*TB 9-4920-454-35

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR TESTER, EXHAUST GAS TEMPERATURE, HOWELL INSTRUMENTS, INC., MODEL BH112JB-( )

Headquarters, Department of the Army, Washington, DC
11 March 2004

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can improve this manual. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Commander, US Army Aviation and Missile Command, AMSAM-MMC-MA-NP, Redstone Arsenal, AL 35898-5000. A reply will be furnished to you. You may also provide DA Form 2028 information to AMCOM via e-mail, fax, or the World Wide Web. Our fax number is DSN 788-6546 or Commercial 256-842-6546. Our e-mail address is 2028@redstone.army.mil. Instructions for sending an electronic 2028 may be found at the back of this manual. For the World Wide Web, use https://amcom2028.redstone.army.mil.

*This bulletin supersedes TB 9-4920-454-35, dated 6 January 1998.

SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Tester, Exhaust Gas Temperature, Howell Instruments, Inc., Model BH112JB-( ). The manufacturer's manual and TM 55-4920-401-13&P were used as the prime data sources in compiling these instructions. The equipment being calibrated will be referred to as the TI (test instrument) throughout this bulletin.

a. Model Variations. None.

b. Time and Technique. The time required for this calibration is approximately 6 hours, using the dc and low frequency technique.

2. Forms, Records, and Reports

a. Forms, records, and reports required for calibration personnel at all levels are prescribed by TB 750-25.

b. Adjustments to be reported are designated (R) at the end of the sentence in which they appear. When adjustments are in tables the (R) follows the designated adjustment. Report only those adjustments made and designated with (R).

3. Calibration Description. TI parameters and performance specifications which pertain to this calibration are listed in table 1.

Table 1. Calibration Description

Test instrument parameters	Performance specifications
Temperature	Range: 0 to 1399 °C Accuracy: ±2 °C
% RPM	Range: 0 to 119.90% rpm Accuracy: ±0.1% rpm
Standard day measurements, ambient temperature, and % RPM	Range: -41 to 139 °F Accuracy: ±4 °C ±0.5% rpm
Resistance	Range: 4.21 Ω, 8.0 Ω, 15.0 Ω, and 22.0 Ω Accuracy: ±.05 Ω

SECTION II
EQUIPMENT REQUIREMENTS

4. Equipment Required. Table 2 identifies the specific equipment to be used in this calibration procedure. This equipment is issued with Secondary Transfer Calibration Standards Set AN/GSM-286 or AN/GSM-705. Alternate items may be used by the calibrating activity. The items selected must be verified to perform satisfactorily prior to use and must bear evidence of current calibration. The equipment must meet or exceed the minimum use specifications listed in table 2. The accuracies listed in table 2 provide a four-to-one ratio between the standard and TI. Where the four-to-one ratio cannot be met, the actual accuracy of the equipment selected is shown in parenthesis.

5. Accessories Required. The accessories required for this calibration are common usage accessories, issued as indicated in paragraph **4** above, and are not listed in this calibration procedure.

Table 2. Minimum Specifications of Equipment Required

Common name	Minimum use specifications	Manufacturer and model (part number)
CALIBRATOR	Range: 0 mV to 10 V dc Accuracy: ±.003% Range: 20 mV, 70 Hz Accuracy: ±3.0%	Fluke, Model 5720A (5700A/EP) (p/o MIS-35947)
FREQUENCY COUNTER	Range: 103 ms to 15.873 ms Accuracy: ±.033%	Fluke, Model PM6681/656 (PM6681/656)
MULTIMETER	Range: 0 to 1000 V dc Accuracy: ±.07%	Hewlett-Packard, Model 3458A (3458A)
OSCILLATOR	Range: 1 V ac Frequency: 63 to 77 Hz Accuracy: ±.25%	Tektronix, Type SG505 (MIS-30526/11)
OSCILLOSCOPE	Range: 14 to 100 μs Accuracy: ±3.0%	Tektronix, Type 2465B-46 (2465B-46)
RESISTANCE STANDARD	Range: 4.21 Ω to 22 Ω Accuracy: ±0.03% Range: 10 kΩ and 100 kΩ Accuracy: ±2.5%	Biddle Gray, Model 71-650 (71-650)
THERMOMETER	Range: 70 to 85 °F Accuracy: ±1.0 °F	Azonix, Model A1012 (MIS38958)

SECTION III
CALIBRATION PROCESS

6. Preliminary Instructions

a. The instructions outlined in paragraphs **6** and **7** are preparatory to the calibration process. Personnel should become familiar with the entire bulletin before beginning the calibration.

b. Items of equipment used in this procedure are referenced within the text by common name as listed in table 2.

c. Unless otherwise specified, verify the results of each test and, whenever the test requirement is not met, take corrective action before continuing with the calibration. Adjustments required to calibrate the TI are included in this procedure. Additional maintenance information is contained in the manufacturer's manual and TM 55-4920-401-13&P for this TI.

d. Unless otherwise specified, all controls and control settings refer to the TI.

7. Equipment Setup

WARNING

HIGH VOLTAGE is used or exposed during the performance of this calibration. DEATH ON CONTACT may result if personnel fail to observe safety precautions. REDUCE OUTPUTS(S) to minimum after each step within the performance check where applicable.

a. If required to make adjustments, remove TI from case and install probe controller on mounting bracket shown in figure 1.

b. Position switches as listed in (1) through (3) below:

(1) **FUNCTION SELECTOR** to **OFF**.

(2) **STD DAY** to **OFF**.

