 VDC Oil Temp 50 - 250 F, Oil Press. 0-200	
P/N 10-03437	PSI. Cylinder head temp. 100-500 F	
18-1000-4	14VDC Oil Temp 20 to 120 F, Oil Press 0 -	
P/N 10-03438	200 PSI. Cylinder head temp. 50 to 250 F	



18-1002 SERIES - This gage consists of three moving coil meter movements within a 3" diameter case. Oil temperature is sensed by an MS28034-1 resistance bulb and cylinder head temperature is sensed by an AN5546-1 resistance bulb. Oil pressure is sensed by a VDO Transducer. Connection is made by a single cannon type connector: Part Number MS3106A-14S-6S.

M Part N	Description	Pri
18-1002-1	Oil Temp 50 - 250 F, Oil Press. 0 - 120psi,	
P/N 10-03439	Cylinder temp. 0 - 500 F	
18-1002-5	Oil Temp 50 - 250 F, Green Arc 100	
P/N 10-03440	- 200 F, Red line at 249 F, Oil Press. 0 - 120psi, Red line 10psi & 100psi, Yellow Arc 10psi - 30psi, Green Arc 30psi - 60psi, Yellow arc 60psi - 100psi, Cylinder Temp 0 - 500 F, Green Arc 220 - 420 F, Red Line 460 F	

ACCESSORIES FOR 18-1000 & 18-1002 SERIES

Part N	Description	Pri
10-00953	Resistance bulb MS28034-1	
AN5546-1	86146 CHT Probe Thermistor	
10-00790	MS3106A-14S-2S Cannon Plug	



DIGITAL OUTSIDE AIR TEMPERATURE GAUGE

This high quality digital outside air temp. gauge gives constant and precise readings on a bright, easy-to-read digital presentation. Comes complete with probe and ready to install. Made in USA

Celsius P/N 10-00205

Fahrenheit P/N 10-00206



HYDRAULIC PRESSURE GAUGE

AN5771-4A Military style gauge with steel case. Mounts in 2-1/4" dia. panel opening. Range: 0-2000 PSI. Overhauled and Certified. With fresh Matte-white dial.

P/N AN5771-4A

CLOCKS TIMERS



ASTROTECH QUARTZ CHRONOMETERS

A fine quality instrument to satisfy all cockpit clock/timer needs. 12 or 24 hour clock, 24 hour elapsed timer with time-out or hold feature, month and date. Will operate on internal battery for 2 years or can be connected to electrical system. 12 or 28V DC operation.

Part	M	Description	Pri
10-15508	LC-2	Panel Mount Aircraft Powered 14/28V	
10-15515	LC-2	Aircraft Powered Panel Clock 28V	
10-15512	LC-2A-5	King Air, 28 volts	
10-15513	LC-2A-6	Beechcraft 28V Clock	
10-15514	LC-2E	Embarcaer 5V CLOCK/Clock	
10-15507	LC-2P	Central Wheel 14V A/C Powered	

a p p a a a e h e e



LC-6 LIQUID CRYSTAL CHRONOMETER

The LC-6 is a 5-function, liquid crystal display, aircraft quartz chronometer. All functions contained in a single Large Scale Integrated Circuit (LSI) bonded directly to a printed circuit board. Features 6-digit local time or GMT stopwatch, 100-hour remote-activation timer, presettable down-counter. Unit mounts into standard 2.25" panel cutout, back-lit, may be wired into aircraft instrument panel lighting system (14 or 28V). P/N 10-15503.....



YOKE MOUNT FLIGHT CLOCK

Battery-operated quartz aircraft clock reads out 12 or 24 hour formats in bright digital display, and has stopwatch & alarm features. Includes yoke attachment for mounting directly in front of the pilot, and the yoke clip holds charts, approach plates, etc. Uses one watch battery (included). 1yr warranty. A great clock & approach timer.

Flight Clock (for Piper).....P/N 13-31200.....
Flight Clock (for Cessna & all others).....P/N 13-31210.....



AVIATOR'S 5-IN-1 FLIGHT TIMER

5 timers in one package. A combination of 12/24 hour digital chronometer, plus stopwatch, plus 3 countdown timers is about as close to timed maneuver perfection as a pilot can get. Large LCD digital readouts and large push-buttons make reading and operating easy. Memory stores each waypoint, tank change or approach count-down preset. When time is up, timer element flashes and counts up. The Flight Timer Amplifier is very compact and includes a speaker volume control & external output jack for audio annunciation.

5-in-1 w/ piezo alarm (No LED).....P/N 13-01833.....
5-in-1 w/ red LED.....P/N 13-00095.....
5-in-1 w/ red LED & audio alarm.....P/N 13-00391.....
Flight Timer Amplifier.....P/N 13-01941.....



ELECTRONIC STOPWATCH/TIMER

This easy-to-use stopwatch counts up to 60 minutes, then recycles automatically. As a timer, it counts down from 100 minutes in minutes and seconds. Features loud tone when timing period is complete, a large LCD digital display, and soft-touch buttons which are easy to set. Stands or hangs for convenience. 1.5V battery included. By Westbend. P/N 13-31380.....

ASA FLIGHT TIMER



Ergonomically designed and engineered for reliability, ease and convenience, the ASA Flight Timer should be considered essential equipment for all aviators. Features: Large LCD backlit display, multi-function clock and three simultaneous timer options. Exclusive digital notepad for squawk codes or frequencies, stores up to 12 approach times, audible and visual alarms. P/N 13-02357.....

NELSON FLIGHT CLOCK



• Stopwatch / Alarm • Quartz clock • Digital • Replaceable battery • Yoke clip holds Sectionals, Approach plates, etc. • 2 yoke sizes, Piper & Cessna • 12 or 24 hour time
Cessna.....P/N 13-31210.....
Piper.....P/N 13-31200.....



MODEL 100 STOPWATCH

The Bodytronics Model 100 stopwatch strikes a great balance between price and performance. You will not find a better quality stopwatch at this price

P/N 13-02954.....

PRECISION QUARTZ AIRCRAFT CLOCKS



Designed for accuracy, these precision clocks are manufactured to meet rugged aircraft environmental standards. High-quality, solid state quartz movement and a variety of lighting options. Come with a factory one year limited warranty. FAA/PMA approved. Voltage: 10-32 VDC. Current: 2.3 milliamps 14V. Wt. 5 oz. Fits 2-1/4" panel hole.

Standard Electric Clock.....P/N 10-00459.....
Lighted Electric Clock (14V).....P/N 10-00460.....



SUPERCLOCK FROM ELECTRONICS INTERNATIONAL

Displays local andulu time. May be set to display in a 12 or 24-hr format. A 10-year lithium battery keeps the clock running even if the aircraft battery is removed. Displays an Up Timer. This Timer will start running when the engine is started. In this manner the Timer acts as an automatic Flight Timer. The Up Timer may be started, stopped or reset. A Recurring Alarm may be set to alert you at appropriate time intervals. Example: If the alarm is set for 30 minutes, you will get an alarm at 30 minutes, 60 minutes, 90 minutes, etc. This alarm can be used to remind you to check your fuel level or switch tanks at set time intervals. Displays a Down Timer. This Timer counts down from a programmed start time. The Down Timer may be started, stopped or reset. Warning lights above the LCD display will blink if the Up or the Down Timer times out. Displays an Engine Timer. This Timer acts as a Hobbs Meter. When the engine starts, the Engine Timer will run. The Engine Timer displays total engine time in hours, tenths and hundredths of an hour. Specifications: 2-1/4" mount. 3.65" Depth. 10 Oz. Unit. Viewable in direct sunlight. Backlit for night operation. Operates from 7.5 to 35 volts at .3 amps.

P/N 10-01612.....



SUPERCLOCK/ALTITUDE ALERT FROM ELECTRONICS INT'L.

Reads your Altitude Encoder and displays your current altitude as seen by ATC. Display indicates when your current altitude is above or below your Programmed Target Altitude. A "Level off Alarm" occurs as you approach your Programmed Target Altitude. A "Deviation Alarm" occurs if you deviate from your Target Altitude. A Programmed Approach Altitude may be set to alert you when you have reached MDA, DH, pattern altitude, wheels down altitude or any altitude for which you wish to set an alert. Displays Density Altitude based on your current OAT reading. Displays OAT. May be toggled between degrees F and degrees C. A Programmable Timer may be set as an "UP" or "Down" counting Timer. When set as an "UP" Timer, the Timer will start automatically when your current altitude reaches 300 feet above the ground. A Recurring Alarm may be set to alert you at appropriate time intervals. Example: If the alarm is set for 30 minutes, you will get an alarm at 30 minutes, 60 minutes, 90 minutes, etc. This alarm can be used to remind you to check your fuel level, engine instruments, course, etc., at set time intervals. Displays Local andulu time. The Local Clock may be set to display in a 12 or 24-hr format. Meets FAA requirements for a clock. Specifications: 2-1/4" mount. 3.65" Depth. 10 Oz. Unit. Viewable in direct sunlight. Backlit for night operation. Operates from 7.5 to 35 volts at .3 amps.

P/N ASC-5.....

QUARTZ ELECTRIC AIRCRAFT CLOCKS



These clocks are constructed for easy installation in a wide variety of aircraft. The rugged quartz movement is accurate within 2 seconds in 24 hours under normal operations and runs accurately in temperatures from -30 -180 F. The clock kit includes a power harness, mounting screws and installation instructions. The clock features adjustable red elapsed time hands.

e ed a a P/N 10-22812 (12V).....
P/N 10-22824 (24V).....

AEROSPACE LOGIC DT1-F CLOCK/OAT



The Aerospace Logic CT1 Now you can have everything in one place. The CT1 Clock and Outside Air Temperature instrument includes a feature-rich aircraft chronograph with constant viewable Outside Air Temperature - all in one 2 1/4" mount instrument. For experimental aircraft. Programmable Features - CT1 allows you to configure the instrument just the way you need it. All clock functions are available in both 12 and 24 hour format with instant indication of the current operating format. Local time is calculated as an offset from UTC. Just set your offset. Programmable to 23 hrs/30 min. either side of the date line.

Other features: • MultiFunction Flight Timer • Down Timer • Outside Air Temperature • Hi-Tech Temperature Sensor • TSO & STC Certificate pending (Oct 2005) • Dimensions: 2.45" X 2.45" X 1.6"
• Weight: 8oz. • Power: 6V-40VDC P/N 10-01719.....

FALCON MULTI-FUNCTION DIGITAL CLOCK



Three clocks packed into one convenient, easy to use clock, providing the pilot with standard time, flight time and elapsed time. The bright red LCD display is easy to read day or night by adjusting brightness control. Regular time recorded in hours, minutes, and seconds. Four switches provide control and mode selection. Fits standard 2-1/4" instrument cutting hole. Includes Connector. P/N 10-00370.....
Replacement Connector.....P/N 11-04970.....

IN

DAVTRON INSTRUMENTS

DIGITAL CHRONOMETERS AND CLOCKS



- UT, LT, FT, & ET
- FT & ET Visual Alarm
- External Output for Optional Audio Alarm(FT/ET)
- Aircraft Voltage
- OAT F & C (12Ft. Temperature Probe)
- Internal Lighting
- AA Memory Battery
- Input Voltage 11 to 28 Volts
- NVIS (NVG) Option Green A

Description	Part N .	Pri
UT, LT, FT, & ET Digital Clock 5V Lighting, Voltmeter, OAT (F & C)	10-03304	.
UT, LT, FT, & ET Digital Clock 14V Lighting, Voltmeter, OAT (F & C)	10-25520-14	.
UT, LT, FT, & ET Digital Clock 28V Lighting, Voltmeter, OAT (F & C)	10-25520-28	.
803-5V With Night Vision Lighting Green A	10-03342	.
803-14V With Night Vision Lighting Green A	10-03343	.
803-28V With Night Vision Lighting Green A	10-03346	.



M800B (YOKE VERSION)



- GMT, LT & ET
- ET Counter (UP/DOWN), Visual Alarm
- External Output for Optional Audio Alarm (ET)
- Internal Lighting
- AA Memory Battery (OPTIONAL)
- Input Voltage 11 to 28 Volts
- NVIS (NVG) Option Green A
- Available for Beechcraft yoke

Description	Part N .	Pri
GMT, LT, & ET Digital Clock 5 Volt Lighting (800)	10-03323	.
800-5V With Battery Holder (AA)	10-03305	.
800-5V With Night Vision Lighting Green A	10-03324	.
800-5V-NVG With Memory Battery Holder (AA)	10-03325	.
800-5V-NVG With 24 HR LT	10-03326	.
800-5V-NVG-24 With Memory Battery Holder (AA)	10-03327	.
800-5V With 24 HR LT	10-03328	.
800-5V-24 With Memory Battery Holder (AA)	10-03329	.
GMT, LT, & ET Digital Clock 14V Lighting (800)	10-24535-14	.
800-14V With Memory Battery Holder (AA)	10-02050	.
800-14V With Night Vision Lighting Green A	10-03330	.
800-14V-NVG With Memory Battery Holder (AA)	10-03331	.
800-14V-NVG With 24 HR LT	10-03332	.
800-14V-NVG-24 With Memory Battery Holder (AA)	10-03333	.
800-14V WITH 24 HR LT	11-05876	.
800-14V-24 With Memory Battery Holder (AA)	10-03334	.
GMT, LT, & ET Digital Clock 28V Lighting(800)	10-24535-28	.
800-28V With Memory Battery Holder (AA)	10-02051	.
800-28V With Night Vision Lighting Green A	10-03335	.
800-28V With Memory Battery Holder (AA)	10-03336	.
800-28V-NVG with 24 HR LT	10-03337	.
800-28V-NVG-24 With Memory Battery Holder	10-03338	.
800-28V with 24 HR LT	11-05877	.
800-28V-24 With Memory Battery Holder (AA)	10-03339	.
800-28V For Beechcraft Yoke (Cream)	10-03340	.
800-28V For Beechcraft Yoke (Black)	10-02651	.
800-14V For Beechcraft Yoke (Cream)	10-02906	.
800-14V For Beechcraft Yoke (Black)	10-24535-14	.
800-5V For Beechcraft Yoke (Black)	10-03341	.

DIGITAL CHRONOMETERS AND CLOCKS



- GMT, LT, FT, & ET
- FT & ET Visual Alarm
- External Output for Optional Audio Alarm(FT/ET)
- Bright Sunlight Readable displays*
- Illuminated Displays
- Model 850 N Size Memory Battery Optional
- Model 877 AA Memory Battery Optional
- Input Voltage 11 TO 28 Volts
- NVIS (NVG) Optional Green A

Description	Part N .	Pri
GMT, LT, FT, & ET LED Clock 5V Lighting (850)	10-03310	.
850-5V-With Gray Faceplate	10-03311	.
850-5V With Night Vision Compatibility (Green A)	10-03306	.
850A-5V-NVG With Gray Faceplate	10-03347	.
GMT, LT, FT, & ET LED Clock 14V Lighting (850)	10-03312	.
850-14V With Gray Faceplate	10-03348	.
850-14V With Night Vision Compatibility (Green A)	10-03349	.
850A-14V-NVG With Gray Faceplate	10-03350	.
GMT, LT, FT, & ET LED Clock 28V Lighting (850)	10-03313	.
850-28V With Gray Faceplate	10-03314	.
850-28V With Night Vision Compatibility (Green A)	10-03351	.
850A-28V-NVG With Gray Faceplate	10-03352	.
GMT, LT, FT, & ET LED Clock 5V Lighting (877)	10-03308	.
877-5V With Gray Faceplate	10-03309	.
M877-5V With 24 HR LT	10-03353	.
877-5V-24 With Gray Faceplate	10-03354	.
GMT, LT, FT, & ET LED Clock 14V Lighting (877)	10-24545-14	.
877-14V With Gray Faceplate	11-05879	.
877-14V With 24 HR LT	11-05878	.
877A-14V-24 With Gray Faceplate	10-03355	.
GMT, LT, FT, & ET LED Clock 28V Lighting (877)	10-24545-28	.
877-28V With Gray Faceplate	11-05880	.
877-28V With 24 HR LT	10-03356	.
877-28V-24 With Gray Faceplate	10-03358	.



- Six-digit Display on all 3 Functions.
- Time Function (12 OR 24HR)
- FT & ET
- Bright Sunlight Readable Displays
- Memory Battery Included
- Input Voltage 11 to 28 Volts
- NVIS (NVG) Option Green A

Description	Part N .	Pri
LT 12 HR, FT, & ET LED Clock	11-05872	.
LT 12 HR, FT, & ET LED Clock w Gray face	10-03345	.
LT 24 HR, FT, & ET LED Clock	10-24550-14	.
LT 24 HR, FT, & ET LED Clock 811 With Gray Faceplate	11-05873	.
811 With Night Vision	10-03346	.

Accessories / Replacement Parts	Part N .	Pri
811 Dropping Resistor	11-04607	.
811 Memory Battery Pack	10-24560	.
811 Inverting Cable	11-04608	.
811B Female Connector (Standard Cable)	11-04609	.
KW-505FDigital Display for Model 811B	11-04613	.



- Automatic VOR position Orientation
- Localizer deviation and centerline
- Alphanumeric stator identifier
- Digital filtering and signal processing
- Instant To/From switching
- Sunlight readable displays
- Automatic Display Dimming
- Serial ASCII output of station and radial OFF flag, "----"

Description	Part N .	Pri
903-1 Rectangle mount, with LOC Bar	10-03315	.
903-2 Round Mount, with LOC Bar	10-24555-2	.
903-ID1 Rectangle mount, with Ident	10-24560-1	.
903-ID-2 Round Mount with Ident	10-24560-2	.

DAVTRON INSTRUMENTS

DENSITY & PRESSURE ALTITUDE MODEL 655



- OAT (F) & OAT (C)
- Pressure & Density Altitude With Pressure ALT. Alarm
- Aircraft Voltage with Flashing Alarm
- Bright Sunlight Readable Displays
- Input Voltage 11 TO 28 Volts.
- Complete with 12 FT. Digital Probe.

Description	Part N.	Pri
O.A.T. F&C/Vol/ Pres & Den ALT (Front Mount)	10-24515-1	
O.A.T. F&C/Vol/ Pres & Den ALT (Rear Mount)	10-24515-2	

DIGITAL VOLTMETER OUTSIDE AIR TEMPERATURE MODEL 303



- OAT (F) & OAT (C)
- Aircraft Voltage with Flashing Alarm
- Bright Sunlight Readable Displays
- Input Voltage 11 TO 28 Volts.
- Complete with 12 FT. Digital Probe.

Description	Part N.	Pri
O.A.T. F & C / Voltage (Front Mount)	10-24565-14-1	
O.A.T. F & C / Voltage (Rear Mount)	10-24565-14-2	

DIGITAL VOLTMETER AMMETER MODEL 475VA/475VAA



M475VA

- Low current drain .001 amp
- Plus 100.0 volt D.C. range
- 1.3" case depth
- Sunlight readable
- One tenth volt resolution



M475VAA

- Plus or minus 150.0 amp range
- 2 Standard mount
- 14 or 28 volt back lighting
- One tenth amp resolution

The M475VAA has dual shunts and can read voltage and two current flows (M475VA has a single shunt). The 475VA and the 475VAA were designed for low current drain and are also used in standby and emergency battery packs. One example of safety is if the alternator fails, you can monitor the load current out of the battery.

Description	Part N.	Pri
Volt/Amm Meter 14V Lighting (Single Shunt)	10-03319	
Volt/Amm Meter 28V Lighting (Single Shunt)	10-03320	
Volt/Amm Meter 14V Lighting (Double Shunt)	10-03321	
Volt/Amm Meter 28V Lighting (Double Shunt)	10-03322	

TACHOMETER RIGHT ANGLE DRIVE



Attach this 90° adapter to male thread on the recording tachometer & female end of the tach cable. Makes installation possible in "impossible" places. May also be used as a reversing drive by removing plug and replacing it with threaded fitting opposite it.

Screw plug in opening left by fitting removed. 1:1 Ratio.
P/N 10-00815.....

ENGINE RIGHT ANGLE DRIVE



Female end attaches to engine tach drive outlet. Male output end accepts standard tach cable female nut (7/8-18 thread). Eliminates bending of tach cable at the engine in cramped installations. Designed for heavy-duty service.

Gears and shafts are of heat-treated alloy steel. Oil impregnated sintered bronze shaft bearings. Cast iron case and fittings. With lubricator fitting for greasing. 1:1 ratio.
P/N 10-00814.....

DUAL TACHOMETER DRIVE



Adapter screws to the male thread on the back of the tachometer. The two tachometer cables screw onto the opposite sides of the dual adapter. 1:1 Ratio.
P/N 10-01445.....

TACHOMETER CAP



This Tach Cap can be used to close off the tachometer drive of a Lycoming engine when an electronic tach drive is being used off the magneto or electronic ignition. 7/8" thread and Viton (R) O-ring to seal.
P/N 10-06754..... a

DIGITAL OUTSIDE AIR TEMPERATURE



- OAT (F)
- OAT (C)
- Bright Sunlight Readable Displays
- Input Voltage 11 TO 28 Volts.
- Complete with 12 FT. Digital Probe.

Description	Pri	Pri
O.A.T. Celsius (301 C)	10-08312	
301C With 3 Pin Connector for Probe	10-03316	
O.A.T. Fahrenheit (301 F)	10-08512	
301F With 3 Pin Connector for Probe	10-03317	



- OAT (F) & OAT (C)
- Bright Sunlight Readable Displays
- Input Voltage 11 TO 28 Volts.
- Complete with 12 FT. Digital Probe.

Description	Part N.	Pri
Celsius Differential Intercooler (307 CD)	10-03318	
O.A.T. F & C (307 FC)	10-08513	
O.A.T. F & C Cabin Air (307 FCI)	11-05881	
Fahrenheit Differential Intercooler (307 FD)	11-05882	



- Aircraft Voltage with Flashing Alarm
- Bright Sunlight Readable Displays
- Input Voltage 11 TO 28 Volts.
- Aircraft Voltage (451)
- Bright Sunlight Readable Displays
- Minimum panel Space
- Input Voltage 11 TO 28 Volts.

Description	Part N.	Pri
Voltmeter (450)	10-24505	
Voltmeter (451)	10-02819	

ACCESSORIES / REPLACEMENT PARTS

Description	Part N.	Pri
KW-105G Display for Model 303, 307, 655, 880, & 903	11-04611	
KW-115G Display for Model 303, 655, 850, 877, & 880	11-04612	
KW-505F Digital Display for model 811B	11-04613	
M800 Alarm Sona Alert	11-04610	
301 Probe 25 FT (Analog)	11-04599	
Temperature Probe for 307CD/307FD (ANALOG)	11-04602	
Temperature Probe 12ft. For 301/303/305-3/307/655 (Analog)	11-04598	

TACHOMETER CABLES



Custom made cables to exact specifications. Over-length cables can cause problems - order one that fits the installation. Select the proper length from the listing below, but measure old tach cable to verify length in chart is correct for your aircraft, as tach cables can vary from aircraft to aircraft. Measure original cable from end of Ferrule to end of Ferrule when fully extended. **Left lay is standard on all stock tach cables.** Tach Cables have male ends only. 7/8-18 on one end and 5/8-18 on the other. No female ends. When ordering special length tach cables specify aircraft, engine make, model & dash number.

Tach Cable Ass'y - Lengths to 4ft (Add 2.50/Ft. for Longer Lengths)
4 foot length
Inner Cable Only - Length is 4ft (Add 0.90/Ft. for Longer Lengths)
P/N 10-22400.....

Air ra t	Part N.	L gth	Air ra t	Part N.	L gth
Various	10-02675	22"	Mooney	10-16200	36"
Aeronca Chief	10-15700	29-1/2"	Mooney	10-00012	46"
Aeronca Champ	10-15700	29-1/2"	Navion	10-16400	42"
Bellanca Crusair	10-15800	26"	Piper 3, 5	10-16500	34"
Cessna 120, 140	10-15900	29"	Piper PA-22	10-16600	32"
Cessna 175	10-16000	25"	Stinson	10-16700	35"
Cessna			Taylorcraft	10-16400	42"
170, 172, 180	10-16100	37"	Thorpe T-18	10-16800	38"
Ercoupe	10-16200	36"	Universal Use	10-16900	48"
Luscombe	10-16300	24"	Various	10-16910	52"

TACHOMETERS

MITCHELL MECHANICAL TACHOMETERS



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In 1985 AC discontinued production of the popular "RT" series of mechanical tachometers. We now offer Mitchell tachometers to fill this void. These tachs feature exceptional accuracy and reliability. Mitchell tachs come with a 2-year factory warranty. Range on all models is 500 - 3500 RPM. Determine the correct part number for your application from the chart below, and order by our part no. from the charts shown here. All Mitchell tachs are FAA approved for certificated aircraft. 30.00 for custom range marks (specify ranges). 12.50 to set hours (specify hours)

Mit h	P N	Our P/N	Pri	Mit h	P N	Our P/N	Pri	Mit h	P N	Our P/N	Pri
D1-112-5023	10-24623			D1-112-5025	10-24625			D1-112-5034	10-24634		
D1-112-5122	10-24622			D1-112-5032	10-24632			D1-112-5029	10-24629		
D1-112-5030	10-24630			D1-112-5028	10-24628			D1-112-5024	10-24644		
D1-112-5124	10-24624										



a h

2566 Cruise RPM Clockwise..... P/N 98480-2..... 2-1/4" TACH (98480-2).....
 2300 Cruise RPM Clockwise..... P/N 10-02046..... 2 1/4" TACH.....

IFR P N	Mit h	P N	St art War r N .	AC T	Direction R tati	A rag Cruise RPM	APPLICATION (REPLACEMENT FOR ORIGINAL EQUIPMENT INSTALLATIONS)
55-35-7	D1-112-5023	P-551-A		RT-7	Clockwise	2300	e a de A9, A9A, A9B e a 15AC Sedan F1, F1A, A-2, A-4 & 415C. D, E, F, G (Including Ercoupe and Forney) a e a AA-1, AA1A, AA-5 ee h C35, D35, E35, F35 e a a ha p 7EC, 7FC, 7GC, 7HC, 7GCB, 7K, 7ECA, 7GCAA, 7GCBC, KCAB, 8KCAB, 260, 14-19, Viking 300, TurboViking a A2, A3, A4, A5, A9 e a 120, 140, 170, 180, 182, 185 (with IO-470 eng.) 188, 336, 337 e Cadet La e a C-1, C-2, L-4, LA-4SC, LA5 e Mark 20, 20A, 20D, 21, 200, 201, 202, 220 pe PA12, PA16, PA18, PA20, PA22, PA23, PA24, PA25PA28, PA30, PA32, PA39 e 112, 114 a a 19, 15A, 20, 20AG, ephyr e (Swift GC-1, GA-1B)
55-35-8	D1-112-5122	P-551-A		RT-8	Clockwise	2050	ee h 35, A3S, B35, 35R
55-35-9	D1-112-5030	P-551-A	H	RT-9	Counter-clockwise	2300	e a: Champion, Chief (early models) pe : PA15, PA18, (W/TCM eng)
55-35-10	D1-112-5124	P-551-A		RT-10	Counter-clockwise	2050	e a: Champion, Chief (late models) ha p : 7AC, 11AC, 7CCM Beech
55-35-11	D1-112-5025	P-551-TA		RT-11	Clockwise	2566	a a de : G35 thru V35, V35TC, 36, A36, 95, B95, B95A, D95A- All Musketeer Models. All Debonair Models e a: 150, 152, 172, 177, 185 & 188 (with IO-520 eng), 206, 207, 210, 310, 320 e : H250, H391, H392, H395 a : E, F, G S : SA9A, SA9B e a a ha p : 7AC
55-35-12	D1-112-5032	P-551-A	K	RT-12	Counter-clockwise	2566	S : 105, 108
55-35-14	D1-112-5028	P-551-A	A	RT-14	Clockwise	1800	e a de (Ayres Corp.) B1A, S2B, S2C, S2D, S2R Sea a : A75 (P & W eng.)
55-35-15	D1-112-5034	P-551-A	B	RT-15	Clockwise	3000	e a 175
55-35-16	D1-112-5029	P-551-A	L	RT-16	Counter-clockwise	1800	a G164
55-35-17	D1-112-5024	N/A		RT-17	Clockwise	2400	a e: M5/6/M 7-180, M5/6/7/M 7-235

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e a a e pa e h he pe a h ee ha a ed

IN

SLI AIRCRAFT TACHOMETERS

For three decades, Superior Labs, Inc. (SLI) has supplied the aircraft OEM's with the finest quality and most reliable mechanical tachometers in the industry for new production aircraft and can be customized for a variety of aircraft applications. These are now available to the public as aftermarket tachometers.



