Aircraft and Medical Instruments

U.M.A., Inc. • 260 Main St., P.O. Box 100 • Dayton, Virginia 22821 • Phone (540)879-2040
FAX: (540) 879-2738

E-mail umainc@umainstruments.com Web Site http://www.umainstruments.com

TACHOMETER INSTALLATION INSTRUCTIONS, NON -TSO

UMA's line of tachometers cover just about any application. These instructions cover most normal installation requirements but there are always unusual situations. In the event you are having a problem, call our technical help department at **800-842-5578**. We will be glad to give you the needed assistance.

MOUNTING INSTRUCTIONS
TACHOMETERS

1 1/4" tachs have #6-32 threaded holes in the bezel so nuts are not required. The bezel is aluminum so do not over tighten screws. 2 1/4" and 3 1/8" tachs do not have threaded mounting holes. You will need nuts to secure the mounting screws, #6 suggested.

When running wires to the tach from the engine compartment, keep wires away from high heat sources and ignition system wires and components including magnetos, especially if using unshielded spark plug wires.

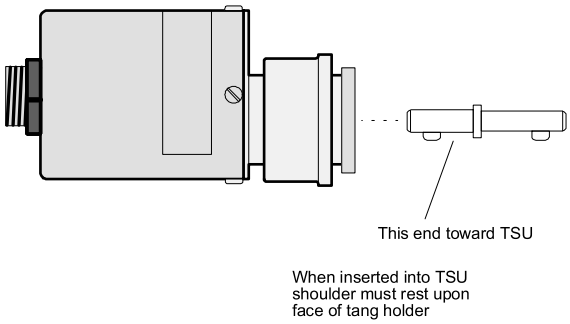
When wiring the tach to the aircraft power, use an inline fuse or breaker of no more than 1 amp.

When connecting signal input wire to a lighting coil, use a 1/4 amp inline fuse in the line to the coil.

SENDING UNITS/PICKUPS

Some tachs require a signal pickup to be mounted either to the engine or a magneto. This will depend on the type of tach and pickup purchased. Follow these instructions for mounting the pickups.

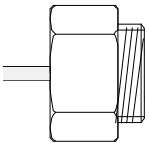
1Ax Tach Sending Unit



Installation Instructions:

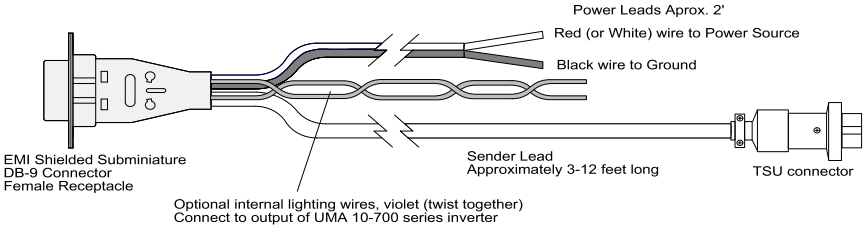
1. Insert the tang provided, and mount to the engine tachometer drive port. It may be necessary to rotate the unit for clearance from other accessories mounted on the gear case. The centerline is offset for this purpose. Use Locktite 242 on threads, tighten with pliers.
2. Route tach wiring harness away from high temperature objects and ignition system wires and components and secure in place.
3. Attach the connector on the wiring harness from the tachometer to the pickup/sending unit.
4. Connect the other end of the harness to the tachometer mounted in the instrument panel.
5. Connect the aircraft power to the harness, Red (+) and Black (-) wires.
   NOTE: The TSU will operate effectively in either direction.

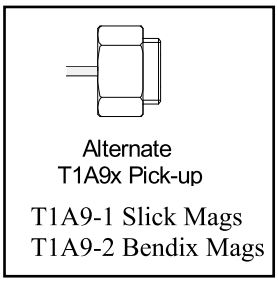
For T1A9-(1)or(2) Magneto Pick-up



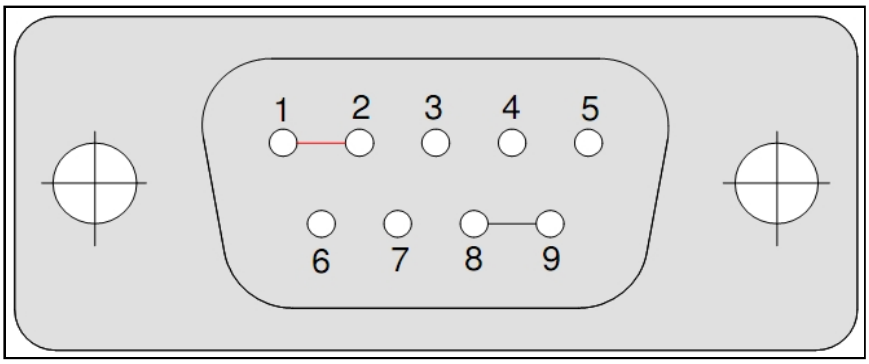
1. Mount the pick-up on either magneto, in the threaded port on the magneto case.
2. **Use the port closest to the magneto drive**. Hand tighten, then tighten **1/6 turn max.** more. Use removable thread locker, Loctite 242 or equivelent. MIL-S-46163A
3. Run the wire bundle to the cockpit, install connector and connect to tachometer.
   Type T1A9x pickups require attaching the connector. See wiring diagram below!

