*TB 9-6625-2121-24

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR DC INSULATION TESTER HIPOTRONICS, MODEL H860PL

Headquarters, Department of the Army, Washington, DC
10 October 2007

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, U.S. Army Aviation and Missile Command, ATTN: AMSAM-MMC-MA-NP, Redstone Arsenal, AL 35898-5000. A reply will be furnished to you. You may also send in your comments electronically to our E-mail address: 2028@redstone.army.mil or by fax 256-842-6546/DSN 788-6546. For the World Wide Web use: https://amcom2028.redstone.army.mil. Instructions for sending an electronic 2028 can be found at the back of this manual.

*This bulletin supersedes TB 9-6625-2121-35, dated 15 September 1983.

SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Dc Insulation Tester, Hipotronics, Model H860PL. The manufacturer's manual was used as the prime data source 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 2 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
Dc voltage	Range: 0 to 60 kV Accuracy: ±2%
Dc current	Range: 0 to 5 mA Accuracy: ±2%

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-287 and AN/GSM-705. Alternate items may be used by the calibrating activity when the equipment listed in table 2 is not available. 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)
DC CURRENT SHUNT	Range: 0 to .00001 A Accuracy: [1]	Guildline, Model 9711 (7912323)
DC POWER SUPPLY	Range: 0 to 5 μA	Kepco, Model HB525 (7915935)
DECADE RESISTOR	Range: 0 to 5000 Ω	Winslow, Model 336 (7907234) or Clarostat, Model 240C (240C)
MULTIMETER	Range: 0 to 10,240 V dc Accuracy:[1] ±0.5%	Agilent, Model 3458A (3458A)

[1]Combined accuracy of A1 and A4 is ±0.5% for dc current.

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 result 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 for this TI.

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

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 OUTPUT(S) to minimum after each step within the performance check where applicable.

7. Equipment Setup

a. Remove protective cover from TI only if adjustments are required.

b. Mechanically adjust TI zero adjust screws for 0 indication on dc KV and dc μA meters.

c. Position controls as listed in (1) through (4) below:

(1) **VOLTAGE RANGE** switch to **LOW**.

(2) **RAISE VOLTAGE** control to 0 **(ZERO START)**.

(3) **CURRENT RANGE** switch to **X1**.

(4) **HIGH VOLTAGE** pushbutton **OFF**.

d. Ensure that the five-pronged shorting plug, supplied with TI, is inserted into **INTLK & AUX POWER** socket (front panel).

e. Connect **RETURN** and **GROUND** terminals, using jumper clip supplied with TI.

f. Connect TI to a 115 V ac source.

g. Set **AC POWER** switch to **ON** and allow at least 20 minutes for warm-up.

8. Dc Voltage

a. Performance Check

(1) Connect multimeter to **HV** output lead, supplied with TI, and **RETURN** terminal, using high voltage probe supplied with digital voltmeter.

(2) Press **HIGH VOLTAGE ON** pushbutton.

(3) Adjust **RAISE VOLTAGE** control until dc KV meter indicates 10 on lower scale. If multimeter does not indicate between 9.760 and 10.240 V dc, perform **b** below.

(4) Repeat technique of (3) above for dc KV meter indications listed in table 3. Multimeter will indicate within limits specified.

Table 3. Voltage Accuracy

Test instrument dc KV meter indications (lowersScale)	Multimeter indications (V dc)	
	Min	Max
8	7.760	8.240
6	5.760	6.240
4	3.760	4.240
2	1.760	2.240

(5) Adjust **RAISE VOLTAGE** control fully ccw and press **HIGH VOLTAGE** pushbutton **OFF**.

b. Adjustments

(1) Adjust **RAISE VOLTAGE** control for a 1000 V dc indication on multimeter.

(2) Adjust R5 (located rear of front panel, right upper corner) until dc KV meter indicates 10 on lower scale (R).

9. Dc Current

a. Performance Check

(1) Position controls as indicated in (a) and (b) below:

(a) **AC POWER** switch to **OFF**.
(b) **CURRENT RANGE** switch to **X1**.

(2) Connect equipment as shown in figure 1.

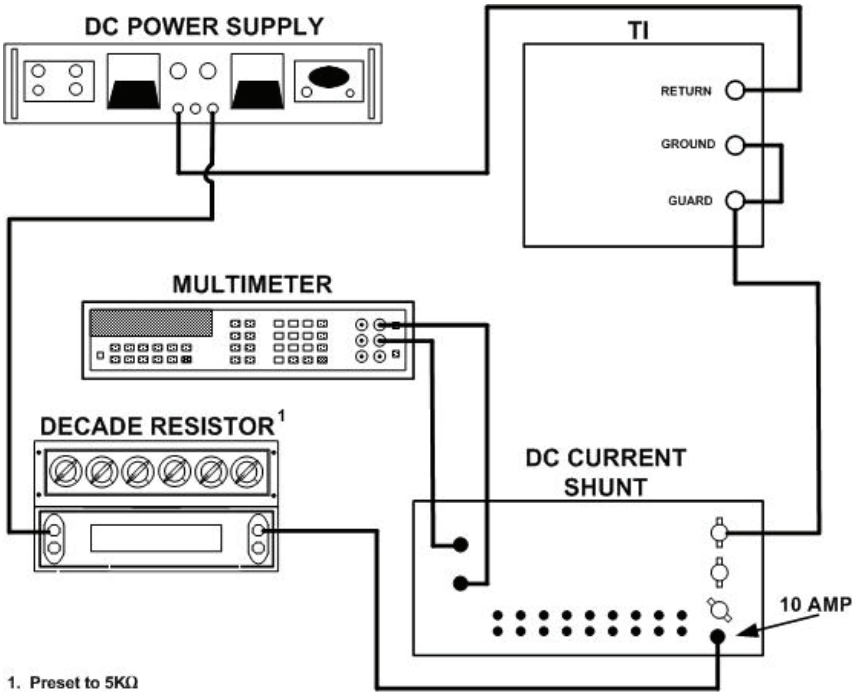


Figure 1. Dc current - equipment setup.

(3) Set dc current shunt range plugs to .00001 A.

(4) Adjust dc power supply and decade resistor to obtain a 5 μA indication on TI dc μA meter. Multimeter will indicate between 49 and 51 mV dc.

(5) Repeat technique of (4) above for TI indications listed in table 4. Multimeter will indicate within limits specified.

Table 4. Dc Current Accuracy

Test Instrument Indications (μA)	Multimeter Indications (mV dc)	
	Min	Max
4	39	41
3	29	31
2	19	21
1	9	11

b. Adjustments. No adjustments can be made.

10. Final Procedure

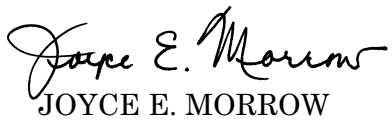
a. Deenergize and disconnect all equipment and reinstall TI protective cover.

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

By Order of the Secretary of the Army:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:



JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army

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Distribution:

To be distributed in accordance with the initial distribution number (IDN) 343066, requirements for calibration procedure TB 9-6625-2121-24.

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.