

***TB 9-6625-1957-35**

SUPERSEDED COPY DATED 18 JULY 1988

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR DIGITAL MULTIMETER, TEKTRONIX TYPES DM 501 AND DM 501A WITH DC HIGH VOLTAGE PROBE, BALLANTINE, MODEL 10800C; JOHN FLUKE, MODEL 80K-40; AND TEKTRONIX, TYPE 010-0277-00

Headquarters, Department of the Army, Washington, DC
22 February 1993

Approved for public release; distribution is unlimited

REPORTING OF ERRORS

You can help improve this publication by calling attention to errors and by recommending improvements and stating your reasons for the recommendations. Your letter or DA Form 2028, Recommended Changes to Publications, should be mailed directly to Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-TMD-EP, Redstone Arsenal, AL 35898-5000. FAX to DSN 788-2313 (commercial 205-842-2313). A reply will be furnished directly to you.

		Paragraph	Page
SECTION	I.	IDENTIFICATION AND DESCRIPTION	
		Test instrument identification	1 2
		Forms, records, and reports	2 2
		Calibration description.....	3 3
SECTION	II.	EQUIPMENT REQUIREMENTS	
		Equipment required	4 4
		Accessories required.....	5 4
	III.	CALIBRATION PROCESS FOR DIGITAL MULTIMETER, TEKTRONIX, TYPE DM 501	
		Preliminary instructions.....	6 5
		Equipment setup	7 6
		Dc voltage.....	8 6
		Resistance.....	9 7
		Dc current.....	10 8
		Ac voltage	11 8
		Power supply	12 9
		Final procedure	13 10

*This bulletin supersedes TB 9-6625-1957-35, dated 18 July 1988, including all changes.

SECTION		Paragraph	Page
	IV. CALIBRATION PROCESS FOR DIGITAL MULTIMETER, TEKTRONIX, TYPE DM 501A		
	Preliminary instructions.....	14	10
	Equipment setup.....	15	10
	Dc voltage.....	16	11
	Ac voltage.....	17	12
	Ac dBm/dBV.....	18	13
	Dc current.....	19	14
	Resistance.....	20	14
	Final procedure.....	21	15
	V CALIBRATION PROCESS FOR DC HIGH VOLTAGE PROBE, BALLANTINE, MODEL 10800C, JOHN FLUKE, MODEL 80K-40, AND TEKTRONIX, TYPE 010-0277-00		
	Preliminary instructions.....	22	15
	Equipment setup.....	23	16
	Dc probe check.....	24	16
	Final procedure.....	25	17

**SECTION I
IDENTIFICATION AND DESCRIPTION**

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Digital Multimeter, Tektronix, Types DM 501 and DM 501A with DC High Voltage Probe, Ballantine, Model 10800C; John Fluke, Model 80K-40; and Tektronix, Type 010-0277-00. The manufacturer's manuals 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. The John Fluke, Model 80K-40 is the same as the Tektronix, Type 010-0277-00 probe and is nonadjustable.

