

# 370PSK PITOT / STATIC TEST KIT INSTRUCTION AND OPERATION MANUAL



The model 370PSK from Meriam Instrument is a microprocessor based digital Pitot / Static Test Kit. The 370PSK incorporates our Precision Altimeter Tester and Precision Airspeed Tester with the necessary hand pumps, accumulator chambers and control valves to provide a portable kit with exceptional performance and portability. Indications are NIST traceable and are free from the hysteresis and friction errors associated with all analog test kits. Six “C” size batteries power the electronics. Displays have large characters and are backlit for ease of viewing. Display units can be selected for English or Metric readout of altitude, rate of climb, airspeed or pressure. Program options are available at the stroke of a key to automatically time and display Static

system leak rate per FAR 91.411 requirements and Pitot system leak rate per established guidelines. Accuracy exceeds FAR 43 Appendix E requirements for static testing and the pitot accuracy is  $\pm 0.05\%$  of Full Scale.

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# MODEL 370PSK PITOT / STATIC TEST KIT

## GENERAL DESCRIPTION

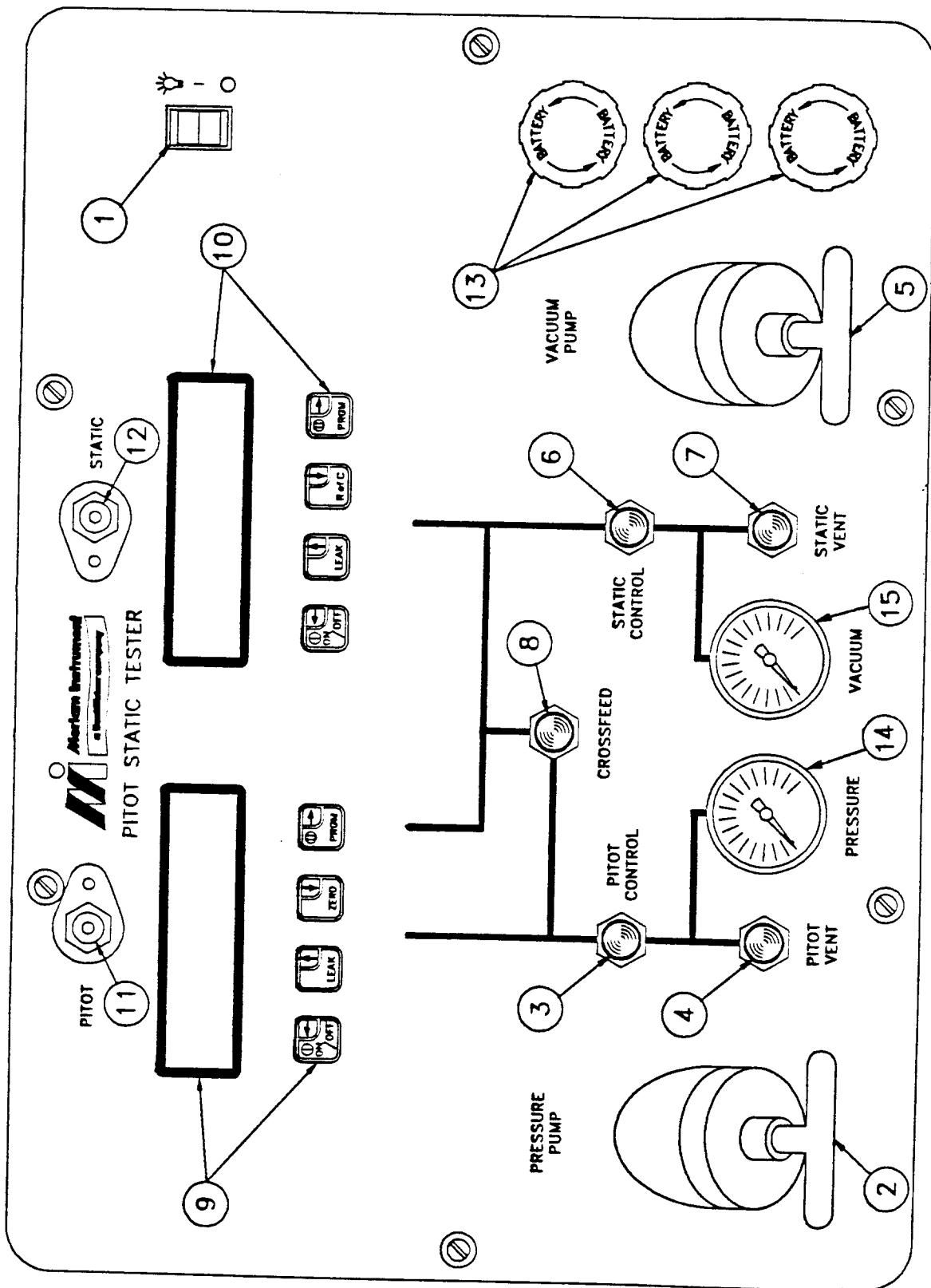
The Meriam Model 370PSK Pitot / Static Test Kit is designed to utilize state-of-the-art microprocessor technology coupled with reliable mechanical features to conveniently test aircraft altimeters, vertical speed indicators and airspeed indicators. The kit combines sensors and electronics from the Model 353 Precision Altimeter Tester (static side) and the Model 354 Precision Airspeed Tester (pitot side) with manual pressure and vacuum pumps, accumulator chambers, vent and control valves and a crossfeed valve in a conveniently sized portable carrying case. The electronic pressure sensors have several advantages over analog technologies including NIST traceable accuracy, repeatability, hysteresis and no friction effect. Additionally, they are not susceptible to damage caused by sudden pressurization or depressurization under normal pitot / static testing conditions (care still needs to be taken to avoid damage to aircraft instrumentation). The manual vacuum pump is capable of evacuating an aircraft system to an equivalent of 35000 feet. The vacuum accumulator stores a vacuum reserve to allow setting up a constant rate of increasing vacuum for testing vertical speed indicators. The manual pressure pump will generate positive pressure to simulate airspeed or negative elevation. A reserve of pressurized air is stored in the pressure accumulator for use during testing.

The 370PSK's PITOT display provides Airspeed Indication and timed Pitot System Leak Testing at the stroke of a key. Accuracy is  $\pm 0.05\%$  of full scale **including all effects of linearity, repeatability, hysteresis and temperature** over the range of 23° F to 122° F. Airspeed can be displayed in knots, mph, or km/h. Airspeed resolution is to the nearest tenth. Other display options include selectable pressure units of inches of H<sub>2</sub>O, inches of Hg, PSI or millibars. A leak test feature is included to allow trouble shooting aircraft pitot systems and a "ZERO" key is included to conveniently re-zero the pressure sensor.

The STATIC display provides Altitude, Rate of Climb (R of C) and Leak Testing at the stroke of a key. Accuracy is  $\pm 0.02\%$  of full scale **including all effects of linearity, repeatability, hysteresis and temperature** over the range of 23° F to 122° F. Altitude can be displayed in feet or meters and R of C in feet per minute or meters per minute. Resolution is to the nearest foot or meter. Other display options include selectable pressure units of inches of Mercury, mm of Mercury or millibars. A push-button feature for leak testing aircraft static systems is also included. Re-zeroing the absolute pressure sensor is accomplished through a program feature.