DB-9 Connector Tachs





This is the look from inside the DB-9 wire connector (solder side)!



Pin#1 = +11-30VDC Power IN
Pin#2 = N/A
Pin#3 = +12VDC Voltage out to sender (ORANGE-WHITE WIRE)
Pin#4 = +12VDC Voltage output for ext. hourmeter_1800RPM & above_(2 1/4" tach ONLY)
Pin#5 = Signal IN from the sender (WHITE WIRE)
Pin#6 = Purple wire from the Light Inverter.....(OPTIONAL)
Pin#7 = Blue wire from the Light Inverter.....(OPTIONAL)
Pin#8 = GND for the sender (BLUE-WHITE WIRE)
Pin#9 = Common GND for the gauge

NOTE: If the gauge have wires instead DB9 connector, follow instructions below!

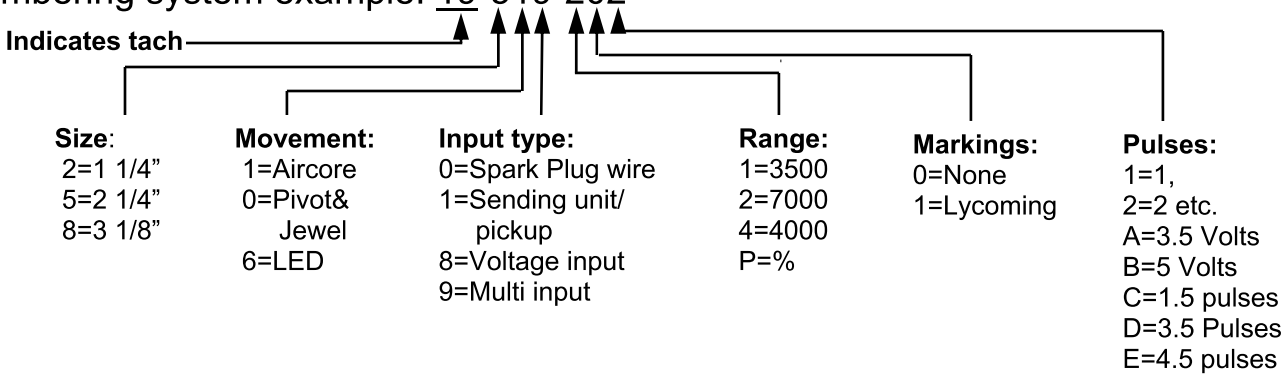
Red	Aircraft Power (+)
Black	Ground (-)
White	Signal Input
Yellow	Hour Meter Drive (where used)
Violet(2)	Optional lighting to inverter.

For extending wires gauge #18 to #24 teflon should be used!

GENERAL INFORMATION AND SPECIFICATIONS

Fuse (Power):	Max. 1 Amp Fast Acting
Current Draw:	110 mA max + hour meter
Supply Voltage:	+10 to +28 Volts DC.
Hourmeter Output	+12V @ 20ma max.
Accuracy	within 25 RPM

Numbering system example. 19-519-202



The hour meter, if installed, is set to turn on at 1800 RPM and above unless specified differently. It is not customer adjustable. The internal hour meter records real time when running. The hour meter output available on some units is also set to turn on at 1800 RPM and above and is not customer adjustable.

Warranty

UMA, Inc. warrants all products to be free from defects in material and workmanship under normal use and operation. UMA does not warrant any product which has been damaged as the result of accident, abuse, negligence, improper operational voltage, lightning, fire, flood, or other acts of nature. Any indication that the unit has been opened can void warranty. Under no circumstances shall UMA be liable for any loss or damage, direct, consequential or incidental, arising from the use of or inability to use this product.

This warranty is limited to the repair or replacement, at the manufacturer's option, of any product or part thereof, which has been returned to UMA within the specified warranty period, and which after examination shall disclose to the customer serve department's satisfaction that the product is defective. Transportation to the factory or authorized service center must be prepaid; the product after repair or replacement, will be returned at the expense of the dealer or end customer. This warranty does not apply to any product or integral part thereof, which has been altered or serviced by other than the manufacturer or authorized service center.

The warranty period is twelve (12) months to the user.
This warranty supersedes all other warranties either expressed or implied and shall be governed and executed under the laws of the Commonwealth of Virginia, U.S.A.