b. Time and Technique. The time required for this calibration is approximately 1.5 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
Tektronix, Type DM 501	
Dc voltage	Range: 0 to 1000 V (in 4 ranges) Accuracy: $\pm(0.1\%$ of reading + 2 digits)
Dc current	Range: 0 to 2000 mA (in 4 ranges) Accuracy: $\pm(0.2\%$ of reading + 10 digits)
Resistance	Range: 0 to 20 M Ω (in 5 ranges) Accuracy: $\pm(\%$ of reading + digits) Range: 2 k Ω through 2.0 M Ω 0.3 + 2 20 M Ω 0.5 + 2
Ac voltage	Range: 0 to 500 V (in 4 ranges) Frequency: 20 Hz to 20 kHz Accuracy: $\pm(\%$ of reading + digits) Range: 20 to 40 Hz 1.2 + 2 40 Hz to 10 kHz..... 0.7 + 2 10 to 20 kHz 1.2 + 2
Tektronix, Type DM 501A	
Dc voltage	Range: 0 to 1000 V (in 5 ranges) Accuracy: $\pm(\%$ of reading + % of FS) Range: 200 mV .05 + .015 2, 20, and 200 V..... .05 + .01 1000 V .05 + .02
Ac voltage	Range: 0 to 500 V (in 5 ranges) Frequency: 20 Hz to 20 kHz Accuracy: $\pm(\%$ of reading + % of FS) 200 mV through 200 V ranges: 20 to 40 Hz 1.0 + .05 40 Hz to 10 kHz..... 0.6 + .05 10 to 20 kHz 1.0 + .05 500 V range: 20 to 40 Hz 1.0 + 0.2 40 Hz to 10 kHz..... 0.6 + 0.2 10 to 20 kHz 1.0 + 0.2
Ac dBm/dBV	Range: -40 to +40 dB (in 5 ranges) Frequency: 20 Hz to 10 kHz Accuracy: $\pm(\text{dB})^1$ +20 to -15 dB: 20 Hz to 20 kHz..... 0.5 -15 to -20 dB: 20 Hz to 2.0 kHz..... 0.5 2.0 to 10 kHz 1.5

See footnote at end of table.

Table 1. Calibration Description - Continued

Test instrument parameters	Performance specifications
Tektronix, Type DM 501A - Continued	
Resistance	Range: 0 to 20 MΩ (in 5 ranges) Accuracy: ±(% of reading + % of FS) Range: 200Ω through 200 kΩ (LOΩ) 0.15 + .015 2 kΩ through 2000 kΩ (HIΩ)..... 0.15 + .015 2000 kΩ (LOΩ) 0.3 + .015 20 MΩ (HIΩ) 0.5 + .015
Dc current	Range: 0 to 2000 mA (in 5 ranges) Accuracy: ±(0.2% of reading + .015% of FS)
Dc High Voltage Probes (All Models)	
Dc voltage	Range: 1 to 40 kV ² Accuracy: 4.0% at 1 and 40 kV 3.0% at 10 kV 2.0% at 20 and 30 kV ±1.0% at 25

¹Accuracy applies to TI display value. To obtain correct dB reading, algebraically add the range selected to the display reading. Dynamic range is -60 to +56.2 dBrn.

²Verified at 1000 V only.

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. 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.

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	Dc voltage: Range: .19 to 1000 V Accuracy: ±0.14% Ac voltage: Range: 100 mV to 500 V Frequency: 20 Hz to 20 kHz Accuracy: ±(%) 1.0 to 10 kHz 0.16 20 Hz and 20 kHz 0.26	John Fluke, Model 5700A/CT (p/o MIS-35947); w/power amplifier John Fluke, Model 5215A/CT (5215A/CT); w/transconductance amplifier, John Fluke, Model 5220A/CT (5220A/CT); w/ac divider, John Fluke, Model 7405A-4207 (7405A-4207)

Table 2. Minimum Specifications of Equipment Required - Continued

Common name	Minimum use specifications	Manufacturer and model (part number)
CALIBRATOR (cont)	Resistance: Range: 190Ω to 19 MΩ Accuracy: ±(%) Resistance: 190Ω through 1.9 MΩ..... 0.04 0.3 dBm (6000 reference) (Type DM501A only) Range: -20 to +45 dBm Frequency: 20 Hz to 20 kHz Accuracy: 0.125 dBm (1.4%) Dc current: Range: 190 μA to 1.9 A Accuracy: ±0.054%	John Fluke, Model 5700A/CT (p/o MIS-35947); w/power amplifier John Fluke, Model 5215A/CT (5215A/CT); w/transconductance amplifier, John Fluke, Model 5220A/CT (5220A/CT); w/ac divider, John Fluke, Model 7405A-4207 (7405A-4207)

**SECTION III
 CALIBRATION PROCESS FOR DIGITAL MULTIMETER
 TEKTRONIX, TYPE DM 501**

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 bulletin. Additional maintenance information is contained in the manufacturer's manuals for this TI.

d. When indications specified in paragraphs 8 through 11 are not within tolerance, perform power supply check prior to making adjustments. After adjustments are made, repeat paragraphs 8 through 11. Do not perform power supply check if all other parameters are within tolerance.