The PITOT and STATIC displays are large character, backlit type for ease of viewing in variable lighting conditions. The displays and electronics are powered by six (6) size "C" alkaline batteries that will deliver approximately 300 hours of use at 70° F. The batteries are easily accessible without removing the panel.

# MODEL 370 PSK PITOT / STATIC TEST KIT CONTROL PANEL DRAWING



# MODEL 370PSK PITOT / STATIC TEST KIT

## NUMBERED COMPONENT DESCRIPTION

**Refer to drawing on previous page for component numbers.**

**1. ON/OFF/Light Switch** – Controls the power to the instruments in the kit. The switch is a three position rocker type. The lower position is the “OFF” position. When the kit is not in use, the switch must be in the off position. In the middle position, only the electronic instruments are powered. This is the “ON” position that should normally be used. The upper rocker position is a momentary contact that turns on the backlight of both displays. An automatic timer turns the backlight off after five (5) minutes of keypad inactivity. Re-contacting the upper rocker position will turn the displays back on.

**2. Pressure Pump** – The pressure pump is a “T-handle” manual pump. It is mounted at a 45° angle for convenience. The end cap of the pump can be removed for service (if necessary) from the top side of the panel.

**3. Pitot Control Valve** – This needle valve functions as a control between the pressure pump / accumulator and the pitot port.

**4. Pitot Vent Valve** – This needle valve functions as a vent from the pitot side of the system to the atmosphere.

**5. Vacuum Pump** – The vacuum pump is a “T-handle” manual pump. It is mounted at a 45° angle for convenience. The end cap of the pump can be removed for service (if necessary) from the top side of the panel.

**6. Static Control Valve** – This needle valve functions as a control between the vacuum pump / accumulator and the static port.

**7. Static Vent Valve** – This needle valve functions as a vent from the static side of the system to the atmosphere.

**8. Crossfeed Valve** – This valve allows the equalization of pressure between the pitot side and static side of the system. Proper usage of this valve protects aircraft instrumentation from over-pressurization.

**9. Airspeed Instrument** – The airspeed instrument is the Meriam Instrument Model 354. For keypad and display functions, refer to the PITOT Display Programming Instructions in this manual.

**10. Altimeter Instrument** – The altimeter instrument is the Meriam Instrument Model 353. For keypad and display functions, refer to the STATIC Display Programming Instructions in this manual.

**11. Pitot Fitting** – This port ( $\frac{1}{8}$ " FNPT or AN-4) on the top of the front panel is for connection to the pitot system of the aircraft.

**12. Static Fitting** – This port ( $\frac{1}{8}$ " FNPT or AN-4) on the top of the front panel is for connection to the static system of the aircraft.

**13. Battery Holders** – The top panel includes three battery holders, each holding two C-size alkaline batteries. Do not use carbon or nickel cadmium batteries. When new batteries are needed, replace all six (6) batteries with fresh ones

**14. Analog Pressure Gauge** – 0 to 15 PSIG dial type pressure gauge to monitor pressure status of the internal pressure plenum. The plenum chamber is used in conjunctions with Pressure Pump and the Pitot Control valve to precisely increase the simulated air-speed.

**15. Analog Vacuum Gauge** – 0 to -30" of Mercury dial type vacuum gauge to monitor vacuum status of the internal vacuum plenum. The plenum chamber is used in conjunctions with Vacuum Pump and the Static Control valve to precisely increase the simulated altitude.

# MODEL 370PSK PITOT / STATIC TEST KIT SPECIFICATIONS

**MODEL NUMBER:** 370PSK Pitot / Static Test Kit

**PITOT DISPLAY:**

Range:	0-200 inches H <sub>2</sub> O	10-514 knots
NIST Traceable Accuracy:	± 0.05% of F.S.	

**STATIC DISPLAY:**

Range:	0-900 mm Hg Abs	-2000 to +60000 feet
Practical limit (of manual pump):	178.8-900.00 mm Hg Abs	-2000 to +35000 feet
NIST Traceable Accuracy:	± 0.02% of F.S.	(Exceeds FAR 43 app 3)
Equivalents:	± 7 feet at sea level	± 24 feet at 35000 feet
Zero Stability (twelve months):	± 0.05% of F.S.	

**RATE OF CLIMB:** Display exceeds ± 6000 feet per minute

**RECOMMENDED RECERTIFICATION PERIOD:** 1 Year

**PITOT LEAK TEST:** Push button function initiates the following test:

- (1) 60 second settling time countdown.
- (2) during next 60 seconds, display holds initial altitude and displays the current altitude.
- (3) final display shows 60 second leak rate in KNOTS / MIN, MPH / MIN or KPH / MIN.

**STATIC LEAK TEST:** Push button function initiates test per FAR 91.411 guidelines:

- (1) 120 second settling time display.
- (2) for the next 60 seconds, display holds initial altitude and displays the current altitude.
- (3) final display shows 60 second leak rate in FPM or MPM.

**TEMPERATURE:**Storage: -40° to 140°F (-40° to 60°C);Operating: 23° to 122°F (-5° to 50°C)

**PRESSURE LIMITS:** PITOT: 400 in. H<sub>2</sub>O (15 PSI) STATIC: 4000 mm Hg Abs (~ 5 atm)

**POWER:** Six (6) size "C" alkaline batteries. 300 hours of service at room temperature.

**MEDIA COMPATIBILITY:** Clean, dry, non-corrosive gases

**DISPLAY:** 5 significant digit LCD with backlight  
2 line x 16 alphanumeric characters (0.19" wide x 0.38" high)

**CONNECTIONS:** 1/8" FNPT brass or AN-4 **WEIGHT:** 22.5 pounds

**ENCLOSURE:** (15.5"w x 19"l x 8"h) fiber reinforced plastic carrying case with handle

MODEL 370PSK PITOT / STATIC TEST KIT  
 ALTITUDE ACCURACY TOLERANCE VS FAR 43 APP. E

Altitude Feet	Pressure ”Hg Abs.	Tolerance ± ”Hg Abs.	Tolerance ± Feet	FAR 43 App. E Req’mt
-1000	31.0185	±.0078 ↓	±7	±20
0	29.9213		±7	±20
500	29.3846		±8	±20
1000	28.8557		±8	±20
1500	28.3346		±8	±25
2000	27.8210		±8	±30
3000	26.8167		±8	±30
4000	25.8419		±10	±35
6000	23.9783		±10	±40
8000	22.2249		±10	±60
10000	20.5770		±10	±80
12000	19.0294		±11	±90
14000	17.5774		±12	±100
16000	16.2165		±12	±110
18000	14.9421		±13	±120
20000	13.7501		±14	±130
22000	12.6363		±15	±140
25000	11.1036		±17	±155
30000	8.8854		±20	±180
35000	7.0406		±24	±205
40000	5.5380	±30	±230	
45000	4.3550	±38	±255	
50000	3.4246	±48	±280	
55000	2.6931	±60	±600*	
60000	2.1178	±77	±800*	

\* FAR 43 App. E ends at 50000 feet

## MODEL 370PSK PITOT / STATIC TEST KIT

# START-UP INSTRUCTIONS

1. Open case lid and inspect for visible damage.
2. Power up the 370PSK electronics by moving the ON/OFF/LIGHT SWITCH rocker to the “ON” position. For display back lighting, move rocker to “LIGHT SWITCH” position. The back light will automatically go out after five (5) minutes to conserve battery power. To reactivate the back light, push the rocker fully forward again.
3. The PITOT and STATIC displays have individual ON/OFF switches. These can be used to individually control each display after the master ON/OFF/LIGHT SWITCH is turned “ON”. Regardless of the state of the individual display ON/OFF, the displays will come on when the master switch is activated.
4. The factory set default units of measure are FEET, FPM and KNOTS. To reconfigure the 370PSK for other units, consult the PITOT Display Programming Instructions and the STATIC Display Programming Instructions in this manual.

