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DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR AC VOLTMETER ME-334/U (TRIO-LAB 309-1)

Headquarters, Department of the Army, Washington, D. C.
30 May 1974

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Section I. GENERAL

1. **Purpose and Scope.** This bulletin provides instructions for the periodic calibration of AC Voltmeter ME-334/U, (Trio-Lab 309-1). It is to be used by calibration personnel primarily in the Transportable Maintenance Calibration Shelter AN/TSM-55A.

2. **Reporting of Technical Bulletin Improvement.** Reporting by the individual user, of errors, omissions, and recommendations for improving this bulletin, is authorized and encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded to Commander, U. S. Army Electronics Command, ATTN: AMSEL-MA-DS, Fort Monmouth, New Jersey 07703.

3. **Test Instrument Description.** AC Voltmeter ME-334/U, (Trio-Lab 309-1) is a general purpose instrument designed for checking alternating current

voltages in the ranges of 0.01 to 500 volts. Additional data is listed in a, b, and c. below.

a. Identification

Nomenclature	Voltmeter, Electronic ME-334/U
Federal stock number	6625-936-1424
Size	6 x 5 x 5 inches (approx)
Weight	4 pounds

b. Specifications.

Input power requirements	105 to 125 vac, 60 Hz
AC voltage range	001 to 500
Accuracy	05% of full scale value
Frequency response	001 to 0.5 volts, 50 Hz to 50 kHz 1 to 50 volts, 50 Hz to 20 kHz. 100 to 500 volts, 50 Hz to 3 kHz.
Input Impedance	10 megohms minimum

¹ These specifications are for information only and are not verified in this procedure

- 4. General Instructions. a. Calibration Data Card.** During the performance of this calibration annotate Calibration Data Card, DA Form 2416, in accordance with TM 38-750. Repeatable adjustments are followed by (R) in this procedure.
- b. Calibration Programming.**
- Time required for calibration.....1 hour (approx)
- Calibration level.....Maintenance

Calibration interval . In accordance with TB 43-180.

- c. Test Instrument.** AC Voltmeter ME-334/U (Trio-Lab 309-1) will be referred to as "test instrument" during this procedure.
- 5. Differences Among Models.** Slight differences may exist due to the availability of repair parts during equipment repair but should not affect the calibration procedure.

Section II. PRELIMINARY INSTRUCTIONS

6. Equipment Required. Table 1 lists minimum use specifications of equipment required for calibration performance checks and adjustments. When any of

the equipment listed in this table is not available, equivalent calibrated items may be used provided they meet the minimum use specifications.

Table 1. Equipment Required

Item	Minimum use specifications	Equipment identification ¹
Meter Calibrator	Range 001 to 500 vac Accuracy- 0.25%	AN/USM-270 (HP 6290B)
Test Oscillator	Range 50 Hz to 50 kHz Amplitude 3 volts Accuracy 3%	AN/USM-264 (HP 652A)
Variac Cables (2 required)	105 to 125 vac 18 to 36 Inches length, Rated for 500 vac min	TF-510/U (GR W10MT3A) 1D-3 and 1C-3

¹ The calibration equipment utilized in this procedure was selected from those known to be available at Department of Defense facilities, and the listing by make or model number carries no implication of preference, recommendation, or approval by the Department of Defense for use by other agencies. It is recognized that equivalent equipment produced by other manufacturers may be capable of equally satisfactory performance in the procedure.

- 7. Precautions. a.** To prevent equipment damage, verify that all switches are set to off.
- b.** Connect the test instrument power cord to the variac and adjust the variac voltage control to minimum.
- c.** Set all controls on the meter calibrator and test oscillator to minimum output, positions to avoid possible damage to the equipment when the power switches are set to on.
- 8. Meter Calibrator Controls. a.** Set FUNCTION SELECTOR switch on Meter Calibrator (HP6920B) to AC.
- b.** Set OUTPUT SWITCH to OFF (RESET).
- c.** Set RANGE switch to 1 VOLTS.
- d.** Adjust output control to 0000.
- 9. Test Oscillator Controls. a.** On Test Oscillator (HP=652A), set FREQUENCY dial to 5
- b.** Set RANGE switch to X10.
- c.** Set MONITOR switch to VM.
- d.** Set A VM ZERO/VERNIER to mid-range.
- e.** Set AMPLITUDE control to mid-range.
- f.** Set OUTPUT ATTENUATOR switch to 10 MILLIVOLTS.

- 10. Regulation Test. a. Performance Check.**
- (1) Connect Cable 1D-3 from test instrument HI and LO terminals to meter calibration HI + and LO - terminals.
- (2) Set all power switches on the auxiliary equipment to ON.
- (3) Adjust the variac for 115 volts.
- (4) Allow sufficient time for equipment to warm up and stabilize. The Unit Under Test requires approximately 20 minutes for this purpose.
- (5) Set Test instrument range switch to 1.
- (6) Set meter calibrator OUTPUT SWITCH to ON HOLD.
- (7) Adjust output control for a full scale indication on test instrument.
- (8) Meter calibrator output control should indicate between .995 and 1.005 volts.
- (9) Adjust variac for 105 volts
- (10) Test instrument should indicate between .995 and 1.005 volts.
- (11) Adjust variac for 125 volts.
- (12) Test instrument should indicate between .995 and 1.005 volts.