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

a. Remove TI protective cover from TI only to make adjustments and replace upon completion.

b. Connect T1 to power module using an extender. Connect power module to a 115 V ac source. Pull power module **PWR** switch to **ON** and allow at least 30 minutes for stabilization.

8. Dc Voltage

a. Performance Check

(1) Set **RANGE/FUNCTION** switch to **2 DC VOLTS** and set **INPUT INT** to **OUT: EXT** (out).

(2) Short **INPUT HI** and **LO** terminals. If TI does not indicate .0000, perform **b** below.

(3) Remove short and connect calibrator **OUTPUT** terminals to TI **INPUT HI** and **LO** terminals.

(4) Set TI **RANGE/FUNCTION** switch and set calibrator output as specified in table 3. If TI does not indicate within the specified limits, perform corresponding adjustment procedure.

Table 3. Dc Voltage

Test instrument RANGE/FUNCTION switch (DC VOLTS)	Calibrator output (V)	Test instrument indications		Adjustments (fig. 1) (R)
		Min	Max	
2	1.8	1.7980	1.8020	R182+DC CAL
2	-1.8	-1.7980	-1.8020	R202 - DC CAL
2	.5555	.5548	.5562	
20	18	17.980	18.020	
200	180	179.80	180.20	
1 k	900	898.9	901.1	
SET CALIBRATOR OUTPUT TO MINIMUM				

b. Adjustments. Adjust R155 INTEGRATOR ZERO (fig. 1) until TI indicates all zeros.