## BULKHEAD CONNECTIONS

Brass  $\frac{1}{8}$ ” FNPT or aluminum AN-4 bulkhead connections are provided at the top of the 370PSK. The left hand connection is the high pressure side of the differential pressure sensor and is labeled “PITOT”. The right hand connection is the low pressure side and is labeled “STATIC”. An anti-turn bulkhead retainer is fitted to each bulkhead connection and is pinned to the aluminum control panel to prevent bulkhead turning during routine use. Aluminum  $\frac{1}{8}$ ” FNPT x AN-4 and brass  $\frac{1}{8}$ ” FNPT x  $\frac{1}{4}$ ” hose barb adapters are optional items available from Meriam.

## 370PSK INTERNAL LEAK CHECK

1. Install test plugs on PITOT connection (11) and STATIC connection (12).
2. Close vent valves (4) and (7) and control valves (3) and (6), open crossfeed valve (8).
3. Operate hand pumps (2) and (5) to pressurize and evacuate accumulator chambers.
4. Slowly open STATIC control valve (6) to cause elevation on the STATIC display (10) to increase. Use Vacuum pump (5) to achieve approximately 25000 feet. PITOT display (9) should read zero shortly after pump operation stops.
5. Initiate automatic LEAK test sequence by pressing STATIC side (10) LEAK key.
6. Leak test results should be less than 50 feet per minute. Record leak rate for reference.
7. Slowly open the STATIC vent valve (7) to achieve a reasonable venting rate.
8. Close crossfeed valve (8).
9. Slowly open PITOT control valve (3) to cause airspeed on the PITOT display (9) to increase. Use Pressure pump (2) to achieve approximately 200 knots.
10. Initiate automatic LEAK test sequence by pressing PITOT side (9) LEAK key.
11. Leak test results should be less than 1 knot per minute. Record leak rate for reference.
12. Slowly open the PITOT vent valve (4) to achieve a reasonable venting rate.

# MODEL 370PSK PITOT / STATIC TEST KIT

## OPERATING INSTRUCTIONS

Proper use of the 370PSK Pitot / Static Test Kit will allow the user to quickly and accurately perform testing of aircraft instrumentation per FAR 43 App. E and leak testing of pitot and static systems per FAR 91.411. FAR 91.411 does not require testing of an aircraft pitot system but the pitot system is pneumatically linked to the static system. A leak in the pitot system will show up in the static leak test so it is advantageous to start with the pitot leak test. Refer to the Control Panel Drawing in this manual for 370PSK component number references used below.

### **USING THE PITOT LEAK TEST FEATURE**

Power up the 370PSK by following the Start-Up Instructions on the previous page and make the appropriate connections from the aircraft to the PITOT and STATIC connections. Close all valves (3, 4, 6, 7 and 8). Open the PITOT control valve (3) and slowly pressurize the pitot system using the Pressure pump (2). If the indicated airspeed exceeds the test airspeed value, close the PITOT control valve (3) and slowly open the PITOT vent valve (4) to bleed off a little pressure. Close the valve. If the indicated airspeed is less than the test value, close the PITOT control valve (3) and stroke the Pressure pump (2) to increase the accumulator pressure. Then slowly open the PITOT control valve (3) to increase the airspeed to the desired value. Close the valve. Now press the PITOT side (9) LEAK key to start the automatic leak test. The test will take two minutes; 60 seconds for settling time and 60 seconds to test. Leak should be less than 2 knots / minute or manufacturer's specification, whichever is less. Record the leak rate and slowly open the PITOT vent valve (4) to vent the system to atmosphere. Pursue repairs of the aircraft pitot system if necessary and retest as required.

### **AIRSPPEED TESTING**

FAR 91.411 does not require testing of an aircraft's airspeed indicator. However, the 370PSK can be used to check the accuracy of airspeed indicators while performing the pitot system leak test. Follow the above procedure and close the PITOT control valve (3) at a selected value as shown by the aircraft indicator. Record the PITOT display value (9) and the airspeed indication. Repeat this process at all desired airspeeds. The pitot system leak test can be done when the test airspeed is reached.

### **USING THE STATIC LEAK TEST FEATURE**

With the appropriate connections still in place, close both vent valves (4 and 7) and both control valves (3 and 6). Open the crossfeed valve (8) to avoid over pressurizing and damaging the aircraft airspeed indicator and other linked instruments. Open the STATIC control valve (6) and operate the Vacuum pump (5) to begin to evacuate the aircraft static system (To avoid damage to aircraft instrumentation, do not exceed the maximum climb rate of the aircraft vertical speed indicator. Press the "R of C" key on the STATIC side (10) keypad to activate the 370PSK's vertical speed indicator for reference). Continue to evacuate until the desired test elevation is obtained and close the STATIC

control valve (6). Make use of the STATIC control (6) and vent (7) valves along with the Vacuum pump (5) and accumulator to achieve the precise altitude. Press the STATIC side (10) LEAK key to start the leak test per FAR 91.411 guidelines. The test will take three minutes; 120 seconds for settling time and 60 seconds to test. Record the leak rate and slowly open the STATIC vent valve (7) to vent the system to atmosphere. To avoid damage to aircraft instruments during venting, do not exceed the maximum dive rate of the aircraft vertical speed indicator. Pursue repairs of the aircraft static system if leak rate exceeds the maximum allowable rate (see FAR 91.411) and retest as required.

### ALTIMETER TESTING

The 370PSK's STATIC display (10) indicates altitude referenced to 29.92 inches of Mercury. For testing altimeters, set the aircraft altimeter's baro adjustment window to 29.92. Make sure the 370PSK is vented to atmosphere. Close both vent valves (4 and 7) and both control valves (3 and 6). Open the crossfeed valve (8) to avoid over pressurizing and damaging the aircraft airspeed indicator and other linked instruments. Operate the Pressure pump (2) to pressurize the PITOT accumulator. Slowly open the PITOT control valve (3) until the aircraft altimeter indicates -1000 feet. Record the reading from the 370PSK's STATIC display (10). Open the STATIC control valve (6) and use the Vacuum pump (5) to begin to evacuate the aircraft static system (To avoid damage to aircraft instrumentation, do not to exceed the maximum climb rate of the aircraft vertical speed indicator. Press the "R of C" key on the STATIC side (10) keypad to activate the 370PSK's vertical speed indicator for reference). Continue to evacuate to achieve the desired test elevation on the aircraft altimeter and close the STATIC control valve (6). Make use of the STATIC control (6) and vent (7) valves along with the Vacuum pump (5) and accumulator to achieve the precise altitude. Record the STATIC display (10) value. Proceed in this manner for each FAR 43 App. E test altitude applicable to the altimeter being tested. Vent the system to atmosphere by slowly opening the STATIC vent valve (7). To avoid damage to aircraft instruments during venting, do not to exceed the maximum dive rate of the aircraft vertical speed indicator.