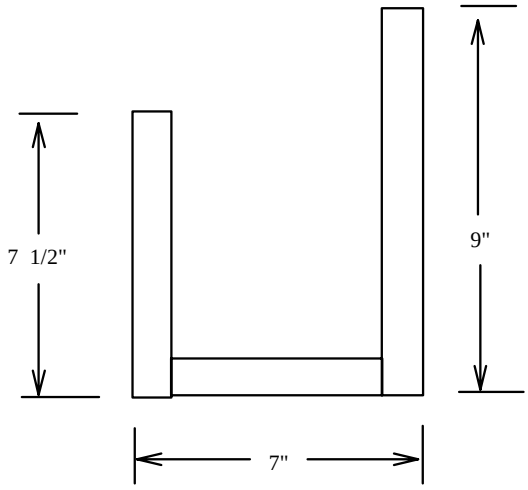
(3) **MASTER POWER** to **OFF**.

c. Connect BH-499A power cable, supplied with TI, to power input on TI and to 115 V ac, 50 to 400 Hz power source.

d. Connect BH15184A1 cable, supplied with TI, to power interconnectors.

e. Set **MASTER POWER** switch to **ON** and allow 15 minutes for warm-up.

f. Adjust **BRIGHT DISPLAY** control for suitable intensity of LED readouts.



MATERIEL 1" X 4" WOOD

Figure 1. Probe controller support.

NOTE

When LED display is flashing, an over-range condition exists. The reading is incorrect.

8. Temperature Indicator

a. Performance Check

(1) Connect equipment as shown in figure 2.

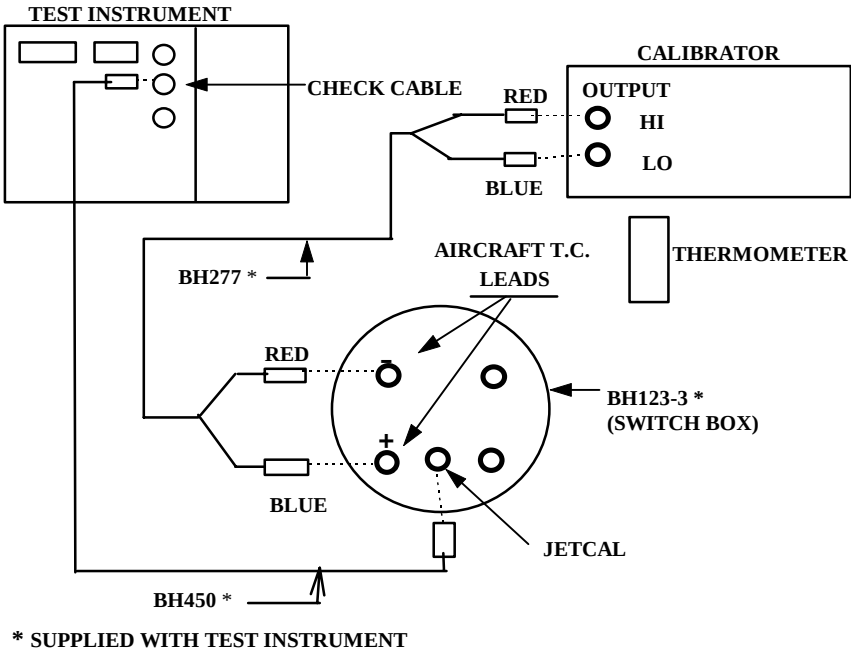


Figure 2. Temperature indicator check.

(2) Position controls as listed in (a) through (e) below:

(a) **T/C INPUT** switch to **CHECK CABLE**.

(b) **FUNCTION SELECT** switch to **TRIM**.

(c) **TEMPERATURE CAL ADJ** to mid-position.

(d) **TEMPERATURE** switch to **OPERATE**.

(e) **SW-5** switch (located on BH 123-3 switch box) to **JETCAL**.

(3) Place thermometer adjacent to calibrator **OUTPUT** terminals. Wait 10 minutes for thermometer to stabilize and record ambient temperature.

NOTE

Throughout this procedure it will be necessary to frequently check the ambient temperature to assure proper millivolt values in table 3 are applied.

Table 3. Ambient Temperature Versus Millivolt Values

Degrees (Fahrenheit)	Degrees (Centigrade)	Millivolt dc values
70	21.1	0.843
71	21.7	0.865
72	22.2	0.888
73	22.8	0.910
74	23.3	0.933
75	23.9	0.955
76	24.4	0.978
77	25.0	1.000
78	25.6	1.023
79	26.1	1.045
80	26.7	1.068
81	27.2	1.090
82	27.8	1.113
83	28.3	1.135
84	28.9	1.156
85	29.4	1.181

(4) Refer to table 3 and adjust calibrator for an mV dc output equal to millivolt value corresponding to ambient temperature recorded in (3) above.

(5) If **TEMP °C** indicator does not indicate **0**, perform **b** (l) through (4) below.

(6) Reverse leads at calibrator OUTPUT (BLUE to HI and RED to LO) (fig. 2).

(7) Adjust calibrator for an 8.13 mV dc output, less millivolt value equivalent to ambient temperature obtained in table 3.

(8) If **TEMP °C** indicator does not indicate between 198 and 202, perform **b** (5) through (7) below.

(9) Repeat (7) above for calibrator outputs, less ambient temperature equivalent in millivolts, listed in table 4. If out-of-tolerance condition exists, perform **b** (5) through (7) below.

Table 4. Temperature Indicator Accuracy Check

Temperature instrument temperature °C		Calibrator mV dc output
Min	Max	
398	402	16.40
598	602	24.91
798	802	33.30
998	1002	41.31
1198	1202	48.89
1395	1399	55.82

b. Adjustments

(1) Connect frequency counter between TP3 (+) and TP2 (-) (fig. 3). Frequency counter will indicate between 97.0 and 103.0 μs; if not, adjust R26 (fig. 3) for a 100 μs indication on frequency counter (R).

