TB 9-6625-2146-35

CHANGE 3

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR AC AND DC VOLTMETERS AND AC AND DC AMMETERS (GENERAL)

Headquarters, Department of the Army, Washington, DC
23 March 1990

TB 9-6625-2146-35, 14 February 1985, is changed as follows:

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PIN: 057221-003

TB 9-6625-2146-35

CHANGE 2

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR AC AND DC VOLTMETERS AND AC AND DC AMMETERS (GENERAL)

Headquarters, Department of the Army, Washington, DC
30 August 1988

TB 9-6625-2146-35, 14 February 1985, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

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PIN: 057221-002

TB 9-6625-2146-35

CHANGE 1

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR AC AND DC VOLTMETERS AND AC AND DC AMMETERS (GENERAL)

Headquarters, Department of the Army, Washington, DC
30 November 1987

TB 9-6625-2146-35, 14 February 1985, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

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Distribution:
To be distributed in accordance with DA Form 12-34C, Block No. 319, requirements for calibration procedures publications.

PIN: 057221-001

REPRINT INCLUDES CHANGES 1 THROUGH 3

*TB 9-6625-2146-35

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR AC AND DC VOLTMETERS AND AC AND DC AMMETERS (GENERAL)

Headquarters, Department of the Army, Washington, DC
14 February 1985

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 35898-5400. FAX to DSN 788-2313 (commercial 256-842-2313). A reply will be furnished directly to you.

*This bulletin supersedes the technical bulletins listed below, including all changes: TB 9-6625-001-35, 5 August 1977; TB 9-6625-005-50, 4 March 1970; TB 9-6625-008-50, 26 October 1966; TB 9-6625-068-50; 13 December 1974; TB 9-6625-375-50, 28 September 1970; TB 9-6625-386-50, 10 August 1971; TB 9-6625-797-50, 5 August 1977; TB 9-6625-984-50, 29 August 1969; TB 9-6625-988-50, 3 December 1970; TB 9-6625-1001-50, 1 June 1973; TB 9-6625-1045-35, 22 January 1982; TB 9-6625-1317-50, 18 October 1974; TB 9-6625-1318-50, 27 October 1970; TB 9-6625-1322-50, 12 February 1969; TB 9-6625-1439-50, 20 October 1969; TB 9-6625-1479-50, 13 July 1978; TB 9-6625-1889-50, 10 May 1979; TB 9-6625-1895-50, 3 November 1970; TB 9-6625-2007-35, 3 November 1980; TB 11-6625-314-35, 12 March 1976; TB 11-6625-633-35/1, 27 June 1966.

SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Ac and Dc Voltmeters and Ac and Dc Ammeters listed in table 1. The manufacturers manuals and/or TM's 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. Variations among models are listed in the text.

b. Time and Technique. The time required for each calibration is approximately 1 hour, using the dc/low frequency technique.

2. DA Form 2416 (Calibration Data Card). Forms, records, and reports required for calibration personnel at all levels are prescribed by TB 750-25-1. DA Form 2416 must be annotated in accordance with TB 750-25-1 for each calibration performed.

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

Table 1. Calibration Description

Test instrument		
Manufacturer and model	Parameters	Performance specifications
General Electric, Model AK-4	Ac volts	Range: 0 to 750 V Accuracy: ±3% FS at 60 Hz
	Ac amps	Range: 0 to 800 A Accuracy: ± 3% FS at 60 Hz
Sensitive Research Instrument Corporation (SRI), Model C-CILKI (horizontal position)	Dc milliamps	Range: 0 to 100 mA Accuracy: ± 0.25% of FS
Sensitive Research Instrument Corporation (SRI), Model C-CILORD (horizontal position)	Dc amps	Range: 0 to 30 A Accuracy: ±0.25% of FS
ME-221/U (horizontal position)	Dc milliamps	Range: 0 to 500 mA Accuracy: ± 0.5% of FS
ME-489/U (clamp-on ammeter)	Ac volts	Range: 0 to 150, 300, 600 V Accuracy: ±3% of FS at 50 or 60 Hz
	Ac amps	Range: 0 to 6, 15, 60, 150, 300 A Accuracy: ±3% of FS at 50 or 60 Hz
ME-65/U and ME-65A/U (horizontal position)	Ac amps	Range: 0 to 200 A Accuracy: ± 0.5% of FS, 20 to 500 Hz
Westinghouse, Model PA-5 (horizontal position)	Ac amps	Range: 0 to 200 A Accuracy: ± 0.5% of FS, 20 to 135 Hz
Westinghouse, Model PY-4 Style 936-368 (horizontal position)	Ac volts	Range: 0 to 450 V Accuracy: ± 0.75% of FS, 5 to 200 Hz
TS-340/U (horizontal position)	Ac volts	Range: 0 to 750 V Accuracy; ± 0.5% of FS, 25 to 400 Hz
	Dc volts	Range: 0 to 750 V Accuracy: ± 0.5% of FS

Table 1. Calibration Description - Continued.