### AIRSPEED TESTING UNDER SIMULATED ALTITUDE

The accuracy of airspeed indicators under simulated altitude conditions can be checked during altimeter testing. While performing the altimeter testing described in the preceding section, interrupt the altimeter test at selected altitudes by leaving the STATIC control valve (6) closed and closing the crossfeed valve (8). Charge the pressure accumulator by operating the Pressure pump (2). Slowly open the PITOT control valve (3) to achieve a desired airspeed indication. Record the data. **Do not fail to re-open the crossfeed valve (8) before going on to another test altitude or damage to aircraft instruments will occur.** Continue through the altitude and airspeed values of interest until test points are complete. Do not fail to open the crossfeed valve (8) prior to venting the system to atmosphere. Vent by slowly opening the STATIC vent valve (7). To avoid damage to aircraft instruments during venting, do not exceed the maximum dive rate of the aircraft vertical speed indicator.

# MODEL 370PSK PITOT / STATIC TEST KIT

## RE-ZERO/MAINTENANCE RECOMMENDATIONS

### RE-ZEROING PROCEDURES / RECOMMENDATIONS

Meriam Instrument recommends periodic re-zeroing of the PITOT and STATIC sensors in the 370PSK to maintain the accuracy of the test kit. While zero shift will not alter the calibration curve in any way, shift of sufficient magnitude can cause the indicated accuracy to fall outside of factory specifications. To facilitate re-zeroing, Meriam has incorporated convenient re-zeroing methods for both of the 370PSK's sensors.

PITOT sensor re-zeroing: Open all five (5) valves on the control panel and allow both displays to stabilize. Press the ZERO key on the PITOT side (9) keypad. Zero operation is complete.

STATIC sensor re-zeroing: Open all five (5) valves on the control panel and follow the RE-ZEROING PROCEDURE found in the "PITOT Display Programming Instructions." See pages 31 and 32 of this instruction manual.

Zero shift can occur as a result of thermal shock or normal aging of electronic components. Meriam recommends re-zeroing the PITOT and STATIC sensors every sixty (60) days during seasonal use or after twenty-five (25) exposures to extreme temperature conditions (below 23° F or above 104° F). These procedures will maintain the accuracy of the sensors between recertification periods.

### OTHER MAINTENANCE RECOMMENDATIONS

Batteries: The tester is powered by six (6) "C" size alkaline cells housed in three (3) battery holders located along the right side of the control panel. When the output of the battery pack under load drops below 6.5 volts, the display flashes "LOW POWER DETECT" and "REPLACE BATTERY". To replace the "C" cells, unscrew the battery holder caps from the top of the control panel. Replace old cells with new alkaline cells only. Always replace all six (6) cells at the same time. Do not use carbon or nickel cadmium batteries.

Hand pumps: The vacuum and pressure pumps are of simple and robust design. Minimal maintenance will be needed. In the event of a damaged plunger wiper, the pump may be disassembled from the top of the control panel. Disassembly of the 370PSK is not necessary.

Internal tubing: Polyurethane tubing is used with triple-barbed brass tube fittings to keep leak possibilities to a minimum. If replacement of a damaged section of tubing becomes necessary, use a soldering iron to melt the tubing off the brass fittings. Cut the replacement tubing to length. To make installation easier, stretch the tube end prior to pushing it onto the barb fitting by inserting the tip of a closed needle nose pliers and rotating the pliers while applying moderate force.

# MODEL 370PSK PITOT / STATIC TEST KIT

## ACCURACY RECERTIFICATION / RECALIBRATION

The PITOT side differential pressure sensor accuracy can be recertified using a  $\pm 0.01\%$  of reading deadweight tester. The pitot sensor should be checked at a minimum of four test points: 25%, 50%, 75% and 100% of the units range (200" H<sub>2</sub>O). Before performing the evaluation, always ZERO the instrument (see Re-zeroing / Maintenance Instructions), then consider the numbered points below.

The STATIC side absolute pressure sensor accuracy can be recertified using a  $\pm 0.0035\%$  of reading absolute deadweight tester. The static sensor should be checked at a minimum of four test points: 25%, 50%, 75% and 100% of the units range (900 mm Hg Abs.). Before performing the evaluation, always re-zero the instrument (see Re-zeroing / Maintenance Instructions) using the most accurate "corrected to sea level" barometric pressure possible. Then consider the numbered points below. Request Meriam F/N 050:MHB-1 for more detailed information.

1.a. Use the User Unit Select option in **Program Mode** to match the PITOT display units to the deadweight tester units. Be sure to match the temperature reference of the deadweight tester to the PITOT display's temperature reference (60° F for inches H<sub>2</sub>O and 0° C for inches Hg units; PSI and Millibars have no temperature reference).

1.b. Use the User Unit Select option in **Program Mode** to match the STATIC display units to the deadweight tester units. Be sure to match the temperature reference of the deadweight tester to the STATIC display's temperature reference (0° C for inches Hg and mm Hg units; the Millibars unit has no temperature reference).

2. Correct the deadweight tester readings for ambient temperature when it is different from the reference temperature. The 370PSK does this automatically.

3. The local gravity where the evaluation is being performed must be corrected for on the deadweight tester. Standard gravity is 980.665 cm/sec/sec (45° north latitude at sea level).

4. Make sure there are no leaks in the system.

The evaluation described will confirm whether the 370PSK is operating within its accuracy specification over the operating temperature range. An out of spec 370PSK should be returned to the factory for recalibration. No field recalibration is possible.

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All 370PSK Pitot / Static Test Kits recalibrated at the factory are returned with certificates of NIST traceability. Meriam Instrument recommends yearly recertification.

# 370PSK PITOT / STATIC TEST KIT

## PITOT DISPLAY OPERATING INSTRUCTIONS



**PITOT SIDE DISPLAY AND KEYPAD**

The Model 370PSK's Pitot Display provides accurate Airspeed Indication and Pitot System Leak Testing at the stroke of a key. The microprocessor based unit has  $\pm 0.05\%$  of full scale accuracy including all effects of linearity, repeatability, **hysteresis and temperature** over the range of 23° F to 122° F. Airspeed can be displayed in knots, mph, or km/h. Resolution of airspeed units is to the nearest tenth. Other display options include user selectable pressure units of inches of H<sub>2</sub>O, inches of Hg, PSI or millibars. A

leak test feature is included to allow trouble shooting aircraft pitot systems. A "ZERO" key is also included for conveniently re-zeroing the unit.

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# PITOT DISPLAY KEYPAD FUNCTIONS

## ON/OFF & BACKSPACE KEY



Turns the Pitot Display on and then turns it off from the **Measure Mode**. Also serves as a backspace key ← when editing in the **Program Mode**. The backspace function takes the user out of a programmable register without changing the previous setting. Pressing this key repeatedly will return the user to the **Measure Mode** and then shut off the Pitot Display.

## LEAK & UP ARROW KEY



In the **Measure Mode** activates and deactivates the **LEAK** function per established guidelines. After an aircraft's pitot system is pressurized to a desired level, **LEAK** starts a 60 second settling time countdown. A 60 second leak test follows displaying starting airspeed in upper right and current airspeed in upper left. Leak in KNOTS /minute or MPH/minute is displayed after test period. Up arrow ↑ key is used to scroll through the program menu when the unit is in the **Program Mode**. Once a programmable register is selected the up arrow ↑ can be used to edit that register.