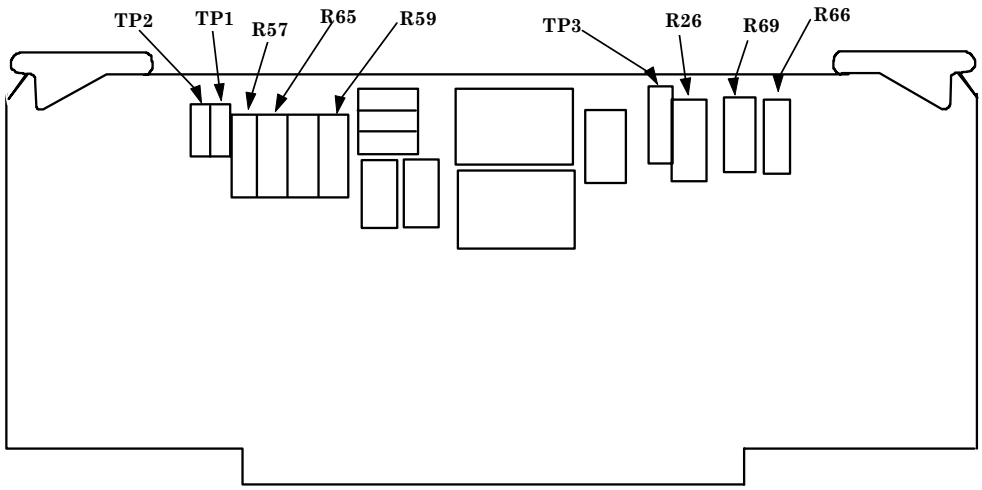


Figure 3. Temperature circuit board.

(2) Connect multimeter between TP1 (+) and TP2 (-) (fig. 3). If multimeter does not indicate between 7.255 and 7.295 mV dc, adjust R65 (fig. 3) for an indication of 7.275 mV dc.

(3) Adjust calibrator for a dc millivolt output equal to ambient temperature obtained in table 3, plus .017 mV.

(4) If **TEMP °C** indicator does not indicate **0**, adjust R57 (fig. 3) for an indication of 0 (R).

(5) Adjust calibrator for a 55.820 mV dc, less millivolt equivalent to ambient temperature, output.

(6) Adjust R59 (fig. 3) for **TEMP °C** indicator reading of **1397** (R).

(7) Repeat **a** (l) and **a** (3) through (8) above, as necessary, to ensure **TEMP °C** indicator is in tolerance at both points.

NOTE

Perform paragraph **9** below only if adjustments were made in **8 b** above.

9. Calibrator Board

a. Performance Check

(1) Place thermometer adjacent to calibrator **OUTPUT** terminals. Wait 10 minutes for thermometer to stabilize and record ambient temperature.

NOTE

Throughout this procedure it will be necessary to frequently check the ambient temperature to assure proper millivolt values in table 3 are applied.

(2) Remove jumper from test point TP2 (fig. 4) on calibrator circuit board.

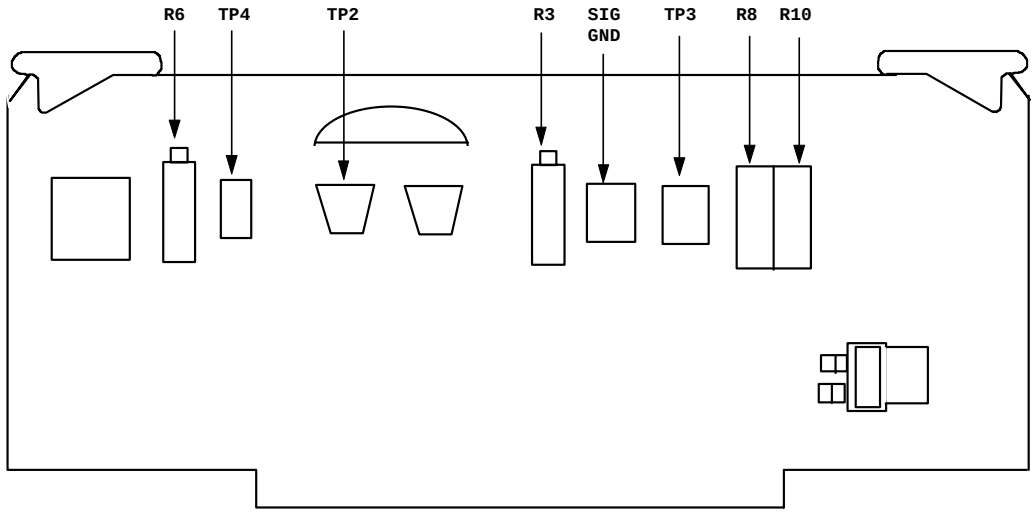


Figure 4. Calibrator circuit board test and adjustment points.

(3) Disconnect Jl4 from Pl4 (located on left side of circuit board cage).

(4) Connect calibrator **OUTPUT** positive to the negative connectors of J14 and **OUTPUT** negative to the positive connectors of J14. Connect multimeter to TP2 (+) and TP4 on calibrator circuit board (fig. 4).

(5) Refer to table 3 and adjust calibrator to millivolt value corresponding to ambient temperature recorded in (1) above.

(6) Multimeter will indicate between 7.255 and 7.295 mV dc; if not, perform **b** (l) below.

(7) Replace jumper at TP2 (fig. 4) and reconnect J14 to P14.

(8) Set **TEMPERATURE** switch to **CAL 600 °C.** If **TEMP °C** indicator does not display **600** perform **b** (2) below.

b. Adjustments

(1) Adjust R6 (fig. 4) for 7.275 mV dc indication on multimeter (R).

(2) Adjust R3 (fig. 4) for **TEMP °C** indicator display of **600** (R).

10. % RPM Indicator

a. Performance Check

(1) Set **RPM** switch to **CAL 100% RPM** and adjust **RPM CAL ADJ** control for **100.0** indication on **% RPM** indicator.

(2) Set **RPM** switch to **N1**.

(3) Short pins A and B on **RPM INSTRUMENT CABLE** receptacle, using test probe hooks.

(4) If **% RPM** indicator does not indicate **.0** or **.1**, perform **b** (l) through (3) below.

(5) Set **RPM** switch to **N2**.

(6) Remove shorting connection from pin A, and connect to pin C on **RPM INPUT INSTRUMENT CABLE** receptacle.

(7) **%RPM** indicator will indicate **.0** or **.1**.

(8) Remove short from pins B and C and connect equipment as shown in figure 5.