Test instrument		
Manufacturer and model	Parameter	Performance specifications
TS-443/U (horizontal position)	Dc volts	Range: 0 to 150 V dc Accuracy: ±0.25% of FS
Weston, Model 155 (horizontal position)	Ac amps	Range: 0 to 50 A Accuracy: ± 0.5% of FS, 25 to 500 Hz
Weston, Model 430 (horizontal position)	Dc amps	Range: 100 µA to 50 A Accuracy: ± 0.5% of FS
	Dc volts	Range: All ranges Accuracy: ±0.5% of FS
Weston, Model 433 (horizontal position)	Ac volts	Range: 0 to 750 V Accuracy: ± 0.75% of FS, 25 to 125 Hz ±1.25% of FS, 125 to 2500 Hz
Weston, Model 455 (horizontal position)	Dc volts	Range: 0 to 750 V Accuracy: ±0.5% of FS
	Ac volts	Range: 0 to 750 V Accuracy: ±0.5% of FS, 25 to 1000 Hz
Weston, Model 538 (horizontal position)	Ac volts	Range: 0 to 600 V Accuracy: ±2% of FS, 25 to 125 Hz
	Ac amps	Range: 0 to 50 A Accuracy: ±2% of FS, 25 to 500 Hz
Weston, Model 622 Series (horizontal position)	Dc volts	Range: 0 to 1000 V Accuracy: ±0.5% of FS
	Dc amps	Range: 0 to 500 mA Accuracy: ±0.5% of FS
Weston, Model 633 Series (horizontal position)	Ac volts	Range: 0 to 700 V at 60 Hz Accuracy: ±3% of FS
	Ac amps	Range: 0 to 1000 A at 60 Hz Accuracy: ±3% of FS
Weston, Model 749 (horizontal position)	Ac volts	Range: 0 to 600 V Accuracy: ±3% of FS at 60 Hz ±5% of FS at 400 Hz
	Ac amps	Range: 0 to 300 A Accuracy: ±3% of FS at 60 Hz ±5% of FS at 400 Hz
Weston, Model 901 (horizontal position)	Dc volts	Range: 0 to 1000 V Accuracy: ±0.5% of FS
	Dc amps	Range: 100 µA to 50 A Accuracy: ±0.5% of FS
Weston, Model 904 (horizontal position)	Ac volts	Range: 0 to 750 V Accuracy: ±0.5% of FS, 50 to 125 Hz ±1% of FS, 125 to 450 Hz
	Ac amps	Range: 0 to 200 A, 25 to 500 Hz Accuracy: ±0.5% of FS
Weston, Model 931 (horizontal position)	Dc volts	Range: 0 to 750 V Accuracy: ±0.5% of FS
	Dc amps	Range: 0 to 50 A Accuracy: ±0.5% of FS
ME-79/USM-33 ME-79A/USM-33	Ac volts	Range: 0 to 600 V Accuracy: ±5% of FS, 50 to 1000 Hz
	Ac amps	Range: 0 to 600 A Accuracy: ±5% of FS, 50 to 1000 Hz

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. 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.