SL1010-43000-SERIES



SL1010-55000-SERIES

- Spe a :
- Accuracy to within ± 25 RPM
 - Diameter 3-1/8"
 - Weight: 13 Oz.
 - Range 0-3500 RPM
 - Length 3-1/2"
 - Two Years Warranty

Most Models

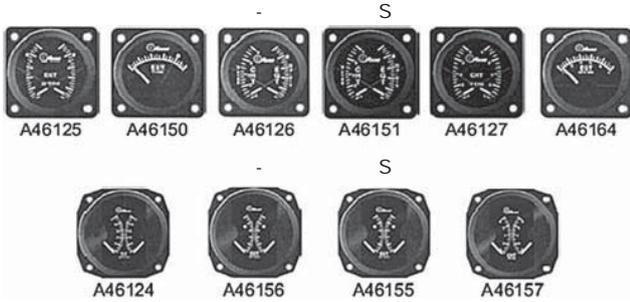
SEE WWW.AIRCRAFTSPRUCE.COM FOR APPLICATION CHART, PART NUMBERS, AND PRICES.

Accessories	Part N .	Pri
SLI Custom Range Markings	10-03685	.
Sli Tach Lighting	10-03672	.
SLI Tach Hours Set	10-03673	.

ALCOR EGT & CHT SYSTEMS

BASIC EGT & CHT SYSTEMS

Alcor EGT and CHT gauges are fully TSO'd aircraft quality gauges which will provide precise monitoring of engine temperatures. Some of the most popular systems are shown here, and all systems are available. Request quotation on unlisted models.



Basic system kits include the 2-1/4" instrument, one lead and one probe to monitor the EGT or CHT for a single cylinder.

Analyzer systems include instrument, all leads, switches and probes to monitor the EGT or CHT for every cylinder.

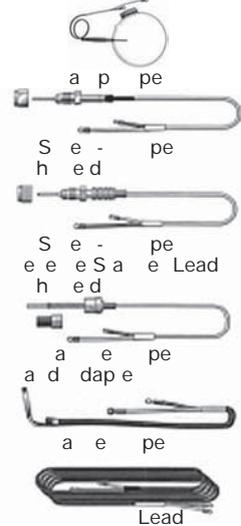
BASIC SYSTEMS			ANALYZER SYSTEMS		
System	Part N	Our Pri	System	Part N	Our Pri
EGT	10-08700		EGT (4Cyl.)	10-09000	
CHT	10-08800		CHT (4 Cyl.)	10-09100	
EGT/CHT 21/4"	10-08900		EGT/CHT (4 Cyl.)	10-09200	
EGT/CHT 31/8"	10-20700		EGT (6 Cyl.)	10-09300	

BASIC EGT & CHT SYSTEMS

Alcor's probe (thermocouples) reliability is legendary in the aviation community, designed to give years of dependable and accurate service.

GROUNDING THERMOCOUPLES

ALCOR P N	DESCRIPTION
86255	EGT Clamp Type Probe min/ max dia.-1.5"to 3.25" (ellow/Red, Chrome/Alumel)
86240	EGT Screw-In Probe, fitting dims: 7/16" x 20 threads (ellow/Red) less boss
86245	EGT Screw-In Probe, fitting dims- 7/16" x 20 threads (ellow/Red, reverse stagger leads) less boss
28113	Weld Boss
86251	CHT Bayonet Probe (Black/ellow.
28202	Iron/Constantan) AN5541-1 CHT Bayonet Probe Adapter
86202	AN4076-1 CHT Gasket Type Thermocouple (Spark Plug) (Black/ellow, Iron/ Constantan) 18mm AN5540-1



IMPORTANT! EGT systems & components with red/brown color codes are not compatible with systems & components using red/yellow codes.

Alcor Systems are FAA Approved and the grounded probes have a 5Yr factory warranty, the ungrounded probes have a 1yr factory warranty, and the instruments have a 3Yr factory warranty.

ALCOR COMPONENT PRICE LIST

A r P N	Our P/N	Description	Pri
85331	10-00995	Alcal 2000 (FAA/PMA Not Req'd.)	
EGT Leads, Type K			
42525	42525	EGT Leads, Type K (90")	
42526	42526	EGT Leads, Type K (144")	
42527	10-00131	EGT Leads, Type K (240")	
42528	42528	EGT Leads, Type K (216")	
Lead pe			
42535	42535	CHT Leads, Type (90" 8 ohm)	
42536	42536	CHT Leads, Type (144" 8 ohm)	
42537	42537	CHT Leads, Type (240" 8 ohm)	
42543	42543	CHT Leads, Type (216" 8 ohm)	
e e S e -			
46149	10-03859	EGT Internal light 24V Type K	
46150	46150	EGT Type K	
46151	46151	CHT Type , Fahrenheit	
46162	10-00992	EGT Type K, Fahrenheit (Green Arc)	
46164	10-00993	EGT Type K, Fahrenheit (No Green Arc)	
46171	10-00996	CHT Type , Celsius	
46244	10-00997	EGT 240" Lead Type K, Fahrenheit	
e e a -			
46124	10-00994	TIT/TIT Type K, Fahrenheit	
46125	10-00126	EGT/EGT Type K	
46126	46126	EGT/CHT Type K & , Fahrenheit	
46127	10-00127	CHT/CHT Type , Fahrenheit	
e e a -			
45993	10-00998	EGT Type E	
46115	10-03861	EGT/EGT IOnternal Light 24V Type K	
46155	10-00128	EGT/EGT Type K	
46156	46156	CHT/EGT Type & K, Fahrenheit	
46157	10-03860	CHT/CHT Type Fahrenheit	
46224	10-00999	TIT/TIT Type K, Fahrenheit	
Meters, Dual 3-1/8" w/ switch			
73061	05-21500	Syringe Assembly	
73099	05-01429	TCP 5-Gallon Can	
73100	05-01430	TCP 55-Gallon Drum	
73107	05-21300	TCP uart w/Perm. Draw Tube	

A r P N	Our P/N	Description	Pri
e pe			
86143	10-01005	Model N, Screw-In (1/4 NPT)	
86159	10-01006	Model H, Screw-In (1/4 NPT)	
86160	10-01007	Model 1, Screw-In (7/16-20)	
86161	10-01008	Model K, Screw-In (1/4 NPT)	
86226	10-01009	Model A, Clamp, 11.75" (Rev. Stagger)	
86230	10-01011	Model N2, Screw-In (1/4 NPT)	
86240	10-00129	Model B, Screw-In (7/16-20)	
86245	86245	Model B, Screw-In (7/16-20) (Rev. Stagger)	
86255	86255	Model A, Clamp (Normal Stagger)	
86275	10-01012	Model A, Clamp, 13.6" (Rev. Stagger)	
86281	10-01013	Model A, Clamp C/A	
S pe			
86149	10-01014	Model B, Screw-In (7/16-20)	
86153	10-01015	Model H, Screw-In (1/4 NPT)	
86156	86156	Clamp	
e			
86146	AN5546-1	Bayonet (AN5546-1) Thermistor	
86202	86202	Gasket Style	
86251	86251	Bayonet Style, Type	
ded e			
86307	10-86307	Screw-In (1/4 NPT)	
86308	10-86308	Screw-In (7/16-20)	
86309	10-86309	Screw-In (7/16-20)	
86310	10-86310	Clamp	
86343	10-86339	Clamp (with Plug, Short)	
e e			
28113	10-01017	Weld Boss (for B Probe)	
28202	28202	CHT Adapter for Bayonet Probe (AN4076-1)	
28204	10-01018	Plug for 86160 Probe	
42523	10-01019	EGT Lead Adapter	
80825	80825	Single Universal Selector Switch	
80827	80827	Dual Universal Selector Switch	
Vernier			
93882	10-01020	Vernier Control Assembly 112"	
a a			
28202	28202	Bayonet Thermocouple Adapter (1004-4)	

IN

WESTACH INSTRUMENTS

2-1/4" ENGINE INSTRUMENTS

Guaranteed accurate within 2% with a 1-yr. warranty. Weight - an unbelievable 4oz. These instruments are self powered by the thermocouple, except for the lighting.

CYLINDER HEAD TEMPERATURE

	100-700 F.....	P/N 2A1.....
	25 -375 C.....	P/N 2A1-2.....
	SENDERS: CHT Senders have 4 ft. leads.	
	14mm gasket type (VW, Rotax)...P/N 712-4W.....	
	18mm gasket type (Cont,Lyc)...P/N 712-5W.....	
	Bayonet type 3/8" x 24 thread..P/N 712-7D.....	
	Bayonet type 1/8" NPT thread.....P/N 712-7D.....	
	(All Rotax).....P/N 712-912K.....	

EXHAUST GAS TEMPERATURE

	700-1700 F/350-950 C.....	P/N 2A2.....
	100-1900 F/100-1000C.....	P/N 2A2-1.....
	400-900 C.....	P/N 2A2-2.....
	4000-1600 F/200-850 C.....	P/N 2A2-7.....
	S - Clamp type senders with 3/16" diameter probe. EGT Senders have 4 ft leads.	
	1" long tip.....	P/N 712-2DWK.....
	1/2" long tip.....	P/N 712-20DWK.....
	Long tip 1/4" threads.....	P/N 712-4D.....
	3/8-24 for Lycomings.....	P/N 712-4D1.....
	Long tip for VW (1/12" OD tailpipe).....	P/N 712-24DWK.....
	(All Rotax).....	P/N 712-32DWK.....
	Bayonet K type, EGT probe for Rotax.....	P/N 712-4D6K.....
	Exposed Tip, model 712-20DWKE - Hose clamp style 1/2" probe.	P/N 10-01300.....

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OIL TEMPERATURE

100 - 260 F..... P/N 2A9-2.....
 Sending Unit..... P/N 399S7.....
 Use Sender #399S9-7/8 for Cont & Lyc
 Engines. (5/8-18 Thread) P/N 399S9.....



OIL PRESSURE

0-80 PSI (w/sender) P/N K2A8MM.....
 SENDING UNIT (Available Separately)
 P/N 387-12S.....



FUEL PRESSURE

0-15 PS w/Sender(SET).....P/N K2A8-8MM.....

MANIFOLD PRESSURE GAUGE

2-1/4" Size 0-30 PSI..... P/N K2A4-6.....



FUEL LEVEL

	2-1/4 FUEL LEVEL GA 0-5VDC - Non-TSO'd fuel quantity indicators available for single or dual tanks. Require 0-5V capacitance senders (not incl.)
	Instrument (Single)..... P/N 2A7V.....
	Instrument (Dual)..... P/N 2DA4V.....
	Sender (6"-12"Depth)..... P/N 10-00797.....
	Sender (12"- 24" Depth)..... P/N 10-00799.....
	Sender (6"-12" Depth-Bendable)..... P/N 395-5SB-5.....
	Sender (12"-24" Depth-Bendable)..... P/N 395-5S-1B-5.....

TSO CABLE 2-CONDUCTOR WITH SOCKET



TSO Cable 2-Conductor 3' W/Socket
 P/N 10-02096.....
 TSO Cable 2-Conductor 15' W/ Socket
 P/N 10-02095.....
 TSO Cable 2-Conductor 10' W/ Socket
 P/N 10-02094.....

WESTACH BULLET CONNECTORS

Bullets are used to connect sockets and sleeves together on the back of Westach instruments. P/N 10-02795.....

* These instruments may be powered by connection to 12V battery, magnetic power, order one Magneto Adapter, P/N 103-18 (\$6.30) and one Fuse Adapter, P/N 10-17000 (\$6.30) for each instrument. For 24V operation,

OUTSIDE AIR TEMPERATURE

P/N 2A3-3.....
 Sending Unit.....P/N 399-OT.....



CARBURETOR AIR TEMP

-50 C to 50 C, Provides instant icing check of carburetor.
 P/N 2A3-1.....
 SENDING UNIT - Fits 1/4-28 Thread
 P/N 399W.....



COOLANT TEMPERATURE

100 to 260 F, for aircraft and helicopters using coolants other than oil.



P/N 10-01301.....
 Sending Unit.....P/N 10-01249.....

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 a h ee a a a a e ea e
 a a a e a e
 P/N 10-17000.....

AMMETER



-30 to 30A, & #237-2A Shunt
 P/N K2A6-22..... S t .
 -60 to 60A, & #237-3A Shunt
 P/N K2A6-15..... S t .



HOURLMETER

Power Range, 5V-40V, Record running time of engine.
 P/N 2A10-2.....
No sender required.



VOLTMETERS

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 6-16 VDC..... P/N 2A5.....
 0-35 VDC..... P/N 2A5-2.....
No sender required.

SELECTOR SWITCHES

These switches are used with the Westach CHT, EGT, or CHT/EGT gauges to allow multiple cylinder engine analyzing. Switches included with Engine Analyzer kits & Add-On kits on following pages, or can order separately below. Non-TSO'd. These switches have two small connectors of same size.



2-Position.....P/N 254-2F.....
 4-Position.....P/N 254-4F.....
 4-Position (Dual).....P/N 254-4DF.....
 6-Position.....P/N 254-6F.....
 6-Position (Dual).....P/N 254-6DF.....
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FAA APPROVED SWITCHES

4-Position.....P/N 254-20EP.....
 6-Position.....P/N 254-21EP.....
 6-Position (Dual).....P/N 254-21EDPP.....

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WESTACH EXTENSION LEADS

Complete extension leads, with connector terminals, for extending CHT or EGT leads up to Complete extension leads, with connector terminals, for extending CHT or EGT leads up to 10 ft. without affecting accuracy. Longer lengths give low reading, requiring recalibration of instrument.
 18" Lead ..P/N 10-17900..... 4 Ft. Lead P/N 10-18000.....
 6ft Lead ..P/N 10-18100..... 8 Ft. Lead P/N 10-18200.....
 10ft Lead .P/N 10-18300..... 12 Ft. Lead .. P/N 10-18350.....

WESTACH TSO'D EXTENSION LEADS

TSO'D 2-Conductor EGT/CHT Extension Leads with sockets and sleeves at both ends.
 Westach TSO'D EGT/CHT 6ft Extension..... P/N 10-02161.....
 Westach TSO'D EGT/CHT 8ft Extension..... P/N 10-02162.....

WESTACH INSTRUMENT LIGHTING

An internal lighting fixture may be added to all 2-1/4" & 3-1/8" instruments. Comes with clear bulb and red & green boots.
 P/N 186..... a

IN

WESTACH INSTRUMENTS

2-1/4-INCH DUAL INSTRUMENTS SAVE PANEL SPACE (SUPREME SPACE SAVERS)

INSTRUMENTS IN 2-1/4" SIZE CASE - PERFECT FOR THE HOME BUILDER

All pressure instruments come complete w/pressure senders only (matched to instrument). On all other instruments, order senders at bottom of page.



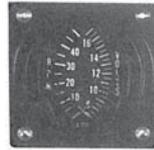
DUAL EGT-CHT
700-1700 F EGT
100-700 F CHT
P/N 2DA1



DUAL EGT
700-1700°F
P/N 2DA2



DUAL OIL PRESSURE
OIL TEMPERATURE
0-80 PSI/100-260 F
P/N2DA3MM



**DUAL TACHOME-
TER VOLTMETER**
0-5000 RPM/6-16V
P/N 2DA6



DUAL TACHOMETER
0-5000 RPM
P/N 2DA5-2



DUAL FUEL LEVEL
Uses capacitance type
senders. 5V output.
P/N 2DA4V



DUAL CHT
100-700 F
P/N 2DA8



DUAL TACHOMETER CHT
0-5000 rpm/100-700 F
P/N 2DA9-5-2



DUAL VOLT-AMMETER
6-16V/0-30 A
P/N K2DA10-21
6-16KV/0-60 amp
P/N K2DA10-18



**DUAL CARB TEMP-
OUTSIDE AIR TEMP**
-50 to 50 C.
P/N 2DA3-8
Order 399W & 399-OT
Se de Sepa a e

3-1/8" WESTACH GAUGES



TWIN CHT
3-1/8" Size Wt. 10 Oz.,
100-800 F
P/N 3DA8....



TWIN EGT
3-1/8" Size, Wt. 10 Oz.
700-1700 F
P/N 3DA2....



COMBINATION EGT & CHT
3-1/8" size, Wt. 10oz.,
700-1700 F / 100-800 F.
P/N 3DA1....



RECORDING TACHOMETER
3-1/8" size Runs directly off magneto.
12V power required to run Hour Meter
0-3500 RPM...P/N 3AT32.....
0-5000 RPM...P/N 3AT5-2.....



EGT - CHT GAUGES
3-1/8" Square EGT P/N 3A2-1.....
3-1/8" Round EGT. P/N 3C2-1.....
Square CHT P/N 3A1.....
3-1/8" Round CHT. P/N 3C1.....

IN

SPACE SAVING GAUGES - THE WESTACH QUADS

Four electric instruments in one standard size 3-1/8" aircraft case. Weight - only 6 oz. Guaranteed for accuracy within 2%. 1 year warranty. Get four "like" readings or four different ones. Order Senders below except for pressure instruments.



QUAD CHT
P/N 3A 1...



QUAD EGT.
P/N 3A 2...



**QUAD COMBO TACH/
EGT VOLTS/CHT**
P/N 3A 7-3...



**QUAD COMBO VOLTS/CHT
OIL PRESS/OIL TEMP & OIL**
Press. Sender Only
P/N 3A 5MM.....



**QUAD COMBO CHT/EGT
OIL PRESS/OIL TEMP**
P/N 3A 4MM...

OTHER QUAD COMBOS AVAILABLE:

3A 1-14CHT/Volts/EGT/Amps.....
3A 4-8MMOP/Amps/OT/Volts.....
Request availability of unlisted models.
h Se de

For custom quad gauges,
request quotation & exact

WESTACH SENDERS

712-2DWK (Long Life) 1" Tip.....	Oil Pressure 387-12S (for old style gauge).....
712-20DWK 1/2" Tip.....	Oil Temp..... 399S7 1/8" NPT.....
712-4D (1/4" Pipe Bayonet).....	Oil Temp..... 399S9 (CONT, L C).....
712-4D1 (3/8"-24 for Lycomings).....	Fuel Level... 395-5S-5 (6"-12" Depth).....
712-4D6K (8-1MM Bayonet for Rotax).....	Fuel Level... 395-5SI-5 (12"-24" Depth).....
712-4D2 (1/8" NPT).....	Fuel Level... 395-5SB-5 Bendable.....
712-5W (18 MM Thermocouple).....	Fuel Level... 395-5S-1B-5 Bendable.....
712-4W (14 MM Thermocouple).....	Temp Send. 399S10-1.5L.....
712-7D (3/8-24 Bayonet).....	Westberg SS Trans 387-100KV.....
712-9W (10MM Thermocouple).....	

S

CHT: 100 - 700 F
EGT: 600 - 1600 F
OP (378 series only): 0-80#, 0-100#
FP (378 series only): 0-15#, 0-80#
FL E - 12" - F
Volts: 6-16
OT: 100 - 260 F
AT (outside air temp.): -60 to 100 F
Temp: 100 - 260 F
CT (carb. temp.): -60 to 100 F
CAT (chrg. air temp.): 100 - 400 F
RPM: 0-3500, 0-4000, 0-5000.

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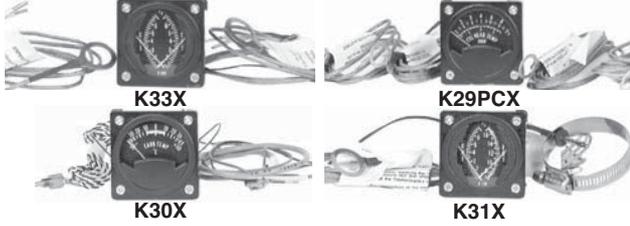
CHT: 100 - 700 F
EGT: 600 - 1600 F
OP (378 series only):
0-80#, 0-100#
FP (378 series only):
0-15#, 0-80#
FL E - 12" - F
Volts: 6-16
OT: 50 - 250 F
100 - 260 F
100 - 300 F
150 - 300 F
WT: 100 - 260 F
AT (outside air temp.):
-60 to 100 F
RPM: 1000-7000
OT: 40 - 130 C.

S

CHT: 100 - 700 F
EGT: 600 - 1600 F
OP (378 series only):
0-15#, 0-80#, 0-100#
FP (378 series only): 0-80#
FL: F - 12" - E
Volts: 6-16, 18-28
OT: 100 - 260 F
WT: 100 - 260 F
Temp: 100 - 260 F
RPM: 1000-7000
AMP: -30 to 30, -60 to 60

WESTACH INSTRUMENTS

FAA-APPROVED WESTACH INSTRUMENTS FOR CERTIFICATED AIRCRAFT



Westach Instruments now has FAA approval on all the instruments listed below. These gauges are fully approved for installation in factory aircraft, so the weight and cost savings of Westach gauges can now be enjoyed by owners of production aircraft as well as home builders. All systems are complete with instrument (internally lighted), senders and leads. The multi-position CHT and EGT systems also include sender selector switch with wiring. The EGT and CHT systems are furnished with #713-2DWC and #713-5W senders. If threaded senders are preferred, #713-4D and #713-7D senders can be furnished for an additional \$35.00 each. The EGT gauges have an adjustable pointer. All of these gauges fit 2-1/4" panel hole.

Description	M	Part N	Pri
EGT Gauge 700-1700 F (1 Position)	K28P	10-01237	
EGT Gauge 700-1700 F (4 Positions)	K28PC	10-01362	
Air Temperature Gauge	K34	10-01363	
EGT Gauge 700-1700 F (6 Positions)	K28PD	10-01291	
CHT Gauge 100-700 F (1 Position)	K29P	10-01250	
CHT Gauge (K29P) w/713-7D sender	K29P	10-00187	
CHT Gauge 100-700 F (4 Positions)	K29PC	10-01269	
CHT Gauge (K29PC) w/713-7D sender	K29PC	10-02793	
CHT Gauge 100-700 F (6 Positions)	K29PD	10-01283	
CHT Gauge (K29PD) w/713-7D sender	K29PD	10-00375	
Carb Temp Gauge -50 to 50 C	K30	10-01248	
EGT/CHT Gauge 700-1700 F/100-700 F	K31	10-01232	
EGT/CHT Gauge (K31) w/713-7D Probe	K31	10-00161	
K31 Kit w/713-4D/713-7D Probes	K31	10-00180	
Dual EGT Gauge 700-1700 F	K32	10-01272	
Dual CHT Gauge 100-700 F	K33	10-01297	
Oil Temp Gauge 100-260 F	K35	10-01265	
Water Temp Gauge 100-260 F	K36	10-01388	
Fuel Pressure Gauge 0-16 PSI	K37K	10-01663	
Oil Pressure Gauge 0-100 PSI	K38	10-01299	
Pressure Gauge 0-80PSI	K39	10-01664	
Spare CHT Senders (18mm)	713-5W	10-01231	
Spare CHT Senders (14mm)	713-4W	10-01271	
Spare EGT Senders	713-2DWC	10-01228	
CHT Senders (3/8-24 Bayonet)	713-7D	10-01238	
EGT Senders (1/4" pipe bayonet)	713-4D	713-4D	
TSO'D 2-Conductor EGT/CHT Extension Leads with sockets and sleeves at both ends.			
Westach TSO'D EGT/CHT 6ft Extension	--	10-02161	
Westach TSO'D EGT/CHT 8ft Extension	--	10-02162	

WESTACH EGT/CHT COMBINATION KITS HOMEBUILDERS ENGINE ANALYZER KITS

Complete kits include CHT or EGT gauge, selector switch and probes for each cylinder of 4 or 6 cylinder engine. EGT kits furnished with long-life #712-2DWC probes.

Kit	4 Cyl.			
	Part N	Pri	Part N	Pri
14MM CHT Kit	10-17114		10-17214	
18MM CHT Kit	10-17118		10-17218	
EGT Kit	10-17300		10-17400	

HOMEBUILDERS ADD-ON KITS

Add-on kits for single-position system already installed. Consists of selector switch & 3 or 5 probes for CHT or EGT to provide analyzer for 4 or 6 cylinder engines. EGT kits furnished with long-life #712-2DWC probes.

Kit	4-Cyl.		6-Cyl.	
	Part N	Pri	Part N	Pri
CHT Kit	10-01064		10-01066	
EGT Kit	10-01065		10-01067	

FAA APPROVED CHT/EGT ADD-ON KITS

These kits include FAA approved Westberg selector switches and probes which can be used to convert the FAA approved kits on this page to engine analyzers.

Kit	4 Cyl.			
	Part N	Pri	Part N	Pri
14MM CHT Kit	10-01068		10-01073	
18MM CHT Kit	10-01069		10-01072	
EGT Kit	10-01070		10-01074	

WESTACH INSTRUMENTS FOR ULTRALIGHTS



Single CHT ... 10-00419 Single EGT 10-01268
 Thermocouple for CHT (14MM) P/N 10-01227
 Probe for EGT P/N 10-01225

SINGLE TACH (Tachometer requires no sender.).....

P N	RPM	P r B	P N	RPM	P r B
2CT5-2	0-5000	Mag	2CT5A-2/6	0-5000	CDI
2CT8-2	0-8000	Mag	2CT8A-2/6	0-8000	CDI

DUAL TACH/CHT (All CHT's are 0-600 F).....

P N	RPM	P r B	P N	RPM	P r B
2DC9-5-2	0-5000	Mag	2DC9-5A-2/6	0-5000	CDI
2DC9-8-2	0-8000	Mag	2DC9-8A-2/6	0-8000	CDI



WESTACH 2DC8 DUAL CHT
 Cylinder Head Temp. Range: 100-700 F. Use 48" Type thermocouples. Input: 9.81 mv 400F, Weight: 2.7 oz.
 P/N 10-01791



BULLET SHELL MOUNTING CASE FOR 2" ROUND WESTACH GAUGES

Molded plastic housing clamps to ultralite tubing or motorcycle handle bar. Swivels 360° at any angle. Furnished with chrome plated installation hardware.
 P/N 10-01290.....



WESTACH TACHOMETERS FOR DUAL IGNITION

2" Round..... P/N 10-01302
 3" Round..... P/N 3CT8A-2/6
 2" Square..... P/N 2AT8A-2/6
 3" Square..... P/N 3AT8A-2/6



WESTACH ROTOR TACH

For the rotorcraft pilot, the rotor tachometer is a valuable aid to safe flight. Utilize a state-of-the-art Hall-effect sensor to accurately gauge rotor RPM based on the rotational positions of a series of magnets which are easily mounted on the rotor shaft or hub. Sensor and magnets are supplied with the gauge along with complete assembly instructions. 12 volt DC power required. Square style, 2 1/4 inch.
 0-500 Tooth ... 10-03808 0-500 Mag. Pulse... 10-03809
 0-800 Tooth ... 10-03810 0-800 Mag. Pulse... 10-03811



WESTACH LOW POWER ADAPTER

For those instruments requiring 12V DC, this low output regulator/rectifier provides sufficient power to operate up to 2 WESTACH instruments. Converts lighting coil AC to 12V DC. Includes instructions, wiring harness.
 P/N 329-LPA

THERMOCOUPLES BAYONET TYPE

Threaded Fitting with 1/8" P/N AN4076

UNIVERSAL REPLACEMENT PROBES

EGT Probe, Type K, Style 86255 P/N 11-01022
 CHT Probe, Type , Style AN 5541-1 P/N AN5541-1
 CHT Probe, Type K P/N 11-01023
 Cessna CHT Probe S2334-3 P/N 06-00703



THERMOCOUPLE LEADS HEAVY-WEIGH AN SPEC. WIRE LEADS

8 Ohm Resistance, Iron-Constantan, 90 In. P/N 42535
 8 Ohm Resistance, Iron-Constantan, 144 In. P/N 42536
 8 Ohm Resistance, Iron-Constantan, 20 Ft. P/N 42537
 EGT E.W. Rings P/N 11-05672

LIGHT-WEIGHT 20 GA. WIRE LEADS

2 Ohm Resistance, Copper-Constantan, 10 Ft. ... P/N 10-10900
 2 Ohm Iron-Constantan, 5 Ft. 7 In. P/N 10-11000
 8 Ohm Resistance, Iron-Constantan, 10 Ft. P/N 10-11110



ISS 2-1/4" ENGINE GAUGES

This quality line of engine gauges will provide an affordable engine monitoring package for experimental aircraft. Hundreds of these gauges are flying today in various homebuilts worldwide. Used extensively in Vans RV line of aircraft. NOTE: Our gauges do not include our company name or logo on the face.