## ZERO & DOWN ARROW KEY



In the **Measure Mode** activates the **ZERO** function. A “ZERO IN PROGRESS” message is displayed with a countdown from 9 to 0 to indicate proper performance. Down arrow ↓ key is used to scroll through the program menu when the unit is in the **Program Mode**. Once a programmable register is selected the down arrow ↓ can be used to edit that register.

## PRGM & ENTER (RIGHT ARROW) KEY



Puts the Pitot Display into **Program Mode** from **Measure Mode**. When in the **Program Mode**, pressing this key selects the programmable register to be edited. After the register has been edited, pressing the PRGM key enters the new setting into the tester's non-volatile memory. This key also acts as a forward space → key when editing user input such as the header name or numeric values.

## MEASURE MODE

The **Measure Mode** is the Pitot Display's start up mode. Measured airspeed or pressure is displayed in user selected units.

## PROGRAM MODE

The **Program Mode** is used to configure the Pitot Display for **Measure Mode** operation. The configurable registers that are found in the **Program Mode** menu are Units Select, Damp Rate Select, User Info Select, Contrast Select and Exit. The tester can be put into the **Program Mode** at any time during **Measure Mode** operation by pressing the PRGM key. The top line of the display will read "PROGRAM MODE". The bottom line will read "UNITS SELECT". Press the up or down arrow keys to scroll through the **Program Mode** menu to the desired register.

## UNITS SELECT

The standard engineering units available on the Pitot Display are:

- |           |                               |              |
|-----------|-------------------------------|--------------|
| 1. KNOTS  | 4. INCHES OF H <sub>2</sub> O | 6. PSI       |
| 2. MPH    | 5. INCHES OF Hg               | 7. MILLIBARS |
| 3. KM / H |                               |              |

To change the engineering unit of measure the Pitot Display should be "ON" and in the **Measure Mode**. Then use the following steps:

Keystroke	Display
1. Press PRGM key.	Top line reads "PROGRAM MODE" and bottom line reads "UNITS SELECT".
2. Press ENTER key (right → arrow).	Top line reads "UNITS SELECT" and bottom shows current engineering unit.

3. Press up ↑ or down ↓ arrow key until desired engineering unit is displayed.

4. Press ENTER key (right → arrow) to select desired engineering unit.

5. Press the backspace ← arrow key.

Engineering units on bottom line of display change.

Top line reads “PROGRAM MODE” and bottom line reads “UNITS SELECT”.

Display returns to **Measure Mode** in new engineering unit.

## DAMP RATE SELECT

Adjustable damping is available to steady the display when measuring pulsating airspeed or pressure. The Pitot Display has damping rates of 0.1, 0.2, 0.5, 1, 2, and 5 seconds. Damping is done by averaging new data from the pressure sensor against previously collected data. The microprocessor collects data from the sensor every 0.1 seconds. When set at 0.1 seconds, the display updates every 0.5 seconds (this is the display update rate) showing the current 0.1 second pressure reading. When set at 5 seconds, the display updates every 0.5 seconds showing the average of the previous 5 seconds of readings. Therefore, at this setting it takes 5 seconds from the time pressure is changed until the Pitot Display shows the actual applied pressure.

To set the damp rate follow these keystrokes:

Keystroke	Display
1. From the <b>Measure Mode</b> , press the PRGM key.	Top line reads "PROGRAM MODE" bottom line reads "UNITS SELECT".
2. Press the up ↑ arrow key.	Bottom line reads "DAMP RATE SELECT".
3. Press ENTER key (right → arrow).	Top line reads "DAMP RATE SELECT", bottom line reads the current damp rate.
4. Press the up ↑ or down ↓ arrow keys to change to desired rate.	Bottom line shows new damp rate in seconds.
5. Press ENTER key (right → arrow).	Selects damp rate, top line reads "PROGRAM MODE", bottom line reads "UNITS SELECT".
6. Press the backspace ← arrow.	Returns to <b>Measure Mode</b> .

## AUTO SHUT-OFF

Enabling the Auto Shut-Off feature allows the Pitot Display to turn itself off after a user selected period keypad inactivity. Selectable periods include DISABLED, 10 Minutes, 20 Minutes, 30 Minutes, 60 Minutes or 90 Minutes. Disabling this feature limits the Pitot Display to being turned off by using the ON/OFF key or master ON/OFF/Light Switch only. Units are shipped from the factory with the Auto Shut-Off set for 10 Minutes. To change the auto shut-off setting, follow the steps below.

Keystroke	Display
1. From the <b>Measure Mode</b> , press the PRGM key.	Top line reads “PROGRAM MODE”, bottom line reads “UNITS SELECT”.
2. Press up ↑ arrow key twice.	Top line reads “PROGRAM MODE”, bottom line reads “USER INFO SELECT”.
3. Press ENTER key (right → arrow), then up ↑ arrow key three times.	Top line reads “AUTO SHUT-OFF” bottom reads “ENTER TO SELECT”.
4. Press ENTER key (right → arrow), then the up ↑ or down ↓ arrow keys until desired shut-off time is shown.	Top line reads “AUTO SHUT-OFF”, bottom line toggles between “DISABLED”, “10 Minutes”, “20 Minutes”, “30 Minutes”, “60 Minutes” and “90 Minutes”.
5. Press ENTER key (right → arrow).	Desired Auto Shut-Off time is selected, Top line reads “AUTO SHUT-OFF”, bottom reads “ENTER TO SELECT”.
6. Press the backspace ← arrow key twice.	Returns to <b>Measure Mode</b> .

## USER INFO SELECT / START-UP HEADER INFORMATION

The User Info Select register is designed to provide the user with information on the hardware and software installed in the Pitot side of the tester. This register stores information on the Pitot sensor’s serial number and date of manufacture. The register will also display the software version installed, the Auto Shut-Off status and the instrument Start-up Header. This Header appears on the top display line when the Pitot Display is initially turned on. The factory setting of the Header is “MERIAM INSTR.” but can be edited to show a custom alpha-numeric string as desired by the user. To view any Unit Info Select register or edit the AUTO SHUT-OFF or HEADER NAME, follow the keystrokes listed below.

Keystroke	Display
1. From the <b>Measure Mode</b> , press the PRGM key.	Top line reads “PROGRAM MODE”. Bottom line reads “UNITS SELECT”
2. Press the up ↑ arrow key two times.	Bottom line changes to “USER INFO SELECT”
3. Press the ENTER key (→).	Bottom line shows serial number.
4. Press the up ↑ arrow key.	Software version number shown.
5. Press the up ↑ arrow key.	Date of manufacture shown.
6. Press the up ↑ arrow key.	Top line reads “AUTO SHUT OFF”, bottom line reads “ENTER TO SELECT”.
7. To set the AUTO SHUT-OFF	see steps 4 - 6 on page 5.
8. To edit the Header, press the up ↑ arrow key .	Top line reads “HEADER NAME”, bottom line reads “MERIAM INSTR.”, cursor flashes at bottom left.