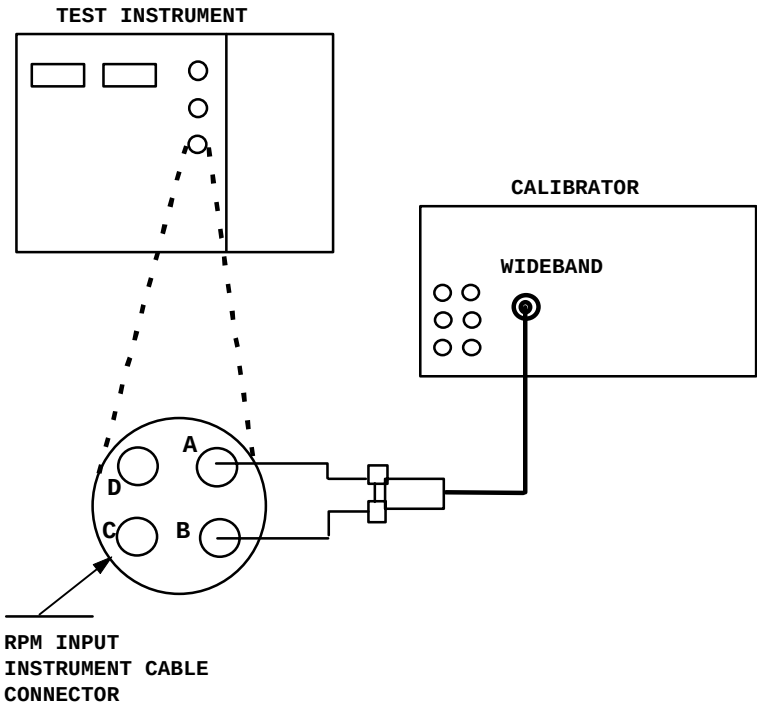


Figure 5. % RPM indicator.

(9) Set **RPM** switch to **N1.**

(10) Set calibrator for a 20 mV, 70 Hz wideband output.

NOTE

It may be necessary to temporarily disconnect TI to eliminate clock interference in (10) above.

(11) If **% RPM** indicator does not indicate between 99.9 and 100.1, perform **b** (4) and (5) below.

b. Adjustments

(1) Connect frequency counter to TP6 (+) and TP3 (-) on tachometer board (fig. 6). If frequency counter does not indicate between 97 and 103 μs, adjust R71 (fig. 6) for a 100 μs indication.

(2) Connect oscilloscope **CH2** input between TP1 (+) and TP3 (fig. 6). If a symmetrical square wave is not on oscilloscope, adjust R26 (fig. 6) for best symmetrical waveform.

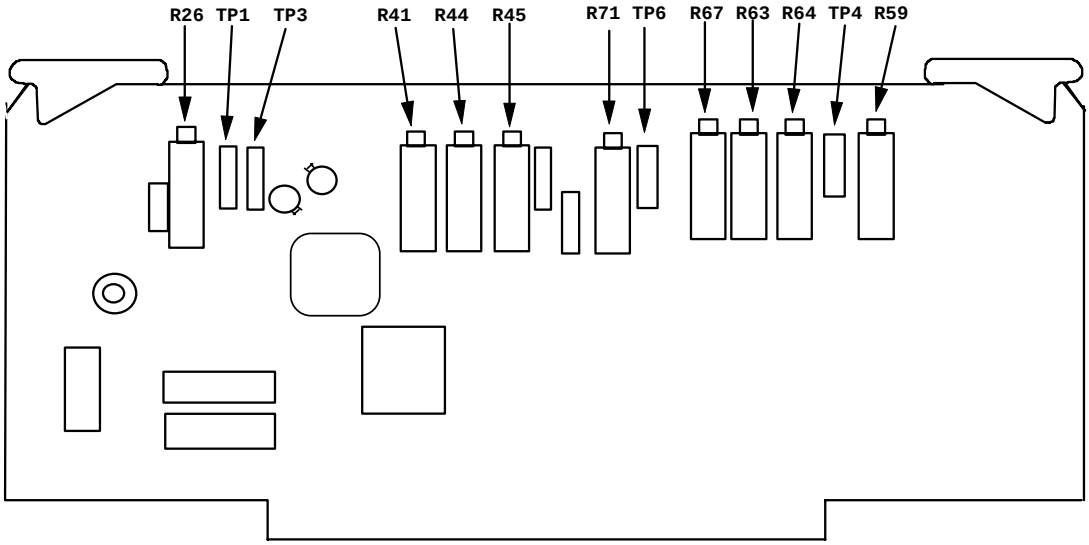


Figure 6. Tachometer circuit board.

(3) Adjust R41 (fig. 6) for **.0** on **% RPM** indicator (R).

(4) Adjust R44 and R45 (fig. 6) for **100** on **% RPM** indicator (R).

(5) Repeat **a** (l) through (11) above until no further adjustments are required.

11. Standard Day

a. Performance Check

(1) Set **STD DAY** switch to **ON** and **TEMPERATURE** switch to **OPERATE**.

(2) Connect equipment as shown in figure 7.

(3) Adjust oscillator for a 1.0 V, 70 Hz (14.286 ms) output. (Note: Set up 1.0 V output with multimeter.)

(4) Adjust **AMB TEMP** (**°F**) control to **49**. If **% RPM** indicator does not indicate between 100.4 and 101.3, perform **b** (l) and (2) below.

(5) Adjust **AMB TEMP** (**°F**) control to **-41**. If **% RPM** indicator does not indicate between 110.7 and 111.7, perform **b** (3) below.

(6) Adjust **AMB TEMP** (**°F**) control to **139**. If **% RPM** indicator does not indicate between 92.6 and 93.6, perform **b** (4) below.