- | | |
|---|--|
| <ul style="list-style-type: none"> • 270° Sweep Electric Gauges. • High Quality Movements in Injection Molded Cases. • Standard Aircraft 2-1/4" hole & mounting pattern. • Internally Lit (12V only) • Clear & sharp lettering with appropriate operating arcs & redlines screened directly on the face. | <ul style="list-style-type: none"> • Electric design uses transducers & senders. No pressurized fuel & oil in the cabin • Wires attach with nuts (Included) to 6-32 studs on instrument. No spade fittings. • Cases have Brass Inserts for the #6 Mounting Screws. • No Need for Instrument "Grasshopper" nuts. • Works with Standard Stewart Warner match transducers. |
|---|--|

CHT
(0-600°F)



Gauge P/N 10-01093.....
Screw-in Sender 10-00808.....
Gasket Sender ...10-01368.....

EGT
(0-1600°F)



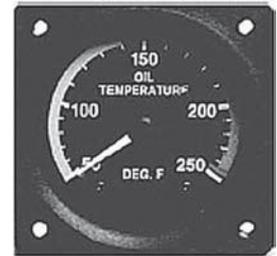
Gauge P/N 10-01094.....
Sender P/N 10-01591.....

OIL PRESSURE
0-100 PSI GAUGE



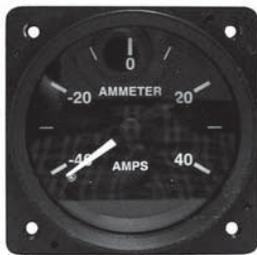
P/N 10-01088.....
Sender P/N 10-01089.....
0-60 PSI Gauge
P/N 10-02478.....
Sender P/N 10-01085.....

OIL TEMPERATURE
(0-240°F)



Gauge P/N 10-01090.....
Sender P/N 10-01091.....

AMMETER
(40-0-40)



Gauge.....P/N 10-01080.....
Shunt.....P/N 10-01081.....

MANIFOLD PRESSURE
(10"-35")



Gauge.....P/N 10-01086.....
Sender.....P/N 10-01087.....

FUEL PRESSURE
CARB (0-16 ACI)



Gauge.....P/N 10-01082.....
Sender.....P/N 10-01083.....

FUEL PRESSURE
INJECT (0-60 PSI)



Gauge.....P/N 10-01084.....
Shunt.....P/N 10-01085.....

TACHOMETER
(0-3500 RPM)



Tach.....P/N 10-01076.....
Tach/Gen. Sender
P/N 10-01077.....
Tach./Sender Tang.
P/N 10-03148.....

VOLTMETER
(8-16V)



Gauge.....P/N 10-01092.....

FUEL LEVEL



Gauge.....P/N 10-01108.....



FUEL LEVEL SENDERS



- ISS Fuel Sender LH 6-12 Tank..... P/N 10-01099
- ISS Fuel Sender RH 6-12 Tank..... P/N 10-01101
- ISS Fuel Sender LH 10-15 Tank..... P/N 10-01102
- ISS Fuel Sender RH 10-15 Tank..... P/N 10-01103
- ISS Fuel Sender RH 10-15 Tank..... P/N 10-01103
- ISS Fuel Sender LH 15-5-24..... P/N 10-01104
- ISS Fuel Sender RH 15-5-24..... P/N 10-01104
- ISS Fuel Sender RH 27-36" Tank..... P/N 10-01107
- ISS Fuel Sender Gasket..... P/N 10-01097
- SS Wire Float Arm..... P/N 10-01098

REPLACEMENT LAMPS

Replacement 12V Lamp for Gauges
P/N 10-01095.....

ENGINE INSTRUMENTS

QUALITY ROCHESTER GAUGE INSTRUMENTS

A fine line of electric instruments designed exclusively for aircraft use. Temperature compensated and guaranteed to 2% accuracy. Similar to units used in current Cessna, Piper and Beech aircraft. Standard 2-1/4" size with brilliant matte-white dials. Range markings add color and permit readings at a glance. Lighting fixture available. Recommended by Rutan Aircraft Factory for use in Long-E, Cozy, and similar home built using Lycoming engines. All instruments featured are for 12 volt systems. Lighting kit 105S3 fits all these gauges.



0-250°F. OIL TEMPERATURE
 Green Arc..... 100 -160 F.
 Yellow Arc..... 160 -220 F.
 Red Line.....245 F.
 P/N 3070-62.....
 Sender.....P/N 3080-37.....



0-100 PSI OIL PRESSURE
 Green Arc.....60-90 PSI
 Red Line 100 PSI
 P/N 3050-54.....
 Sender... P/N 3060-18.....



0-20 PSI, FUEL PRESSURE
 a e a
 P/N 3050-56.....



FUEL LEVEL
 e
 P/N 3090-106.....
 Sender.....P/N 10-02045.....
 Replacement Gasket (for 10-02045)
 P/N 15-716.....
 Replacement Fuel Float
 P/N 05-03395.....



0-600°F CYLINDER HEAD TEMP FOR LYCOMINGS

. Green Arc.....275 -425 F.
 . Yellow Arc.....425 -500 F.
 . Red Line.....500 F.
 P/N 3070-61.....
 Bayonet Type Thermocouple
 P/N 3080-38.....



AMMETER, -30A - 0 - +30A
 P/N 3010-50.....
 No Range Markings
 No Sender Required

LIGHTING KIT - P/N 105S3.....



AMMETER -60A - 0 - +60A
 P/N 3010-52.....
 No Range Markings
 No Sender Required

MITCHELL AIRCRAFT INSTRUMENTS 2-1/4" ELECTRIC GAUGES

Mitchell Aircraft Instruments is a high quality, economical line of gauges which is ideal for the homebuilt aircraft market. These electric instruments are lighted, allow easy installation, and feature a 2 year factory warranty. Order gauges and senders separately as shown. 12V operation unless other wise noted. Gauges fit 2-1/4 panel hole. For 24 volt operation, order P/N PE-111-4074 Resistors (3.50 each) for each instrument.

OIL TEMPERATURE

 100-250 F Gauge..... P/N 10-25000.....
 100-250 F Sender (Rotax)..... P/N 10-25005.....
 100-250 F Sender (L C)..... P/N 10-25175.....
 120-300 F Gauge..... P/N 10-25010.....
 120-300 F Sender (Rotax)..... P/N 10-25015.....
 120-300 F Sender (L C)..... P/N 10-25180.....
 90-400 F Sender..... P/N 10-03139.....

Rotax Senders are 1/8-18 NPT, Lycoming Senders are 5/8-18 VNF.

OIL PRESSURE

 0-80 PSI Gauge..... P/N 10-25030.....
 0-80 PSI Sender..... P/N 10-25035.....
 0-100 PSI Gauge..... P/N 10-25040.....
 0-100 PSI Sender..... P/N 10-25045.....
 0-150 PSI Gauge..... P/N 10-25050.....
 0-150 PSI Sender..... P/N 10-25055.....

FUEL PRESSURE

 0-30 PSI Gauge..... P/N 10-25060.....
 0-30 PSI Sender..... P/N 10-25065.....
 0-15 PSI Gauge..... P/N 10-25058.....
 0-15 PSI Sender..... P/N 10-25065.....

EXHAUST GAS TEMPERATURE

 0-1600 F EGT Gauge..... P/N 10-02746.....
 EGT Clamp probe for above EGT Gauge only.
 P/N 10-02177.....
 KIT - Includes Sender, Weld-on adapter and 6 Ft. Lead with/
 connector. 0-1600 EGT kit..... P/N 10-25090.....

CYLINDER HEAD TEMPERATURE

 100-600 F Gauge..... P/N 10-25070.....
 120-300F Gauge..... P/N 10-02717.....
 18MM Sender (Cont, Lyc)..... P/N 10-25075.....
 14MM Sender (VW, Rotax)..... P/N 10-25080.....
 10 Ft. CHT Lead w/connector..... P/N 10-25185.....

MITCHELL 2-1/4" MECHANICAL GAUGES

OIL TEMPERATURE

 110-270 F..... P/N 10-02714.....

OIL PRESSURE

 0-100 PSI..... P/N 10-02706.....
 0-150 PSI..... P/N 10-02712.....

FUEL PRESSURE

 0-15 PSI..... P/N 10-02702.....
 0-30PSI..... P/N 10-02704.....



AMMETER

60-0-60 Ammeter
 P/N 10-25115.....
 P/N 10-01212 (30-0-30).....



FUEL LEVEL

P/N 10-25130(10-180 OHM).....
 P/N 10-02719(0-90 OHM).....
 P/N 10-02721(0-30 OHM).....
 P/N 10-02722(240-33 OHM).....
 Sender.....P/N 10-25135.....



VOLTMETER

P/N 10-25105 (8-16V).....
 P/N 10-02747 (12-31V).....
 No Sender required.



TURBO

Mechanical Turbocharger Gauge.
 Gauge is mechanical. No sender
 required. P/N 10-25140.....



OUTSIDE AIR TEMPERATURE

P/N 10-02715.....



CYLINDER HEAD TEMP GAUGE

a
 P/N 10-02717.....
 Sender: Probe Supplied w/ Rotax Engine.



OUTSIDE AIR TEMPERATURE

e
 P/N 10-03137.....
 Sender..... P/N 10-02170.....

WIRING KIT GAUGE CONNECTOR



a e
 he
 a e
 P/N 10-02724.....



LIGHTED QUARTZ ELECTRIC CLOCK

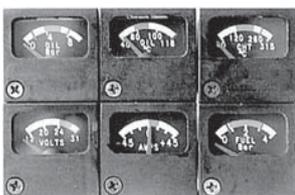
Features black dial
 with matte white
 numbers and hands.
 Length: 3-1/4".
 Mounts in standard 2-1/4" instru-
 ment hole. Power: 14v or 28v.
 FAA approved. For 28V adapter
 must be used.
 P/N 10-01214.....
 28V Adapter Kit
 P/N 10-02827.....

IN

INSTRUMENTS

MITCHELL MINIATURE MODULAR GAUGES

This line of miniature engine gauges from Mitchell is ideal for a wide variety of general aviation applications. They measure nearly 1.5" square and are stackable. The modular design allows them to be plugged from the front of the panel. The units are internally lighted. Complete standard panels are also available as shown below.



Part No.	Gauge	Pri
10-10150	Fuel Pressure 15 PSI	
10-10165	Voltmeter (28V)	
10-10152	Fuel Pressure 30 PSI	
10-10166	Oil Pressure (100PSI)	
10-03451	Oil Temp. (250 F)	
10-10154	Oil Temp (300 F)	
10-10168	Oil Pressure (9 Bar)	
10-10155	Oil Temp (120 C)	
10-10170	CHT 600 F (14V)	
10-10156	Water Temp (250 F)	
10-10172	CHT 300 C (28V)	
10-10158	"Right" Fuel Qty.	
10-10174	45A Ammeter (12V)	
10-10160	"Left" Fuel Qty.	
10-10162	"Fuel" Qty.	
10-10176	75A Ammeter (12V)	
10-10164	Voltmeter (12V)	

Backplate Part No.	Sender P/N	Sender	Pri
PM-114-6005	10-25065	Fuel Pressure	
PM-114-6006	10-25015	Oil Temp 1/8" - 18NPT	
	10-25180	Oil Temp 5/8" - 18VNF	
	10-25005	Water/Oil Temp 1/8"-18NPT	
	10-25175	Water/Oil Temp 5/8"-18VNF	
PM-114-6004	10-25135	Fuel Level	
PM-114-6001		No Sender Required	
PM-114-6007	10-25045	Oil Pressure	
PM-114-6003	10-25075	18MM CHT (Cont. Lyc)	
	10-25080	14MM CHT VW. Rotax	
PM-114-6002	10-25080	14MM CHT (VW. Rotax)	
	10-10184	45 AMP Shunt	
	10-10185	75 AMP Shunt	
	10-02122	Backplate w/ Pigtail	

If individual gauges are ordered, the appropriate backplate with pigtail (\$9.95 each) must be ordered to mount and connect the gauge. If more than one gauge is ordered to be mounted together, it is a special order cluster that requires custom backplates as shown.

MITCHELL INSTRUMENT CLUSTERS (BLOCK STYLE)

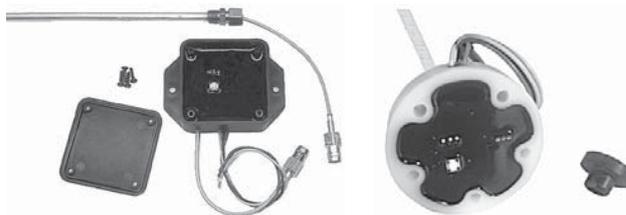


Available in 6 gauge (pictured) or 8 gauge clusters. On 8 gauge clusters, 2 additional gauges are added to the right side of the one pictured. Specify gauge and position desired for all cluster gauge positions. Prices are for the backplane (panel) only. Add price of

each gauge for total cluster price.

6 gauge cluster (backplane only)P/N 10-01708
 8 gauge cluster (backplane only)P/N 10-01709

PRINCETON CAPACITIVE FUEL PROBES



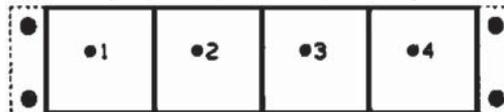
- **Easy Push Button Calibration** - Simple push buttons make calibration easy and accurate. No sensitive screw adjustments to make. Place the probe in tank, connect power and press EMPT. Fill tank and press FULL. Calibration is complete.
- **Steady Readings** - Digital filtering minimizes the effects of fuel slosh providing greater accuracy.
- **Proven Design** - Designed specifically for the aircraft that are subject to harsh environments, such as vibration, temperature, and electrical noise. Probes designed for industrial applications can fail under these conditions. Proven reliability with over 4 years of history.
- **No Moving Parts** - There are not any parts to wear out. Will not require future maintenance or replacement.
- **Compatible Fuel Quantity Gauges** - UMA P/N: 18-110-1C1 (P/N 10-01717), 18-210-1C1 (P/N 10-01717) Westach P/N: 20A4V (P/N 10-01255) & 2A7V (P/N 10-01246)

Mounting Options:

- **Unique Pressfit Installation** - Can be mounted in plastic tank by drilling a 1/2" hole. A rubber grommet is used to hold the probe in place.
- **Standard SAE 5-Hole Bolt Pattern** - A backing plate and seal are used to secure the probe to the tank. Standard Lengths of 12, 18, & 24 inches. Flange mount with standard SAE 5-hole pattern, or rubber grommet press fit. Probes may be shortened up to 1/2 of their measurable length. 0, 3, or 5 inch bendable section. 2 or 5 set points.

Description	Part No.	Pri
2 set point	10-00257	
5 set point	10-00258	
Standard SAE 5-hole flange mounting kit	10-00259	
Advanced model (separate electronics, 1/8 NPT fitting)	10-00256	
Accessories	Part No.	Pri
Wire For Capacitance Fuel Probe	11-03996	

MITCHELL INSTRUMENT CLUSTERS (HORIZONTAL STYLE)



Available in 4 gauge (pictured), 5 gauge, or 6 gauge clusters. On 5 gauge and 6 gauge clusters, additional gauges are added to right side of the one pictured. Specify gauge and position desired for all cluster gauge positions. Prices are for the backplane (panel) only. Add price of each gauge for total cluster price.

4 gauge cluster (backplane only)P/N 10-01710
 5 gauge cluster (backplane only)P/N 10-01711
 6 gauge cluster (backplane only)P/N 10-01712

MITCHELL MODULAR GAUGE FRAMES

Modular gauge frames should be specified by part number plus identification of what function gauge (eg Oil Press., Ammeter, EGT) gets plugged in each location. Operating voltage of either 12 or 24 must also be specified. If operating voltage is not specified, 12 volt wiring will be provided. All mounting frames include backplane connectors pre-wired with labeled 18 inch leads



Total Gauge Capacity	Configuration	Part No.	Pri
2 Gauges	2 Wide 1 High	F9	
6 Gauges	1 Wide 6 High	10-02738	
1 Gauge	1 Gauge	10-02964	

FALCON ENGINE GAUGES

FALCON GAUGE TACHOMETERS



Falcon Gauge Tachometers feature both clockwise and standard pointer type configurations. Falcon Gauge Universal Tachometers can be used for both point and Ducati ignitions.

Si	Description	Range	Part No.	Pri
3 1/8"	Falcon Gauge Clockwise Tachometer	2250-2375 RPM cruise range	10-02273	.
2"	Falcon Gauge Standard Pointer Type Tachometer	Ducati Ignition 0-8000 RPM	10-00831	.
2"	Falcon Gauge Standard Pointer Type Tachometer	Universal 0-8000 RPM	10-01615	.
2 1/4"	Falcon Gauge Standard Pointer Type Tachometer	Ducati Ignition 0-8000 RPM	10-00818	.
2 1/4"	Falcon Gauge Standard Pointer Type Tachometer	Universal 0-8000 RPM	10-00816	.
3 1/8"	Falcon Gauge Standard Pointer Type Tachometer	Universal 0-8000 RPM	10-00817	.

FALCON GAUGE CYLINDER HEAD TEMPERATURE GAUGES



Falcon Gauge Cylinder Temperature Gauges work with most 2 cycle 2 cylinder engines.

Si	Description	Range	Part No.	Pri
3 1/8"	Falcon Gauge CHT/CHT Dual	100-700 F/100-700 F	10-02280	.
3 1/8"		0-340 C/0-340 C	10-02281	.
2 1/4"		100-700 F/100-700 F	11-03960	.
2 1/4"		0-340 C/0-340 C	10-01421	.
2" Round		100-700 F/100-700 F	10-00486	.
2" Round		0-340 C/0-340 C	10-01416	.
3 1/8"	Falcon Gauge CHT Single	100-700 F	10-02283	.
3 1/8"		0-340 C	10-02284	.
2 1/4"		100-700 F	11-03958	.
2 1/4"		0-340 C	11-03959	.
2" Round		100-700 F	10-01412	.
2" Round		0-340 C	10-01413	.
14mm	" " Probe	100-700 F	10-01437	.
10mm	Falcon Gauge CHT Sender	10mm dia. Ring 4 feet Metal Shield Wire	10-01438	.
12mm		12mm dia. Ring 4 feet Metal Shield Wire	10-02286	.
14mm		14mm dia. Ring 4 feet Metal Shield Wire	10-02287	.
18mm		18mm dia. Ring 4 feet Metal Shield Wire	10-02288	.



FALCON GAUGE FUEL QUANTITY INDICATOR

Falcon Gauge Fuel quantity sender is an electronic capacity type. This sender is bendable and highly accurate with steady linear reading characteristics.

The 5V output senders can also be used with other brand 5V input gauges and EFIS systems. The 5V input gauges are available in single and dual range, with or without low level warning lights. The analog gauges with warning lights require the use of Falcon Gauge compatible senders, while the electronic type only require regular senders.

Description	M	N	Si	Part No.	Pri
Single Gauge 5V Input	F2-001-5	2-1/4		10-02264	.
Dual Gauge 5V Input	F2-002-5	2 1/4		10-02265	.
Single Gauge 5V Input	FR-001-5	2 Rnd.		10-03873	.
Dual Gauge 5V Input	FR-002-5	2 Rnd.		10-03874	.
12 Bendable Sender, 5V Output	FP-012-5	12		10-03419	.
24 Bendable Sender, 5V Output	FP-024-5	24		10-03421	.
Single Gauge 185Ω Input	FR-001	2 Rnd.		10-02266	.
12 Bendable Sender 185Ω Input	FP-012	12		10-02267	.
24 Bendable Sender 185Ω Input	FP-024	24		10-02268	.

FALCON ENGINE GAUGE EXTENSION CABLES

Description	Part No.	Pri
2 Conductor, 4 Feet	10-02339	.
4 Conductor, 4 Feet	10-02340	.
2 Conductor, 6 Feet	10-02341	.
4 Conductor, 6 Feet	10-02342	.
2 Conductor, 8 Feet	10-02344	.
4 Conductor, 8 Feet	10-02345	.
2 Conductor, 10 Feet	10-02346	.
4 Conductor, 10 Feet	10-02347	.

FALCON GAUGE EXHAUST GAS TEMPERATURE GAUGES



Falcon Gauge Exhaust Temperature Gauges work with most 2 cycle 2 cylinder engines.

Size	Description	Range	Part No.	Pri
3 1/8"	EGT / EGT Dual	700-1700 F/700-1700 F	10-02290	.
3 1/8"		400-900 C/400-900 C	10-02291	.
2 1/4"		700-1700 F/700-1700 F	10-00487	.
2 1/4"		400-900 C/400-900 C	10-02292	.
2" Round		700-1700 F/700-1700 F	10-01453	.
2" Round		400-900 C/400-900 C	10-01454	.
3 1/8"	EGT Single	400-900 F	10-02289	.
3 1/8"		700-1700 C	10-02293	.
2 1/4"		400-900 F	10-01457	.
2 1/4"		700-1700 C	10-01458	.
2" Round		400-900 F	10-01449	.
2" Round		700-1700 C	10-01458	.
8 1.0mm	EGT Sender	8x1.0mm Screw-in Style 4 feet Metal Shield Wire	10-00489	.
Clamp		1"-1-3/4" Clamp Style 4 feet Metal Shield Wire	10-02294	.
Clamp		1"-2.5" Clamp Style 4 feet Metal Shield Wire	10-00488	.



FALCON GAUGE COMBINATION GAUGES

Falcon Gauge Temperature Gauges work with most 2 cycle 2 cylinder engines.

Si	Description	Range	Part No.	Pri
3 1/8"	Falcon Gauge CHT/EGT Dual	100-700 F/700-1700 F	10-02295	.
3 1/8"		0-340 C/400-900 C	10-02296	.
3 1/8"	Falcon Gauge EGT/TACH Dual	700-1700 F/0-8000 RPM for both Ducati & point ignition	10-02297	.
3 1/8"		400-900 C/0-8000 RPM for both Ducati & point ignition	10-02298	.
3 1/8"		0-340 C/0-8000 RPM for both Ducati & point ignition	10-02794	.
3 1/8"		100-700 F/700-1700 F	10-02314	.
2-1/4"	Falcon Gauge EGT/CHT Gauge	100-700 F / 700-1700 F	10-01404	.
2-1/4"		0-340 C / 400-900 C	10-01405	.
2 1/4"	Falcon Gauge CHT/EGT Dual	0-340 C/400-900 C	10-02315	.
2 1/4"		0-340 C/0-8000 RPM	10-02316	.
2 1/4"	Falcon Gauge EGT/TACH Dual	100-700 F/0-8000 RPM for both Ducati & point ignition	10-02317	.
2 1/4"		0-340 C/0-8000 RPM for both Ducati & point ignition	10-02318	.
2" Round	Falcon Gauge CHT/EGT Dual	100-700 F/700-1700 F	10-01400	.
2" Round		0-340 C/400-900 C	10-01401	.



FALCON GAUGE WATER TEMPERATURE OIL PRESSURE GAUGES

Falcon Gauge Water Temperature Gauge for Water Cooling Engines.

Description	M	N	Si	Range	Part No.	Pri
Water Temperature Gauge	WT-001		2-1/4"	100-260 F/ 40-120 C	10-02320	.
Water Temperature Gauge	WT-001R		2" Round	100-260 F/ 40-120 C	10-02321	.
Oil Temperature Gauge	OT-001R		2" Round	----	10-03404	.
Oil Pressure / Temperature Gauge	OP-002R		2" Round	100-260 F / 80PSI	10-02337	.
Oil Pressure Gauge	OP-001R		2" Round	----	10-03402	.
Oil Temperature Gauge	OT-001		2 1/4"	----	10-03403	.
Gauge Oil Pressure Gauge	OP-001		2 1/4"	----	10-03405	.
Oil Pressure / Temperature Gauge	OP-002		2 1/4"	100-260 F / 80PSI	10-02338	.
1/8 NPT Oil Temperature Sender	OTS-001		---	----	10-03406	.
Oil Temperature Sender	OTS-002		---	----	10-03407	.

IN

MICRO - 1000 TACHS - FUEL MIZER



FUEL MIZER FUEL FLOW GAUGE

The Fuel Miser instrument, is a fuel flow gauge that is far more accurate than typical capacitance type gauges. This kit includes mounting bracket, reducer fittings and clamps and fits a 2" panel hole. This gauge is backlit and accurately measures the actual flow of fuel through the transducer and can handle a fuel flow rate of up to 45 gallons per hour. The turbine operates by means of a stainless steel shaft mounted in sapphire bearings. The transducer measures the turbine rotation by means of an infra red light which sends a signal back to the instrument. The gauge itself is menu driven and includes an audio and visual alarm that sends a signal when remaining fuel has dropped below a level that the user presets. In addition to displaying the remaining volume of fuel, this instrument displays the current fuel burn rate, the amount of fuel consumed on the current trip as well as the total amount of fuel consumed and can be incrementally adjusted for partial refueling. The gauge can be calibrated to measure in US gallons, imperial gallons, and liters. In the unlikely event that the turbine would malfunction it is fail-safe in that it will not retard fuel flow. The Fuel Miser cannot be used on an engine which has a return fuel line. Not STC'd. For experimental only and not for certified aircraft. Fuel Miser is furnished with installation manual and instructions

Flow Range:	Auto ranging 2.5-160 Liters/hour 0.5-43 U.S. gallons/hour or 0.4-36 Imperial gallons/hour	Total Fuel Log:	Auto ranging 0-999 liters, US gallons, or Imperial gallons, non-volatile & resetable
Fuel Remaining:	0.999 selected units, non-volatile and resetable.	Trip Fuel Log:	Auto ranging 0-999 liters, US gallons, or Imperial gallons, non-volatile & resetable
Fuel Remain alarm:	Operates over full range	Mounting:	Flush round bezel
Alarm Signaling:	Audible and visual	Lighting:	Red diffused lighting of keys and display
		Units:	Selectable in Liters, US gal., or Imperial gal.
		Calibration:	Front Panel ad ustable
		Current Drain:	70 mA (max.)



0-10,000 RPM DIGITAL TACH & HOURMETER

Records up to 9999 hours. May be either front or rear mounted. Uses an 8-yr internal battery. With 15' lead and rear-mount parts

TH200.....	P/N 10-03424.....
TH201.....	P/N 10-01630.....
TH202.....	P/N 10-03425.....

pp Electronic Ignition - (1) spark fires per crankshaft revolution.
pp: 4 Cycle Engines - (1) spark for every 2 crankshaft revolutions.
pp Ducati CDI - Twin Cyl. engines. Spark fires every 180 of crank shaft revolution.

TH200 SPECS
Model for twin cylinder engines with a spark firing every 180 of the engine crankshaft. et Skis generally use 1C. Exception: 3 cyl. et Skis generally use our special 2 model Multi 4 cyl. 1c wrapped around coil wire.

TH201 SPECS
Standard Model, used on engines with one spark firing on each revolution of the crankshaft. 1 cylinder, 2 stroke (reads 1x/revolution) Honda engines 4-stroke w/electronic ignition & nopoints. 2C can also be used w/ 2cyl. engine.

TH202 SPECS
Model for engines which have a spark for every 2 revolutions of the engine crankshaft such as those with a distributor w/points driven from a camshaft. Kohler K' series is the only Kohler model firing this way. True 4-stroke with points & distributor, NOT the firing on the exhaust stroke.



FALCON GAUGE 2 INCH TACHOMETER 0-8000 RPM TOP-SWEEP TACHS

2" Round Case (shown)	P/N 10-01615.....
2-1/4" aircraft-style case	P/N 10-00816.....
2-1/4" aircraft-style case	P/N 10-00818.....
2" round case (Incl. Backlight)	P/N 10-00831.....



