

# **HOURMETER AIRSPEED SWITCH INSTALLATION INSTRUCTIONS**

**FOR  
UNPRESSURIZED AIRPLANES**

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## HOURMETER AIRSPEED SWITCH INSTALLATION INSTRUCTIONS

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<u>DRAWING TITLE</u>	<u>DRAWING NUMBER</u>
HOURMETER AIRSPEED SWITCH PITOT LINE INSTALLATION	97-AVAK003-2, Sheets 1-5 98-AVAK005-2
HOURMETER AIRSPEED SWITCH WIRING DIAGRAM	97-AVAK301-3
HOURMETER AIRSPEED SWITCH COMPONENT LOCATIONS	98-AVAK005-4

## HOURMETER AIRSPEED SWITCH INSTALLATION INSTRUCTIONS

**Intended Use:** The intended use of the Hourmeter airspeed switch is to change the operating characteristics of the typical unpressurized small aircraft Hourmeter. This modification will change the method of time tracking for the typical unpressurized small aircraft. Once the modification is incorporated, the Hourmeter will indicate "TIME IN SERVICE" as defined in 14 CFR part 1.1.

**System Description:** The modification adds an airspeed switch to the ground circuit of the aircraft Hourmeter. This airspeed switch utilizes the existing Pitot system to provide the needed pressures for switch actuation. The ground leg of the existing Hourmeter is connected through the airspeed switch and will supply a ground connection for the Hourmeter when the airspeed is greater than 30 Knots (35 MPH).

**Installation Requirements:** This modification can **only** be applied to aircraft that meet the following criteria:

- 1) An Hourmeter has been previously installed and approved.
- 2) The existing Hourmeter Circuit Protective Device (Fuse or Circuit Breaker) has a value less than or equal to 5 Amps.
- 3) The Hourmeter has an external ground that will stop clock operation when the ground lead is opened.
- 4) Aircraft stalling speed in the landing configuration ( $V_{so}$ ) is greater than 30 Knots (35 MPH).
- 5) Aircraft is unpressurized.

### System Weight:

<u>Description</u>	<u>Weight</u>
Airspeed Switch	2 oz.
Polyethylene Tubing	1 oz.
Tee	½ oz.
20 Gauge Wire	½ oz.
MIL-H-55-93 Hose	¼ oz.

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**Electrical load Analysis:** There is no change in the electrical system load, no analysis is required.

### Installation Instructions:

#### Required equipment:

- 1) No special tools or equipment are required for this installation.

#### Installation:

- 1) Refer to AC 43.13-1A/2A, "ACCEPTABLE METHODS, TECHNIQUES, AND PRACTICES", or later approved revision, for the correct methods to be utilized for this installation.
- 2) Select a suitable mounting location forward of the instrument panel. Insure the selected location will provide adequate clearance from control cables and other hazards to flight. Using the airspeed switch bracket (item 11, P/N: 15-0008-R-83) as a template, drill two mounting holes. See drawing 98-AVAK005-4 for a typical switch mounting location.
- 3) Utilizing the hardware shown on drawing 97-AVAK003-2, Sheet: 5, install the airspeed switch and bracket. Note: the bracket may be rotated to facilitate switch placement.
- 4) Cut the existing Pitot line and install the hardware as shown on drawing 97-AVAK003-2 or 98-AVAK005-2. Insure that adequate obstruction free clearance exists for the newly installed hardware.
- 5) Connect the new section of  $\frac{1}{4}$  inch polyethylene line to airspeed switch as shown on drawing 97-AVAK003-2 or 98-AVAK005-2. The new section of polyethylene tubing connects to the pressure port "Pitot" on the airspeed switch (reference: 97-AVAK003-2 sheet 5 of 5). The remaining port, labeled "V", is vented to the cabin. Do *not* plug the "V" port. Insure the newly added section of Pitot line forms a smooth curve when routed to the airspeed switch.
- 6) After reviewing the appropriate aircraft electrical drawing, remove the existing ground lead from the Hourmeter. Connect a ground lead to the Hourmeter, Airspeed switch, and aircraft ground as shown on drawing 97-AVAK301-3. Note: In some cases, it may be necessary to solder the ground lead to the Hourmeter ground terminal.
- 7) Utilizing the included nylon cable ties, secure the new ground lead to an existing wire bundle so as to provide adequate clearance from all control cables and other hazards to flight.
- 8) Install the supplied cockpit placard adjacent to the existing Hourmeter.

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### Checkout Procedures:

#### Required Equipment:

- 1) Pitot test set.

#### Test:

- 1) Test the Pitot system in accordance with the aircraft manufacturer's instructions. If the manufacturer has not issued instructions for testing Pitot systems, utilize the procedures contained in AC 43.13-1A or later approved revision.
- 2) Apply power to the aircraft and observe that the circuit protective device (circuit breaker or fuse) does not "trip" or "blow". Repair wiring if necessary for proper circuit protective device operation.
- 3) After the Pitot system has been successfully leak tested, adjust Pitot test set to indicate zero knots.
- 4) Observe that the Hourmeter is "OFF". If the Hourmeter is "ON," check for the proper airspeed switch electrical connections. Incorrect switch connections will cause the Hourmeter to record time while the aircraft is on the ground.
- 5) *NOTE: Bypassing the "OIL PRESSURE SWITCH" is required for testing installations that utilize an "OIL PRESSURE SWITCH" to control Hourmeter operation.*
- 6) Adjust the airspeed to equal 33 Knots (38 MPH) or greater and observe that the Hourmeter is running. If the Hourmeter does not begin to record time, check connections on airspeed switch or repair wiring as necessary.
- 7) Reconnect "OIL PRESSURE SWITCH" if bypassed for this test.
- 8) Disconnect the Pitot test equipment from the aircraft.
- 9) Make the appropriate entries in the aircraft log book indicating a Pitot system test, and the airspeed switch installation have been completed. File FAA Form 337 "MAJOR ALTERATION or REPAIR", and revise the Aircraft Equipment list.

**Note:** This installation will have negligible effect on aircraft weight and balance.