<p>9. Press the up ↑ or down ↓ arrow keys to set the alpha-numeric value.</p>	<p>Displays a number between 0 and 9, a letter from A to Z, / or a blank space.</p>
<p>10. Press ENTER key (right → arrow) to accept the selected value.</p>	<p>Cursor advances one space to right.</p>
<p>11. Repeat steps 11 and 12 until the desired Header is shown.</p>	
<p>12. If an error is made, press the back ←arrow key until cursor is over the incorrect value. Follow step 9 - 11 to correct. Press the right → arrow to advance the cursor without changing values.</p>	<p>Corrected value is displayed.</p>
<p>13. When Header is complete press the PRGM key to advance cursor to line end.</p>	<p>Cursor flashes at bottom right.</p>
<p>14. Press ENTER key (right → arrow).</p>	<p>Top line reads “PROGRAM MODE” bottom reads “UNITS SELECT”.</p>
<p>15. Press the backspace ← arrow key.</p>	<p>Returns to <b>Measure Mode</b>.</p>

## CONTRAST SELECT

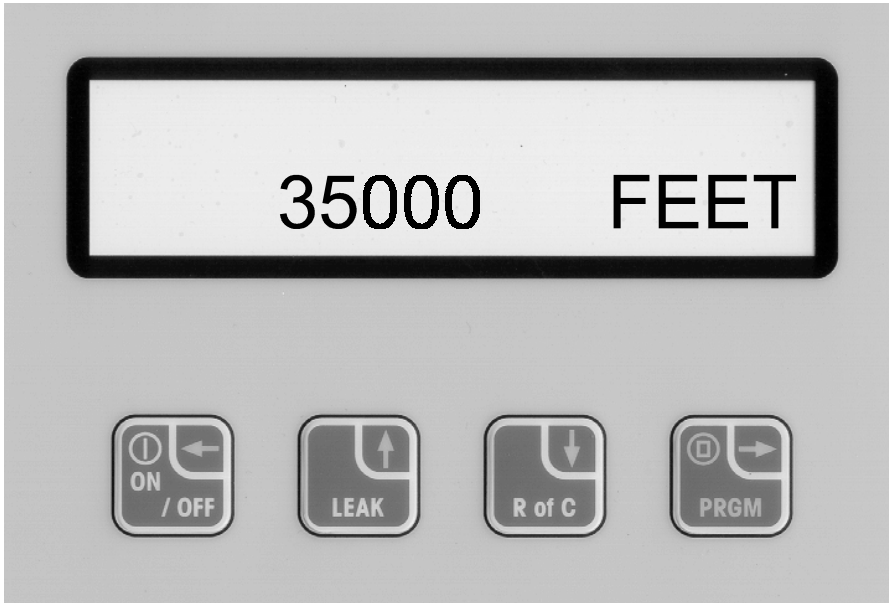
The Contrast Select register allows the user to adjust the character contrast of the LCD display to provide the best visibility for the ambient conditions. To adjust the contrast follow the keystrokes below:

Keystroke	Display
1. From the <b>Measure Mode</b> press the PRGM key.	Top line reads “PROGRAM MODE” bottom reads “UNITS SELECT”.
2. Press the up ↑ arrow key three times.	Bottom line reads “CONTRAST SELECT”.
3. Press ENTER key (right → arrow).	Top line reads “CONTRAST ADJUST”, bottom line shows a numeric value.
4. Press up ↑ arrow to decrease contrast or down ↓ arrow to increase the contrast.	LCD lightens or darkens depending on value set.
5. Press the PRGM key.	Accepts selected setting, top line reads “PROGRAM MODE”, bottom reads “UNITS SELECT”.
6. Press backspace ← arrow key.	Returns to <b>Measure Mode</b> .

**Attention:** If an error is made during the contrast adjustment and the display blacks out or fades out completely, simply press the opposite arrow key and hold until the characters are again visible and adjust to suit. Or, use the backspace ← arrow key to return to the previous setting .

# 370PSK PITOT / STATIC TEST KIT

## STATIC DISPLAY OPERATING INSTRUCTIONS



**STATIC SIDE DISPLAY AND KEYPAD**

The Model 370PSK's Static Display provides Altitude, Rate of Climb (R of C), and Leak testing at the stroke of a key. The unit is microprocessor based and has an accuracy rating of  $\pm 0.02\%$  of full scale including all effects of linearity, repeatability, **hysteresis and temperature** over the range of 23° F to 122° F. Altitude can be displayed in feet or meters and R of C in feet per minute or meters per minute. Resolution is to the nearest foot or meter. Other

display options include user selectable pressure units of inches of Mercury, mm of Mercury or millibars. A feature for leak testing of aircraft static systems is also included.

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# STATIC DISPLAY KEYPAD FUNCTIONS

## ON/OFF & BACKSPACE KEY



Turns the Static Display on and then turns it off from the **Measure Mode**. Also serves as a backspace key ← when editing in the **Program Mode**. The backspace function takes the user out of a programmable register without changing the previous setting. Pressing this key repeatedly will return the user to the **Measure Mode** and then shut off the Static Display.

## LEAK & UP ARROW KEY



In the **Measure Mode** activates the **LEAK** function per FAR 91.411 guidelines. After an aircraft's static system is evacuated to desired level, **LEAK** starts a 120 second settling time countdown (for non-FAR 91.411 leak tests, pressing **LEAK** repeatedly decrements the remaining settling time by 30 seconds per stroke). A 60 second leak test follows displaying starting altitude in upper right and current altitude in upper left. Leak in FPM or MPM is displayed after test period. Pressing any other key discontinues the leak test. Up arrow ↑ key is used to scroll through the program menu when the unit is in the **Program Mode**. Once a programmable register is selected the up arrow ↑ can be used to edit that register.

## R of C & DOWN ARROW KEY



In the **Measure Mode** activates and deactivates the Rate of Climb function. R of C is displayed on top line with instantaneous altitude remaining on bottom. The time period over which the R of C is calculated can be adjusted to user preference through the **Program Mode**. Smaller time periods will cause a more rapid calculation of R of C (Digital vertical speed indicators respond very quickly to changes in absolute pressure. Use of the Rate of Climb Rate Select feature may be needed to customize the response rate to personal taste). Pressing any key discontinues the R of C display. Down arrow ↓ key is used to scroll through the program menu with the unit in the **Program Mode**. Once a programmable register is selected the down arrow ↓ can be used to edit that register.

## PRGM & ENTER (RIGHT ARROW) KEY



Puts the Static Display into **Program Mode** from **Measure Mode**. When in the **Program Mode**, pressing this key selects the program menu shown on the display and enables the editing functions. When **Lockout** is activated, a prompt for input of the password will appear before **Program Mode** is accessed (see page 33 for instructions). After programmable registers have been edited, pressing the PRGM key enters the new setting into the Static Display's non-volatile memory. This key also acts as a forward space → key when editing user inputs such as header name or numeric values.

## MEASURE MODE

The **Measure Mode** is the Static Display's start up mode. Measured altitude (or absolute pressure) or rate of climb is displayed in user selected units.

## PROGRAM MODE

The **Program Mode** is used to configure the Static Display for **Measure Mode** operation. The configurable registers that are found in the **Program Mode** menu are Units Select, Damp Rate Select, User Info Select, Contrast Select, R of C Rate Select and Exit. The Static Display can be put into the **Program Mode** at any time during **Measure Mode** operation by pressing the PRGM key (if **Lockout** is set, the correct code must be entered when prompted to gain access to **Program Mode**). The top line of the display will read "PROGRAM MODE". The bottom line will read "UNITS SELECT". Press the up or down arrow keys to scroll through the **Program Mode** menu to the register of interest.