FALCON GAUGE TACHOMETER 0-8000 RPM TOP-SWEEP TACH

3-1/8" aircraft-style case	P/N 10-00817.....
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TACHOMETER APPLICATION CHART

ENGINE	PART NO. FULL SWEEP	PART NO. TOP SWEEP	PART NO. DIGITAL
ROTA 277 & 377	TA130 RND TA131 S	TA001 TA006 TA023	TH201
ROTA 447 Points Ignition	TA130 RND TA131 S	TA001 TA006 TA023	TH201
ROTA 503 Points Ignition	TA130 RND TA131 S	TA001 TA006 TA023	TH201
ROTA 532	TA130 RND TA131 S	TA001 TA006 TA023	TH201
ROTA 447 Ducatti Ignition	TA140 RND TA141 S	TA020 TA021 TA023	TH200
ROTA 503 Ducatti Ignition	TA140 RND TA141 S	TA020 TA021 TA023	TH200
ROTA 582	TA140 RND TA141 S	TA020 TA021 TA023	TH200
ROTA 618	TA140 RND TA141 S	TA020 TA021 TA023	TH200

ENGINE	PART NO. FULL SWEEP	PART NO. TOP SWEEP	PART NO. DIGITAL
ROTA 912 & 914	TA150 RND TA151 S	TA001 TA006 TA023	TH200
HIRTH (all models)	TA130 RND TA131 S	TA001 TA006 TA023	TH201
ENOAH (all models)	TA130 RND TA131 S	TA001 TA006 TA023	N/A
KAWASKI (all models)	TA130 RND TA131 S	TA001 TA006 TA023	N/A
CU UNA (all models)	TA130 RND TA131 S	TA001 TA006 TA023	N/A
L COMING (all known)	TA160 RND TA161 S		
CONTINENTAL	TA160 RND TA161 S		
VOLKSWAGEN (Stock Points or Slick Mags)	TA130 RND TA131 S		TH202
Requires Pulse Generator Kit.....P/N PG001.....			

MICROFLIGHT GAUGES

MICRO-1000 ENGINE GAUGES

Senders and probes are not included unless specifically noted. See over half of the page for senders, probes, and other accessories. 2" gauges are round. 2 1/4" gauges are square.



OIL PRESSURE ELECTRIC

MICRO-1000 oil pressure electric includes 1/8 NPT SDR.
 2 1/4" OP031 P/N 10-01574
 2" OP030 P/N 10-01572



OIL TEMPERATURE ELECTRIC

Includes 1/8 NPT Sender
 2 1/4" OT031 P/N 10-01588
 2" OT030 P/N 10-01586



HOUR METER

AC or DC Powered
 2 1/4" HO031 P/N 10-01507
 2" HO030 P/N 10-01506



DC VOLTMETER

2 1/4" VM031 P/N 10-01641
 2" VM030 P/N 10-01639



WATER TEMPERATURE

Includes 1/8 NPT Sender. All electrical gauges have air core movements.
 2 1/4" WT031 P/N 10-01652
 2" WT030 P/N 10-01650



AMMETER ±30 AMPS

2 1/4" AG031 P/N 10-01319
 2" AG030 P/N 10-01317

MICROFLIGHT SENDERS & ACCESSORIES



100# PRESSURE SENDER

HAS A 1/8" NPT fitting.
 OP030.2 P/N 10-01573



TUBING KIT

Nylon tubing with brass fittings.
 OP032.1 P/N 10-01575
 OP032.2 P/N 10-01576



KEY WEST REGULATOR

Advanced regulator/rectifier circuit provides steady 13.8 volt output regardless of load. Maximum output 220 watts, 16 amps. 10v signal pulse output for digital or MaxPac tachs. Accepts AC input from 15 to 100 volts. Can be used with AC strobe. **Features:** Extremely clean filtered DC output Electronics designed to deliver 16 amps producing 220 watts Efficiency: No "consumer" or "dummy" load required for proper operation A beautiful and rugged lightweight package weighs just 16 ounces and is 3.5 x 2.5 x 1 inch Protection from the environment: complete epoxy encapsulation to insure all-season operation Ease of installation: crimp type ring terminals and wiring schematics provided with every unit P/N 11-03168



TEMPERATURE SENDERS

Single-station senders for water and oil temperature gauges.

WT030.2 P/N 10-01384
 OT030.2 P/N 10-01587



SENDER ADAPTERS

Electric sender adapter. 3/8" NPT
 ADP04 P/N 10-01311



METRIC ADAPTER

ADP06 P/N 10-01313
 ADP07 P/N 10-01314
 ADP08 P/N 10-01315



FLOAT-TYPE FUEL PROBES

6-23" Probe. Adjustable, 6-23" 240-33 ohms standard: 5-hole ASME pattern. Requires mounting kit. FGP031 P/N 10-01489



UNIVERSAL PROBE MOUNT

Works well with plastic and other tank. Includes threaded attachment ring, gasket, and hardware. Standard 5-hole SAE pattern. FMK01 P/N 10-01501



COLOR TINT LAMPS

Color tint lamp boots. Set of Boots. Changes your instrument backlighting to red for night flying. LB001 P/N 10-01556

APPLICATION NOTE: Most current production Rotax® engines require 1/8NPT temperature and pressure senders.

IN

MICROFLIGHT GAUGES

MICRO-1000 PYROMETERS & PROBES



Superior to any other type of pyrometer available. Unlike competing brands, these units are temperature compensated. That is, when the ambient temperature changes, MICRO-1000 pyrometers still read the same. And we guarantee that, when properly installed, these pyrometers will be accurate within 2%. Like other MICRO-1000 gauges, these units come with our standard 2-year warranty. Order gauges, probes, and extension leads separately.

NOTE: MICRO-1000 pyrometers are not compatible with other thermocouple probes. Order Micro-1000 Probes.

- 2% Accuracy • Easy-to-Read Dial • Backlighting • Standard
- Temperature Compensated • Shock & Vibration Resistant
- Designed & Built for Aircraft

MICRO-1000 EGT PROBES

- Weld-on Boss Type EP131 P/N 10-01477
- Clamp-on Type EP130 P/N 10-01471
- Adjustable 8mm EP130R P/N 10-01475
(for all Rotax w/factory Boss)
- Adjustable 1/8NPT EP132 P/N 10-01478
- Adjustable 1/4NPT EP133 P/N 10-01479

MICRO-1000 CHT PROBES

- 14mm CP130 P/N 10-00823
- 18mm CP131 P/N 10-01440
- 10mm CP132 P/N 10-01441
- 7-ft. CHT - Ext. Id. CPE130.07 P/N 10-01442
- 15-ft. CHT - Ext. Id. CPE130.15 P/N 10-01443
- 7-ft. EGT - Ext. Id. EPE130.07 P/N 10-01480
- 15-ft. EGT - Ext. Id. EPE130.15 P/N 10-01481

The CHT probe (above left) is a high quality Chrome/Constantan "E" type. A more expensive material than that of the more commonly found "J" type, the "E" type probe produces much greater accuracy at lower temperatures (less than 600 F). Extension wire is of the same material as the thermocouple to preserve the accuracy and temperature compensation qualities. NOTE: The 15' extension leads may be shortened up to seven feet. The EGT probes are high-quality Chrome/Alumel "K" types. Choose the weld-on boss type (above) for new engine installations. Choose the clamp-on type (above) to replace the existing probe. Order gauges, Micro-1000 probes and extensions separately.

h p e d e d e d a a e e

CHT

- 2-1/4" CH131 P/N 10-01426
- 2" CH130 P/N 10-01425

DUAL CHT

- 2-1/4" CH141 P/N 10-01429
- 2" CH140 P/N 10-01428

EGT

- 2-1/4" EG131 P/N 10-01464
- 2" EG130 P/N 10-01463

DUAL EGT

- 2-1/4" EG141 P/N 10-01467
- 2" EG140 P/N 10-02093

DUAL CHT/EGT

- 2-1/4" CE141 P/N 10-01409
- 2" CE140 P/N 10-01408

VDO GAUGES & PROBES



CYLINDER HEAD TEMP.

- 2-1/4" ... P/N 10-01424
- 2" P/N 10-01423



EXHAUST GAS TEMP.

- 2-1/4" ... P/N 10-01462
- 2" P/N 10-01461

d e p e h e d - p e p e



OIL PRESSURE

- 2-1/4" ... P/N 10-01570
- 2" P/N 10-01567

Includes 1/8NPT sender



OIL TEMP.

- 2-1/4" ... P/N 10-01583
- 2" P/N 10-01579



AMMETER - 12 VDC

- 2-1/4" ... P/N 10-02335
- 2" P/N 10-02334

No shunt required



VOLTMETER-12 VDC

- 2-1/4" ... P/N 10-01638
- 2" P/N 10-01637



FUEL LEVEL-0-240 OHM

- 2-1/4" ... P/N 10-01485
- 2" P/N 10-00825

Order only P/N 10-00826 probes for this instrument.



WATER TEMP.

- 2-1/4" ... P/N 10-01649
- 2" P/N 10-01646



HOURLY METER-12VDC

- 2-1/4" ... P/N 10-01505
- 2" P/N 10-01504



FLUID TEMPERATURE GAUGE

- 2" P/N VDO180902D

VDO PROBES

- VDO Float Probes - 240 ohms P/N 10-00826
- Fuel Probe Mounting Ring P/N 10-01502
- VDO Temperature Probes - 1/8NPT
- Water Probe 1/8" NPT P/N 10-01648
- Oil Probe 1/8" NPT P/N 10-01580
- Oil Temp. Probe 3/8" NPT P/N 10-01582
- VDO CHT Probe - Type " " 14mm ring type P/N 10-01439
- VDO EGT Probe - Type "K" Weld-on Boss P/N 10-01461
- Oil Pressure Sender 1/8" NPT P/N 10-01568

FUEL PROBE 24VOLT

The ELECTRONIC SENDING UNIT for FUEL, OIL, and POTABLE WATER tanks provides a continuous readout of the liquid level in your tank. The unit (which has no moving parts) consists of a sensor probe and an amplifier. The amplifier components, are encapsulated in an epoxy resin compound to seal out moisture and other contaminants which could affect the operation. The mounting plate assembly has the same 5 hole SAE bolt pattern mounting dimensions as the standard float sending units they replace. The meter (receiving unit) can be remotely located close by or in your dash. FUEL SENSOR PROBE (Gasoline or Diesel) - Constructed of concentric tubing. The tubes act as a capacitor that has one value in air (empty tank) and changes in value as the fuel level rises inside the probe. WATER SENSOR PROBE - The probe consists of a PVC tube with a bare stainless steel (ground) wire running along the outside and an insulated (sensor) wire through its center. The PVC tube is to hold the wires in place. The output to the meter changes as the water level rises on the sensor wire. The probes come in 12 inch increments and can be cut to any length down to the next lower increment. We prefer to build them your required size, however, for which there is no extra charge. It saves you from having to shorten and recalibrate the sender.

- P/N 10-03730
- Cork gasket for fuel probe kit P/N 10-03699

MICROFLIGHT GAUGES

STANDARD MICROFLIGHT ENGINE GAUGES

Standard gauges are a low cost solution for monitoring engine performance. The gauges on this and part of the next page are light-weight, inexpensive alternatives. These gauges are not temperature compensated changes in ambient temperature will affect their readings. Unlike our MICRO-1000 gauges, they do require shock mounting. All gauges come with a 1-year warranty which covers any malfunction. Prices include probes with 4-ft. leads. Gauges leads may be extended with 18-gauge wire. "C" at end of P/N indicates temperature scale in degrees celsius.



CYLINDER HEAD TEMP.

2-1/4", 0-700 F .. P/N CH004
2-1/4", 0-350 C .. P/N CH004C
de p e



EXHAUST GAS TEMP.

2-1/4",
600-1700 F ... P/N EG004
2-1/4",
400-900 C P/N EG004C
de p e



DUAL CHT

2-1/4" ... P/N CH005
2-1/4" ... P/N CH005C
de p e



DUAL EGT

2-1/4" ... P/N EG005
de p e



0-8000 RPM TACHOMETER

3-1/8" for 2-cycle engines for single
Ignition
Ducatti Ignition... P/N TA023
h pe a
No power required.



0-8000 RPM TACHOMETER

2-1/4" for 2-Stroke Engines
Single Ignition (all) .. P/N TA006
Ducati Ignition..... P/N TA021
h pe a
No power required.



CHT/EGT COMBINATION

2-1/4" P/N CE003
2-1/4" P/N CE003C
de p e



CHT PROBE

" " type sending unit with 4-ft.
lead.
14 MM P/N CP001
10 mm P/N CP002.....



CYLINDER HEAD TEMP.

2", 0-700 F P/N CH001
2", 0-350 C P/N CH001C
de p e



EXHAUST GAS TEMP.

2", 600-1700 F . P/N EG001
2", 400-900 C ... P/N EG001C
de p e



CHT/EGT COMBINATION

2" P/N CE001
2" P/N CE001C
de p e



EGT PROBE

"K" type sending unit with 4-ft.
lead.
P/N EP001
8 mm threaded EGT Probe
(for new 2-stroke Rotax)
P/N EP002



DUAL CHT

2" P/N CH002
2" P/N CH002C
de p e



DUAL EGT

2" P/N EG002
2" P/N EG002C
de p e



DUAL TACH/EGT

2" round gauge
Tachometer – Universal for single or
dual ignition.
EGT range: 700-1700 F
EGT probe (clamp type) sender
included.
P/N ET002R



0-8000 RPM TACHOMETER

2" for 2-Stroke Engines
Single Ignition (all)
P/N TA001
Ducati Ignition.... P/N TA020
h pe a

IN

AIRCRAFT DIGITAL INSTRUMENTS

ADI RH60-A TACHOMETER/HOUR METER GAUGE



The RH60-A RPM/Engine hours/Elapsed time gauge is a four digit digital display of engine RPM, total engine hours and elapsed time. The RH60-A works with any engine and can be driven from a wide range of tach signal frequencies and amplitudes. Front panel calibration is provided for spot-on accuracy to +/- 1RPM. A separate engine hours countdown alarm can be set to remind you of upcoming oil change or 100 hr maintenance due. A high RPM alarm can be set, and the RH60-A keeps track of the maximum RPM seen. When activated, the RH60-A built-in 85dB alarm will sound and the display will flash. Five levels of backlighting can be selected from, and thirteen levels of display dampening. All calibrations, alarm values and max RPM are saved to a nonvolatile memory. Terminal C can be programmed as an External Alarm output if so desired. P/N 10-02879.....

ADI MAP60-A MANIFOLD PRESSURE GAUGE



The MAP60-A, Manifold Absolute Pressure Gauge provides an accurate digital display of your engine's intake manifold absolute pressure. Commonly found and used in high performance aircraft with constant speed propellers, and/or with boost devices such as super and turbochargers. The MAP60-A is set up to use the UMA 5-60 InHg absolute pressure transducer. The display will show manifold pressure in tenth of an inch increments, from 5.0 to 60.0 InHg. The LOW and HIGH user settable alarms can be set over the entire range. The HIGH alarm in this case might be set to alert the pilot to a "OVERBOOST" condition. When activated the built-in 85dB alarm will sound and the display will flash. The External Alarm output would most likely be used to activate an annunciator/warning "OVERBOOST" condition light. Five levels of backlighting can be selected and then all setup, and alarm values will be saved to a nonvolatile memory. P/N 10-02872.....

ADI DIGITAL PRESSURE GAUGES



The P60-A DIGITAL PRESSURE GAUGE, can be used to display ENGINE OIL(AO), DRIVE OIL(ADO), WATER(AW), or FUEL(AF) pressures in PSI or Bars. It has built-in calibration curves for most popular senders manufactured by VDO, Teleflex, and Stewart-Warner (sender not included). The sender type is easily selected with the front panel keys. LOW and HIGH pressure alarms can be set over the entire range of the instrument/sender. When activated the P60-A built-in 85dB alarm will sound and the display will flash. Five different levels of internal backlighting can be selected, and then all setup, calibrations, constants, alarm values, sender type, and lighting level are all saved to a nonvolatile memory. Terminal "C" comes Factory preset to use as an External Alarm signal. This 5V,10mA signal voltage could be used in conjunction with the optional ER-1A electronic relay to control a backup/secondary piece of equipment (electric water pump / fuel pump) or simply used to illuminate a panel warning light. NOTE: Alarm functions must be activated or enabled to utilize them.

Engine Oil Pressure Gauge..... P/N 10-02874..... Drive Oil Pressure Gauge..... P/N 10-02875.....
 Water/Coolant Pressure Gauge..... P/N 10-02876..... Fuel Pressure Gauge..... P/N 10-02877.....
 Hydraulic Pressure Gauge (with sender)..... P/N 10-02878.....

ADI DIGITAL TEMPERATURE GAUGES



The T60-A provides an accurate digital display for Engine Oil(AO), Drive Oil(ADO), or Engine Water(AW) TEMPERATURES in either degrees F or C. It has built-in calibration curves for most popular senders manufactured by VDO, Teleflex, Stewart-Warner, and others(senders not included). Sender type is easily selected using the front panel keys. LOW and HIGH temperature alarm limits can be set over the entire range of the instrument/sender. When activated, the built-in 85dB alarm will sound and the display will flash. The alarm can be enabled or disabled with a single key press. Five different levels of internal backlighting can be selected. Then all setup, calibrations, constants, alarm values, sender type, and lighting level selected are all saved to a nonvolatile memory. Terminal "C" can be programmed as an External Alarm output.

Engine Oil temperature Gauge..... P/N 10-02881.....
 Drive Oil Temperature Gauge..... P/N 10-02882..... Water/coolant temperature Gauge... P/N 10-02883.....



The P 60-A works with both L and K type thermocouples to provide accurate monitoring of your engine's cylinder head or exhaust gas temperatures, from -4-2012F (-20-1100C). LOW and HIGH temperature alarm limits can be set from 32-2012F (0-1100C). When activated, the built-in 85dB alarm will sound and the display will flash. The highest temperature seen is automatically saved to a nonvolatile memory, and can be displayed or reset at any time. Five different levels of internal backlighting can be selected, then all setup, calibrations, and constants are also saved to nonvolatile memory.

Exhaust CHT Gauge..... P/N 10-02884..... Exhaust EGT Gauge..... P/N 10-02885.....

ADI DIGITAL FUEL GAUGES



The FU60-A provides a highly accurate digital display of fuel remaining, trip fuel, total fuel used, fuel flow consumption rate, and "Time Remaining" at the current rate of flow. Fuel can be displayed with a resolution of 0.1 liters or gallons or as a percentage (0-100%). The FU60-A "learns" your tank and fuel sender characteristics, and is accurate with any tank shape. It is compatible with all popular resistive fuel senders, both American and European. LOW and HIGH fuel level alarm limits can be selected, then all setup, calibrations, constants, alarm values and sender type are saved to a nonvolatile memory. The FU60-A output signal on Terminal "C" may be programmed to activate an External Alarm (panel warning light)(see ACCESSORIES)... or possibly a fuel transfer pump. Should the desired "fuel transfer" mode be selected, (tFer) the pump would turn ON at the user selected LOW limit alarm setting... and OFF when the HIGH limit alarm set point is reached. The FU60-A's display will also flash during pump operation. The DIGITAL FUEL GAUGE provides an accurate digital display of fuel remaining, trip fuel and total fuel used. Fuel remaining can be displayed up to 6550 liters or gallons, or as a percentage (0-100%) with user selectable display dampening to help prevent unwanted fluctuations in rough air. The gauge display will flash during the pump's operation.

Fuel Gauge F-60-A (pictured)..... P/N 10-02868..... Fuel Flow Gauge FU-60-A..... P/N 10-02869.....

ADI V60-A VOLTMETER



The V55-A Battery/System Voltage Monitor gauge provides an accurate low cost digital instrument for battery/ system voltages between 9.5-33.0 VDC. You can set independent LOW and HIGH voltage alarms. The V55-A built-in 85dB alarm will sound and the display will flash. Five levels of backlighting can be selected and then all setup, calibration constants and alarm values are saved to nonvolatile memory. Terminal C can be selected and used as an External Alarm output signal. (5V, 10mA max). P/N 10-02886.....

ADI AM60-A DIGITAL AMMETER



The AM60-A Digital Ammeter provides an accurate low cost digital instrument for monitoring your aircraft's electrical load (amps), and is programmable to use a 5.0 to 900 amp shunt. (available separately). Up to 90.0 amps the AM60-A can display your load current in tenths of an amp. Above 90 amps current is displayed in full amps. The AM60-A can be powered by any voltage between 9.5 and 33.0 Volts. Five levels of backlighting can be selected using the front panel keys and backlighting can be turned ON/OFF remotely. All setup, calibrations, and constants are saved to nonvolatile memory. P/N 10-02864.....

Ammeter With 150A Shunt..... P/N 10-02932..... ADI AM60 85AMP Shunt only..... P/N 10-02893.....

ADI CT60-A CLOCK / TIMER



The CT60-A Clock/Timer is an accurate 12/24 hour format clock with a resettable down-counting timer with eight time-of-day settable alarms. The clock is Factory calibrated, but can be adjusted with the front panel switches and calibrations saved to nonvolatile memory. The clock is accurate to within five seconds per day, and is Factory calibrated to within one second per day. The CT60-A has a large LCD display, yet draws only 0.018 amps. Five levels of backlighting can be selected and all setup, calibration constants and alarm values are saved in nonvolatile memory. P/N 10-02865.....

ADI-CRUZ PRO DIGITAL ACCESSORIES

Description	Part N.	Pri	Description	Part N.	Pri
6061 8 Hole, Aluminum Gauge Cluster	10-02890		Electronic Relay - ER-1A	10-02887	
6061 6 Hole, Aluminum Gauge Cluster	10-02889		DC Ammeter Shunts	10-02893	
Hydraulic Pressure Transducer TDM2500	10-02888		Type K Thermocouple AD-2000TK	10-02895	

TL ELETRONICS INSTRUMENTS

COMBINED ENGINE INSTRUMENT



• High performance, small dimensions & weight - an ideal instrument suitable for all types of engines • Set value limits at 2 levels (Warning & Alarm) for all measured values. In case these values are exceeded the instrument will warn you in time of any possible engine damage • Configure display to show temperature, pressure, rotations, battery voltage, engine hours, OAT, fuel consumption as you wish using the configuration program delivered with the instrument. Size: 3-1/8"

Digital eng. instr. for combine engine values measuring.....	P/N 10-00893
Thermocouple probe for EGT (type K) M8x1 screw type - for all engines.....	P/N 10-00894
Thermocouple probe for CHT (type) 12mm hole - for all engines.....	P/N 10-00895
Thermocouple probe for CHT (type) 14mm hole - for all engines.....	P/N 10-00896
Thermocouple probe for CHT (type) 18mm hole - for all engines.....	P/N 10-00897
Oil or water temp. sender (0 to 110 C/230 F) for Rotax 2-stroke.....	P/N 10-00898
Oil or water temp. sender (0 to 150 C/300 F) for Rotax 4-stroke.....	P/N 10-00899
Passive oil pressure sender (0 to 145 PSI, 1/8"-NPT) for all engines.....	P/N 10-00904
Active oil pressure sender (0 to 145 PSI, 1/8"-NPT) for all engines.....	P/N 10-00905
Metal hi-quality flow sensor (0-30 gph)-all engines.....	P/N 10-00906
Passive speed sensor-all eng. (inductive sensor).....	P/N 10-00907
Active speed sensor-all engines (hall effect 3-wire sensor) 5-30V power supply req.....	P/N 10-00909
Active speed sensor-all engines (hall effect 3-wire sensor) 5V.....	P/N 10-00910

FUEL COMPUTER



• Measure immediate fuel flow of your engine in liters/hour or liters/100 km and average fuel consumption • Set limit values at 2 levels (Warning & Alarm), for all measured values. In case these values are exceeded, the instrument will warn you prior possible failure or damage of the engine • Display at any time the fuel levels in the left, right or both fuel tanks. Size: 2-1/4"

Fuel computer without fuel-flow sensor.....	P/N 10-00870
Metal high-quality flow sensor for all engines ...	P/N 10-00871
Passive resistive fuel level sender (all aircraft).....	P/N 10-00872
Fuel by Sender Float (240-30 OHM).....	P/N 10-00056
Active cap. fuel level sender (all aircraft).....	P/N 10-00798
Active fuel pressure sender (all aircraft).....	P/N 10-00873

INTERCOM



• Intelligently managed voice activators (VOX) • Listen to your favorite music e.g. from CD/cassette directly to your headphones or attach your intercom to your mobile telephone • Control your intercom digitally using keys & displays • Record and play pre-takeoff or landing checklist directly to your headphones (checklist can easily be created on your PC and recorded into the intercom) • In case of accident simply switch on emergency broadcast, which will be re-played at short intervals and transmitted using a RDST w/pre-recorded message. Size: 2-1/4"

Intercom w/voice alarm, checklist & digital voice rec.....	P/N 10-00867
Connection cable for mobile phone.....	P/N 10-00868
Connection cable to VHF airband-transceiver ...	P/N 10-00869

ALTIMETER WITH ENCODER



• 2 instruments for the price of one – altimeter & mode C encoder for all types of transponder • Set value limits at 2 levels (Warning & Alarm) for multiples • Display QNH or QFE levels with the option of setting zero • The instrument will provide a warning if an insufficient oxygen altitude is reached • The instrument will signal low altitude, e.g. after opening of undercarriage, MDA, approach. Size: 2-1/4"

P/N 10-00891

VOLT-AMPERE METER



• First volt-ampere meter with 3-phase measurement of voltage, current & frequency • Connect up to 3 circuits for measuring current and voltage, for example instrument panel circuit, light circuit and flash and other circuit • Check the activity of the three-phase voltage converter for an artificial horizon using your voltmeter with the option of checking 400 Hz frequency • Set value limits at two levels (Warning and Alarm) for minimum & maximum voltage and current. Set the form of display either by gradual switching of voltage and current on the display at intervals chosen by you (SCAN function) or by displaying lowest or highest current-voltage. Size: 2-1/4"

Digital volt-ampere meter & frequency meter.....	P/N 10-00883
Current shunt sensor for measuring to 50amps (for all aircraft).....	P/N 10-00884

ACOUSTIC VERTICAL SPEED INDICATOR



TL-3624 is suitable for most aircraft whether they be airplanes or whether they be gliders. • Measure climb & descent rate with high level of accuracy using the integrated or averaging memory with selectable averaging time • Set value limits at 2 levels (Warning & Alarm) for climb and descent rate • Use acoustic climb & descent rate signals using an external loudspeaker. Size: 2-1/4"

P/N 10-00892

RPM & ENGINE HOURS



• Measure rotations & engine hours with the option to trigger the counting from a certain engine rotation rate (by your choice) so that you can divide taxing from flight time • Set value limits at 2 levels (Warning & Alarm) for all measured values. In case these values are exceeded the instrument will warn you in time of any possible engine damage • Several separate users with pilot/student option

– suitable for several owners or in flight schools, where the instructor selects the student and the time will be measured only against his/her name. Size: 2-1/4"

Digital RPM w/ engine-clock & stop-watch	P/N 10-00886
Digital RPM w/ engine-clock, stop-watch & internal speed sensor.....	P/N 10-00887

THERMOMETER



• Use the thermometer to measure up to 4 temperatures and oil pressure • Use the automatic choke function using the modeler's servo regulated by thermometer according to any of the measured temperatures e.g. CHT • Set value limits at 2 levels (Warning and Alarm) for all measured values. In case these values are exceeded the instrument will warn you at time of any possible engine damage

• Set the form of display either by gradual switching of measured temperatures on the display at intervals selected by you (SCAN function) or displaying the closest temperatures to the limit values that you have set. Size: 2-1/4"

Therm. for 4 temp. & press. w/choke control.....	P/N 10-00874
Thermocouple probe for CHT (type) 12mm hole - for all engines.....	P/N 10-00876
Thermocouple probe for CHT (type) 14mm hole - for all engines.....	P/N 10-00877
Oil or water temp. sender (0 to 150 C/300 F) for Rotax 4-stroke.....	P/N 10-00879

G ACCELEROMETER



• Using the accelerometer measure the operational values of your aircraft on the vertical axis • Set value limits at 2 levels (Warning and Alarm) for all measured values. In case these values are exceeded the instrument will warn you in time of any possible damage to the aircraft • Always be informed of values approaching the limits, which could result in damage to the aircraft • Always be aware of exceeded values from the previous flight after switching on the instrument • Start of logging is carried out by a switch on the undercarriage or by an internal / external pressure sensor on attaining your selected speed. Size: 2-1/4"

Digital accelerometer.....	P/N 10-00889
Digital accelerometer w/ internal airspeed sens.....	P/N 10-00890

TL-3424-RAS ACCELEROMETER



The TL-3424 is complete weight acceleration management. The instrument incorporates a high-precision sensor for measuring acceleration in the vertical axis. The SAS version also incorporates a sensor for measuring the indicated airspeed, which enables the activation of memory recording. Both versions enable to utilize an undercarriage scanner that can also activate memory recording.