5. Accessories Required. The accessories needed for calibration must be selected by the calibration technician.

Table 2. Minimum Specifications of Equipment Required

Item	Common name	Minimum use specifications	Manufacturer and model (part number)
A1	AC CALIBRATOR	Range: 0 to 773 V 15 to 2500 Hz Accuracy: ±0.125%	Hewlett-Packard, Model 745AOPTC93 (745AOPTC93) w/HV amplifier C90-746A (C90-746A)
A2	AMMETER CALIBRATOR	Range: 0 to 500 A 50 to 1000 Hz Accuracy: [1]	Holt, Model 250 (7912648)
A3	DC CURRENT SHUNT	Range: 0 to 51 A Accuracy: [2]	Guildline, Model 9711 (7912323)
A4	DC POWER SUPPLY	Range: 0 to 30 A	NJE, Model CS36CR30D2 (7907346-2)
A5	DC POWER SUPPLY	Range: 30 to 51 A	Sorenson, Model 20-250
A6	DC VOLTAGE DIVIDER	Range: .001 to .01 Accuracy: [3]	ESI, Model RV722 (RV722)
A7	DC VOLTAGE STANDARD	Range: 0 to 1005 V Accuracy: ±0.062%[3]	John Fluke, Model 332B/AF (332B/AF)
A8	DECADE RESISTOR	Range: 0 to 10 k Ω	Winslow, Model 336 (7907234) or Clarostat, Model 240C
A9	DIGITAL VOLTMETER	Range: Dc: 0 to 101 mV Ac: 0 to 1.05 V Accuracy: [1 2]	Hewlett-Packard, Model 3490AOPT060 (3490AOPT060) Dana, Model 5000, or Dana, Model 5000 w/641
A10	PRECISION OSCILLATOR	Range: 0 to 125 V 50 to 1000 Hz	Krohn-Hite, Model 4100AR-8 (7915951) w/amplifier 7500 (7500)

[1]Combined accuracy of (A2) and (A9) ±0.125%.
[2]Combined accuracy of (A3) and (A9) ±0.062%.
[3]Combined accuracy of (A6) and (A7) ±0.062%.

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 and item identification number as listed in tables 2 and 3. For the identification of equipment referenced by item numbers prefixed with A, see table 2, and for prefix B, see table 3.

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.

NOTE

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.

c. This is a general procedure which provides instructions for the calibration of any instrument within the series. Each instrument requires a check for meter tracking and linearity on one range and full-scale accuracy on the remaining ranges.

NOTE

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

7. Equipment Setup

a. Place TI in horizontal position for calibration.

b. Adjust meter mechanical zero adjustment for zero meter indication, if required.

8. DC Volts

a. Performance Check

(1) Set TI function switch (if applicable) to dc volts (millivolts) and set range switch to lowest range.

(2) Connect dc voltage standard (A7) (and if applicable through dc voltage divider (A6)) to TI, observing polarity.

(3) Adjust dc voltage standard for full-scale indication on TI. DC voltage standard will indicate within limits specified under accuracy in table 3 for TI being calibrated.

(4) Repeat technique of (1) and (3) above for remaining ranges.

NOTE

Perform tracking and linearity check on a convenient range at cardinal points approximately two-thirds and one-third of full scale. Indications will be within stated ± percent of full scale for each cardinal point.

b. Adjustments. No adjustments can be made.

Table 3. Dc Voltage

Test instrument range	Dc voltage standard indications (V)			
	TS-433/U		TS-340/U and Weston, Models 430, 455, 622 series, 901 and 931	
	±0.25%		±0.5%	
	Min	Max	Min	Max
1 mV[1]	- - -	- - -	0.995	1.005
2 mV	- - -	- - -	1.99	2.01
5 mV	- - -	- - -	4.975	5.025
10 mV[2]	- - -	- - -	9.95	10.05
20 mV	- - -	- - -	1.99	2.01
50 mV	- - -	- - -	4.975	5.025
100 mV	- - -	- - -	9.95	10.05
200 mV[3]	- - -	- - -	.1990	.201
500 mV	- - -	- - -	.4975	.5025
1000 mV	- - -	- - -	0.9950	1.0050
2000 mV	- - -	- - -	1.9900	2.0100
1.5 V	- - -	- - -	1.4925	1.5075
2 V	- - -	- - -	1.99	2.01
2.8 V	- - -	- - -	2.786	2.814
3 V	2.9925	3.0075	2.985	3.015
5 V	- - -	- - -	4.975	5.025
7.5 V	- - -	- - -	7.462	7.538
10 V	- - -	- - -	9.95	10.05
15 V	14.9625	15.0375	14.925	15.075

See footnote at end of table.

Table 3. Dc Voltage - Continued.