## UNITS SELECT

The standard engineering units available on the Static Display are:

1. FEET
2. INCHES OF Hg (ref. 0° C)
3. MM OF Hg (ref. 0° C)
4. METERS
5. MILLIBARS

Selection of FEET automatically causes R of C to read in F/M (feet per minute). Selection of METERS automatically causes R of C to read in M/M (meters per minute).

To change engineering unit of measure the Static Display should be "ON" and in the **Measure Mode**. Then use the following steps:

Keystroke	Display
1. Press PRGM key.	Top line reads "PROGRAM MODE" and bottom line reads "UNITS SELECT".
2. Press ENTER key (right → arrow).	Top line reads "UNITS SELECT" and bottom shows current engineering unit.

3. Press up ↑ or down ↓ arrow key until desired engineering unit is displayed.

4. Press ENTER key (right → arrow) to select engineering unit.

5. Press the backspace ← arrow key.

Engineering units on bottom line of display change.

Top line reads “PROGRAM MODE” and bottom line reads “UNITS SELECT”.

Display returns to **Measure Mode** in new engineering unit.

## DAMP RATE SELECT

Adjustable damping is available to steady the display when measuring pulsating altitude or pressure. The Static Display has damping rates of 0.1, 0.2, 0.5, 1, 2, and 5 seconds. Damping is done by averaging new data from the pressure sensor against previously collected data. The microprocessor collects data from the sensor every 0.1 seconds. When the Damp Rate is set at 0.1 seconds, the display updates every 0.5 seconds (this is the display update rate) showing the current 0.1 second pressure reading. When set at 5 seconds, the display updates every 0.5 seconds showing the average of the previous 5 seconds of readings. Therefore, at this setting it takes 5 seconds from the time the applied pressure is changed until the Static Display shows the actual applied pressure or corresponding altitude.

To set the damp rate follow these key strokes:

Keystroke	Display
1. From the <b>Measure Mode</b> , press the PRGM key.	Top line reads "PROGRAM MODE" bottom line reads "UNITS SELECT".
2. Press the up ↑ arrow key.	Bottom line reads "DAMP RATE SELECT".
3. Press ENTER key (right → arrow).	Top line reads "DAMP RATE SELECT", bottom line reads current damp rate.
4. Press the up ↑ or down ↓ arrow keys to change to desired rate.	Bottom line shows new damp rate in seconds.
5. Press ENTER key (right → arrow).	Selects damp rate, top line reads "PROGRAM MODE", bottom line reads "UNITS SELECT".
6. Press the backspace ← arrow key.	Returns to <b>Measure Mode</b> .

## AUTO SHUT-OFF

Enabling the Auto Shut-Off feature allows the Static Display to turn itself off after a user selected period of keypad inactivity. Selectable options include DISABLED, 10 Minutes, 20 Minutes, 30 Minutes, 45 Minutes and 60 Minutes. Disabling this feature limits the Static Display to being turned off by using the ON/OFF key or master ON/OFF/Light Switch only. Units are shipped from the factory with the Auto Shut-Off set for 10 Minutes. To change the auto shut-off setting, follow the steps below.

Keystroke	Display
1. From the <b>Measure Mode</b> , press the PRGM key.	Top line reads “PROGRAM MODE”, bottom line reads “UNITS SELECT”.
2. Press up ↑ arrow key twice	Top line reads “PROGRAM MODE”, bottom line reads “USER INFO SELECT”.
3. Press ENTER key (right → arrow), then up ↑ arrow key three times.	Top line reads “AUTO SHUT-OFF”, bottom reads “ENTER TO SELECT”.
4. Press ENTER key (right → arrow), then the up ↑ or down ↓ arrow keys until desired shut-off time is shown.	Top line reads “AUTO SHUT-OFF”, bottom line toggles to “DISABLED”, “10 Minutes”, “20 Minutes”, “30 Minutes”, “45 Minutes” and “60 Minutes”.
5. Press ENTER key (right → arrow).	Desired Auto Shut-Off time is selected, top line reads “AUTO SHUT-OFF”, bottom reads “ENTER TO SELECT”.
6. Press the backspace ← arrow key twice.	Returns to <b>Measure Mode</b> .

## USER INFO SELECT / START-UP HEADER INFORMATION

The User Info Select register is designed to provide the user with information on the hardware and software installed in the Static side of the tester. The absolute pressure sensor's serial number and date of manufacture are stored and are viewed here. This register will also display the software version, Auto Shut-Off status and the instrument Start-Up Header. The Header appears on the top line of the start-up display when the Static Display is initially turned on. The second line of the start-up display shows the Full Scale of the Static Display in the last engineering units selected. The factory setting of the Header is "MERIAM INSTR." but can be edited to show a custom alpha-numeric string as desired by the user. To view any Unit Info Select register or edit the AUTO SHUT OFF or HEADER NAME, follow the keystrokes listed below.

Keystroke	Display
1. From the <b>Measure Mode</b> , press the PRGM key.	Top line reads "PROGRAM MODE". Bottom line reads "UNITS SELECT"
2. Press the up ↑ arrow key two times.	Bottom line changes to "USER INFO SELECT"
3. Press the ENTER key (→).	Bottom line shows serial number.
4. Press the up ↑ arrow key.	Software version number shown.
5. Press the up ↑ arrow key.	Date of manufacture shown.
6. Press the up ↑ arrow key.	Top line reads "AUTO SHUT OFF", bottom line reads "ENTER TO SELECT". See steps 4 - 6 on page 26.
7. Press the up ↑ arrow key.	Top line reads "LOCKOUT CODE", bottom reads "ENTER TO SELECT". See steps on page 13.
8. To edit the Header, press the up ↑ arrow key .	Top line reads "HEADER NAME", bottom line reads "MERIAM INSTR.", cursor flashes at bottom left.
Continued on following page...	

<p>9. Press the up ↑ or down ↓ arrow keys to set the alpha-numeric value.</p>	<p>Displays a number between 0 and 9, a letter from A to Z, / or a blank space.</p>
<p>10. Press ENTER key (right → arrow) to accept the selected value.</p>	<p>Cursor advances one space to right.</p>
<p>11. Repeat steps 11 and 12 until the desired Header is shown.</p>	
<p>12. If an error is made, press the back ←arrow key until cursor is over the incorrect value. Follow step 9 - 11 to correct. Press the right → arrow to advance the cursor without changing values.</p>	<p>Corrected value is displayed.</p>
<p>13. When Header is complete press the PRGM key to advance cursor to line end.</p>	<p>Cursor flashes at bottom right.</p>
<p>14. Press ENTER key (right → arrow).</p>	<p>Top line reads “PROGRAM MODE” bottom reads “UNITS SELECT”.</p>
<p>15. Press the backspace ← arrow key.</p>	<p>Returns to <b>Measure Mode</b>.</p>

## CONTRAST SELECT

The Contrast Select register allows the user to adjust the character contrast on the LCD display to provide the best visibility for the ambient light condition. To adjust the contrast follow the keystrokes below:

Keystroke	Display
1. From the <b>Measure Mode</b> press the PRGM key.	Top line reads “PROGRAM MODE” bottom reads “UNITS SELECT”.
2. Press the up ↑ arrow key three times.	Bottom line reads “CONTRAST SELECT”.
3. Press ENTER key (right → arrow).	Top line reads “CONTRAST ADJUST”, bottom line shows a numeric value.
4. Press up ↑ arrow to decrease contrast or down ↓ arrow to increase the contrast.	LCD lightens or darkens depending on value set.
5. Press the PRGM key.	Accepts selected setting, top line reads “PROGRAM MODE”, bottom reads “UNITS SELECT”.
6. Press backspace ← arrow key.	Returns to <b>Measure Mode</b> .