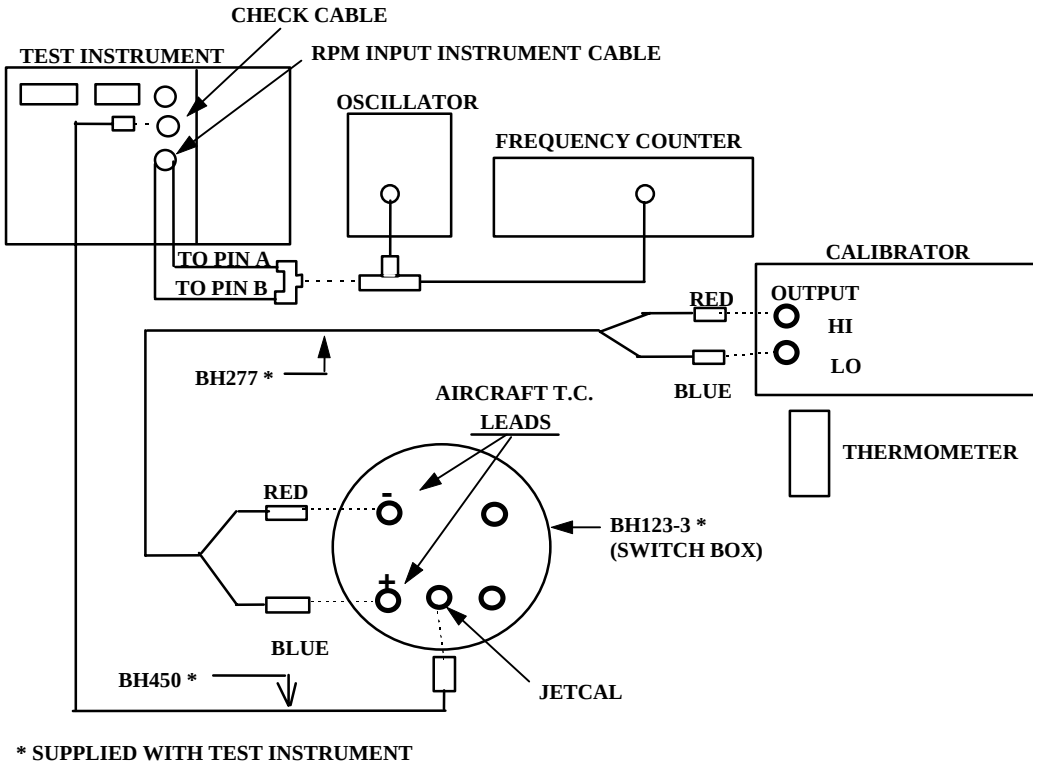


Figure 7. Standard day check.

(7) Adjust **AMB TEMP** (°**F**) control to **59.** If % **RPM** indicator does not indicate between 99.5 and 100.5, repeat **a** (3) through (6) above.

(8) Adjust calibrator output to 0.473 mV dc plus millivolt value equivalent to ambient temperature obtained in table 3.

(9) If **TEMP °C** indicator does not indicate between 0 and 4, perform **b** (5) below.

(10) Reverse leads at calibrator output (fig. 7) (BLUE to HI and RED to LO).

(11) Adjust calibrator output to 33.329 mV dc less millivolt value equivalent to ambient temperature obtained in table 3.

(12) If **TEMP °C** indicator does not indicate between 796 and 804, perform **b** (6) below.

(13) Adjust calibrator output to 16.398 mV dc, less millivolt value equivalent to ambient temperature obtained in table 3.

(14) Adjust oscillator for 1.0 V, 63 Hz (15.873 ms) output.

(15) Adjust **AMB TEMP** (°**F**) control to **99**.

(16) **TEMP °C** indicator will indicate between 347 and 355, and **% RPM** indicator will indicate between 86.3 and 87.3.

(17) Adjust calibrator output to 24.91 mV dc less millivolt value equivalent to ambient temperature obtained in table 3.

(18) Adjust oscillator for 1.0 V, 77 Hz (12.987 ms) output.

(19) Adjust **AMB TEMP (°F)** control to **-1**.

(20) **TEMP °C** indicator will indicate between 711 and 719, and **% RPM** indicator will indicate between 116.5 and 117.5.

b. Adjustments

(1) Connect multimeter between TP4 (+) and TP3 (-) on tachometer circuit board (fig. 6). If multimeter does not indicate between 7.840 and 7.880 V dc, adjust R67 (fig. 6) for 7.860 V dc (R).

(2) Adjust R59 (fig. 6) for **100.9%** indication on **% RPM** indicator(R).

(3) Adjust R64 (fig. 6) for **111.2%** indication on **% RPM** indicator (R).

(4) Adjust R63 (fig. 6) for **93.1%** indication on **% RPM** indicator (R).

(5) Adjust R66 on temperature board (fig. 3) for **0** indication on **TEMP °C** indicator (R).

(6) Adjust R69 (fig. 3) for **800** indication on **TEMP °C** indicator (R).

12. Heater Probe Control

CAUTION

Never add cold probes to a tester that is regulating other probes at an elevated temperature. To do so could cause overheating of hot probes. Probe controller operates on an average temperature.

NOTE

TIs will be calibrated with number of probes supplied with TI.

a. Performance Check

(1) Ensure that the equipment and cables which were connected during performance of paragraph **11** are disconnected.

(2) Position controls as listed in (a) through (d) below:

(a) **FUNCTION SELECT** to **HEATER PROBE**.

(b) **T/C INPUT** to **HEATER CABLE**.

(c) **STD DAY** to **OFF**.

(d) **MASTER POWER** switch to **OFF**.

(3) Remove power from TI by disconnecting power cable from 115 V ac power source.

WARNING

115 V ac potential exists between pin A and/or B of the **HEATER CABLE** connector and ground when **MASTER POWER** switch is in the **OFF** position and when power cable is connected to ac source. DEATH ON CONTACT and destruction of calibrator may result if personnel fail to observe safety precautions.

(4) Connect equipment as shown in figure 8, CONNECTION A. Set multimeter for ac voltage measurements.