Test instrument range	Dc voltage standard indications (V)			
	TS-433/U		TS-340/U and Weston, Models 430, 455, 622 series, 901 and 931	
	±0.25%		±0.5%	
	Min	Max	Min	Max
20 V	- - -	- - -	19.9	20.1
30 V	- - -	- - -	29.85	30.15
50 V	- - -	- - -	49.75	50.25
60 V	- - -	- - -	59.70	60.30
75 V	- - -	- - -	74.625	75.375
100 V	- - -	- - -	99.50	100.5
125 V	- - -	- - -	124.37	125.63
150 V	149.625	150.375	149.25	150.75
200 V	- - -	- - -	199.0	210.0
250 V	- - -	- - -	248.75	251.23
300 V	- - -	- - -	298.5	301.5
400 V	- - -	- - -	398.0	402.0
450 V	- - -	- - -	447.75	452.25
500 V	- - -	- - -	497.5	502.5
600 V	- - -	- - -	597.0	603.0
750 V	- - -	- - -	746.25	753.75
1000 V	- - -	- - -	995.0	1005.0

[1]Connect dc voltage standard to voltage divider input and divider output to TI. Set divider to .001000.
[2]Set voltage divider to .01000.
[3]Remove dc voltage divider from setup.

9. Dc Amps

a. Performance Check

(1) Set TI function switch (if applicable) to dc amps and set range switch to lowest range.

(2) Connect equipment as shown in figure 1.

NOTE

Position dc current shunt (A3) range plugs as required for range being calibrated. Also set decade resistor (A8) controls as required for current limiting and remove when current exceeds decade resistor current capability.

(3) Adjust dc power supply (A4) and decade resistor as required for full-scale indication on TI meter. Digital voltmeter will indicate within limits specified under accuracy in table 4 for TI being calibrated.

NOTE

Perform tracking and linearity check on a convenient range at cardinal points two-thirds and one-third of full scale. Indications will be within stated ± percent of full scale for each cardinal point.

(4) Repeat technique of (1) and (3) above for remaining ranges.

b. Adjustments. No adjustments can be made.