P/N 10-02312

TL INSTRUMENTS ARE FOR EXPERIMENTAL AIRCRAFT ONLY.

AE FUEL GUARDIAN

AE FUEL GUARDIAN LOW FUEL ANNUNCIATION SYSTEM



This system gets your attention before you have to switch tanks. When the annunciator light flashes, you will know your precise fuel quantity and also the time to engine shut-down for that tank. HOW DOES IT WORK - The optical fuel sensor is a non-contact sensor mounted in a single hole in the fuel tank. It operates by bouncing a beam of light into the sensor's lens. If it is reflected back into the sensor, there is no liquid present. If it is not reflected back, it is dissipated into the liquid media. The sensor output is pulled down, or activated. The electronics constantly monitors the sensor outputs of both tanks. When a low fuel level is detected, the appropriate light starts to blink, getting the pilot's attention immediately. After the pilot sees the alarm, he can press the acknowledge button. This action turns the light on solid (continuous) denoting a low fuel quantity. This function of the annunciator eliminates the distracting flashing action of the lights for the pilot, yet he can still see that he has a low fuel indication.

The AE Fuel Guardian also has an audio output that can be wired into the aircraft intercom or audio system if desired. The audio beep is only present when the annunciator lights are flashing.

The AE Fuel Guardian annunciator lights can also be wired into the aircraft dimmer bus if desired for night flight.

This system is 100% solid state and is compatible with 12VDC or 24VDC electrical systems. The installer sets the sensors to provide low fuel warning at whatever level is desired. System includes (2) annunciator panel lights, (2) optical sensors, (1) push button, Sensor drive and annunciator electronics enclosure, wiring, and lettering decals. For Experimental aircraft only.

Kit With One Sensor..... P/N 10-01811
 Kit With Two Sensor..... P/N 10-00399

AE AIRSPEED SWITCH & RELAY BOARD



RELAY BOARD USE: Control your Flap & Elevator Trim motors

This board allows you to use any inexpensive switch Single Pole, Double Throw, (ON)-OFF-(ON), Spring Loaded, 3 Position to control your flap and elevator trim motors.

You can series as many switches as you desire control your flap & elevator trim motors. Free connection diagrams for relay boards and airspeed switch for several typical systems.

Flap Deployment Protection at High Airspeeds

When our relay board is used with our airspeed switch, you can protect your flaps from being actuated in the downward direction when your airspeed is too high (above the white arc). We provide the end user with easy connection diagrams for several different systems.

Automatic Speed Adjust for Elevator Trim Motors

Many have complained about the fast adjustment speed of elevator trim motors at high airspeeds. When our relay board is used with our airspeed switch, it eliminates this problem. You will have two speeds, fast for slower airspeeds, and slower for high airspeeds. The slower speed is adjusted by supplying this relay board a lower motor drive voltage.

Each board includes two independent, Single Pole, Double Throw Relays

Relay contacts are protected against inductive sparking generated from switching inductive loads such as motors. For use on 12Vdc systems. Switch currents up to 10 Amps. Boards are stackable to 3 levels high for saving panel space. Mounting hardware included

AE Relay Board One..... P/N 10-01814
 AE Relay Board Two Staked..... P/N 10-01815
 AE Relay Board Three Staked..... P/N 10-01816
 AE Airspeed Switch & Board..... P/N 10-01817

AE LOW OIL LEVEL SENSOR



This sensor is a "float type" Low Oil Level Sensor that can be installed in the bottom of an oil sump using spare drain holes. When a low oil condition is sensed, a NC contact will open, indicating a low oil level. This sensor was designed for the high vibration environment of an aircraft engine.

It is also available with electronics and a flashing LED indicator. This sensor indicates a low oil level that is less than 4 quarts in a Lycoming O-360-A1A. This sensor is compatible with many engines.

This sensor package was designed to be "Fail Safe". By "Fail Safe", they mean that if you utilize this sensor in the oil drain plug position, and you forget to reconnect the sensor to the electronics after an oil change, the panel light will come on indicating a low level. This scenario also holds true if you lose electrical connection to the sensor.



A small, reliable, light weight electronics package is provided with the sensor to allow its fail safe mode of operation. This electronics package is easily "wire tied" up under the instrument panel along with all the other instrument wiring. No mounting hardware is required. The electronics is powered by 12Vdc. It can be made 24V compatible by adding a small zener diode in series with the electronics. See below.

AE Low Oil Level Sensor P/N 10-01812.....
 AE Low Oil Level Sensor w/ electric P/N 10-01813.....
 Flap Positioning System FPS-Plus-nt P/N 11-02981
 Flap position System W/ Elevated Trim Compensation P/N 11-02980.....

IK TECHNOLOGIES

AIM-1 AIRCRAFT INFORMATION MONITOR



If you're a "numbers" kind of guy or gal, this is the choice for you. The compact, all-in-one AIM-1 features a large-character, back-lit, sunlight-readable LCD screen that displays clearly labeled engine information -- no guessing what the numbers mean.

Cylinder head temperatures (CHTs) and exhaust gas temperatures (EGTs) for four cylinders are displayed simultaneously on bright, color-coded LED bargraphs, allowing for rapid scanning, comparison and instant recognition of normal (green), cautionary (yellow) or warning (red) conditions. Pressing the "MODE" button displays the precise numeric value of each CHT and EGT on the LCD screen.

Want to see what you're squawking? A touch of the "change screen" button displays your Mode C Altitude, which can then be offset by inputting barometric pressure or equivalent field elevation.

Outside air temperature, density altitude and a comprehensive, customized checklist are available as options.

P/N 11-03367.....

IK-2000 AIRCRAFT INFORMATION MONITOR



The glass cockpit of the "future" has already become the standard in today's commercial and business aircraft. Why should you build & fly a contemporary aircraft with instruments designed half a century ago? Aircraft Spruce announces a breakthrough in instrumentation that will allow you, the experimental airplane builder/pilot, to enjoy all the benefits

of a state-of-the-art multifunction flight & engine monitoring system at a fraction of the cost of similar systems currently available.

Six independent microprocessors are used to acquire, measure and display data in the I-K 2000, ensuring continued instrument operation in the unlikely event of a processor or power-supply failure. This monitor was built with reliability in mind. Multiple displays can be used in a single aircraft. Ideal for tandem airplanes such as Vari-E, Long-E, Berkut, etc.

For experimental aircraft only. These devices are not presently STC-ed or PMA-ed. May be possible to install in certificated aircraft with FAA 337 field approval.

6 Cyl. System..... P/N 11-03368
 FADEC Interface..... P/N 11-03367

Sensors / Senders		
Description	Part N	Pri
UMA 1E1 Oil Pressure Sender	10-00007	
UMA 1B3 Oil Temperature Sender	10-00418	
FloScan Fuel Flow Sensor	11-01203	
Westach Hall Effect Sensor Bendix 720-14RB	10-00863	
(not req. for electronic ignition) Slick 720-14R	10-00861	

AEROSPACE LOGIC

AEROSPACE LOGIC CHT/EGT INDICATORS



Available in 4 or 6 cylinder configurations • Supports most type K thermocouple probes • Displays information in C & F with automatic conversion of all setup parameters • Accuracy to within 1°F • Displays temps from 0 F – 1900 C / 0 C 1040 C (EGT) 0 F – 700 C / 0°C – 371°C (CHT) • High speed scan and acquisition rates. While others update information every 5 seconds

and more, our instrument provides precise information every 1 second! • Analog bar type and digital display Select between any of these powerful display pages:

- 1) Any specific cylinder. Choose the cylinder you wish to monitor and change to the next whenever you wish.
 - 2) Sequential step through each cylinder with 5 second delay.
 - 3) Auto select. Selects the hottest cylinder, updated every 1 second.
 - 4) Switch between any selectable function and the auto function and return to the last monitored setting without any data loss
- User programmable high and low limits • Internal and external brightness control (user programmable) • 9V-33V operating range • Only 2.2" deep • Fits std 2.25" mounting holes • Full 1 year warranty.

Part N .	M	N .	Description	C i - d e r s	Pri
10-00447	CHT-100-4		Cylinder Head Temperature Instrument	4	.
10-02154	CHT-100-4V		Cylinder Head Temperature Instrument with Built in Voltmeter	4	.
10-00449	CHT-100-4RP		Cylinder Head Temperature Instrument with 18mm Ring Probes	4	.
10-01752	CHT-100-4VRP		Cylinder Head Temperature Instrument with 18mm Ring Probes and built in Voltmeter	4	.
10-00723	CHT-100-4BP		Cylinder Head Temperature Instrument with Bayonet Probes	4	.
10-01754	CHT-100-4VBP		Cylinder Head Temperature Instrument with Bayonet Probes and Built in Voltmeter	4	.
10-00454	CHT-100-6		Cylinder Head Temperature Instrument	6	.
10-01755	CHT-100-6V		Cylinder Head Temperature Instrument with Built in Voltmeter	6	.
10-01756	CHT-100-6RP		Cylinder Head Temperature Instrument with 18mm Ring Probes	6	.
10-01757	CHT-100-6VRP		Cylinder Head Temperature Instrument with 18mm Ring Probes and built in Voltmeter	6	.
10-01758	CHT-100-6BP		Cylinder Head Temperature Instrument with Bayonet Probes	6	.
10-01759	CHT-100-6VBP		Cylinder Head Temperature Instrument with Bayonet Probes and Built in Voltmeter	6	.
10-01719	CT1-F		Clock and Outside Air Temperature Degrees F	ALL	.
10-01761	CT1-C		Clock and Outside Air Temperature Degrees C	ALL	.
10-00439	EGT-100-4		Exhaust Gas Temperature Instrument	4	.
10-00441	EGT-100-4P		Exhaust Gas Temperature Instrument with Probes	4	.
10-01762	EGT-100-4V		Exhaust Gas Temperature Instrument with Built in Voltmeter	4	.
10-01763	EGT-100-4VP		Exhaust Gas Temperature Instrument with Probes and Built in Voltmeter	4	.
10-00443	EGT-100-6		Exhaust Gas Temperature Instrument	6	.
10-00445	EGT-100-6P		Exhaust Gas Temperature Instrument with Probes	6	.
10-01764	EGT-100-6V		Exhaust Gas Temperature Instrument with Built in Voltmeter	6	.
10-01765	EGT-100-6VP		Exhaust Gas Temperature Instrument with Probes and Built in Voltmeter	6	.



AEROSPACE LOGIC FUEL PRESSURE AMMETER VOLTMETER

Fuel Pressure and Ammeter kit. Includes instrument with integrated voltmeter, solid state fuel pressure sender and 30A current shunt.

Part .	M	N .	Description	Pri
10-01773	FP-100-K30		Fuel Pressure, Ammeter, and Voltmeter Instrument w/ External 30A Shunt	.
10-01774	FP-100-K60		Fuel Pressure, Ammeter, and Voltmeter Instrument w/ External 60A Shunt	.
10-01775	FP-100-K100		Fuel Pressure, Ammeter, and Voltmeter Instrument w/ External 100A Shunt	.



AEROSPACE LOGIC INTELLIGENT TACHOMETER

Intelligent Tachometer Kit. Works with all magneto based ignition systems. Complete with instrument, data download cables, all sensors and installation hardware. For experimental aircraft, TSO and STC in progress.

P/N 10-01776.....



AEROSPACE LOGIC FL-100 DUAL FUEL LEVEL INDICATORS

Displays fuel level of two separate tanks on color coded bar graph indicators and a digital readout of fuel quantity on a 4-digit display. Fully user programmable from the front panel. For use with 0-5V sensors/ transducers. Fits standard 2-1/4" mounting hole. Voltage: 9-33 VDC. Displays fuel in US gallons.

standard 2-1/4" mounting hole. Voltage: 9-33 VDC. Displays fuel in US gallons.

Features:

- Viewable in direct sunlight
- Custom design color bar display
- Multi-color sunlight visible
- InGaAlP/GaN LED technology
- Analog/digital readout of fuel levels
- 100,00 hours operating life
- Color-coded fuel level quantities
- Low fuel level alarms
- Internal over temperature shutoff .25 second scan rate
- Dual processor monitoring with 1sec. error shutoff
- Floating point mathematical compensation for tank & sensor linearity
- 256 times measurement validation before display

Part N .	M	N .	Description	Pri
10-00304	FL-100-R		Dual Fuel level Indicator for Senders with a Maximum Resistance of 300 Ohms	.
10-01767	FL-100-R	(44)	Dual Fuel level Indicator for Senders with a Maximum Resistance of 44 Ohms	.
10-01768	FL-100-R	(67)	Dual Fuel level Indicator for Senders with a Maximum Resistance of 67 Ohms	.
10-01769	FL-100-R	(108)	Dual Fuel level Indicator for Senders with a Maximum Resistance of 108 Ohms	.
10-01770	FL-100-R	(711M)	Dual Fuel level Indicator for Use with Cessna Pennycap Capacitive Fuel Senders	.
10-01771	FL-100-6		Dual Fuel Level Indicator for Senders with a DC Voltage Output of 0v-5v	.



AEROSPACE LOGIC OIL PRESSURE & TEMPERATURE

our OL-100 Oil Pressure and Temperature Indicator will provide you with years of reliable service and generally outlast the life of your aircraft. Every reading you will see displayed on your instrument has been validated at least

256 times before you see it. This all happens in less than a second. When you see the result you know the instrument is functioning correctly as it is monitored by an independent microprocessor used to ensure that it is functioning correctly. In turn the main processor validates the independent monitoring processor.

Part N .	M	N .	Description	Pri
10-01777	OL-100-T		Oil Pressure and Temperature Instrument	.
10-01778	OL-100-TV		Oil Pressure and Temperature Instrument with Built in Voltmeter	.
10-01779	OL-100-TK		Oil Pressure and Temperature Instrument with Pressure and Temperature Senders	.
10-01780	OL-100-TKV		Oil Pressure and Temperature Instrument with Pressure and Temperature Senders and Built in Voltmeter	.



AEROSPACE LOGIC VOLTMETER AMMETER

Voltmeter and Ammeter kit. Includes instrument and current shunt.

Part N .	M	N .	Description	Pri
10-01782	VA-100-K30		Voltmeter and Ammeter Instrument with 30A External Shunt	.
10-01783	VA-100-K60		Voltmeter and Ammeter Instrument with 60A External Shunt	.
10-01784	VA-100-K100		Voltmeter and Ammeter Instrument with 100A External Shunt	.



AEROSPACE LOGIC CLOCK & OUTSIDE AIR TEMPERATURE

Clock and Outside Air Temperature kit choose F or C. Includes instrument and digital temperature sensor. For experimental aircraft, TSO and STC in progress.

P/N 10-01761.....

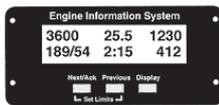


AEROSPACE LOGIC CLOCK & OUTSIDE AIR TEMPERATURE

Manifold and fuel pressure combination instrument. Instrument contains an integrated manifold pressure sensor and requires 0.5v-4.5v fuel pressure input (0-100 PSI at full scale) Features: • Manifold Pressure 0.2-50 in.Hg • Fuel Pressure 0-60 PSI • Use as either manifold, fuel or both pressure instrument • Programmable display formats • Integrated MP sensor • Remote mount FP sender • External alarm output • All limits and functions are user programmable P/N 10-01766.....

FLIGHT/ENGINE MONITORS – SKYSPORTS

SUPER ENGINE INFORMATION SYSTEM (EIS)



Complete engine instrumentation packages available in various models for nearly all 2 & 4-stroke engines. The EIS includes 6 display pages. Combination pages provide convenient grouping of 6 or 7 engine parameters. Labeled pages are used by the alarm system with its external red warning light to make unsafe engine conditions immediately apparent. 2-stroke models provide tach, dual EGT, dual CHT, fluid temperature, auxiliary input, hourmeter, flight timer, voltmeter and outside air temperature. Four-stroke models include all of this, plus oil pressure, a second auxiliary input and a 10 rpm resolution tachometer. All models also available with the fuel flow option (including totalizer and time to empty). The 2-stroke model is available w/altimeter/rate-of-climb. The instrument has been proven in thousands of installations worldwide. Excellent quality and robust design makes this instrument highly reliable. Systems include probes and pre-wired cables, or may be purchased individually. Requires (5) 15/16" w x 2-3/4" h x 2-1/2" d panel space. Specify engine and aircraft makes and models, standard systems furnished with gasket type CHT senders and hose clamp type EGT senders. Threaded senders available at additional cost.

L e e a a a a e d e e

Description	M	Part N	Pri
EIS System for Cont./Lyc./Franklin	4000	10-00285	.
EIS System for 4 Stroke	4000	10-28002	.
EIS Fuel Flow Option	OPT-FF-01	10-28004	.
2-stroke, 4 Cylinder	4002	10-00280	.
Rotax 912/912S/914	2004	10-00281	.
Rotax HKS	2004	10-00282	.
EIS system for abiru 4 Cyl.	4000	10-00283	.
EIS system for abiru 6 Cyl.	6000	10-00284	.
Cont./Lyc./Franklin 6 Cyl.	6000	10-00286	.
EIS Lyc/Cont 6 Cylinder (Package for Lycoming/Continental 6-cylinder engines includes EIS Model 6000 Instrument, 6 EGT probes, 6 CHT bayonet-type CHT probes with adapters, Oil temperature Sensor, Oil Pressure Sensor, and pre-wired cables.)	6000P	11-03421	.
Super EIS 2-stroke package	2000	10-28000	.
2-stroke Altimeter/rate-of-climb pkg	2000	10-28003	.



VISION MICROSYSTEMS VM1000C ENGINE/FLIGHT MONITOR

The VM1000C gives you the unsurpassed benefit of a fully transreflective sunlight readable color display ("The brighter it gets the better it looks"). The full color display gives you the benefit of immediate recognition of a current or potential problem, unlike other displays using small low resolution digits and tiny bars. The kits are supplied with aviation quality probes and transducers. ea e •Manifold pressure •Percent power •EGT lean system •Oil pressure •Turbine inlet temp. •Oil temp. •Outside air temp. •Carb air temp. •CylinderSentry™ (CHT condition monitor) •Exclusive Autotrack™ keeps watch over your engine for unexpected changes. •Warn master caution instantly alerts you of an engine problem •RPM, Hobbs Time, Tach Time •Electrical system •Volts & amps •Fuel computer sys. •Fuel flow •Fuel remaining •Hours endurance •Fuel burned •Fuel level system(uses either the VMI capacitance probes or resistive float sensors)

Description	Part No.	Pri
VM1000C 4 Cylinder Fuel In ected	10-00612	.
VM1000C 4 Cylinder Fuel In ected with Fuel Flow	10-00613	.
VM1000C 6 Cylinder Fuel In ected	10-00614	.
VM1000C 6 Cylinder Fuel In ected with Fuel Flow	10-00615	.
VM1000C 4 Cylinder Carbured	10-02024	.
VM1000C 4 Cylinder Carbured with Fuel Flow	10-02025	.
VM1000C 6 Cylinder Carbured	10-02026	.
VM1000C 6 Cylinder Carbured with Fuel Flow	10-02027	.
S ded h he e e p a e p e a e d p h a e h		
VM1000C T.I.T With Harness	10-00616	.
VM1000C EGT Probe	10-00617	.
VM1000C CHT Bayonet Silye Probe	10-00618	.
VM1000C OAT with Harness	10-27095	.
VM1000C Carb. Temperature	10-02481	.
REPLACEMENT PARTS (if not purchased as a kit, for VM1000C ONLY)		
EGT (grounded for quick response), Hose Clamp 1" to 2"	10-02635	.
CHT (grounded for quick response), 3/8-24 UNF	10-02636	.
FF-201B3 to 45 GPH (1/4 NPT FloScan transducer)	10-02637	.
TIT With harness	10-02638	.
OAT with Harness	10-02639	.

SKYSPORTS CAPACITIVE FUEL SYSTEMS

There is simply no better fuel measurement device than the SkySports capacitance solid state fuel systems. Using a special, solid state capacitance probe, all moving parts are eliminated. Adapts to many different tanks, multiple tanks, and difficult mounting installations.

Systems are available in 12 and 24V configurations, or self-contained, battery powered units. Probes are available bendable, and cuttable, and the entire system is easy to install. Calibrations takes ust seconds. Multiple probes can be "summed" on a single gauge, or can drive multiple gauges.

The kits include: probe (s) as specified, gauge as specified, 8 feet multiconductor wire, longer lengths available on request, electrical connectors, AN bolts, mounting hardware (aluminum flange and gasket, or rubber seal grommet and well-nuts), instrument mount screws, cable ties and instructions.



V tag	L gth	Gauge	B	l i a t r	Part#	S t Pri	Probe Price
12	06	S			FS1206S	.	.
12	12	S			FS1212S	.	.
12	12	S		L	FS1212SL	.	.
12	12	S		H	FS1212SH	.	.
12	12	S	3		FS1212S3	.	.
12	12	S	3	L	FS1212S3L	.	.
12	12	S	5		FS1212S5	.	.
12	12	S	5	L	FS1212S5L	.	.
12	12	S			FS1212S	.	.
12	12	S	3		FS1212S3	.	.
12	12	S	3	L	FS1212S3L	.	.
12	12	S	5		FS1212S5	.	.
12	12	S	5	L	FS1212S5L	.	.
12	24	S			FS1224S	.	.
12	24	S		L	FS1224SL	.	.
12	24	S	3		FS1224S3	.	.
12	24	S	3	L	FS1224S3L	.	.
12	24	S	5		FS1224S5	.	.
12	24	S	5	L	FS1224S5L	.	.
12	24	S			FS1224S	.	.
12	24	S	3		FS1224S3	.	.
12	24	S	3	L	FS1224S3L	.	.
12	24	S	5		FS1224S5	.	.
12	24	S	5	L	FS1224S5L	.	.
12	36	S			FS1236S	.	.
12	12	W			FS1212W	.	.
12	24	W			FS1224W	.	.

ELECTRONICS INTERNATIONAL INSTRUMENTS



US-8A, STC PMA ULTIMATE ENGINE ANALYZER

Simultaneously displays EGT and CHT for Singles. (For Twins, call for model designation. May require two US-8As, depending on your requirements). Automatic Diagnostic Assist helps diagnose engine problems such as fouled plugs, burned valves, intake leaks, low compression, etc. Impressive Features Include: Auto Scan up to 16 temperature channels, Reprogrammable Temp Limits from the Front Panel (unavailable on competition's gauges in this category), Auto Detection of hottest EGT and hottest CHT pilot-programmed Over-Temp and Under-Temp limits, Programmable Scan Rate for each channel displayed (rather than competition making that decision for you). One Degree, STEAD Resolution Only 6lbs., Standard 2-1/4" hole (or use an EI adaptor plate for 3-1/8" holes) Choose up to 16 probes (w/ cables): EGT, CHT, OAT, Carb Temp, Oil Temp

M	Description	Part N	Pri
US-8A-4	4-cylinder engines without a Primary CHT gauge already installed. Includes 4 EGT probes, 4 CHT probes and 8 ea 6-ft harnesses	10-00595	.
US-8A-4G	4-cylinder pkg for a/c w/ Primary CHT gauge already installed. Includes 4 EGT probes, 3 CHT probes, 1 P-102 Piggy Back CHT probe and 8 ea 6 ft harnesses	10-03283	.
US-8A-6	6-cylinder pkg for a/c without a Primary CHT gauge already installed. Includes 6 EGT probes, 6 CHT probes & 12 ea 6-ft harnesses	10-00596	.
US-8A-6G	6-cylinder pkg for a/c with a Primary CHT gauge already installed. Includes 6 EGT probes, 5 CHT probes, 1 P-102 Piggy Back CHT probe and 12 ea 6-ft harnesses	10-03284	.
: The UBG-16 can accommodate to 16 probes (w/ cables): EGT, CHT, OAT, Carb Temp, and / or Oil Temp			
US-8A-4T	4-cylinder Twin pkg for a/c without Primary CHT gauges already installed. 4 EGTs L&R and 4 CHTs L&R. Includes 8 EGT probes, 8 CHT probes and 16 ea 20-ft harnesses.	10-00597	.
US-8A-4G-T	4-cylinder Twin pkg for a/c with Primary CHT gauges already installed. 4 EGTs L&R and 4 CHTs L&R. Includes 8 EGT probes, 6 CHT probes, 2 P-102 Piggy Back CHT probes and 16 ea 20-ft harnesses.	10-00602	.
US-8A-6-T	6-cyl Twin pkg (scans all EGTs L&R 2 CHTs L&R). Includes 12 EGT probes (for 6 channels of EGT on both engines), 4 gasket CHT probes (for 2 channels of CHT on each engine), plus 16 ea 20-ft harnesses. (For more than 12 EGTs and 2 CHTs L&R, add'l temps, order 2 US-8As)	10-00598	.



SR-8A ENGINE ANALYZER

Standard - EGT's, CHT's TIT, Oil Temp, OAT, Carb. Temp others, up to 8 channels. Manual and Auto Diagnostics (Scan) Modes. Auto Detects the hottest EGT or CHT. Factory-set EGT Over-Temp Limit (1650°F). Factory-set EGT Under-Temp Limit (1100°F). Factory-set CHT Over-Temp Limit (500°F). Differential Limit set from back panel (95°F or 195°F). Selectable Scan Rate Number of Channels to be Scanned. 2 1/4" Mount. 5.35" Depth. 16 Oz. Instrument. 1° F Resolution. Accuracy 1/2%. Superior Sunlight Viewability. Backlit. Operates from 7.5 to 35 volts at .3 amps.

M	Description	Part N	Pri
SR-8A	SR-8A Instrument only (no probes or cables)	10-25220	.
SR-8A-4	4 Cyl. SR-8A Package w/ 4 p-110 EGT probes, 4 P-100 CHT probes, 8 ea 6' Cables (uses all 8 inputs)	10-00599	.
SR-8A-6	6 Cyl. SR-8A Package w/ 6 P-110 EGT probes, 2 P-100 CHT probes, 8 ea 6' Cables (uses all 8 inputs)	10-00603	.



UBG-16 ULTIMATE BAR GRAPH ENGINE ANALYZER

Standard - Automatically helps detect engine problems before they become safety hazards or expensive repairs! • 32 PILOT-PROGRAMMABLE LIMITS provide a High and Low Alarm for EACH of the UBG's 16 channels! • NORMALIZED MODE with LONG-TERM MEMORY. • LEAN MODE with "TRUE PEAK DETECT" • DATA RECORDING with UNIQUE E PANDABLE CAPABILITY. Stores up to 690 hours of data for every channel being monitored on the UBG-16. The UBG-16 can be set up to monitor: EGT, CHT, Oil, Outside Air, Carburetor, cowl and other temperatures. As well as Oil, Fuel, Manifold Pressure, Gyro Vacuum, R.P.M, and fuel flow, Bus voltage and Amps.

M	Description	Part N	Pri
UBG-16-4M	4-Cylinder Package. Includes 4 EGT probes, 4 CHT probes, 12 ea 6' harnesses and Data Recorder (MU -8A)	10-00593	.
UBG-16-6M	6-Cylinder Package. Includes 6 EGT probes, 6 CHT probes, 12 ea 6' harnesses, and Data Recorder (MU -8A)	10-00594	.
EGView	Software for analyzing downloaded software	10-01219	.

E.I. DIGITAL/GRAPHIC INSTRUMENTS

These Digital/Graphic Instruments are solid state and hold their accuracy over time and a range of environmental conditions. The colorful Graphic Analog display emits green, yellow, or red lights enabling the pilot to spot problems immediately without interpreting a needle. Gauges mount in 2-1/4" instrument holes.