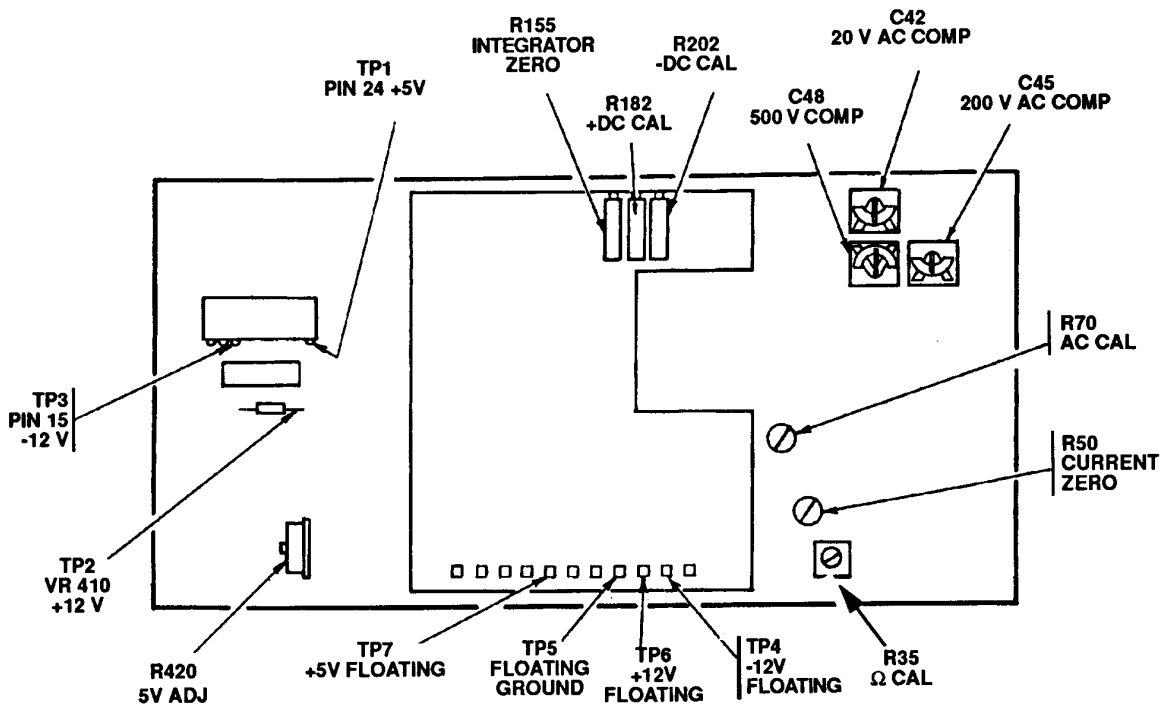


Figure 1. Tektronix, Type DM 501 - left side view.

9. Resistance

a. Performance Check

- (1) Connect calibrator **OUTPUT** to TI **INPUT HI** and **LO** terminals.
- (2) Set **RANGE/FUNCTION** switch to **200K OHMS**.
- (3) Set calibrator for a 190 kΩ output. Adjust calibrator's output adjustment control for a calibrator control display reading equal to the TI's indication. The calibrator's control display **ERROR** indication will be ± 0.31 percent; if not, perform **b** below.
- (4) Repeat technique of (2) and (3) above using values listed in table 4. Calibrator's **ERROR** display will be within the limits specified.

b. Adjustments. Adjust R35Ω CAL (fig. 1) for a T1 indication equal to calibrator's displayed value for 190 kΩ (R).

Table 4. Resistance

Test instrument RANGE/FUNCTION switch settings	Calibrator	
	Output nominal resistance values	ERROR display indications ±(%)
2 kΩ	1.9 kΩ	.31
20 kΩ	19 kΩ	.31
2 MΩ	1.9 MΩ	.31
20 MΩ	19 MΩ	.51

10. Dc Current

a. Performance Check

- (1) Connect calibrator **OUTPUT** to TI **INPUT HI** and **LO** terminals.
- (2) Set TI **RANGE/FUNCTION** switch to **2 DC mA**. If TI does not indicate .0000, perform **b** below.
- (3) Set TI **RANGE/FUNCTION** switch and calibrator output as listed in table 5. TI will indicate within the limits specified.

b. Adjustments. Adjust R50 CURRENT ZERO (fig. 1) until TI indicates .0000 (R).

Table 5. Dc Current

Test instrument RANGE/FUNCTION switch settings (Dc mA)	Calibrator output (dc current)	Test instrument indications	
		Min	Max
2	1.8 mA	1.7954	1.8046
20	18 mA	17.954	18.046
200	180 mA	179.54	180.46
2000	1.8 A	1795.4	1804.6

11. Ac Voltage

a. Performance Check

- (1) Connect calibrator **OUTPUT** to TI **INPUT HI** and **LO** terminals.
- (2) Set TI **RANGE/FUNCTION** switch and calibrator output as listed in table 6. TI will indicate within the specified limits; if not, perform adjustments indicated.

b. Adjustments. No other adjustments can be made.

Table 6. Ac Voltage

Test instrument RANGE/FUNCTION switch settings (AC VOLTS)	Calibrator output voltage frequency		Test instrument indications		Adjustments (fig. 1) (R)
	Voltage	Frequency	Min	Max	
2	1.8 V	1.0 kHz	1.7872	1.8128	R70 AC CAL
20	18 V	8.0 kHz	17.872	18.128	C42 20 V AC COMP
200	180 V	8.0 kHz	178.72	181.28	C45 200 V AC COMP
500	450 V ¹	8.0 kHz	446.65	453.35	C48 500 V COMP
500	450 V ¹	20 kHz	444.58	455.42	---
500	450 V ¹	20 Hz	444.58	455.42	---
500	450 V	1.0 kHz	446.65	453.35	---
200	180 V	20 Hz	177.82	182.18	---
200	180 V	1.0 kHz	178.72	181.28	---
200	180 V	20 kHz	177.82	182.18	---
20	18 V	20 Hz	17.782	18.218	---
20	18 V	1.0 kHz	17.872	18.128	---
20	18 V	20 kHz	17.782	18.218	---
2	1.8 V	20 Hz	1.7782	1.8218	---
2	1.8 V	1.0 kHz	1.7872	1.8128	---
2	1.8 V	20 kHz	1.7782	1.8218	---

¹Power amplifier required.