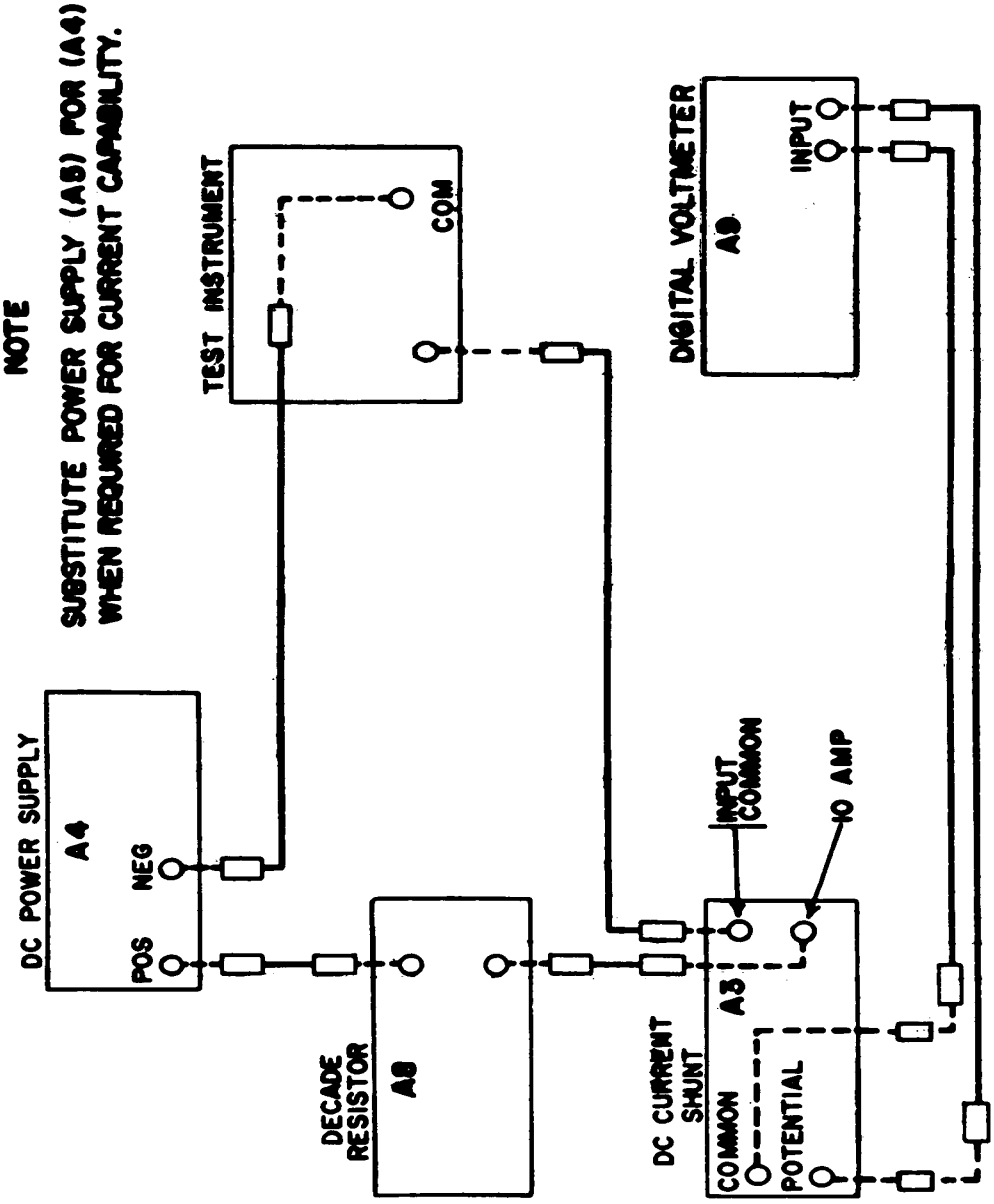

Figure 1. Dc current - equipment setup.

Table 4. Dc Current

Test instrument range	Digital voltmeter indications (mV dc)			
	SRI, Models C-CILKI and C-CILORD		ME-221/U and Weston, Models 430, 901, 931, and 622 series	
	±0.25%		±0.5%	
	Min	Max	Min	Max
5 µA	- - -	- - -	49.75	50.25
10 µA	- - -	- - -	99.5	100.5
15 µA	- - -	- - -	14.925	15.075
20 µA	- - -	- - -	19.90	20.10
30 µA	- - -	- - -	29.85	30.15
50 µA	- - -	- - -	49.75	50.25
100 µA	- - -	- - -	99.5	100.5
150 µA	- - -	- - -	14.925	15.075
200 µA	- - -	- - -	19.90	20.10
500 µA	- - -	- - -	49.75	50.25
1000 µA	- - -	- - -	99.5	100.5
.03 mA	- - -	- - -	29.85	30.15
.05 mA	49.875	50.125	- - -	- - -
.1 mA	99.75	100.25	99.5	100.5
.2 mA	- - -	- - -	19.90	20.10
.3 mA	- - -	- - -	29.85	30.15
.5 mA	49.875	50.125	49.75	50.25
1 mA	99.75	100.25	99.5	100.5
1.5 mA	- - -	- - -	14.925	15.075
2 mA	19.95	20.05	19.90	20.10
3 mA	- - -	- - -	29.85	30.15
5 mA	49.875	50.125	49.75	50.25
7.5 mA	- - -	- - -	74.625	75.375
10 mA	99.75	100.25	99.5	100.5
15 mA	14.963	15.037	14.925	15.075
20 mA	19.95	20.05	19.90	20.10
30 mA	29.925	30.075	29.85	30.15
50 mA	49.875	50.125	49.75	50.25
75 mA	74.813	75.187	- - -	- - -
100 mA	99.75	100.25	99.5	100.5
150 mA	14.963	15.037	14.925	15.075
200 mA	19.95	20.05	19.90	20.10
300 mA	- - -	- - -	29.85	30.15
500 mA	49.875	50.125	49.75	50.25
750 mA	74.813	75.187	74.625	75.375
.05 A	- - -	- - -	49.75	50.25
.1 A	- - -	- - -	99.5	100.5
.15 A	- - -	- - -	14.925	15.075
.5 A	- - -	- - -	49.75	50.25
1 A	99.75	100.25	99.5	100.5
1.5 A	14.963	15.037	14.925	15.075
2 A	19.95	20.05	19.90	20.10

Table 4. Dc Current - Continued.

Test instrument range	Digital voltmeter indications (mV dc)			
	SRI, Models C-CILKI and C-CILORD		ME-221/U and Weston, Models 430, 901, 931, and 622 series	
	±0.25%		±0.5%	
	Min	Max	Min	Max
2.5 A	- - -	- - -	24.875	25.125
3 A	29.925	30.075	29.85	30.15
5 A	49.875	50.125	49.75	50.25
7.5 A	74.813	75.187	74.625	75.375
10 A	- - -	- - -	99.5	100.5
15 A	- - -	- - -	14.925	15.075
20 A	19.95	20.05	19.90	20.10
25 A	- - -	- - -	24.875	25.125
30 A	29.925	30.075	29.85	30.15
50 A	- - -	- - -	49.75	50.25

10. Ac Volts

a. Performance Check

(1) Set TI function switch (if applicable) to ac volts and set range switch to lowest range.