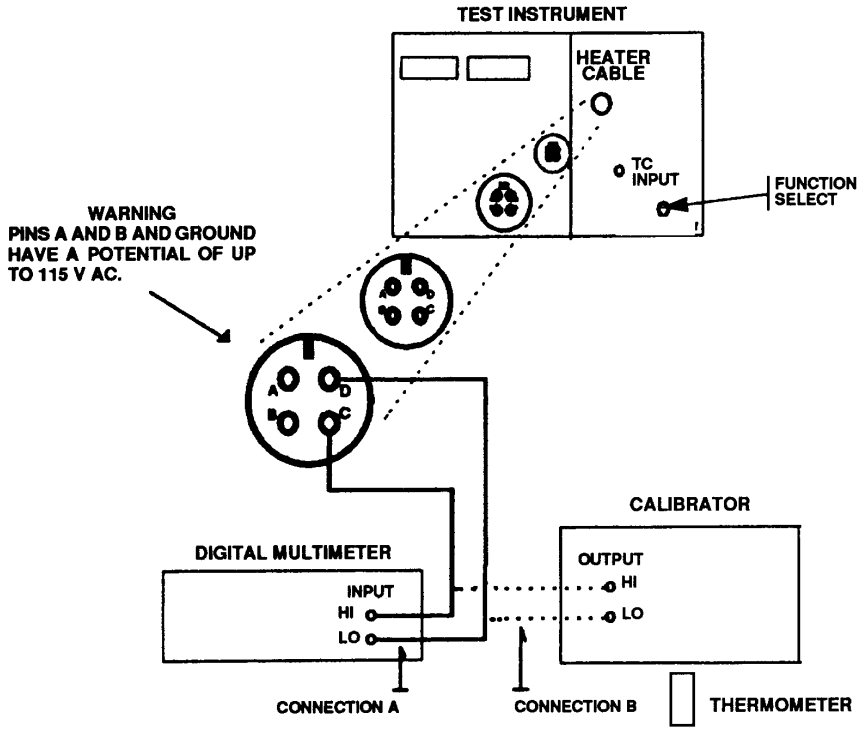


Figure 8. Heater probe.

(5) Reconnect power cable to 115 V ac source and set **MASTER POWER** switch to **ON.**

(6) Multimeter should indicate 0 V ac (±1.0); if not, verify equipment connection. (Ensure that pins C and D are connected to multimeter.)

(7) Connect equipment as shown in figure 8, CONNECTION B.

(8) Set calibrator for an dc millivolt output corresponding to ambient temperature as specified in table 3.

(9) Set **TEMPERATURE** switch to **HEATER PROBE TEMP SET**.

(10) Adjust **PROBE CONTROL** until **TEMP °C** indicator displays **100**.

(11) Reverse leads at calibrator **OUTPUT** terminals.

(12) Set calibrator for a 4.10 mV dc, less ambient temperature millivolt equivalent, output.

(13) **PROBE POWER** lamp should be flashing, if not, perform **b** (2) below.

(14) Adjust **PROBE CONTROL** until **TEMP °C** indicator displays **600.**

(15) Set calibrator for a 24.91 mV dc, less ambient temperature millivolt equivalent, output.

(16) **PROBE POWER** lamp should be flashing; if not, perform **b** (3) below.

(17) Turn **PROBE CONTROL** fully ccw.

(18) Disconnect calibrator from TI and connect heater probes as shown in figure 9.

(19) Adjust **PROBE CONTROL** until **TEMP °C** indicator displays **100**.

(20) Set **TEMPERATURE** switch to **OPERATE.**

NOTE

If probe temperature exceeds set temperature, **PROBE POWER** lamp will go out until probe temperature falls below set temperature. Wait until temperature begins to stabilize (lamp flashes on and off regularly) before taking a reading.

WARNING

Do not touch heater probes as severe burns could result.

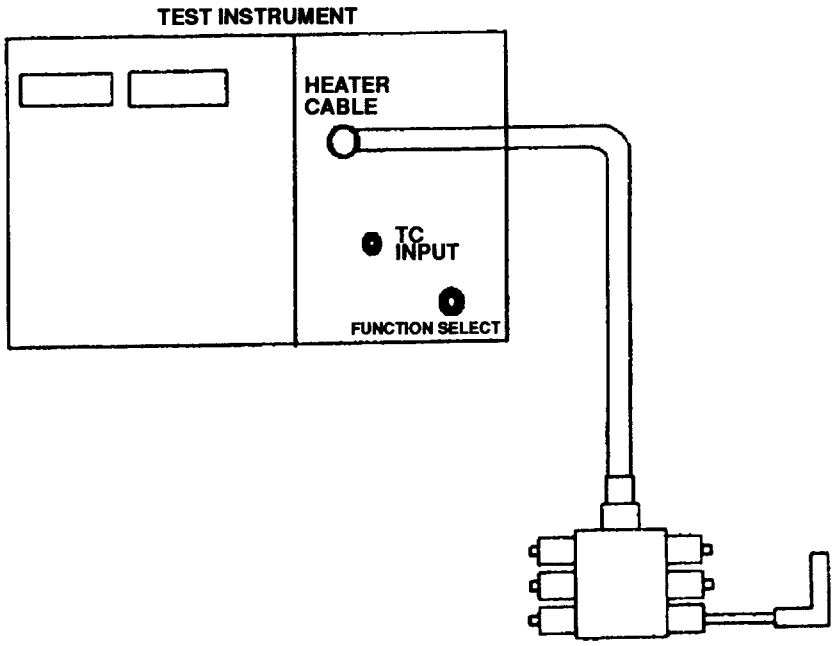


Figure 9. Heater probe control circuit.

(21) If **TEMP °C** indicator does not indicate between 96 and 104, perform **b** (l) and (2) below.

(22) Set **TEMPERATURE** switch to **HEATER PROBE TEMP SET**.

(23) Adjust probe control until **TEMP °C** indicator displays **600**.

(24) Set **TEMPERATURE** switch to **OPERATE**.

(25) If **TEMP °C** indicator does not indicate between 596 and 604, perform **b** (3).

b. Adjustments

(1) Connect multimeter between TP1 (+) and TP2 (-) probe control and function switch board (fig. 10). If multimeter does not indicate between 7.255 and 7.295 mV dc, adjust R1 (fig 10) for 7.275 mV dc.

(2) Adjust R5 (fig. 10) for stabilization temperature of 100 °C, with **PROBE POWER** lamp flashing.

(3) Adjust R17 (fig. 10) for stabilization temperature of 600 °C, with **PROBE POWER** lamp flashing.

NOTE

R5 and R17 interact. Repeat **a** (19) through (25) above until specifications are met.