12. Power Supply

NOTE

Do not perform power supply check if all other parameters are within tolerance.

a. Performance Check

(1) Connect digital multimeter between TP 1 PIN 24 +5V (fig. 1) and chassis ground. If digital multimeter does not indicate between 4.9 and 5.1 V dc, perform **b** below.

(2) Connect digital multimeter positive lead to TP 2 VR 410 +12 V (fig. 1). Digital multimeter will indicate between 11.0 and 13.0. V dc.

(3) Connect digital multimeter positive lead to TP 3 PIN 15 -12 V (fig. 1). Digital multimeter will indicate between -11.4 and -12.6 V dc.

(4) Connect digital multimeter positive lead to TP 6 +12 V FLOATING (fig. 1) and negative lead to TP 5 FLOATING GROUND. Digital multimeter will indicate between +11.4 and +12.6 V dc.

(5) Move digital multimeter positive lead to TP4 -12 V FLOATING. Digital multimeter will indicate between -11.4 and -12.6 V dc.

(6) Move digital multimeter positive lead to TP 7 +5 V FLOATING. Digital multimeter will indicate between +4.5 and +5.5 V dc.

TB 9-6625-1957-35

b. Adjustments. Adjust R420 5 V ADJ (fig. 1) until digital multimeter indicates +5.00 V dc (R).

13. Final Procedure

- a.** Deenergize and disconnect all equipment and reinstall protective cover on TI.
- b.** Annotate and affix DA label/form in accordance with TB 750-25.

SECTION IV CALIBRATION PROCESS FOR DIGITAL MULTIMETER TEKTRONIX, TYPE DM 501A

14. Preliminary Instructions

a. The instructions outlined in paragraphs **14** and **15** 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 bulletin. Additional maintenance information is contained in the manufacturer's manuals for this TI.

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

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

a. Remove protective cover from TI only to make adjustments and replace upon completion.

b. Connect TI to power module using an extender. Connect power module to a 115 V ac source. Pull power module **PWR** switch to **ON** and allow at least 30 minutes for stabilization.

16. Dc Voltage

a. Performance Check

- (1) Press pushbuttons as listed in (a) through (c) below:
 - (a) **VOLTS DC** (in).
 - (b) **2 V** range (in).
 - (c) **INPUT EXT/INT** (out) (**EXT**).
- (2) Short **VOLTS/Ω** and **LOW** terminals. If TI does not indicate between -.0002 and +.0002, perform **b(1)** below.
- (3) Press **200 mV** range pushbutton. If TI does not indicate between -00.02 and +00.02, perform **b(2)** below.
- (4) Remove short and connect calibrator **OUTPUT** terminals to TI **VOLTS/Ω** and **LOW** terminals.
- (5) Press TI range pushbutton and set calibrator output as specified in table 7. If TI does not indicate within the specified limits, perform adjustments indicated.

b. Adjustments

- (1) Adjust 2 V DC 0 R1405 (fig. 2) until TI indicates all zeros (R).
- (2) Adjust 200 mV DC 0 R1415 (fig. 2) until TI indicates all zeros (R).