TACHOMETER - R-1, TACHOMETER: STCd, PMA'd and TSO'd as PRIMAR REPLACEMENT. Features a 210 degree graphic analog display with green, yellow, and red LEDs. Accurate 10 RPM resolution digital display. Flight Timer. Tach Timer. Peak RPM Recorder. Automatic Mag Drop Calculation. Connects to both "P" leads through isolators (no magnetic pick-ups required). 2 1/4" Mount. 3.65" Depth. 10 Oz. Unit. Superior sunlight viewability. Backlit. Operates from 7.5 to 30 volts .3 amps. Note: This instrument may come with labels on the faceplate rather than silkscreening, depending on you're a/c's required markings..

P/N 10-25200



OIL PRESSURE/TEMPERATURE - OPT-1, OIL TEMP/PRESSURE: STCd, PMAd and TSO'd as PRIMAR REPLACEMENT. OPT-1 features dual 90 degree graphic analog displays w/ green, yellow, and red LEDs. Accurate to 1 PSI and 1 F Resolution. External Oil Press and Temp Transducers (no oil in the cockpit). 2 1/4" Mount. 3.65" Depth. 22 Oz. Kit. Superior sunlight viewability. Backlit. Operates from 7.5 - 35 volts .3 amps. Note: This instrument may come with labels on the faceplate rather than silkscreening, depending on you're a/c's required markings.

P/N 10-25205



MANIFOLD PRESSURE - M-1, MANIFOLD PRESSURE: STCd, PMA'd & TSO'd as PRIMAR REPLACEMENT. 210 degree graphic analog display w/ green, yellow, and red LEDs. Accurate 1" Mercury Resolution digital display. Connects to std pressure line through 1/4" male flare union. 2 1/4" Mount. 3.65" Depth. 13 Oz. Unit. Viewable in direct sunlight. Backlit.. Operates from 7.5 to 30 volts .3 amps. Note: This instrument may come with labels on the faceplate rather than silkscreening, depending on you're a/c's required markings.

P/N 10-25210



VOLTS/AMPS - VA-1A, VOLTS/AMP. STCd, PMAd as PRIMAR REPLACEMENT. Internal Shunt. Discharge High Voltage Warning Lights. 100 amp capability. .1 volt & .1 amp 1% Resolution. Accuracy: 2 1/4" Mount. 2.5" Depth. 9 Oz. Unit. Viewable in direct sunlight. Backlit. Operates from 7.0 to 40 volts .1 amp.

P/N 10-00809VA-1A (internal shunt)

VA-1A-XX, VOLTS/AMP - STCd, PMAd as PRIMAR REPLACEMENT. (For use with External Shunt. Discharge and High Voltage Warning Lights. 100 amp capability (or order VA-1A-300 for 300-amp capability). .1 volt and .1 amp Resolution. Accuracy: 1%. 2 1/4" Mount. 2.5" Depth. 9 Oz. Unit. Superior sunlight viewability. Backlit. Operates from 7.0 to 40 volts .1 amp.

P/N 10-01378VA-1A-50 (S-50 external shunt)
P/N 10-01394VA-1A-300 (S-300 external shunt)
P/N 10-03207RSVA-3 Remote Switch

The UBG-16 input channels. Any of the following options can be added at any time. Each option uses 1 input channel unless otherwise noted.

M	Description	Part N	Pri
FM -FLOW -60	Flow Transducer Use w/ engine-driven fuel pumps up to 350 HP. 1/4" female NPT, .6-70 GPH, .6 PSI drop 30 GPH, 2.3 PSI drop 60 GPH	10-25343	.
FM -FLOW -90	TRANSDUCER For 350 to 550 HP engines or gravity-feed engines, 1/4" NPT, 2 to 125 GPH, .05 PSI drop 20 GPH, .2 PSI drop 40 GPH.	10-02208	.
FM-FP	Secondary Fuel Pressure Includes PT-30GA Pressure Transducer. (Can be used with The UBG-16 and also with the FP-5L (Fuel Flow/Pressure w/ GPS Interface instrument)	10-25337	.
FM-OP	Secondary Oil Pressure Includes PT-100GA Pressure Transducer. (For use with UBG-16 or FP-5(L).	10-25336	.
FM-RPM	Secondary RPM Connects directly to the Mag Switch. (For use with UBG-16 or FP-5(L)	10-25341	.
FM-VA	Secondary Volts/Amps w/S-50 Shunt Volts uses 1 input channel and Amps uses 1 input channel (i.e., monitoring volts and amps require the use of two of the UBG-16's input channels.	10-25342	.
FM-G RO	Gyro Vacuum Includes Pressure Transducer.	10-25339	.
FM-MP	Secondary Manifold Pressure Includes Pressure Transducer.	10-25338	.

ELECTRONICS INTERNATIONAL INSTRUMENTS



FP-5 FUEL FLOW + HORSEPOWER

Same amazing Fuel Flow/Horsepower Instrument as our FP-5L, but without GPS interface. Features: • HORSEPOWER to 1% hp • FLOW Displayed in Gallons, Pounds, Liters or British Gallons. • AUTOMATIC K-Factor Calibration for UNSURPASSED • ACCURACY. • FUEL USED Displays "Used for Flight" and "Used Since Fill Up" • FUEL REMAINING Displays fuel remaining to 1/10 gallon. • SCAN MODES Manual and Automatic. • RECURRING FUEL USED ALARM Pilot Programmable! • AU ILIAR Channel To monitor one of the following options: EGT, OAT, Carb Temp, Oil Temp, Manifold Pressure, Gyro Vacuum, RPM, Volts or Amps • Pilot Two LOW FUEL ALARMS Pilot Programmable! • TIME TO EMPTY automatically calculated and displayed. Specs: 2-1/4" mount, 3.65" deep, 28 oz. pkg. Backlit. Superior Viewing in Sunlight. External Warning Line. Operates from 7.5 to 30 volts .3 amps.

Model	Description	Part No.	Pri
FP-5	Instrument Only FUEL FLOW w/ HP (instrument only, no transducers)	10-25300	
FP-5-60	FUEL FLOW w/ HP w/ FT-60 flow xdr, up to 350HP, engine-driven fuel pump	10-25304	
FP-5-90	FUEL FLOW w/ HP, w/ FT-90 Flow Transducer, for aircraft w/ 350-550 HP or without an engine-driven fuel pump	10-00260	
FP-5-180	FUEL FLOW w/ HP, includes HIGH FLOW Transducer (for aircraft w/ more than 550HP)	10-03208	



FP-5L FUEL FLOW, PRESSURE, HORSEPOWER AND GPS PMA & STC PRIMARY REPLACEMENT INSTRUMENT

Positively the best Fuel Flow/Horsepower Instrument there is Nothing else even comes close. The FP-5L's High-Powered Features include: • HORSEPOWER, to 1 percent hp. No other fuel gauge provides this! • FLOW, displayed in Gallons, Pounds, Liters or British Gallons. • AUTOMATIC K-Factor Calibration for UNSURPASSED ACCURACY. • FUEL DISPLAYS: "Used for Flight", "Used Since Fill Up", "MPG", "Fuel Required to", "Destination", "Fuel Remaining", "Time to Empty." • SCAN MODES: Manual and Automatic. • RECURRING FUEL USED ALARM Pilot Programmable. • 2 LOW FUEL ALARMS Pilot Programmable w/ Red Warning LED. • FUEL REMAINING displayed to 1/10 Gal. • AUTOMATICALLY CALCULATES AND DISPLAYS "Time to Empty", "Fuel Req to Dest", and "Fuel Reserve.". Displays Nautical and Statute Miles per Gallon. Multiple Data Outputs & Inputs, Handhelds & Panel Mounts. One-of-a-kind AU ILIAR Channel can be used to monitor an additional function (choose one):EGT, TIT, CHT, OAT, Carb Temp, Oil Temp, Cowl Temp, Fuel Pressure, Gyro Vacuum, Manifold Pressure, Volts or Amps. Specs: 2-1/4" mount, 3.65" deep, 28 oz. pkg. Backlit for Night Operation, Superior Sunlight Viewability, External Warning Line. Operates from 7.5 to 30 volts .3 amps.

Models	Description	Part No.	Pri
FP-5L	Fuel Flow w/ Horsepower & GPS input/output (instrument only, no transducers)	10-01217	
FP-5L-60	Fuel Flow w/ Horsepower & GPS input/output includes FT-60 Flow Transducer (for aircraft w/ up to 350 HP & an engine-driven fuel pump).	10-25310	
FP-5L-90	Fuel Flow w/ Horsepower & GPS input/output, includes FT-90 Flow Transducer	10-01045	
FP-5L-180	Fuel Flow w/ Horsepower & GPS input/output, includes FT-90 Flow Transducer	10-01050	

FP-5 & FP-5L AUXILIARY OPTIONS

Models	Description	Part No.	Pri
	The FP-5 & FP-5L feature an Auxiliary Channel. Any one of the following choices can be added to at any time.		
FFDM-1 w/ FT-60	FUEL FLOW Differential Module, for aircraft with a Pressure Carburetor. Includes FT-60 or FT-90 Flow Transducer to measure the returned fuel. Please specify FT-60 or FT-90. DOES NOT use up the FP-5's Auxiliary channel.	10-25325	
FFDM-1 w/ FT-90	FUEL FLOW Differential Module, for aircraft with a Pressure Carburetor. Includes FT-60 or FT-90 Flow Transducer to measure the returned fuel. Please specify FT-60 or FT-90. DOES NOT use up the FP-5's Auxiliary channel.	10-03190	
FM-Temp-P-110	EGT hose clamp probe and 6' cable. Compensates HP reading when leaning.	10-02188	
FM-Temp-P-128	OAT or CARB Temp probe (1/4"-28 thread) and 6' cable	10-02769	
FM-Temp-P-120	Secondary OIL Temp probe (5/8"-18 thread) and 6' cable	10-02770	
FM-Temp-P-111	Secondary TIT or OIL Temp probe (1/8" NPT ad ustable depth) and 6' cable	10-02765	
FM-Temp-P-112	Secondary TIT or OIL Temp probe (7/16-20 thread ad ust. depth) and 6' cable	10-02766	
FM-Temp-P-114	Secondary TIT or OIL Temp probe (1/4" NPT ad ust. depth) and 6' cable	10-02767	
FM-OP	Secondary OIL PRESSURE. Includes PT-100GA Pressure Transducer	10-25336	
FM-FP	Secondary Fuel Pressure. Includes PT-30GA Pressure Transducer	10-25337	
FM-MP	Secondary Manifold Pressure. Includes Pressure Transducer	10-25338	
FM-RPM 6C	Secondary RPM. Connects directly to the Mag Switch	10-01786	
FM-Gyro	Gyro Vacuum. Includes Pressure Transducer	10-25339	
FM-VA	Secondary Volts or Amps (one or the other) w/ S-50 amp shunt.	10-25341	
AV-17	Voice Annunciator. Connects through the Audio Panel or Intercom. The 1"x1" control panel mounts on your instrument panel. The 4.1"x 2.6"x 1.7" control box mounts under the instrument panel. See all Annunciator Panels on our "Accessories" page.	10-00181	

E.I. INSTRUMENTS

The entire line of Electronics International digital instruments offers precise readings at exceptional prices. All gauges are accurate to 1%. They are FAA-approved under STC No. 1626NM. Furnished complete with all probes & leads.



Single-Engine:	Description	Part N	Pri
E-1	Single-Channel EGT or CHT, STCd, TSOD, PMA'd 2 1/4" Mount, 2.5" Depth, 12 Oz. Kit.	10-01355	
C-1	EGT or CHT, STCd, TSOD, PMA'd w/ Over-Temp Warning Light, 2 1/4" Mount, 2.5" Depth, 12 Oz.	10-01338	
T-1P	EGT, CHT or TIT, PRIMAR REPLACE-MENTS STCd, TSOD, PMA'd w/ Over-Temp Warning Light, 2 1/4" Mount, 2.5" Depth, 12 Oz.	10-01373	
E-1P	EGT, CHT or TIT, PRIMAR REPLACE-MENTS STCd, TSOD, PMA'd w/ Over-Temp Warning Light, 2 1/4" Mount, 2.5" Depth, 12 Oz.	10-02762	
C-1P	EGT, CHT or TIT, PRIMAR REPLACE-MENTS STCd, TSOD, PMA'd w/ Over-Temp Warning Light, 2 1/4" Mount, 2.5" Depth, 12 Oz.	10-01339	
EC-1	Switchable from EGT to CHT (1 of ea), STCd, TSOD & PMA'd. 2 1/4" Mount, 2.5" Depth, 16 oz	10-01358	
EAC-1	STCd, TSOD, PMA'd. - EGT/OAT/CHT Ice one Warning Light (from 10 to 39 degrees Celsius).	10-00806	
CA-1	STCd, TSOD, PMA'd - CARB TEMP/OAT w/ Ice one Warning Light. (from 10 to 39 degrees Celsius)	10-01351	
A-1	OAT w/ Ice one Warning Light, STCd, PMA'd, TSOD (light comes on between 10 and 39 degrees F).	10-01307	
E-4	EGT and CHT instruments, STCd, TSOD and PMA'd. Four Channels (EGT or CHT)	10-01356	
C-4	EGT and CHT instruments, STCd, TSOD and PMA'd. Four Channels (EGT or CHT)	10-01348	
E-6	EGT and CHT instruments, STCd, TSOD and PMA'd. Six Channels	10-01357	
C-6	EGT and CHT instruments, STCd, TSOD and PMA'd. Six Channels	10-01350	

Single-Engine:	Description	Part N	Pri
EC-1P	STCd/PMA'd/TSOD PRIMAR replacement Instruments w/ OverTemp Lights.	10-00807	
TC-1P	STCd/PMA'd/TSOD PRIMAR replacement Instruments w/ OverTemp Lights.	10-02736	
S - Orders for following instruments MUST specify type of probes: EGT hose clamp, TIT (hose clamp, 1/8" NPT, 1/4" NPT or 7/16 x 20). CHT, and OverTemp Limits.			
EE-1P	Dual Display EGT (1 L & 1 R), Over-Temp Lights, 3-1/8" mount	10-01447	
CC-1P	Dual Display CHT (1 L & 1 R), Over-Temp Lights, 3-1/8" mount	10-02735	
TT-1P	Dual Display TIT (1 L & 1 R), Over-Temp Lights, 3-1/8" mount	10-02733	
EC-1PT	Dual Display 1 EGT & 1 CHT w/ OverTemp Lights, 3-1/8" mount	10-02731	
TC-1PT	Dual Display 1 TIT & 1 CHT w/ OverTemp Lights, 3-1/8" mount	10-02732	
S - Not Primary Replacement Instruments, but STCd, PMA'd, TSOD. Same order requirements and specifications as above:			
E-2	(one display, switchable from left to right engine, either EGT or CHT)	10-00098	
C-2	(one display, switchable from EGT, L/R and CHT L/R).	10-01661	
EC-2	(one display, switchable from EGT, L/R and CHT L/R).	10-01359	

ELECTRONICS INTERNATIONAL INSTRUMENTS



MVP-50P GLASS PANEL ENGINE & SYSTEM MONITOR

MVP-50P is Certified Primary Replacement. 5.55" x 5.15" x 2.4" Deep Engine and System Monitoring: The MVP-50P replaces over 15 Engine Instruments and 50 Functions in a single, full color, enhanced TFT glass display instrument. It features excellent viewability, even in direct sunlight. The MVP-50 is an unrivaled Engine and Aircraft System Monitor with an easy-to-read and easy-to-use format. There are Pilot-Programmable colors, ranges and limits and a voice alarm for each instrument displayed. Its "System Page" displays trims, flaps, wheel status lights, many system parameters and annunciators. This is the most powerful engine and system analyzer on the market, featuring the following displays: Bar Graph (with Scan and Hottest Cylinder modes), Rich-of-Peak, Lean-of-Peak, Full Digital, Normalized and Differential. The MVP-50P's instant red and yellow visual warnings, as well as voice annunciators for all Programmed Limits, eliminate the need to constantly scan an entire panel for possible problems. In-Flight Data: The MVP-50P provides many "Flight Data Screens" to reduce cockpit clutter and pilot workload. Some of these screens are: Fuel Management, Timers, Clocks and Date, Weight and Balance, Data Recording, Custom Checklists (Start, Taxi, Run-up w/ Mag Drop, Take Off, Landing, Emergency and more), Custom Flight Plans, General Information (Aircraft Performance, Engine Diagnostics, VSI Lights,

Airspeed, VFR Minimums, Altitude Table, Light Gun Signals, Transponder Codes, Frequencies, Real-Time Out (providing telemetry for UAV racers, etc.), plus additional Screens, including: Flight Log, Max Data Log, Min Data Log and others. And it's easy to create your own Custom Screens and download them to the MVP-50P through its USB port. Compatible with OP Technologies and Chelton. EGView Charting Software is also available for use with the MVP-50P. Other Functions Included: Help Screen EGT & CHT Differentials Shockcooling Horsepower Weight & Balance Data and Graph GPS Interface and Data Fuel Efficiency Fuel Used for Trip Fuel Used Since Fill Up Time to Empty Distance to Empty Fuel Time and Distance to Way Point Fuel Reserve Time Reserve Distance Reserve Up and Down Timers Flight and Tach Timers Engine Hours Date Local and ulu Time Voice Warnings Data Recording; selectable .33 – 6 min., 665 hours 6 seconds

Part N.	Description	Part N.	Description	Part N.	Description
MVP-50P-4	4-Cylinder Pkg	MVP-50P-9	9-Cyl. Radial Pkg	MVP-50P-4-C	4 Cylinder Certified
MVP-50P-6	6-Cylinder Pkg	MVP-50P-12W	12-Cylinder Water-Cooled Pkg	MVP-50P-6-C	6 Cylinder Certified
MVP-50P-7	7-Cylinder Pkg	MVP-50P-4-FADEC	4-Cyl. Aerosance Pkg	MVP-50P-8-C	8 Cylinder Certified
MVP-50P-8	8-Cylinder Pkg	MVP-50P-6-FADEC	6-Cyl. Aerosance Pkg		
MVP-50P-8W	8-Cylinder Water-Cooled Pkg				

OPTIONAL OUTPUT INTERFACES AVAILABLE FOR MVP PKGS LISTED ABOVE

Models	Description	Part N.	Pri
-OPT	Allows the MVP to provide engine data to an OP Technologies unit.	10-03169	\$667.00
-RTDO	Real-Time Data Out. Can be used to provide telemetry for UAV's, racers and other applications.	10-03168	
ACCESSORIES FOR MVP PKGS			
EGView	EGView Charting Software. Use for analyzing and downloading data to the MVP-50P.	10-01219	
USB-64	USB Memory Stick. 64 MB or larger. Used to upload and download data to the MVP-50P.	10-03186	
CP-1-MVP	LED Intensity Control Pot. External pot used to control the display intensity.	10-03211	
EDC-33P-4/6	4/6 Cylinder Engine Data Converter. Adding a second EDC to the MVP allows. Additional pressures, annunciators and other functions to be monitored on the MVP (uses the Input Port 3 on the MVP).	10-03184	
MVP-50P Head Only	Display unit only. May be used to display parameters in a second location Display Only	10-01193	

TEMPERATURE PROBES FOR MVP-50P & MVP-50T

Models	Description	Part N.	Pri	Models	Description	Part N.	Pri
P-100-MVP	CHT probe, screw-in, 3/8"-24	10-03212		P-111-MVP	Std TIT probe, 1/8" NPT, .187" D	10-03222	
P-101MVP	CHT probe, Military Bayonet	10-03213		P-111-F-MVP	Fast Response TIT probe, 1/8" NPT, .187" D	10-03223	
A-101MVP	CHT Adaptor for P-101 Probe, 3/8"-24	10-03216		P-112-MVP	Std TIT probe, 7/16"-20, .187" D	10-03224	
P-102-18-MVP	CHT probe, 18mm gasket.	10-03214		P-114-MVP	Std TIT probe, " NPT, .187" D	10-03225	
P-102-14-MVP	CHT probe, 14mm gasket	10-03217		P-114-F-MVP	Fast Response TIT probe, " NPT, .125" D	10-03226	
P-102-12-MVP	CHT probe, 12mm gasket	10-03218		P-120-MVP	OIL Temp probe, 5/8"-18	10-03227	
P-102-3/8-MVP	CHT probe, 3/8" gasket, piggy-backs on a primary CHT probe	10-03219		P-128-MVP	OAT/Carb Temp probe, ".28	10-03228	
P-110-MVP	Std EGT/TIT probe, Hose Clamp Type, .187"D	10-03220		P-104-MVP	Universal Temp probe, #6 hole	10-03229	
P-110-F-MVP	Fast-Response EGT/TIT probe, Hose Clamp Type, .125"D	10-03221		XDS-6'	One 6 ft TC harness w/ crimped D-Sub pins. Use to interface any temperature Probe to the MVP system. Specify length at time of order.	10-03192	

PRESSURE TRANSDUCERS AND MODULES

(Each includes a Cbl-4D-6' harness when ordered w/ the MVP-50 & MVP-50T)

PT-30GA-MVP	Pressure Transducer, 0 to 40 PSI (see Accessories page for details)	10-03232	
PT-100GA-MVP	Pressure Transducer, 0 to 120 PSI (see Accessories page for details)	10-03233	
PT-300GA-MVP	Pressure Transducer, 0 to 300 PSI (see Accessories page for details)	10-03235	
PT-3000S-MVP	Pressure Transducer, 0 to 3000 PSI (see Accessories page for details)	10-03236	
PT-30ABS-MVP	Absolute Pressure Transducer, 0 to 36 In Hg (Manifold Press or Cabin Altitude)	10-03238	
PT-30ALT-MVP	Altitude Transducer	10-03239	
PT-60ABS-MVP	Absolute Pressure Transducer, 0 to 70 In Hg (Manifold Pressure)	10-03240	
PT-05Diff-MVP	Differential Pressure Transducer, 0 to 60 In Hg (Vac Pressure or Cabin Diff Pressure)	10-03241	
PT-04H20-MVP	Differential Pressure Transducer, 0 to 5 In H20	10-03242	
FM-PR-MVP	Allows an EDC temperature channel to measure a pressure (operates w/ any EI MVP Pressure Transducer). Pressure transducer sold separately.	10-03204	
DPIM-1-30-MVP	Differential Pressure Interface Module for aircraft that require fuel pressure to be Measured in reference to the upper deck. Includes a PT-30GA pressure transducer to measure the upper deck pressure.	10-03205	
Cbl-4D-6'	One 6' 4-wire cable with crimped D-Sub pins. Used to interface any pressure transducer, fuel flow transducer or fuel level probe to the MVP system. Add .95 per foot to the price for anything over the standard 6' length.	10-03183	

FUEL FLOW TRANSDUCERS AND MODULES

FT-60	Fuel Flow Transducer (Red Cube), .6 to 70 GPH	10-01196	
FT-90	Fuel Flow Transducer (Gold Cube), 3 to 125 GPH	10-01224	
FT-180	Fuel Flow Transducer (Black Cube), 5 to 250 GPH	10-01197	
FFDM-1-MVP-FT60	Fuel Flow Differential Module for aircraft w/ a pressure carburetor. Includes FT-60 or FT-90 transducer to measure the returned fuel. Please specify FT-60 or FT-90 at time of your order.	10-03244	
FFDM-1-MVP-FT90		10-03245	
FM-Flow-P	Measures Fuel Flow from a pulsed in-ector signal.	10-03206	

FUEL LEVEL PROBES AND MODULES

RFLM-4-12	Resistive Fuel Level Module. Must be used w/ EI's "EDC" to measure	10-02772	
RFLM-4--24	up to 4 Resistive Fuel Level Sensors.	10-03231	
P-300C	3/4" Capacitive Fuel Level Probe w/ Accessories. (see our Accessories Page for details.) Specify Probe length at time of order	10-00382	
P-300C-Mini-1/8"	3/16" Capacitive Fuel Level Probe (see our Accessories Page for details)	10-03193	
P-300C-Mini-1/4"		10-03194	

VOLTS AND AMPS MODULES AND SHUNTS

FM-VA-MVP-50	Volts/Amps Module. Allows any temperature or pressure channel on	10-03247	
FM-VA-MVP-300	EI's EDC to measure Voltage and Current on a separate bus. Comes w/ an S-50 or S-300 shunt.	10-03248	

MVP SCREEN ANNUNCIATOR INTERFACE UNITS

VI-221	Voltage Interface Unit. Allows any temperature or fuel level channel on our EDC to measure the output voltage of any device. This voltage measurement can then be used to drive an annunciator (Canopy Latch, Gear Lights, Baggage Door, etc.) that will be displayed on the MVP screen.	10-03187	
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ELECTRONICS INTERNATIONAL INSTRUMENTS



ELECTRONICS INTERNATIONAL PANEL PACKAGES

PACKAGE A - Includes: 1. US-8: All EGT's, all CHT's, OAT, carb. Temp, 16 programmable upper limits, 16 programmable lower limits, 2 programmable differential limits and a programmable shock-cooling limit. 2. FP-5: Fuel flow, Rem, used time to empty, fuel pressure, 2 programmable low fuel limits, 1 programmable time to empty limit, programmable high and low pressure limits, programmable K factor, programmable fuel weight and programmable display for gallons or pounds. 3. R-1: RPM w/high warning, tach time and flight time. 4. M-1: Manifold pressure to .1" Hg. w/high warning. 5. OPT-1: Oil pressure and oil temperature w/high and low warnings. 6. VA-1A: Volts and amps with discharge and high voltage warnings. • Total pkg will fit in a 5" x 7.5" space with no external boxes. • Includes all probes, 6' cables, transducers, accessories and a free LED front panel intensity control pot. LL S L S

PACKAGE B - Includes: 1. EAC-1: One channel of EGT, CHT and OAT. The EGT and CHT may be upgraded to an analyzer with the addition of a remote switch. 2. FP-5: Fuel flow, Rem, used, time to empty, fuel pressure, 2 programmable low fuel limits, 1 programmable time to empty limit, programmable high and low pressure limits, programmable K factor, programmable fuel weight and programmable display for gallons or pounds. 3. R-1: RPM w/high warning, tach time and flight time. 4. M-1: Manifold pressure to .1" Hg. w/high warning. 5. OPT-1: Oil pressure and oil temperature w/high and low warnings. 6. VA-1A: Volts and amps with discharge and high voltage warnings. • Total pkg will fit in a 5" x 7.5" space with no external boxes. • Includes all probes, 6' cables, transducers, accessories & a free LED front panel intensity control pot. LL S L S



SUPER CLOC INSTRUMENTS

ASC-5A - Displays Local & ulu Time in 12 or 24 hr format, Up & Down Timers w/ alarms, Altitude (as seen by ATC), and OAT. Several programmable alarms, including Assigned Altitude, Level Off, Deviation Alarm and an Approach Alarm a recurring alarm to alert you at a programmable interval, for checking fuel. P/N 10-02914

SC-5 - Displays Local (12 or 24-hour format) & ulu Time. 10-year Lithium battery keeps the clock running even if the a/c battery is removed. Displays an Up Timer, which starts running when the engine is started, stopped or reset. Recurring Alarm may be set to alert you at appropriate time intervals, e.g., if set for 30 minutes, there will be an alarm at 30 minutes, 60 minutes, 90 minutes, etc. Alarm can be used as a reminder to check fuel level or switch tanks at set time intervals. P/N 10-01612



FUEL LEVEL INSTRUMENTS

For TC holders, STC holders or Experimental Aircraft No STCs. FL-1CA Fuel Level Instrument . The FL-1CA is to be used w/ EI's P-300C Capacitive Fuel Probe (custom order probe length from 6" to 20"). The FL-1CA features a 210 degree Arc of LEDs for an excellent "field of vision" reference and a Digital Display. Can display in gallons (one or one-half gallon increments), pounds or liters. Specifications: 2 1/4" Mount, 3.65" Depth, 10 Oz. Unit, Viewable in direct sunlight and Backlit for night operations.