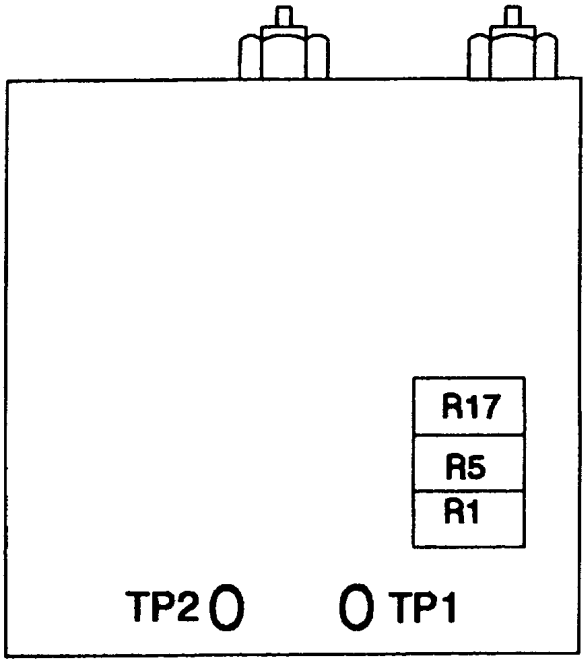


Figure 10. Probe control and function switch board.

13. Insulation Resistance

a. Performance Check

(1) Disconnect heater probes and heater cable from TI.

(2) Set **FUNCTION SELECT** switch to **INSUL**. **INSULATION RESISTANCE** meter should indicate infinity.

(3) Connect equipment as shown in figure 11.

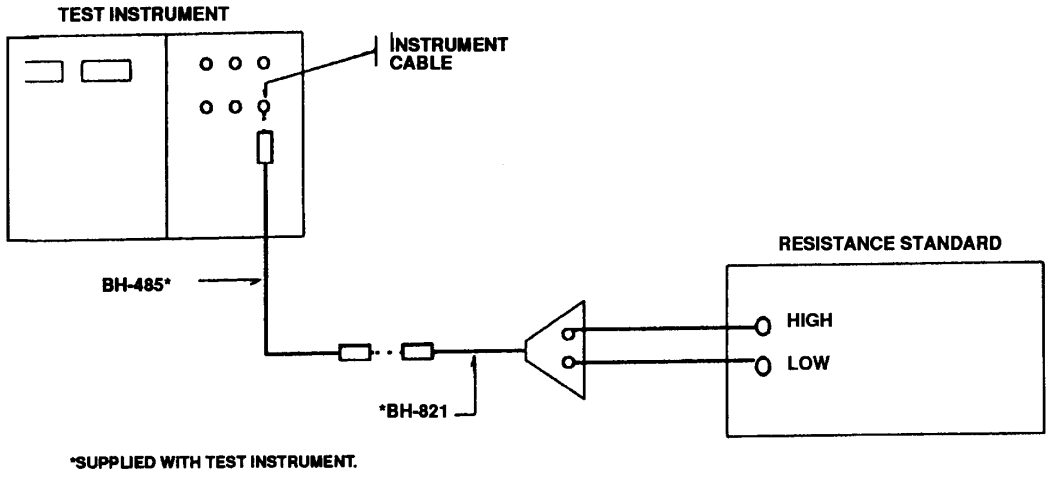


Figure 11. Insulation resistance and resistance check.

(4) Set resistance standard for 0 Ω.

(5) Set **INSULATION CHECK** switch to **RX100.** If **INSULATION RESISTANCE** meter does not indicate **0**, perform **b** (l) below.

(6) Adjust resistance standard for an indication of **100** on **INSULATION RESISTANCE** meter. Resistance standard will indicate between 9.0 and 11 kΩ.

(7) Set resistence standard to its lowest value. Set **INSULATION CHECK** switch to **RX1000**. If **INSULATION RESISTANCE** meter does not indicate **0**, perform **b** (2) below.

(8) Adjust resistance standard for an indication of **100** on **INSULATION CHECK** meter. Resistance standard will indicate between 90 and 110 kΩ.

b. Adjustments

(1) Adjust R30 (fig. 12) for an **INSULATION CHECK** meter indication of **0** (R).

(2) Adjust R27 (fig. 12) for an **INSULATION RESISTANCE** meter indication of **0** (R).