Table 7. Dc Voltage

Test instrument range pushbuttons	Calibrator output (V dc)	Test instrument indications		Adjustments (fig. 1) (R)
		Min	Max	
2 V	1.9	1.8989	1.9011	2VDC R1505
2 V	-1.9	-1.8989	-1.9011	---
200mV	.190	189.88	190.12	200 mV DC R1504
20V	19	18.989	19.011	20 VDC R1104
200V	190	189.89	190.11	200 VDC R1110
1000 V dc	1000	999.3	1000.7	1000VDC R1114
SET CALIBRATOR OUTPUT TO MINIMUM				

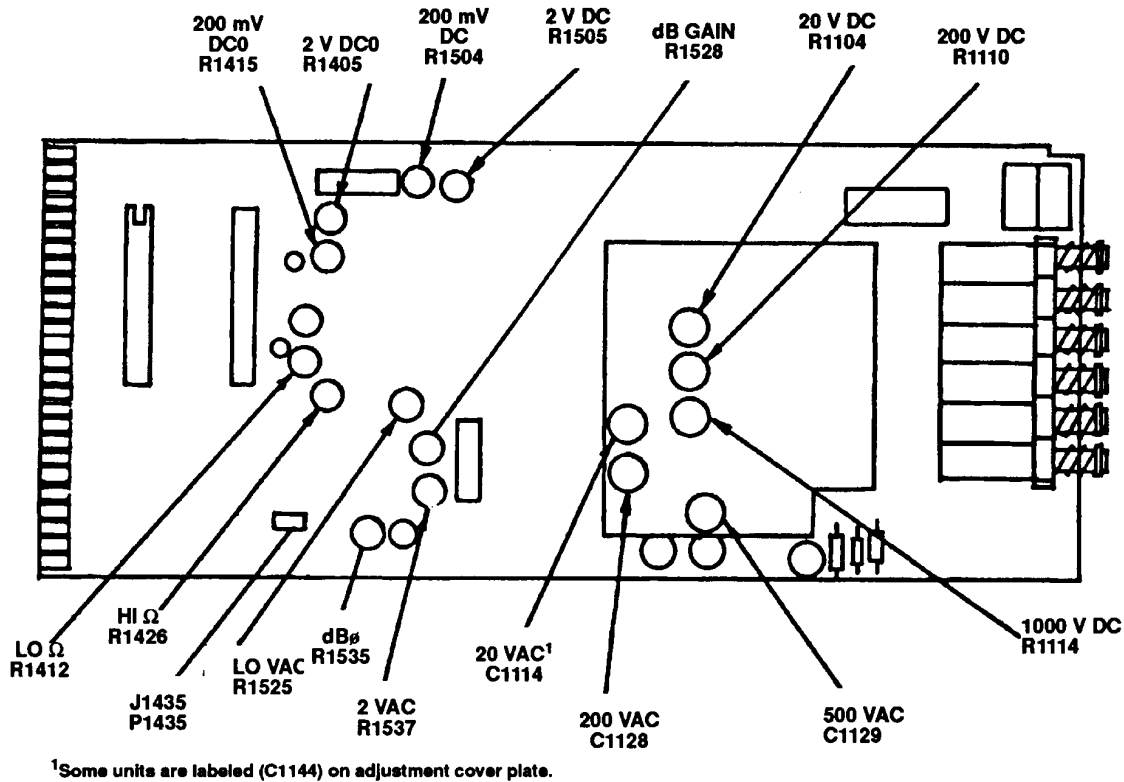


Figure 2. Tektronix, Type DM 501 A - left side view.

17. Ac Voltage

a. Performance Check

- (1) Connect calibrator **OUTPUT** to TI **VOLTS/Ω** and **LOW** terminals and press TI **VOLTS AC TRUE RMS** pushbutton.
- (2) Press TI range pushbutton and set calibrator output as listed in table 8. TI will indicate within the specified limits; if not perform adjustments indicated.

NOTE

In the following table, interaction may occur in the adjustments of R1525 and R1537.

WARNING

In the following table, use an insulated adjustment tool when adjusting capacitors C1114, C1128 and C1129. The input potential is connected to the metal top of these capacitors.

b. Adjustments. No other adjustments can be made.