Model	Description	Part No.	Pri
FL-1CA	The FL-1CA is to be used w/ EI's P-300C capacitive fuel probe (order from 6" to 20" long). 210 degree LED arc a digital display. Can display in gallons (one or one-half gallon increments), pounds or liters. Specifications: 2 1/4" Mount, 3.65" Depth, 10 Oz. Unit, Viewable in direct sunlight and Backlit for night operations.	10-00386	.
FL-1RA-12/24	The FL-2RA-12 designed to be used on a 12-volt system w/ resistive fuel probes. Features a 210 degree LED arc a digital display. Max resistance between 90-270 ohms. Can display in gallons (one or one-half gallon increments), pounds or liters. Specifications: 2 1/4" Mount, 3.65" Depth, 10 Oz. Unit, Viewable in direct sunlight and Backlit.	12V	.
		24V	.
FL-2CA	The FL-2 is a fuel level instrument featuring dual 90 degree LED arcs a digital display. The FL-2 can display in gallons (one or one-half gallon increments), pounds or liters. Specifications: 2 1/4" Mount, 3.65" Depth, 10 Oz. Unit, Viewable in direct sunlight, Backlit, Operates from 7.5 to 35 volts at .3 amps.	11-03788	.
FL-2RA-12/24	The FL-2 is a fuel level instrument featuring dual 90 degree LED analog displays and a digital display. The FL-2 can display in gallons (one or one-half gallon increments), pounds or liters. Specifications: 2 1/4" Mount, 3.65" Depth, 10 Oz. Unit, Viewable in direct sunlight, Backlit, Operates from 7.5 to 35 volts at .3 amps.	11-03789	.
FL-2RA-24	The FL-2 is a fuel level instrument featuring dual 90 degree LED analog displays and a digital display. The FL-2 can display in gallons (one or one-half gallon increments), pounds or liters. Specifications: 2 1/4" Mount, 3.65" Depth, 10 Oz. Unit, Viewable in direct sunlight, Backlit, Operates from 7.5 to 35 volts at .3 amps. Please specify 12/24 volt at the time of order.	11-07104	.



MVP-50T GLASS PANEL MULTI-FUNCTION DISPLAY

Replaces 15 engine gauges and 50 functions. Remarkable full-color, enhanced TFT Glass Display (excellent viewability, even in direct sunlight) Pilot-Programmable Colors, Range Markings, Limits and Voice Alarms (for each parameter monitored) "System Page" to display Trims, Flaps, Wheel Status Lights, and many other system parameters and annunciators. 27 Pilot-Customized Annunciators at the top of the "Main Page". Fuel Management, Timers, Clocks, Date, Weight & Balance. Data Recording (.33 - 6 min, 665 hours - 6 seconds). Pilot-Customized Checklists and Flight Plans. General Info, Flight Log, Start Log, Max & Min Data. Pilot easily can generate Custom Screens and download them to the MVP-50P through the USB port. Help Screen, GPS Interface and Data, Fuel Efficiency, Fuel Used for the Trip, Fuel Used Since Fill Up, Time to Empty, Distance to Empty, Fuel to Way Point, Time to Way Point, Distance to Way Point, Fuel Reserve, Time Reserve, Distance Reserve, Up Timer, Down Timer, Flight Timer, Engine Hours, Cycles, Date, Local and ulu Time. Other functions, such as Fuel Level, Gyro Vac, Hydraulic Pressure, etc., may be added by purchasing an appropriate probe & harness, or transducer, etc. See our Accessories, "Probes and Transducers" section on previous page. Using your current Resistive Fuel probes require our FFLM-4- to interface with the MVP-50T System. Torque, Oil Pressure & Temperature, Fuel Flow & Pressure, OAT, Amps, Volts, Multiple Fuel Screens, Pre-wired Harness, N1 and N2 hookups. Includes EDC (Engine Data Converter), cables and harnesses, transducers, shunt (for amps), USB Download/Upload Memory Stick, and our AV-17CP (Voice Warning Control Panel). Only 5.55"x 5.15"x 2.4" deep

Models	Description	Part No.	Pri
MVP-50T-PT6	Pratt & Whitney PT-6 Turboprop Pkg	10-03160	.
MVP-50T-W	Walters Engine Turboprop Pkg	10-03161	.
MVP-50T-G	Garrett Turboprop Pkg	10-03162	.
MVP-50T-L	Lycoming Turboprop Pkg	10-03163	.
MVP-50T-A	Allison Turboprop Pkg	10-03164	.
MVP-50T-85	General Electric 85 et Engine Pkg	10-03165	.
MVP-50T-L39	L39 Aircraft Pkg	10-03166	.
MVP-50T-W33	W 33 Aircraft Pkg	10-03201	.

OPTIONAL INTERFACES AVAILABLE FOR PKGS LISTED ABOVE

-OPT	Allows the MVP to provide Engine Data to an OP Technologies unit.	10-03169	\$667.00
-RTDO	Real-Time Data Out. Can be used to provide Telemetry Data for UAV's, racers and other applications.	10-03168	.

ACCESSORIES

USB-64	USB Memory Stick, 64 MB or larger. Used to upload & download data to the MVP.	10-03186	.
CP-1-MVP	LED Intensity Control Pot. External pot used to control the display intensity.	10-03211	.
EDC-33T	Turboprop/ et Engine Data Converter. Adding this second EDC to the MVP allows monitoring of additional temperatures, pressures, annunciators and other functions.	10-03185	.
MVP-50T Display Head	May be used to display parameters in a second location. (display only)	10-03202	\$3,550.00

INSTRUMENTS FOR TURBOPROP AIRCRAFT



Model	Description	Part No.	Pri
R-1-N1	RPM INSTRUMENT, TSOD, PMAd (no STCs). Digital 1% Resolution Display 210 degree LED arc display with green, yellow and red LEDs. 2 1/4" Mount, 3.65" Depth, 10 Oz. Viewable in direct sunlight, Backlit. Operates from 7.5 to 30 volts .3 amps.	10-03249	.
R-1-N2	RPM Instrument displayed in RPM. TSOD, PMAd (no STCs). Digital 10 RPM Resolution Display 210 degree LED arc display with green, yellow and red LEDs. 2-1/4" Mount, 3.65" Depth.	10-03264	.
M-1T	PRESSURE OR TOR UE INSTRUMENT, TSOD, PMAd (no STCs). 1 PSI or 1% Resolution 210 degree LED arc display with green, yellow and red LEDs. 2 1/4" Mount, 3.65" Depth, 10 Oz. Instrument. Backlit.	10-03265	.
M-1-ITT	INERT-Turbine Temperature Instrument IN Celsius. TSOD/PMAd (no STCs). Digital display (1 degree C resolution) 210 degree LED arc with green, yellow and red LEDs. 2 1/4" Mount, 3.65" Depth, 10 Oz.	10-03266	.
M-1-TOT	Turbine Outlet Temperature INC. TSOD/PMAd (no STCs).	10-03267	.
OPT-1-FV-60	AC BUS VOLTAGE & FRE UENC , TSOD/PMAd (no STCs). The "-60" instrument is for a 60 Hz. bus and the "-400" instrument is for a 400 Hz. bus. Accurate Digital Display can be switched between Voltage and Frequency, displays in Volts and Hz. 2 1/4" Mount, 3.65" Depth, 10 Oz. Instrument	10-03268	.
OPT-1-FV-400	AC BUS VOLTAGE & FRE UENC , TSOD/PMAd (no STCs). The "-60" instrument is for a 60 Hz. bus and the "-400" instrument is for a 400 Hz. bus. Accurate Digital Display can be switched between Voltage and Frequency, displays in Volts and Hz. 2 1/4" Mount, 3.65" Depth, 10 Oz. Instrument	10-03269	.

ELECTRONICS INTERNATIONAL ACCESSORIES

AP-7H OR AP-7V LED ANNUNCIATOR PANEL



(H Horizontal Mount V Vertical Mount) When mounted in front of the pilot, the AV-7 Annunciator Panel's bright red LEDs give a quick warning of any out-of-limit condition. Can be connected to these E.I. instruments: US-8A or SR-8A, FP-5(L) and/or FL-2, R-1, M-1, and OPT-1. A control switch will dim or turn off the warning LEDs. Simple to install (requires only 8 ea. 1/2" holes to mount). Connect to a small 3" x 2" x 1" Control Box tie wrapped to a wire bundle under the instrument panel. Size: 5.3" x .9", 10 Oz. Kit, Operates on a 12 or 24-volt system. Includes: Annunciator Panel, Control Box and all wires and connectors.

Vertical.....P/N 10-03288
Horizontal (Pictured)...P/N 10-03289

AL-1(X) CHROME ANNUNCIATOR LIGHT



() "R" for Red, " " for Yellow, "B" for Blue, "G" for Green or "O" for Orange. The AL-1 makes an excellent indicator light for displaying boost pump on, gear status, power on, flags, etc. Also, it can be used as a remote warning light for any E.I. instrument featuring an external warning line. The AL-1 is more attractive, operates on less power and is smaller than old-fashioned indicator lights.

The AL-1 has a service life of over 1000 times that of incandescent bulbs. Mounts in a 5/16" hole. Size: .4" diameter x 1" depth. Operates on a 12 or 24-volt system. Comes with 32" leads.

P/N 10-03291



AV-17 VOICE ANNUNCIATOR

The AV-17 can provide up to 17 verbal warnings through your headset, ending the need to constantly scan the instrument panel. Eliminate concern about missing an alarm at a critical moment. The instant a monitored alarm occurs, the Voice Annunciator will chime in the headset and a pleasant female voice will announce a phrase, such as: "Check Oil Pressure," or "Check Altitude," etc. The AV-17's voice alarm in the headset provides an instant and clear understanding of what's going on in the cockpit without the hassle of having to scan instruments, decipher functions, interpret readings or translate numerous bells, buzzes or beeps. The AV-17 connects to the headset through the Audio Panel or Intercom or may be connected directly to the headset. The AV-17 receives most of its warning signals from any one or more of Electronics International's instruments which feature a warning light. However, other alarm inputs can be received from any warning device that drives a horn or light. It is not necessary to activate all 17 of the AV-17's warnings. A "Check Bus Voltage" warning is built into each AV-17. Further voice alarms can be activated as EI instruments are added to the panel. The AV-17 is compact. A 4.1" x 2.6 x 1.7" Control Box tie wraps under the instrument panel. A 1" x 1" Control Panel mounts on the aircraft instrument panel. The Control Panel allows you to turn the Voice Annunciator on or off, and allows you to acknowledge, and thereby deactivate, any active alarm for either 1 minute or 10 minutes. The AV-17 voice alarms are activated by pulling the appropriate control line to ground (0 volts).

AVI-1 MODULE - This Module allows a positive voltage to activate one AV-17 control line. Use with the AV-17 when utilizing inputs from gauges other than Electronics International's.

AV-17.....P/N 10-00181
AVI-1.....P/N 10-03292

FIELD TEST DEVICES

Models	Description	Part N	Pri
FCD-T	Outputs a calibrated temperature signal. May be used to test any E.I. temperature instrument (approximately 1400°F).	10-03294	.
FCD-FF	Outputs a variable fuel flow signal.	10-03295	.
FCD-FP	Outputs a variable fuel pressure signal (0 to 50 PSI).	10-03296	.
FCD-OP	Outputs a variable oil pressure signal (0 to 100 PSI).	10-03297	.
FCD-RPM	Outputs a variable RPM signal (800 to 2800 RPM).	10-03298	.
FCD-AMP	Outputs a 50mV signal. Used to test the VA-1A- Volt/Amp instrument.	10-03301	.
FCD-CFL	Outputs a variable capacitive fuel level signal.	10-03302	.
FCD-RFL	Outputs a variable resistive (0-250 ohms) fuel level signal.	10-03303	.

REMOTE SWITCHES

A remote switch may be used to upgrade many single-channel E.I. instruments to multi-channel EGT and/or CHT engine analyzers. This is an excellent way to insure your engine is operating properly. Specifications for all switches: Body - 1"x 1"x 1.5" depth, front panel - 2"x 1.15", STC'd / PMA'd



RS-4-1S - Upgrades any unit to read four channels of EGT or CHT, Package includes: Unit, (3) 6' cables, (3) probes. Specify probe type with order.

P/N 11-01688

RS-4-2S - Upgrades any two channel unit to read four channels of EGT and CHT, Package includes: Unit, (6) 6' cables, (3) EGT probes, (3) CHT probes

P/N 11-01689



RS-6-1S - Upgrades any unit to read six channels of EGT or CHT, Package includes: Unit, (5) 6' cables, (5) probes. Specify probe type with order.

P/N 11-01690

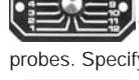
RS-6-2S - Upgrades any 2 channel unit to read six channels of EGT and CHT, Package includes: Unit, (10) 6' cables, (5) EGT probes, (5) CHT probes

P/N 11-01691



RS-8-1S - Upgrades any unit to read eight channels of EGT or CHT, Package includes: Unit, (7) 6' cables, (7) probes. Specify probe type with order.

P/N 11-01692



RS-12-1S - Upgrades any unit to read 12 channels of EGT or CHT, Package includes: Unit, (11) 6' cables, (11) probes. Specify probe type with order.

P/N 11-01693



PRIMARY REMOTE SWITCHES

REMOTE SWITCHES for use w/ EI 1 or 2 channel EGT/CHT instruments. STC'd, PMAd Electronics International gauges are available to replace your Primary Engine Instruments. Available for single and twin engine applications.

RS-5-1PS - Upgrades any primary TIT/CHT unit to read 4 channels of EGT or CHT, Package includes: Unit, (4) 6' cables, (4) probes. 15 oz. kit Specify probe type with order.

P/N 11-01694

RS-5-2PS - Upgrades any primary TIT/CHT unit to read 4 channels of EGT and CHT, Package includes: Unit, (8) 6' cables, (4) EGT probes, (4) CHT probes. 2.2 lb. kit

P/N 11-01695

RS-7-1PS - Upgrades any primary TIT/CHT unit to read 6 channels of EGT or CHT, Package includes: Unit, (6) 6' cables, (6) probes. 27 oz. kit. Specify probe type with order.

P/N 11-01696



RS-7-2PS - Upgrades any primary TIT/CHT unit to read 6 channels of EGT and CHT, Package includes: Unit, (12) 6' cables, (6) EGT probes, (6) CHT probes. 3.2 lb. kit

P/N 11-01697

PROBES

P-100 CHT Probe screw-in type, Standard with most kits. Can be used in a pressure environment. 700 F max.

P/N 10-00808

P101 - CHT Probe Military Bayonet type, 1/4 turn locking for quick removal. To be used with the A-101 adaptor. 700 F max.

P/N 10-00438

A101 - CHT Adaptor 3/8" - 24, to be used with the P-101 CHT probe.

P/N 10-00374

P-102 - CHT Probe Gasket type, 18mm, 700 F maximum.

P/N 10-01368

P-110 - EGT/TIT Probe Hose clamp type, used with 13/64" hole. Standard with most kits. Weight: 1.6 oz.

P/N 10-01591

FAST RESPONSE P-110 - EGT/TIT Probe Hose clamp type, used with .130" hole. Optional with most kits. Weight: 1.6 oz.

P/N 10-00376

Probe only.....P/N 10-00377

Probe w/6' cable.....P/N 10-00377

P-111 - TIT Probe 1/8" NPT with ad unstable depth. (with cable) P/N 10-25235

P-112 - TIT Probe 7/16"-20, with ad unstable depth. (without cable) P/N 10-00378

P-114 - TIT Probe 1/4" NPT with ad unstable depth. (without cable) P/N 10-00379

P-120 - Oil Temp. Probe Can be used in a pressure environment, 700 F max. P/N 10-25245

P-128 - OAT/Carb Temp. Probe uses a precision connector, can be used in a pressure environment, 700 F max. P/N 10-00301

P-104 - Universal Probe Used to measure surface temperatures, 700 F max. P/N 10-00380

ENGINE MONITORS



GRAPHIC ENGINE MONITOR (SINGLE ENGINE)

Graphic Engine Monitor - STC'd Single Engine - Normally Aspirated 4 or 6 Cylinder. The GEM 602 is designed for use with all 4 or 6 cylinder piston engine aircraft. The instrument graphically displays up to 12 critical engine temperatures in a single instrument in an easy-to-read bar-graph format on a brilliant plasma display. Displays up to 12 EGT, CHT temperatures. Lean Mode: is used during cruise to identify the leanest cylinder. Lean Mode can be entered at any time. The GEM's microprocessor analyzes EGT temperatures and indicates the leanest cylinder by blinking the appropriate column. Monitor Mode: each time that Monitor Mode is entered, the GEM microprocessor stores the EGT values into memory. Should any cylinder's EGT subsequently rise 50 F or more, the corresponding column will begin blinking to signal change in fuel flow or ignition. Test Mode: is designed into the GEM system should trouble be suspected. Entering the test Mode causes each bar column to stack up, a bar at a time, until fully illuminated, then blank. Each successive column until all six have been done. Automatic selection of the correct number of cylinders. Automatic intensity control for all lighting conditions. Whether you fly a home-built, war bird, or latest model aircraft, the GEM 602 provides a complete picture of EGT and CHT at a glance.

P/N	Model	Description	Price
10-18805	GEM603	Single Engine, 4 cyl., turbocharged	
10-18810	GEM603	Single Engine, 6 cyl., turbocharged	

GEM PROBES

GEM 602 Wire Harness P/N 10-03576
 #2870 EGT Probe a.
 #2852 CHT Spring Probe a.
 #2853 CHT Gasket Probe a.
 #2855 CHT Adapter Probe a.
 #2856 CHT Probe a.
 e h a p p e e h h e a d e d a p e



3 UNIVERSAL ENGINE MONITOR

The E3 universal engine monitor combines in one compact 2.25" format instrument all that is needed to monitor most smaller aircraft engines from two-stroke ultralight engines to medium sized four strokes such as from Rotax, Continental and Lycoming. Also most automotive engine conversions can benefit from the use of the E3 engine monitor. P/N 11-06442

INSIGHT G3 GRAPHIC ENGINE MONITOR



Normally Aspirated or Turbo-Charged with SD Data Card for 4, 6 or 9 Cylinder. Combines all the ergonomic advantages of the original GEM 602/603/610 with greatly enhanced capabilities including: Features: • Bright bold LCD color display with many screens, and dozens of new functions • 100 times the power of the previous generation • 100 thousand times the data log space (Never run out of space) • Engine vibration measurement and analysis • Specialized analysis for propeller balance, turbulence and even landing shock • Integrates, logs data from G3, TAS Air Data and GPS for the complete picture • SD Card stores all engine, air, winds aloft and fuel data (No more lost data) • Entire aircraft life history directly on SD card in PC compatible form • Specific functionality for safe Lean of Peak operation with no detonation • Oil Temperature and Pressure • Manifold Pressure, Fuel Flow and RPM • OAT • Carburetor and Alternator Temperature • Fully compatible with GEM 602, 603 and 610 Installations (Easy Upgrade) • Buss Voltage
 G3 Systems (4 Cylinder) P/N 10-03195
 G3 Systems (6 Cylinder) P/N 10-03196
 4 Cylinder Upgrade P/N 10-03198
 6 Cylinder Upgrade P/N 10-03197



INSIGHT TRUE FLOW 500

A new concept in fuel flow computers, True Flow 500 is designed to give pilots a simple and efficient way of reading fuel information directly on the GPS fuel pages. Eliminates tedious installation and set-up procedure and set-up procedures that are required for other fuel flow computers. Install True Flow 500 on top of the engine and connect fuel lines, GPS power, ground and RS232 R input. Works on fuel injected or carbureted engines, but not on carbureted engines with a fuel return line. Many other STC's for installation on certificated aircraft. P/N 11-01913

GEMINI 1200 SYSTEM (TWIN ENGINE)



Graphic Engine Monitor - TC & FAA PRIMAR STC PENDING
 Twin Engine - Normally Aspirated or Turbo-Charged with Data logging for 2, 4, 6, 7, 8 and 9 Cylinder. Designed for twins, the GEMINI 1200 has all of the same advanced features as the GEM 610.

ALL NEW 1200 UNITS ARE FACTOR CALIBRATED.
 Features: • Display up to 30 temperatures. • IAT Temperature. • Side-by-side display of Left/Right or Front/Rear Engines. • 4 digit readout of any EGT, CHT, TIT, OAT and IAT.

P.N	M	Description	Pri
10-18815	GEMINI	Twin Engine, 4 cyl., normal asp.	
10-18820	GEMINI	Twin engine, 6 cyl., normal asp.	
10-18825	GEMINI	Twin Engine, 4 cyl., turbo (1T)	
10-18830	GEMINI	Twin Engine, 4 cyl., turbo (2T)	
10-18835	GEMINI	Twin Engine, 6 cyl., turbo (1T)	
10-18840	GEMINI	Twin Engine, 6 cyl., turbo (2T)	
10-02142	1200-021	Insight OAT Probe	



GEM-610 SYSTEMS

Graphic Engine Monitor - TC & FAA PRIMAR STC PENDING Single Engine - Normally Aspirated or Turbo-Charged with Data logging for 4 or 6 Cylinder. ALL NEW GEM 610 UNITS ARE FACTOR CALIBRATED. Features: • Selectable Fahrenheit/Celsius Temperatures.

• Normalization Mode: allows easy observation of any change in EGT during cruise flight. The GEM will memorize current EGT indications and electronically adjust bar graph display to align all EGT columns with the "Reference Asterisk". Any change in EGT will instantly be obvious. • Lean Mode: is used during cruise to identify the leanest cylinder. Lean Mode can be entered at any time. The GEM's microprocessor analyzes EGT temperatures and indicates the leanest cylinder by blinking the appropriate column. • Monitor Mode: GEM continuously indicates actual EGT pattern in optimum resolution. Real CHT shown for each cylinder. • Trend Indicators. • OAT Sensing. • Dual TIT Annunciators. • Soft Hobbs Meter/Clock Calendar. • Automatic Data Logging of Vital Engine Temperatures into non-volatile memory. • Wireless Infrared Interface • Software configurable. • Back-lit CHT scale. • Automatic self-test at start-up. • More than a decade after the GEM revolutionized engine monitoring, GEM 610 is "The Next Generation" in engine monitoring and diagnostic systems. Specifications: • Size: 2-1/4" panel mount. • Weight installed is 3 lbs. • Power: 10-30VDC.

Single Engine 4-cyl. GEM-610 P/N 10-18845
 Single Engine 6-cyl. GEM-610 P/N 10-18846
 Single Engine 4-cyl. turbo GEM-610 P/N 10-18805
 Single Engine 6-cyl. turbo GEM-610 P/N 10-18810

P. INSTRUMENTS FUEL SCAN -450



Provides continuous display of fuel burned in gal/hour (liter and lbs. available on special order). Also provides total fuel used, fuel remaining, endurance in hours and minutes, fuel re-quired to next waypoint, fuel reserve at next waypoint, and nautical miles/gal. Fuel Scan 450 indicates which function is being displayed in lower display. Auto button starts an automatic scan of the functions. Step button can index info forward or backward. Will mate with an old Shadin or Hoskins system, and will talk to a panel mount or handheld GPS. Fits in standard 2.25" instrument hole and weighs only 5oz. Depth: 1.5". Complete with instrument harness and a Flow Scan 201 or 231 transducer. Ideal for experimental aircraft. FuelScan 450 is FAA approved for certified aircraft. This comes with a Fuel Pump Transducer. The Components Included with FS450: • FS 450 unit • 450 Fuel Flow Harness • Aeroquip Red Firesleeve • 201 Xducer • Install Manual with Pilots Guide, STC, and FMS

FS 450 Scanner Fuel Pump P/N 10-00135
 Fuel Scan 450 Gravity Fed P/N 10-00134
 FS-450R Fuel Scan Rotax (2 Transducers for aircraft with return fuel line) P/N 10-00266
 FS450-M Twin Engine P/N 10-00735
 FS-450M-3 3-1/8" Twin Engine P/N 10-03692



EDM 711

Primary version of EDM 700/800 system to replace original engine gauges. FAA approved. 700/800 one function included. Primary options are TIT oil Temperature, and CHT.

EDM711-4C (configured as 700) P/N 10-00641
 EDM711-6C (configured as 700) P/N 10-00642
 EDM711-4C (configured as 800) P/N 10-00643
 EDM711-6C (configured as 800) P/N 10-03858
 Add primary functions to EDM711 P/N 10-00647
 Add Fuel Flow to EDM711 P/N 10-00650

ENGINE SCANNERS

J.P. INSTRUMENTS EDM-700 DIGITAL AND ANALOG EGT/CHT SCANNERS



All pilots know that to run their engines at peak performance means maximum efficiency. Maximum efficiency translates to substantial savings in fuel burned and engine maintenance. PI's EDM-700 assures pilots of ease of use and accuracy. The EDM-700 includes: Computer assisted diagnostics for troubleshooting the entire system, 2-1/4" panel mount, Normalize mode, Graphics resolution, Automatically finds the first EGT to peak, display of OIL, OAT, IAT, CDT, voltage, shock cooling of two TIT's, one degree temperature resolution, selectable C or F, all functions have Hi/Lo pilot programmable limits, supplied with PI's well known, grounded, fast response probes, TSO quality, FAA TSO/STC approved, 3 year warranty. All probes, harness, and hardware included. - All EDM-700 and EDM-760 systems come with data recording and provide long term trend monitoring for maintaining ultimate engine health. Data Recording capability records and stores all displayed parameters and, at a later time, transfer the info to a palmtop or laptop PC. Retrieve all the data stored in the EDM-700 and 760 or only the new data recorded since your last retrieval. In either case, no data is erased in the EDM unit. PC program supplied with the unit will graph the data for display and use by other programs, such as MS Excel or Lotus 123. EDM-700 or 760 Data Recording contains a date and time clock. You may also program an aircraft ID, such as your aircraft registration no. or your name that will appear in the output data file.

EDM SINGLE ENGINE SYSTEMS

Description	Part N .	Pri
EDM-700-4C 2-1/4" (No Fuel Flow)	10-00262	.
EDM-700-4C 3-1/8" (No Fuel Flow)	10-02008	.
EDM 700-4C with Fuel Flow 201 2-1/4" (Fuel Pump)	10-00263	.
EDM-700-4C with Fuel Flow 201 3-1/8" (Fuel Pump)	10-02009	.
EDM 700-4C with Fuel Flow 231 2-1/4" (Gravity Fed)	10-02845	.
EDM 700-4C with Fuel Flow 231 3-1/8" (Gravity Fed)	10-02849	.
EDM-700-6C 2-1/4" (No Fuel Flow)	10-00264	.
EDM-700-6C 3-1/8" (No Fuel Flow)	10-02012	.
EDM 700-6C with Fuel Flow 201 2-1/4" (Fuel Pump)	10-00265	.
EDM 700-6C with Fuel Flow 201 3-1/8" (Fuel Pump)	10-02013	.
EDM 700-6C with Fuel Flow 231 2-1/4" (Gravity Fed)	10-02844	.
EDM 700-6C with Fuel Flow 231 3-1/8" (Gravity Fed)	10-02846	.
EDM-700-8C 2-1/4" (No Fuel Flow)	10-28095	.
EDM-700-8C 3-1/8" (No Fuel Flow)	10-02016	.
EDM 700-8C with Fuel Flow 201 2-1/4" (Fuel Pump)	10-02852	.
EDM 700-8C with Fuel Flow 201 3-1/8" (Fuel Pump)	10-02017	.
EDM 700-8C with Fuel Flow 231 2-1/4" (Gravity Fed)	10-02853	.
EDM 700-8C with Fuel Flow 231 3-1/8" (Gravity Fed)	10-02841	.
EDM-700-9C 2-1/4" (No Fuel Flow)	10-28100	.
EDM-700-9C 3-1/8" (No Fuel Flow)	10-02018	.
EDM 700-9C with Fuel Flow 201 2-1/4" (Fuel Pump)	10-02861	.
EDM 700-9C with Fuel Flow 201 3-1/8" (Fuel Pump)	10-02019	.
EDM 700-9C with Fuel Flow 231 2-1/4" (Gravity Fed)	10-02862	.
EDM 700-9C with Fuel Flow 231 3-1/8" (Gravity Fed)	10-02842	.
Trade-in Price for EDM 700. Basic Gem, (Use old System wire harness and EGT/CHT/TIT Probes)	10-03611	.
Description	Part N .	Pri
EDM 700 Transducer (Fuel Pump)	10-27089	.
EDM 700 Transducer (Gravity)	10-27094	.
PI EDM RPM Option	10-01720	.
TIT, Turbine Inlet Temperature Probe and Sensor	10-27090	.
EDM-700/800/900 OAT Probe	10-27095	.
700/760/800 Oil Temperature Probe & Sender	10-27100	.
EDM 700 Induction Air Temperature Probe	10-02277	.
EDM 700 Compressor Discharge Temperature Probe	10-02278	.
EDM 700 IAT/CDT Induction Air & Compressor Temperature	10-27105	.
5050-T CHT Bayonet Probe	10-18500	.
M-113 CHT Gasket Probe	10-27093	.
PI Probe M113-3/8	10-03689	.
M-111 Replacement EGT Probe	10-00830	.
M-5050-A CHT Adaptor Probe	10-27092	.
EDM PC Interface Cable	10-27112	.
EDM HP Interface Cable	10-27111	.