(2) Connect ac calibrator (A1) to TI.

(3) Adjust ac calibrator to mid-frequency of frequency range (if applicable) as listed in table 5 and voltage output for full-scale indication on TI. Ac calibrator will indicate within limits specified under accuracy in table 5 for TI being calibrated.

(4) Repeat (3) above at low and high frequency listed for TI.

(5) Repeat technique of (1), (3), and (4) above for remaining ranges.

NOTE

Perform tracking and linearity check on a convenient range at cardinal points approximately two-thirds and one-third of full scale. Indications will be within stated ± percent of full scale for each cardinal point.

b. Adjustments. No adjustments can be made.

Table 5. Ac Voltage

Test instrument range	Ac voltage standard indications (V ac)							
	Weston, Model 904 50 to 125 Hz TS-340 25 to 400 Hz Weston, Model 430 25 to 2000 Hz Weston, Model 455 25 to 1000 Hz		Weston, Model 433 25 to 125 Hz Westinghouse, Model PY-4 15 to 200 Hz		Weston, Model 904 125 to 450 Hz		Weston, Model 433 125 to 2500 Hz	
	±0.5%		±0.75%		±1%		±1.25%	
	Min	Max	Min	Max	Min	Max	Min	Max
3	2.985	3.015	- - -	- - -	2.97	3.03	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	4.9625	5.0375	- - -	- - -	4.937	5.063
7.5	7.4625	7.5375	- - -	- - -	7.425	7.575	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	9.925	10.075	- - -	- - -	9.875	10.125
15	14.925	15.075	14.888	15.112	14.85	15.15	14.812	15.188
20	- - -	- - -	19.85	20.15	- - -	- - -	19.75	20.25
30	29.85	30.15	29.775	30.225	29.7	30.3	29.625	30.375
50	49.75	50.25	49.625	50.375	- - -	- - -	49.375	50.625
60	- - -	- - -	59.550	60.450	- - -	- - -	59.45	60.75
75	74.625	75.375	74.438	75.562	74.25	75.75	74.062	75.937
125	- - -	- - -	124.06	125.94	- - -	- - -	123.44	126.56
150	149.25	150.75	148.88	151.12	148.5	151.5	148.12	151.88
175	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
250	- - -	- - -	248.12	251.88	- - -	- - -	246.88	253.12
300	298.5	301.5	297.75	301.25	297.0	303.0	296.25	303.75
350	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
400	389.0	402.0	- - -	- - -	- - -	- - -	- - -	- - -
450	- - -	- - -	446.62	453.38	- - -	- - -	444.38	455.62
600	- - -	- - -	595.50	604.50	- - -	- - -	592.50	607.50
700	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
750	746.25	753.75	744.38	755.62	742.5	757.5	740.62	759.38

Table 5. Ac voltage continued

Test instrument range	Ac voltage standard indications (V ac)					
	Weston, Model 528 25 to 125 Hz		General Electric, Model AK-4, Weston, Models 749 and 633-VA1 At 60 Hz only ME-489/U		Weston, Model 749 400 Hz only ME-79/USM-33 ME-79A/USM-33 50 to 1000 Hz	
	±2%		±3%		±5%	
	Min	Max	Min	Max	Min	Max
3	2.94	3.06	- - -	- - -	- - -	- - -
4	3.92	4.08	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -	- - -
7.5	- - -	- - -	- - -	- - -	- - -	- - -
8	7.84	8.16	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -	- - -
15	14.7	15.3	- - -	- - -	- - -	- - -

Table 5. Ac Voltage continued - Continued.

Test instrument range	Ac voltage standard indications (V ac)					
	Weston, Model 528 25 to 125 Hz		General Electric, Model AK-4, Weston, Models 749 and 633-VA1 at 60 Hz only ME-489/U		Weston, Model 749 400 Hz Only ME-79/USM-33 ME-79A/USM-33 50 to 1000 Hz	
	±2%		±3%		±5%	
	Min	Max	Min	Max	Min	Max
20	- - -	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -	- - -
50	- - -	- - -	- - -	- - -	- - -	- - -
60	- - -	- - -	- - -	- - -	- - -	- - -
75	- - -	- - -	- - -	- - -	- - -	- - -
125	- - -	- - -	- - -	- - -	- - -	- - -
150	147	153	145.5	154.5	142.5	157.5
175	- - -	- - -	169.75	180.25	- - -	- - -
250	- - -	- - -	- - -	- - -	- - -	- - -
300	294.0	306.0	291.0	309.0	285.0	315.0
350	- - -	- - -	339.5	360.5	- - -	- - -
400	- - -	- - -	- - -	- - -	- - -	- - -
450	- - -	- - -	- - -	- - -	- - -	- - -
600	588.0	612.0	582.0	618.0	570.0	630.0
700	- - -	- - -	679.0	721.0	- - -	- - -
750	- - -	- - -	727.5	772.5	- - -	- - -

11. Ac Amps

a. Performance Check

(1) Set TI function switch (if applicable) to ac current and set range switch to lowest range.