Table 8. Ac Voltage

Test instrument range pushbuttons	Calibrator output voltage frequency		Test instrument indications		Adjustments (fig. 2) (R)
	Voltage	Frequency	Min	Max	
2 V	100 mV	10 kHz	0.0984	0.1016	LO VACR1525
2 V	1.9 V	10 kHz	-1.8876	1.9124	2 VAC R1537
200 mV	190 mV	1.0 kHz	188.76	191.24	---
20 V	19 V	20 Hz	18.800	19.200	---
20 V	19 V	1.0 kHz	18.876	19.124	---
20 V	19 V	10 kHz	18.876	19.124	20 VAC C1114
20 V	19 V	20 kHz	18.800	19.200	---
200 V	190 V	10 kHz	188.76	191.24	200 VAC C1128
500 V	500 V1	10 kHz	496.0	504.0	500 VAC C1129

¹Power amplifier required.

18. Ac dBm/dBV

a. Performance Check

- (1) If necessary place dBm/dBV jumper J1435 P1435 (fig. 2) in dBm position.
- (2) Connect calibrator **OUTPUT** to TI **VOLTS/Ω** and **LOW** terminals. Press TI **AC TRUE RMS** and **dB** pushbuttons.
- (3) Press **dB** range pushbutton and set calibrator output as listed in table 9. TI will indicate within the specified limits; if not, perform adjustments indicated.

NOTE

In the following table, interaction may occur in the adjustments of R1535 and R1528. Also, a flashing display with the upper segment of the 1 in the most significant digit followed by a "+" or "-", indicates upper or lower limits of range.

b. Adjustments. No other adjustments can be made.

Table 9. Ac dBm

Test instrument range pushbuttons	Calibrator output		Test instrument indications		Adjustments (fig. 2) (R)
	dBm	Frequency	Min	Max	
-20 dB	-20	10 kHz	-0.5	+0.5	dBØ R1535
-20 dB	0.0	10 kHz	+19.5	+0.5	dB GAIN R1528
-20 dB	-40	10 kHz	-18.5	-1.5	---
-40 dB	-40	1.0 kHz	-0.5	+0.5	---
0 dB	+10	20 Hz	+9.5	+10.5	---
0 dB	+10	20 kHz	+9.5	+10.5	---
0 dB	-17	1.0 kHz	-16.5	-17.5	---
0 dB	-17	5.0 kHz	-15.5	-18.5	---
+20 dB	+22	1.0 kHz	+1.5	+2.5	---
+40 dB	+45	1.0 kHz	+4.5	+5.5	---

19. Dc Current

a. Performance Check

- (1) Connect calibrator **OUTPUT** to TI **mA** and **LOW** terminals.
- (2) Press TI range pushbutton and set calibrator output as listed in table 10. TI will indicate within the limits specified.

b. Adjustments. No adjustments can be made.

Table 10. Dc Current

Test instrument range pushbuttons	Calibrator output (dc current)	Test instrument indications	
		Min	Max
200 μ A	190 μ A	189.59	190.41
2 mA	1.9 mA	1.8959	1.9041
20 mA	19 mA	18.959	19.041
200 mA	190 mA	189.59	190.41
2000 mA	1.9 A	1895.9	1904.1

20. Resistance

a. Performance Check

- (1) Connect calibrator **OUTPUT** to TI input **VOLTS/ Ω** and **LOW** terminals.
- (2) Press TI **20 k Ω** pushbutton and release **HI-LO** pushbutton (HI).
- (3) Set calibrator for a nominal 19 k Ω output. Adjust calibrator's output adjustment control for a calibrator control display reading equal to the TI's indication. The calibrator's control display **ERROR** indication will be $\leq \pm 0.166$ percent; if not, perform **b** below.
- (4) Press TI **HI-LO** pushbutton (LO) and repeat technique of (3) above.
- (5) Repeat technique of (2) and (3) above using settings and values listed in table 11. Calibrator's **ERROR** display will be within the limits specified.

b. Adjustments

- (1) Release **HI-LO** pushbutton (HI) and set calibrator for a nominal 19 k Ω output.
- (2) Adjust HI Ω R1426 (fig. 2) for a TI indication equal to calibrator's displayed value for 19 k Ω (R).