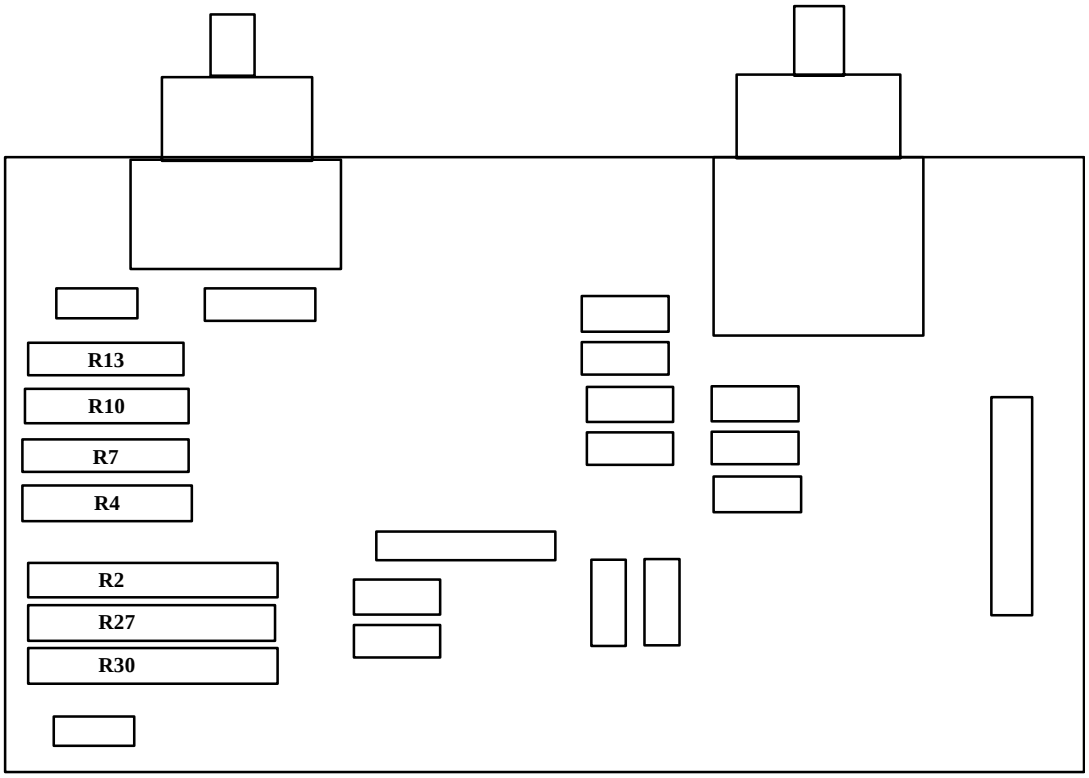


Figure 12. Resistance and installation board.

14. Resistance Check

a. Performance Check

(1) Replace BH-821 adapter with BH-823 adapter in equipment set up in figure 11.

(2) Set **FUNCTION SELECT** switch to **RES** and **RESISTANCE CHECK** switch to **NULL BAL**.

(3) Disconnect resistance standard and adjust **RESISTANCE & A/C INDICATOR CHECK** meter for **0** indication.

(4) Set **RESISTANCE & A/C INDICATOR CHECK** switch to **22 Ω**.

(5) Reconnect and set resistance standard for 21 Ω. **RESISTANCE CHECK** meter pointer will deflect to the left of 0-center, to a point greater than 0.4 Ω indication. Set resistance standard for 23 Ω. **RESISTANCE CHECK** meter pointer will deflect to the right of 0-center, to a point greater than 0.4 Ω indication; if not, perform **b** (l) and (2) below.

(6) Adjust resistance standard for a 0 indication on **RESISTANCE** meter. If resistance standard does not indicate between 21.95 Ω and 22.05 Ω, perform **b** (3) below.

(7) Repeat (4) and (6) above for 15 Ω. If resistance standard does not indicate between 14.95 Ω and 15.05 Ω, perform **b** (4) below.

(8) Repeat (4) and (6) above for 8 Ω. If resistance standard does not indicate between 7.95 Ω and 8.05 Ω, perform **b** (5) below.

(9) Repeat (4) and (6) above for 4.21 Ω. If resistance standard does not indicate between 4.16 Ω and 4.26 Ω, perform **b** (6) below.

b. Adjustments

(1) Connect multimeter to **RESISTANCE CHECK** meter terminals, observing polarity. Adjust resistance standard to 22 Ω. Adjust R13 (fig. 12) ccw. Record multimeter indication, disregarding polarity sign. Adjust R13 (fig. 12) cw. Record multimeter indication, disregarding polarity sign.

(2) Determine the mean value of indications recorded in (1) above. Adjust R2 (fig. 12) to this value, then disconnect multimeter.

(3) Set resistance standard to 22 Ω and adjust R13 (fig. 12) for a **0** indication on **RESISTANCE CHECK** meter (R).

(4) Set resistance standard to 15 Ω and adjust R10 for a **0** indication on **RESISTANCE CHECK** meter (R).

(5) Set resistance standard to 8 Ω and adjust R7 for a **0** indication on **RESISTANCE CHECK** meter (R).

(6) Set resistance standard to 4.21 Ω and adjust R4 for a **0** indication on **RESISTANCE CHECK** meter (R).

15. Aircraft Indicator

a. Performance Check

(1) Replace BH-823 adapter with BH-822 adapter in equipment setup shown in figure 11, and remove resistance standard connection.

(2) Set **FUNCTION SELECT** switch to **A/C IND CHK** and **RESISTANCE & A/C INDICATOR CHECK** switch to **NULL BAL.**

(3) Connect multimeter between (+) and (-) eyelets on BH-822 adapter. (If adapter is for D'Arsonval type indicator, A is (+) and B is (-).)

(4) Turn **A/C IND ADJ** potentiometer from ccw to cw end while observing multimeter indications. Range on potentiometer should be approximately 0 to 65 mV dc and there should be no open spots throughout the range. During this check, with **TEMPERATURE** switch set to **OPERATE, TEMP °C**, indicator should follow setting of potentiometer and display readings throughout range of ambient temperature to **1399 °C.**

(5) Set **RESISTANCE & A/C INDICATOR CHECK** switch successively to 8 Ω, 15 Ω, and 22 Ω positions. In each of the positions the multimeter will indicate higher values than when **RESISTANCE & A/C INDICATOR CHECK** switch is in **NULL BAL** position.

b. Adjustments. No adjustments can be made.

16. Final Procedure

a. Deenergize and disconnect all equipment.

b. Annotate and affix DA label/form in accordance with TB 750-25.

By Order of the Secretary of the Army:

Official:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army

0401303

Distribution:

To be distributed in accordance with the initial distribution number (IDN) 342056 requirements for TB 9-4920-454-35.

INSTRUCTIONS FOR SUBMITTING AN ELECTRONIC 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however, only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: "Whomever" whomever@redstone.army.mil
To: <2028@redstone.army.mil

Subject: DA Form 2028

1. **From**: Joe Smith
2. Unit: home
3. **Address**: 4300 Park
4. **City**: Hometown
5. **St**: MO
6. **Zip**: 77777
7. **Date Sent**: 19-OCT –93
8. **Pub no:** 55-2840-229-23
9. **Pub Title**: TM
10. **Publication Date**: 04-JUL-85
11. Change Number: 7
12. Submitter Rank: MSG
13. **Submitter FName**: Joe
14. Submitter MName: T
15. **Submitter LName**: Smith
16. **Submitter Phone**: 123-123-1234
17. **Problem**: 1
18. Page: 2
19. Paragraph: 3
20. Line: 4
21. NSN: 5
22. Reference: 6
23. Figure: 7
24. Table: 8
25. Item: 9
26. Total: 123
27. **Text**

This is the text for the problem below line 27.