(2) Connect equipment as shown in figure 2.

(3) Adjust precision oscillator (A10) frequency for 60 Hz and voltage output as required to obtain full-scale indication on TI. Digital voltmeter (A9) will indicate within limits specified under accuracy in table 6 for TI being calibrated.

(4) Repeat (3) above at low (50 Hz) and high (as Applicable) (1000 Hz maximum) frequency listed for TI.

(5) Repeat technique of (1), (3), and (4) above for remaining ranges.

NOTE

Perform tracking and linearity check on a convenient range at cardinal points approximately two-thirds and one-third of full scale. Indications will be within stated ± percent of full scale for each cardinal point.

b. Adjustments. No adjustments can be made.

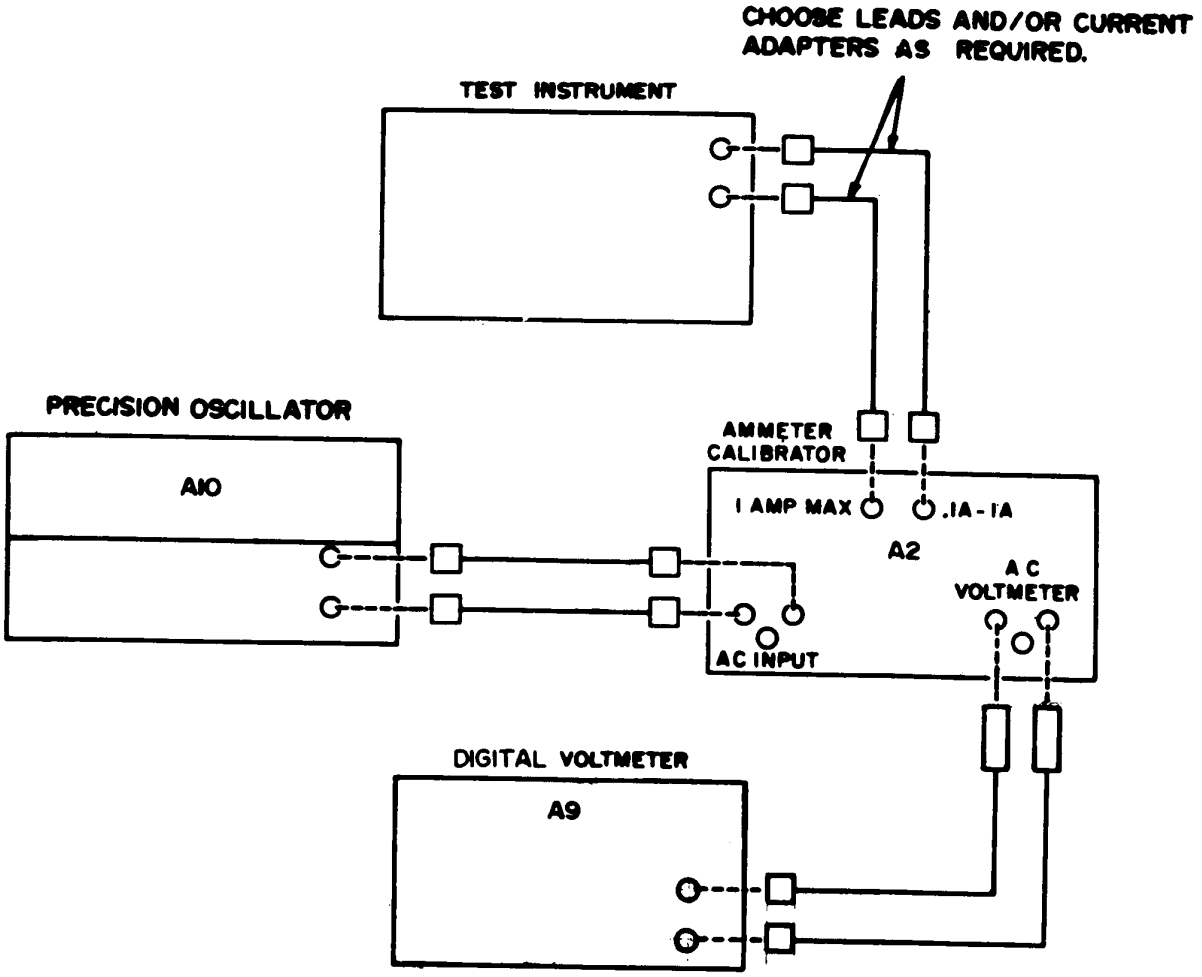

Figure 2. Ac current - equipment setup.

12. Final Procedure

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

b. When all parameters are within tolerance, annotate and affix DA Label 80 (US Army Calibrated Instrument). When the TI receives limited or special calibration, annotate and affix DA Label 163 (US Army Limited or Special Calibration). When the TI cannot be adjusted within tolerance repair the TI in accordance with the maintenance manual. When repair is delayed for any reason or the TI cannot be repaired with local resources, annotate and affix DA Form 2417 (US Army Calibration System Rejected Instrument) and inform the owner/user accordingly in accordance with TB 750-25-1.

Table 6. Ac Current

Test instrument range	Digital voltmeter indications (V ac)							
	Westinghouse, Model PA5 20 to 135 Hz ME-65/U and ME-65A/U, Weston Models 155 and 904 25 to 500 Hz		Weston, Model 528 25 to 500 Hz		General Electric, Model AK-4 Weston, Models 633 Series and 749 At 60 Hz only ME-489/U		Weston, Model 749 at 400 Hz Only ME-79/USM-33 ME-79A/USM-33 50 to 1000 Hz	