(3) Press **HI-LO** pushbutton (LO); then adjust LO Ω R1412 (fig. 2) for a TI indication equal to calibrator's displayed value for 19 k Ω (R).

Table 11. Resistance

Test instrument		Calibrator	
Range pushbuttons	HI-LO pushbuttons	Output normal resistance values	ERROR display indications \pm (%)
200 Ω	LO	190 Ω	.166
2 k Ω	LO	1.9 k Ω	.166
2 k Ω	HI	1.9 k Ω	.166
200 k Ω	HI	190 k Ω	.166
200 k Ω	LO	190 k Ω	.166
2000 k Ω	LO	1.9 M Ω	.316
2000 k Ω	HI	1.9 M Ω	.166
20 M Ω	HI	19 M Ω	.516

21. Final Procedure

- a. Deenergize and disconnect all equipment and reinstall protective cover on TI.
- b. Annotate and affix DA label/form in accordance with TB 750-25.

**SECTION V
CALIBRATION PROCESS FOR DC HIGH VOLTAGE PROBE,
BALLANTINE, MODEL 10800C, JOHN FLUKE, MODEL 80K-40,
AND TEKTRONIX, TYPE 010-0277-00**

22. Preliminary Instructions

- a. The instructions outlined in paragraphs **22** and **23** 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 bulletin. Additional maintenance information is contained in the manufacturer's manuals for this TI
- d. Unless otherwise specified, all controls and control settings refer to the TI.

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

- a. Connect digital multimeter to power module and connect power module to a 115 V ac source.
- b. Pull power module **PWR** switch to **ON** and allow at least 15 minutes for stabilization.
- c. Set digital multimeter to 2 V dc range.

24. Dc Probe Check

a. Performance Check

(1) Connect TI probe terminals to **VOLTS/Ω** and **LOW** connectors on digital multimeter (Type DM 501A), ensuring **RED** or positive terminal at banana plug mates with **VOLTS/Ω** terminal on digital multimeter. (On Type DM 501, ensure that **RED** or positive terminal of banana plug mates with **HI** terminal on digital multimeter).

(2) Connect ground-lead clip of TI to **OUTPUT LO** and **PROBE** tip to **OUTPUT HI** terminal of calibrator.

(3) Set calibrator for 1000 V dc output. If digital multimeter does not indicate between 0.9600 and 1.0400 V, perform **b** below.

NOTE

There is no adjustment for John Fluke, Model 80K-40 or Tektronix, Type 010-0277-00.

b. Adjustments

- (1) Set calibrator to **STANDBY**; then press **RESET** pushbutton.
- (2) Remove 4 screws from cover of TI termination box and remove cover.
- (3) Set calibrator for a 1000 V dc output. Adjust R1 in TI termination box for a reading of 1.000 V dc on the digital multimeter (R).

- (4) Set calibrator to **STANDBY**; then press **RESET** pushbutton.
- (5) Replace cover and screws on termination box.

25. Final Procedure

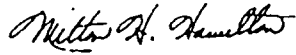
- a.** Deenergize and disconnect all equipment and reinstall protective cover on TI.
- b.** Annotate and affix DA label/form in accordance with TB 750-25.

TB 9-6625-1957-35

By Order of the Secretary of the Army:

Official:

GORDON R. SULLIVAN
General, United States Army
Chief Of Staff



MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army

03650

Distribution:

To be distributed in accordance with DA Form 12-34-E, Block No. 2155, requirements for calibration procedure TB-9-6625-1957-35.