

# Model 475

## 3.1 CALIBRATION PROCEDURE

### Equipment Required:

Precision resistance decade box: resolution, .01 ohm; accuracy,  $\pm .02\%$ .

Precision milliamp source: resolution, 1  $\mu\text{A}$ ; accuracy  $\pm .01\%$  ( $\pm 2\mu\text{A}$ ).

Potentiometer adjusting tool.

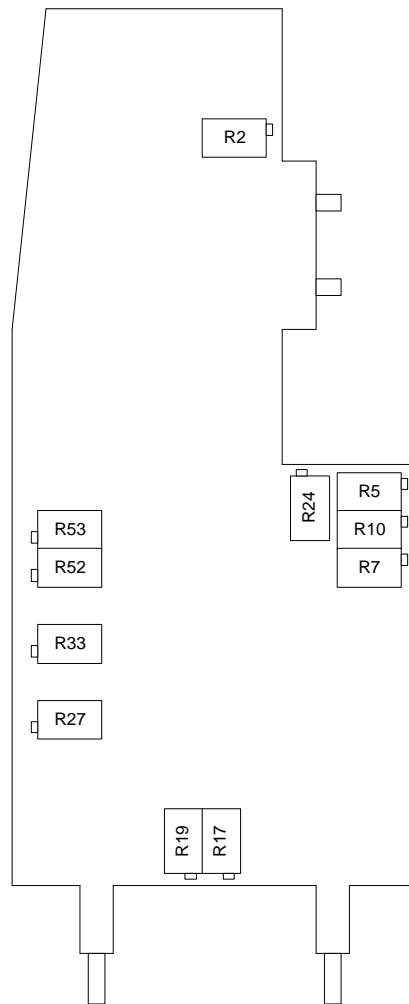


Figure 3-1. Potentiometer Adjustment/Testpoint Locations

### 3.1.1 *Disassembly*

- a. Remove battery from instrument (refer to 2.4.1).
- b. Remove bottom case half from printed circuit board assemblies by extracting three screws from case bottom and one screw holding wrist strap lug.
- c. Remove top case half from printed circuit board assemblies by extracting screw on clad side of Analog board between output controls.
- d. Re-connect battery to connector.

### 3.2.1 *RTD/Ohm Calibration*

- a. Set RTD switch to 2-/4-wire position.
- b. Set mA switch to "A" position.
- c. Connect precision resistance decade box to instrument input using supplied 4-wire leadset: connect V+ and I+ jacks to one terminal of decade box; connect V- and I- jacks to other terminal of decade box. Use supplied mini-banana adapters as required to connect decade box.
- d. Turn instrument on and wait five minutes for stabilization.
- e. Select: indicate mode, Pt392 range, °F readout, .1 resolution
- f. Set decade box to 100.00 ohms
- g. Adjust R24 for a display reading of 32.0° F.
- h. Set decade box to 176.90 ohms
- i. Adjust R27 for a display reading of 390.0° F.
- j. Set decade box to 59.00 ohms
- k. Adjust R33 for a display reading of -150.0° F.
- l. Repeat steps 3.1.2.e through 3.1.2.k until no further adjustments are required
- m. Select Pt385 range.
- n. Set decade box to 175.43 ohms
- o. Adjust R17 for a display reading of 390.0° F.
- p. Select: Cu10 range, °C readout.
- q. Set decade box to 9.04 ohms.
- r. Adjust R7 for a display reading of 0° C.
- s. Select °F readout.
- t. Adjust R5 for a display reading of 32° F.
- u. Select °C readout.
- v. Set decade box to 16.780 ohms.
- w. Adjust R19 for a display reading of 200° C.
- x. Select °F readout; display should read 392° F.
- y. Repeat steps 3.1.2.p through 3.1.2.x until no further adjustments are required for correct display readings.
- z. Select ohms range.
- aa. Select decade box to 0.00 ohms.
- bb. Adjust R10 for display readings of 00 and 0.0 for 1 ohm and .1 ohm ranges respectively.
- cc. Set decade box to 1000.0 ohms.
- dd. Adjust R52 for a display reading of 1000 ohms.
- ee. Set decade box to 390.0 ohms.
- ff. Select .1 ohm resolution.

- gg. Adjust R53 for a display reading of 390.0 ohms.
- hh. Repeat steps 3.1.2.z through 3.1.2.gg until no further adjustments are required for correct display readings.

### *3.1.2 mA Input Calibration*

- a. Observing proper polarity, connect precision mA source to mA input jacks of instrument.
- b. Set instrument to calibrate/mA input mode.
- c. Adjust mA source output to 32.00 mA.
- d. The display should read 32.00 mA. If not, adjust R10 for correct reading.
- e. Adjust mA source output to 3.2 mA.
- f. The display should read 3.20 mA. A correction of 0.01 may be made by adjusting R10.
- g. IF R10 WAS ADJUSTED FOR THE mA READINGS, RECHECK THE OHMS RANGE (3.1.2.z through 3.1.2.hh).
- h. Carefully reassemble instrument.

**CALIBRATION COMPLETED**