BASIC EDM-760 TWIN ENGINE SYSTEMS

The value of Digital engine temperatures for precision engine monitoring is well documented. PI has merged the Analog and digital information into one gauge. The EDM-760 monitors 29 channels of information with 14 columns of analog information. All EDM's have a built in voltmeter monitoring high and low system voltage. All the enhancements found on the single engine EDM-700 are available in the Twin engine EDM-760, including: Digital display of OAT, TIT, OIL, CARB, IAT, CDT, and EGT/CHT, Shock Cooling displayed in degrees per minute with alarms, Normalize Mode levels the bar graph display for instant identification of engine trends during cruise, Automatically finds first cylinder to peak on each engine. EDM-760 is shipped complete including everything necessary for installation. The package contains quick response EGT probes, Bayonet CHT probes w/wiring harness, memory module, insulating sleeves, terminals w/mounting screws. Options like Oat, Oil & CDT/IAT are available and can be added later. 3 year warranty on electronics. Size: 3-1/8" display with 14 columns, installed weight 6 lbs. RS-232 Output port and 1 TIT function are included in the system.

Description	Part N .	Pri
EDM-760-6C 3-1/8" (No Fuel Flow)	10-28080	.
EDM-760-6C with Fuel Flow 201 3-1/8" (Fuel Pump)	10-00640	.
EDM-760-6C with Fuel Flow 231 3-1/8" (Gravity Fed)	10-02851	.
EDM-760-4C 3-1/8" (No Fuel Flow)	10-28085	.
EDM-760-4C with Fuel Flow 201 3-1/8" (Fuel Pump)	10-00639	.
EDM-760-4C with Fuel Flow 231 3-1/8" (Gravity Fed)	10-02847	.
ACCESSORIES		
Description	Part N .	Pri
EDM PC Interface Cable	10-27112	.
E Trends (Free with new instrument)	10-27113	.

S e h h d e e e h a d e a d e a h e p a d e a e d a

SLIM LINE DIGITAL ENGINE INSTRUMENTS BY J.P. INSTRUMENTS



These compact engine instruments from have a bright red display and feature central remote and individual alarms on all gauges. The gauges are easily stackable in a homebuilt aircraft panel, and come complete with sensors. Specify voltage. NOT FAA APPROVED.

- Features quartz crystal and accuracy of 1 RPM. Resolution is 10RPM and includes red line alarm. Specify engine and magneto models, number of cylinders, voltage, and red line. P/N 10-24900
- Features resolution of 0.1 inches mercury, accuracy of 0.1" Hg, solid state sensor, and over boost alarm. Range: 0-50" P/N 10-24910
- Features resolution of 1 and has range of -40 to 195 F. P/N 10-24940
- Features resolution of 1 and over temperature alarm of 235 F. P/N 10-24960
- Features resolution of 0.1 volts/amps and discharge alarm. P/N 10-24920
- gives readout in PSI and features resolution of 1 PSI and an under pressure alarm. P/N 10-24930
- Features resolution of 1 or 10 and a Hi-temperature alarm at 1650 F. P/N 10-24950
- Features Resolution of 1 PSI and under pressure alarm. P/N 10-24921
- gives readout in PSI and features resolution of 1 PSI and an under pressure alarm. P/N 10-24930
- Features Resolution of 1 PSI and under pressure alarm. P/N 10-24950
- Slimline In cted 10-32 PSI P/N 10-24970-30A
- Slimline Carb 1-8 PSI P/N 10-24970-30B

ENGINE SCANNERS — FUEL COMPUTERS

JPI EDM-730/830



The EDM-730/830 revolutionizes engine monitoring by the integration of brilliant full color graphical LCD display with the extremely popular EDM 700/800 series functionally and yet reduces the package size to the smallest on the market. The EDM-730 packs more features, functionality, and information onto its large full color screen than any other monitor available and features larger characters for easier reading. Oil pressure has also been added to the entire EDM series line. Mounting is a breeze due to its standard 3-1/8" format, and because it can be mounted in either portrait or landscape orientation, thus accommodating virtually any panel configuration. Depth behind the panel is an amazing 2-1/2". The unit is Plug and Play compatible with existing EDM-700/800 units. Full Color LCD Display: More Graphics Large digits for easy reading. Full color parameter range markings. FAA STC/TSO approved. Package Form Factor: Standard 3-1/8" Mounting from the front. Face is offset from center to better fit in spaces where other equipment is currently located. Can be mounted in four different face orientations to satisfy tough mounting scenarios. Depth is nearly the same as the height of a business card, 2.5". Plug and play compatible with the PI EDM-700/800 harnesses for easy upgrade. Front mounted USB back for easy software upgrades and data downloads.

M	Part N.	Pri
EDM-730-4Cyl	10-03701	.
EDM-730-4C W/ FF 201	10-03717	.
EDM-730-4C W/ FF 231	10-03718	.
EDM-730-6C	10-03703	.
EDM-730-6C W/ FF 201	10-03719	.
EDM-730-6C W/ FF 231	10-03720	.
EDM-730-7C	11-07753	.
EDM-730-7C W/ FF 201	11-07754	.
EDM-730-7C W/ FF 231	11-07755	.
EDM-730-8C	11-07756	.
EDM-730-8C W/ FF 201	11-07757	.
EDM-730-8C W/ FF 231	11-07758	.
EDM-730-9C	11-07759	.
EDM-730-9C W/ FF 201	11-07760	.
EDM-730-9C W/ FF 231	11-07761	.
EDM-830-4C W/ FF 201	10-03721	.
EDM-830-4C W/ FF 231	10-03723	.
EDM-830-6C W/FF 201	10-03724	.
EDM-830-6C W/FF 231	10-03725	.
EDM-830-7C W/ FF 201	11-07762	.
EDM-830-7C W/ FF 231	11-07763	.
EDM-830-8C W/ FF 201	11-07764	.
EDM-830-8C W/ FF 231	11-07765	.
EDM-830-9C W/ FF 201	11-07766	.
EDM-830-9C W/ FF 231	11-07767	.
UPGRADE YOUR EDM 700 TO THE EDM 730, OR YOUR EDM 800 TO THE EDM 830.		
Description	Part N.	Pri
EDM 700 to EDM 730	10-03863	.
EDM 800 to EDM 830	10-03864	.

EDM 930 & 930T PRIMARY



True TFT Transflective Custom Display - Display brightness increases with ambient brightness, always sunlight readable. All gages have a Variable Scale and alarm limit to fit your engine. New form factor, panel size: 6" w 4" h 2.9" d. Records all engine parameters at 2 to 255 second intervals. Plot the data with E plot. All probes and transducers supplied. High Flow transducer (120 GPH) included in EDM930T. Compatible with and transmits RS-232 data to most MFD's, also sold less the display.

S • Tachometer/Hobbs • Manifold Air Press • 6 EGT/CHT • Oil Temp. • Oil Press • Fuel Quantity • Fuel Press • OAT • Carb. • Temp • TIT, TIT-2 • CDT • GMT • Volts/Amps 1-2 • Differential EGT • Shock cooling • GPH • Fuel remaining • Fuel Endurance • Fuel required to GPS waypoint • Fuel used • Percent of horse power • Receives data from any GPS and transmits data to any GPS.

EDM-930-4cyl. - Primary Unit STC'd	P.N 10-02111	.
EDM-930-6cyl. - Primary Unit STC'd	P/N 10-02112	.
EDM-930-7cyl. - Primary Unit STC'd	P/N 10-02632	.
EDM-930-8cyl. - Primary Unit STC'd	P/N 10-02633	.
EDM-930-9cyl. - Primary Unit STC'd	P/N 10-02634	.

PI EDM 800 DIGITAL/ANALOG SCANNERS WITH AUTOMATIC HORSEPOWER COMPUTING

Dot identifies cylinder associated w/digital info. Automatically advances.

Missing bars indicate CHT Trend. Highest CHT even by 1° show as CHT bar.

EGT (1340°F) left side CHT (376°F) right side

Step button can index info forward or backward. All programming done from front panel simply with 2 buttons, no switches or toggles.



Percent of HP using RPM/MAP/OAT, memory & fuel flow shown constantly.

Last column displays Turbine Inlet Temp or Oil Temp.

Adjustable column height.

Digital display of 24 functions such as DigiScan® Fuel Flow, OAT, TIT, IAT, CDT, & Oil Temp.

LF, Lean Find, automatically finds first & last cylinder to peak. Displays histogram of each cylinder that peaks.

The EDM-800 instrument has all the advanced functions of the EDM-700, but incorporates some new features that can only be found on PI products. No longer do pilots have to waste time looking up and guesstimating the present percentage of horsepower (HP). There are new easily readable digits located at the top of the EDM display which continually show the percentage of horsepower being used, and can also display RPM. What is truly unique about this new feature is that it can also display HP over lean. HP can be displayed for either carbureted or injected engines, even if they are turbocharged. Now you can be sure that you are within the horsepower limits of your engine, and in IFR conditions, this can be quite a task. At the present time HP is only available on single engine 4 and 6 cylinder engines. The EDM-800 calculates percent of horsepower in an Over lean condition. Lycoming & Continental horsepower charts stop at peak EGT on the first cylinder to peak. Gami has developed a method of going over lean on all cylinders. When you are over lean, every ounce of fuel is burned and used to create horsepower and heat. Cooling is accomplished by excess air in the combustion chamber. PI has developed an algorithm to calculate horsepower based on fuel consumption and other factors. To obtain HP in this over lean condition you must have an EDM-800 engine analyzer which includes fuel flow, RPM, MAP, OAT, Memory and Gami tuned injectors. In addition to PI's HP function, the EDM-800 also has a Memory Module that can store up to 25 hours of engine data, which can be downloaded to a laptop or palmtop PC. When using the memory function, all functions of the EDM will be recorded, including Fuel Flow and HP.

Description	Part N.	Pri
EDM-800-4C w/Fuel Flow 201 2-1/4"(Fuel Pump)	10-02854	.
EDM-800-4C w/Fuel Flow 201 3-1/8"(Fuel Pump)	10-02021	.
EDM 800-4C w/Fuel Flow 231 2-1/4"(Gravity Fed)	10-02855	.
EDM 800-4C w/ Fuel Flow 231 3-1/8"(Gravity Fed)	10-02843	.
EDM-800-6C w/Fuel Flow 201 2-1/4"(Fuel Pump)	10-02856	.
EDM-800-6C w/Fuel Flow 201 3-1/8"(Fuel Pump)	10-02857	.
EDM 800-6C w/Fuel Flow 231 2-1/4"(Gravity Fed)	10-02859	.
EDM 800-6C w/Fuel Flow 231 3-1/8"(Gravity Fed)	10-02858	.



J.P. INSTRUMENTS EDM-960

The EDM-960 is the latest graphic engine analyzer for Piston Engine Twins from P Instruments. The EDM-960, STC'd as Primary engine instrument, takes the best from their EDM-760 and adds total engine display monitoring including Tach, % Horsepower, Hobbs, Manifold Pressure, EGT, CHT, Oil Pressure, Oil Temp, Fuel Flow, Outside Air Temp, Volts, and Amps plus optional Fuel Pressure, Fuel quantity, and Turbine Inlet Temp. Each individual engine display has a scale and alarm limit to fit your particular airplane. As with the popular EDM-760, the EDM-960 has internal memory that records all engine parameters that can be recalled and displayed on your computer to keep track of the health of your engine. Plus: warnings for shock cooling and excess temperatures, leaning assist for both "lean of peak" and "rich of peak".

Description	Part N.	Pri
PI EDM-960-4C	10-03727	.
PI EDM-960-6C	10-03726	.
PI EDM-960-7C	11-07750	.
PI EDM-960-8C	11-07751	.
PI EDM-960-9C	11-07752	.

FUEL TOTALIZERS - FUEL GAUGES

SHADIN MINIFLO TOTALIZERS



MINIFLO SYSTEMS - Miniflo is the miniature fuel flow meter which constantly displays fuel flow in the lower windows. The fuel used and fuel remaining functions are continuously computed and can be displayed in the upper window by pressing the appropriate button. Endurance (time remaining) can be displayed in the upper window by using the rotary switch. STC's for most aircraft. Power: 12-28V DC Furnished in gallons readout (pounds also available). Weight: 31 oz. (meter & transducer). Size: 3.25"x 1.25"x 7.5". Miniflo now provides all features of standard Miniflo system plus a Loran interface as described in Digiflo above. This gives the pilot NM/Gal, Gallons to Destination and Gallons of Reserve. Specify aircraft and engine model on all Miniflo orders. Prices vary according to aircraft model.

Single Engine/Loran GPS Miniflo P/N 10-24735.....

SHADIN DIGIFLOW TOTALIZERS



Digiflo-L is a Digital Fuel Management System designed to provide complete fuel management information under real flight conditions without any manual entry of data (after entry of the initial fuel on board information). Digiflo-L is connected to the engine fuel flow transducer for fuel flow information and to the Loran-C or GPS receiver serial port for navigation data (ground speed, distance and estimated time en route). This system is also capable of transmitting the fuel information to the Bendix/King KLN-88, KLN-90, and Garmin GPS navigation receivers, for additional calculations and display of fuel management data.

Single Engine/Loran GPS Digiflo P/N 10-02212..... **Please Call**
Twin Engine/Loran GPS Digiflo..... P/N 10-02213..... **Please Call**

SHADIN F/ADC-200 FUEL/AIR DATA COMPUTER



The affordable Shadin F/ADC-200 Fuel/Air data computer maximizes aircraft range and fuel economy by providing automatic updating to your GPS for true air speed, winds aloft, wind components, density altitude, OAT, pressure altitude, fuel flow rate, fuel used, fuel required to destination, fuel endurance, and more. Interfaces with most popular GPS units including Bendix King KLN series, Garmin 150, 155, 165, Trimble

2000/3000 series, and Arnav. Please specify aircraft make/model, engine make/model, serial number of aircraft, and GPS make/model at time of order. P/N 10-24768..... **Please Call**

IMPORTANT: For all Shadin orders, please specify engine make and model number aircraft make and model number specify gallons, pounds or liters on readout and if Loran or GPS will interface. Specify make and model.

SHADIN SYSTEMS PRICING

Prices for Shadin Microflo, Digiflo, & Miniflo systems vary according to aircraft/engine models. Call Aircraft Spruce for your best pricing on any Shadin system. Aircraft Spruce guarantees to meet or beat any competitor's current advertised prices.



FREE FLIGHT TRA 3000 RADAR ALTIMETER / INDICATOR

The TRA 3000 Radar Altimeter, combined with the TRI40 Radar Indicator, provides precise AGL information from 2,500 feet down to 40 feet. This real-time system offers an extra measure of operational safety during landing, navigation, and hovering. It is especially useful in flying search and rescue missions, forestry operations, pipeline maintenance, offshore helicopter operations, aeromedical emergency medical services, border patrol, and electronic news gathering operations. The transmitter / receiver and antenna fit in a single lightweight & aerodynamic unit that is easy to install.

TRA 3000 Radar Altimeter P/N 10-02522.....
TRI 40 System Altimeter..... P/N 10-02519.....

FREE FLIGHT TRA 3500 RADAR ALTIMETER / INDICATOR

The TRA 3500 Radar Altimeter, combined with the TRI40 Radar Indicator, provides precise AGL information from 2,500 feet down to ground level and consists of a remote unit and dual antennas for greater accuracy. ARINC analog outputs allow seamless integration with other on-board equipment such as flight director systems. Its patented "anti-rotor-modulation" capability prevents altitude wandering while hovering in a helicopter. This real-time radar altimeter system offers an extra measure of operational safety during landing, navigation, and hovering. It is especially useful in flying search and rescue missions, forestry operations, pipeline maintenance, offshore helicopter operations, aeromedical emergency medical services, border patrol, and electronic news gathering operations.

TRA 3500/TRI 40 Altimeter P/N 10-02523.....
TRA 3500 Radar Altimeter P/N 10-02520.....

FUEL LEVEL SYSTEM BY DATCON



This Datcon fuel gauge and senders are designed for use with 12 volt electrical systems in automotive, marine and homebuilt aircraft applications. The gauges have a round 2" diameter case with chrome bezel. Mounting brackets and instructions are furnished. 240-33 Ohms. Gauge No. 100177 with steel case P/N 100177
Lighting Kit (12V) P/N 06215-00

UNIVERSAL SENDER FOR DATCON GAUGES



This Fuel Level Sender has removable mounting plate which can rotate 180 to mount on either right hand or left hand position. For tanks 6"-15" deep. P/N 05-16710.....

STEARMAN FLOAT-TYPE FUEL SIGHT GAUGE



Float type fuel sight gauge used in Stearman dusters. Plastic tube with fuel level marking and 3/4" male pipe thread fitting. 16" long overall, 8" tank depth. 5-1/2" travel. Use AN867-6 Aluminum

Welding Flange to mate with above gauge. P/N 10435
Aluminum Welding Flange to mate with above gauge. P/N AN867-6.....

SPIRAL ACTION FUEL GAUGE



A precision magnetic gauge for narrow vertical tanks. Rubber float travels on spiral rod to record fuel level on hermetically sealed side-reading dial marked E, 1/4, 1/2, 3/4, F. All aluminum construction. Housing has 1-1/2" NPT male threads for connection to threaded bushing (see below). Available in three lengths:

Length L' 15", Float Travel 12-3/4" P/N 05-16900.....
Length L' 19", Float Travel 16-3/4" P/N 05-17000.....

ed h - 6061 aluminum, 2-1/4" O.D., 1/4" wall. Available in 1" & 2" length. Use with welding ring to provide base for attaching to fuel tank with bolts or rivets. Ring may be welded at any point along bushing to permit depth adjustment. Specify bushing length. For use with Spiral Action Gauge.

1" Bushing P/N 10362-1
2" Bushing P/N 10362-2

ed - 6061 aluminum, 4-3/8" O.D., 2-1/4" I.D. to fit above welding bushings. For use with Spiral Action Gauge..... P/N 10363.....

MECHANICAL FUEL GAUGE



Lever-action gauge measures fuel level from full to empty on fractional dial. Matte-white markings on 2" black dial with red "No Take-off" sector below the 1/4 full mark. Cork float has 4" travel. Wire arm 12" long may be cut off to required length, wire bent to 90 degree to secure cork float. 1-13/16" between mounting hole centers. Hermetically sealed dial assembly has magnetically driven, silicone-damped or position pointer to prevent flutter. P/N 05-16700.....

Replacement Fuel Float P/N 05-03395
Weld Adapt FLANGE 10361 P/N 10361
Gasket for 05-16700..... P/N 15-4

ULTRALIGHT FUEL FLOW METERS



For ultralight engines, a fuel totalizer provides instantaneous fuel flow rate, fuel used, fuel remaining, time remaining and user settable alarms. Easy to calibrate and simple to use. Install included transducer in fuel line, hook up 12VDC, and go fly Available in gallons or liters for most twocycle engines.

30LPH W/ Standard..... P/N MGU001L.....
8GPH W/ Standard..... P/N MGU001G.....
45LPH W/ High F..... P/N MGU002L.....
14GPH W/ Transmitting..... P/N MGU002G.....
Rotax 912 Liter P/N MGU912L.....
Rotax 912 8GPH P/N MGU912G.....
Navman Fuel Flow..... P/N MI 001.....

LUSCOMBE/AERONCA TYPE FUEL GAUGE



This direct reading fuel quantity gauge is usable in tank depths up to 9" such as Luscombe & Aeronca. Not FAA approved. Excellent for homebuilt aircraft. Displays fuel level from full to empty. Size: 1-1/2" diameter face.

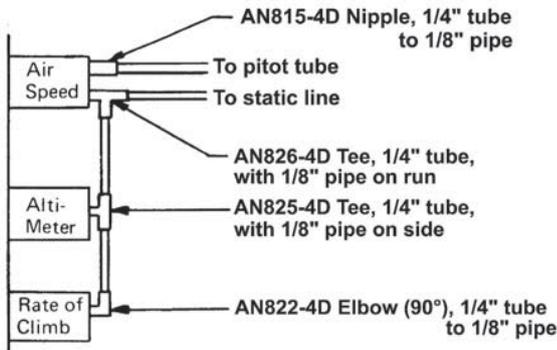
Fuel Gauge P/N 05-00029
Rebuild kit for Fuel Gauge..... P/N 05-00031

FUEL COMPUTER INSTRUMENT HOOK-UPS

SELECTING FITTINGS FOR INSTRUMENT HOOKUPS

1. Make sketch of instrument layout.
2. Draw lines showing routing of tubing from instruments to the fire wall or other locations.
3. Determine diameters of instrument lines. 1/4" diameter tubing is used for most instruments. The artificial horizon and directional gyro should have at least 3/8" diameter lines.
4. Select the required AN or Nylo-Seal fittings.

EXAMPLE NO. 1: HOOKUP OF AIRSPEED, ALTIMETER, & RATE OF CLIMB



The aluminum lines (1/4-in. diameter) will be flared and attached to the fittings with AN818-4D nuts and AN819-4D sleeves.

EXAMPLES OF EQUIVALENT AN-TYPE AND NYLO-SEAL FITTINGS

AN Fitting	Thread Size	Nylo-Seal Fitting
AN816-4D Nipple	1/4 tube x 1/8 pipe	268-N 1/4
AN816-6D Nipple	3/8 tube x 1/4 pipe	268-N 3/8
AN818-4D Nut	1/4 tube	Nuts and Sleeves
AN818-6D Nut	3/8 tube	are included with
AN819-4D Sleeve	1/4 tube	all Nylo-Seal
AN819-6D Sleeve	3/8 tube	fittings.
AN822-4D Elbow	1/4 tube x 1/8 pipe	269-N 1/4 x 1/8
AN825-4D Tee	1/4 tube, 1/8 pipe on run	272-N 1/4 x 1/8
AN826-4D Tee	1/4 tube, 1/8 pipe on side	271-N 1/4 x 1/8
AN912-1D Bushing	1/4 pipe x 1/8 pipe	No Equivalent

Use AN816 Nipple and Nyloseal 266-N Female Connector to transition from AN-type fittings to Nyloseal fittings.

Each connection between the aluminum lines and the fittings requires either all AN818-4D nut and AN819-4D sleeve (1/4-in. line) or an AN818-6D nut and an AN819-6D sleeve for 3/8-in. line.

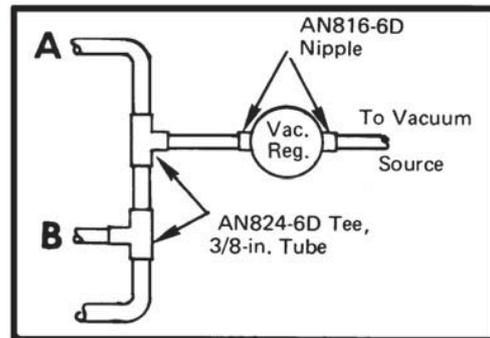
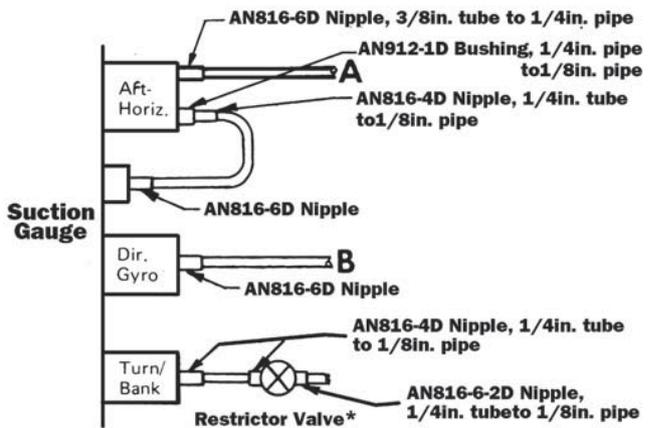
Turn/Back vacuum set at 2 In. Hg.



HELPFUL HINTS

It is good practice to put some form of water trap in both the pitot and static lines. It should be placed at the lowest practical point in the system between the pressure source and the instrument. The trap can be a simple T-fitting with a cap:

EXAMPLE NO. 2: HOOKUP OF GYRO INSTRUMENTS



ARNAV FUEL COMPUTERS

The FC-10 fuel computer fits into a 2.25 inch instrument hole, and can provide a wealth of information to the pilot. The unit provides information on how much fuel has been burned, how much is still on board, the endurance at the current engine power, and even has a low fuel annunciator that comes in when fuel level falls to the point indicated by the pilot. The fuel computer can be quickly calibrated to calculate at gallons, liters, kilograms, or imperial gallons. The compact unit uses a fuel flow transducer that is attached to the fuel line at the fuel manifold on the engine. The unit has an appropriate serial output that will allow its fuel data to be exported to most LORAN and GPS systems. This makes them more powerful flight management tools by allowing them to access the onboard fuel information. Twin engine pilots will need a second unit, the FT-10. It monitors the second engine and provides that information to the FC-10 for pilot display. The twin installation requires two 2.25 inch holes – one for each monitor. The FT-10 monitors the fuel flow to the second engine, and sends information to the FC-10 that monitors the total fuel used and the total fuel on board. The FC-10 system is STC'd as the primary fuel instrument on all Bonanza and Debonair aircraft except Turbo Bonanzas after 1981. The FC-10/FT-10 system is STC'd for the same function in all 55 and 58 Barons, the Duke series and the Twin Bonanza.



- e a e displays fuel flow and fuel burned. FT-10 w/116-0201 piston transducer, single engine P/N 10-00023
- twin engine piston fuel flow system. • FC-10 • FT-10 • Piston Transducer (2) P/N 10-00024

L S S L

OVERHAULED INSTRUMENTS

OVERHAULED INSTRUMENTS

These instruments are overhauled and certified at our affiliated instrument repair facility and are available on an outright purchase basis (stock permitting). For outright purchase, you will be billed the purchase price plus core charge. Core charge is credited upon return of acceptable core. We can also overhaul your instrument at the price shown, and no core charge will be billed. Allow 2-3 weeks for overhaul of your instrument. If in stock, outright purchases can ship within 2 days. Warranty details are included with the instrument.

To send in your instrument for overhaul or to return a core, please contact Aircraft Spruce Customer Service in advance for an RMA number and then ship instrument to Aircraft Spruce East in Georgia.

M	Description	C r Charg	PN	Pri
Overhauled 5000 Series Standard	Attitude Gyro	.	10-03111	.
Overhauled 4000 Series Standard	Directional Gyro	.	10-03114	.
Overhauled 1U367-002-2	Attitude Gyro	.	10-03117	.
Overhauled 1U367-006-6	Attitude Gyro	.	10-03118	.
Overhauled 5934 Series	Altimeter	.	10-03119	.
Overhauled 5950 Series	Altimeter	.	10-03120	.
Overhauled 371 Series	Altimeter	.	10-03121	.
Overhauled 671 Series	Altimeter	.	10-03122	.
Overhauled 7000 Series	VSI (Vertical Speed Indicator)	.	10-03123	.
Overhauled 8000 Series	Airspeed Indicator	.	10-03125	.
Overhauled 8025 Series	Airspeed Indicator	.	10-03126	.
Overhauled 8030 Series	Airspeed Indicator	.	10-03127	.
Overhauled 8040 Series	Airspeed Indicator	.	10-03128	.
Overhauled 8100 Series	Airspeed Indicator	.	10-03129	.
Overhauled 8125 Series	Airspeed Indicator	.	10-03130	.
Overhauled 8130 Series	Airspeed Indicator	.	10-03131	.
Overhauled 8140 Series	Airspeed Indicator	.	10-03132	.
Overhauled EA-5171 thru EA-5176	Airspeed Indicator	.	10-03133	.

IN