	±0.5%		±2%		±3%		±5%	
	Min	Max	Min	Max	Min	Max	Min	Max
15 mA	- - -	- - -	.98	1.02	- - -	- - -	- - -	- - -
50 mA	- - -	- - -	.98	1.02	- - -	- - -	- - -	- - -
100 mA	- - -	- - -	.98	1.02	- - -	- - -	- - -	- - -
.5 A	.995	1.005	.98	1.02	- - -	- - -	- - -	- - -
1 A	.995	1.005	.98	1.02	- - -	- - -	- - -	- - -
2 A	.995	1.005	- - -	- - -	- - -	- - -	- - -	- - -
2.5 A	.995	1.005	- - -	- - -	- - -	- - -	- - -	- - -
3 A	.995	1.005	.98	1.02	- - -	- - -	- - -	- - -
5 A	.995	1.005	.98	1.02	- - -	- - -	- - -	- - -
6 A	- - -	- - -	- - -	- - -	.97	1.03	.95	1.05
10 A	.995	1.005	.98	1.02	.97	1.03	- - -	- - -
15 A	.995	1.005	.98	1.02	.97	1.03	.95	1.05
20 A	.995	1.005	- - -	- - -	- - -	- - -	- - -	- - -
25 A	.995	1.005	- - -	- - -	.97	1.03	- - -	- - -
30 A	- - -	- - -	.98	1.02	.97	1.03	.95	1.05
50 A	.995	1.005	.98	1.02	.97	1.03	- - -	- - -
60 A	- - -	- - -	- - -	- - -	.97	1.03	.95	1.05
100 A[1]	.995	1.005	- - -	- - -	.97	1.03	- - -	- - -
150 A[1]	- - -	- - -	- - -	- - -	.97	1.03	.95	1.05
200 A[1]	.995	1.005	- - -	- - -	- - -	- - -	- - -	- - -
250 A[1]	- - -	- - -	- - -	- - -	.97	1.03	- - -	- - -
300 A[1]	- - -	- - -	- - -	- - -	.97	1.03	.95	1.05
500 A[1]	- - -	- - -	- - -	- - -	.97	1.03	- - -	- - -
800 A[1]	- - -	- - -	- - -	- - -	.97	1.03	- - -	- - -
1000 A[1]	- - -	- - -	- - -	- - -	.97	1.03	- - -	- - -
2000 A[1]	- - -	- - -	- - -	- - -	.97	1.03	- - -	- - -

[1]Check these ranges at the maximum capability of the ac power supply and ac current calibrator.

TB 9-6625-2146-35

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief Of Staff

Official:

DON J. DELANDRO
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The Adjutant General

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