**Attention:** If an error is made during the contrast adjustment and the display blacks out or fades out completely, simply press the opposite arrow key and hold until the characters are again visible and adjust to suit. Or, use the backspace ← arrow key to return the contrast to the previous setting.

## R of C RATE SELECT

The R of C Rate Select feature allows the user to customize the time period over which the Rate of Climb is calculated. When testing for rapidly changing climb or pumping down an aircraft's static system, shorter time periods are desirable. Longer periods yield the most stable display and may be desirable for calibrating climb indicators on a bench. To change the R of C Rate, follow the keystrokes listed below.

Keystroke	Display
1. From the <b>Measure Mode</b> press the PRGM key.	Top line reads "PROGRAM MODE" bottom reads "UNITS SELECT".
2. Press the up ↑ arrow key four times.	Bottom line reads "R of C RATE SELECT".
3. Press ENTER key (right → arrow).	Top line reads "R of C RATE SELECT" bottom line reads value
4. Press up ↑ or down ↓ arrow key to select the desired Rate.	Bottom line shows R of C Rate in seconds.
5. Press ENTER key (right → arrow).	Accepts new R of C Rate , top line reads "PROGRAM MODE", bottom reads "UNITS SELECT".
6. Press backspace ← arrow key.	Returns to <b>Measure Mode</b> .

## RE-ZEROING PROCEDURE / MAINTENANCE RECOMMENDATIONS

To maintain the accuracy of the 370PSK's static side absolute sensor, periodic re-zeroing is recommended. Zero shift can occur in the absolute pressure sensor. While zero shift will not alter the calibration curve in any way, shift of sufficient magnitude can cause the indicated accuracy to fall outside of factory specification. Meriam recommends re-zeroing the static sensor every sixty (60) days during seasonal use or after twenty-five (25) exposures to extreme temperature conditions (below 23° F or above 104° F). The maintenance procedure is given below. Always open all valves on the 370PSK Pitot / Static Test Kit before re-zeroing.

Accurate values for elevation above sea level, outside air temperature and “corrected to sea level” barometric pressure will be needed to complete the re-zero procedure. Most certified repair stations will know their elevation above sea level. Temperature to ± 3° F is adequate. The “corrected to sea level” barometric pressure should be obtained from the user’s standard, if available, or from a reliable and accurate source. Never use station (uncorrected) barometer in the re-zero procedure.

To Re-zero, follow the procedure below. If a Lockout is set, performing step 2, below, will result in a Lockout prompt. The Lockout code will need to be input before access to the Re-zero is permitted. See page 33 for details.

Keystroke	Display
1. Turn unit on and allow 15 min. warm up. Vent pressure connection to atmosphere.	Measure Mode activated. Previously selected units and current value shown.
2. Press up ↑ and down ↓ arrow keys simultaneously.	Top line reads “ZEROING SOURCE”, bottom line reads “SEA LEVEL PRESS.”
3. Press right → arrow key to select this “ZERO SOURCE”. For other zeroing options, see <b>OPTIONS</b> after Step 8 below.	Top line reads previously stored “ELEV”, bottom line reads “CHANGE? YES”.
Continued on following page...	

<p>4.a.To enter new ELEV, press right → arrow key.Use up ↑ or down ↓ arrow keys to change the first position.Use right → arrow key.Continue procedure until correct ELEV is shown.</p> <p>4.b.To accept stored ELEV, use up ↑ or down ↓ arrow key to toggle to “NO” and press right → arrow key.</p> <p>5.Right → arrow key completes ELEV screen.</p> <p>6.To enter new TEMP, follow Step 4.a. To accept the TEMP displayed, follow Step 4.b.</p> <p>7.Right → arrow key completes TEMP screen.</p> <p>8.To enter a new “SEA LEVEL VALUE”, follow Step 4.a. To accept displayed value, use right → arrow key to finish.</p>	<p>Top line reads “ELEVATION VALUE:”, bottom line shows old value.Cursor flashes at first position while value is corrected, then moves to right once right → arrow key is pressed.</p> <p>“CHANGE? YES” changes to “CHANGE? NO” and previously stored ELEV is accepted.</p> <p>Top line reads previously stored “TEMP”, bottom line reads “CHANGE? YES”.</p> <p>Top and bottom lines read similar to 4.a. and 4.b. above.</p> <p>Top line reads “SEA LEVEL VALUE:”, bottom line reads previously stored value.</p> <p>Re-zero procedure is completed and display returns to Measure Mode.</p>
<p><b>OPTIONS</b></p> <p>A. At “ZEROING SOURCE” menu (see Step 3), use up ↑ arrow key to move to “FACTORY ZERO” source.</p> <p>B.Use up ↑ arrow key to move to “REF TO ABS ZERO”. Apply complete vacuum (&lt;10 microns). Use right → arrow key to finish.</p>	<p>“FACTORY ZERO” is displayed. Upon use of right → arrow key, the factory zero is restored from memory. Display returns to Measure Mode.</p> <p>“REF TO ABS ZERO” is displayed. Upon use of right → arrow key - after complete vacuum is applied - a new zero is taken. This the method the factory uses to establish the zero of the static sensor.</p>

## LOCKOUT SELECT

Enabling the **Lockout** feature prevents unauthorized users from making changes to the configuration of the tester. To enter **Program Mode**, or to **Re-Zero** the tester, the user must first enter the “password” (two-digit Lockout Code) when prompted, within about 40 seconds. An incorrect code or timeout will return the unit to **Measure Mode**. Any two-digit numeric code can be programmed. The factory Lockout Code of **00** disables the **Lockout**. To set the Lockout Code, follow the keystrokes listed below:

To set the Lockout Code:

Keystroke	Display
1. From the <b>Measure Mode</b> , press the PRGM key. If the Lockout is set, enter the correct “password” when prompted.	Top line reads “PROGRAM MODE”, bottom line reads “UNITS SELECT”.
2. Press the up ↑ arrow key twice.	Bottom line reads “USER INFO SELECT”.
3. Press ENTER key (right → arrow), then the up ↑ arrow key four times.	Top line reads “LOCKOUT CODE”, bottom line reads “ENTER TO SELECT”.
4. Press ENTER key (right → arrow), then press the up ↑ or down ↓ arrow keys to change to the first digit. Press the right → arrow key to proceed .	Bottom line shows old Lockout code. Cursor flashes at first position while value is changed, then moves to right position once right → arrow key is pressed.
5. Press ENTER key (right → arrow) when desired code is set. Lockout is activated.	Top line reads “LOCKOUT CODE”, bottom line reads “ENTER TO SELECT”.
6. Press the backspace ← arrow key twice.	Returns to <b>Measure Mode</b> .