TB 11-6625-247-35

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR GYRO MAGNETIC COMPASS TEST SET AN/ASM-61 (NSN 6625-00-885-5869)

Headquarters, Department of the Army, Washington, DC
11 July 1975

*This bulletin supersedes TB 11-6625-247-35/1, 13 May 1968.

SECTION I
IDENTIFICATION AND DESCRIPTION

1-1. Purpose and Scope. This bulletin provides information for the periodic calibration of Gyro Magnetic Compass Test Set, AN/ASM-61 (fig. 1). It is to be used by personnel trained and qualified in the use of calibration equipment.

1-2. Reporting of Technical Bulletin Improvements. The reporting of errors, omission, and recommendations for this bulletin by the individual user is encouraged. Submit reports on DA Form 2028 (Recommend Changes to Publications and blank Forms) direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-Q Fort Monmouth, NJ 07703.

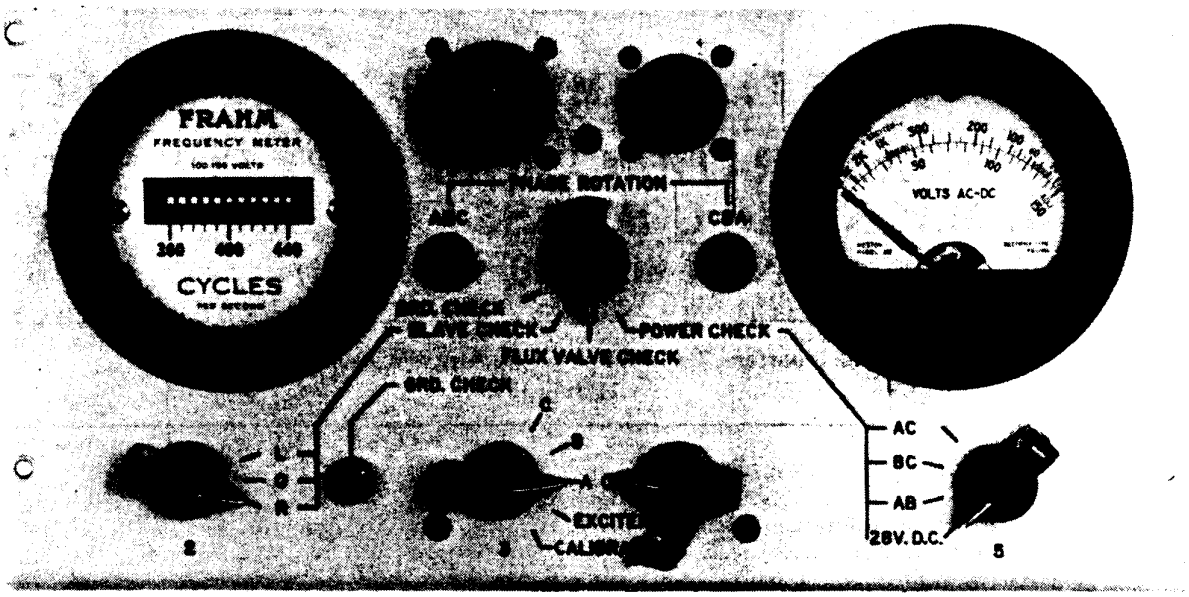

Figure 1. Gyro Magnetic Compass Test Set AN/ASM-61, front panel view.

1-3. Descriptive Data. Gyro Magnetic Compass Test Set AN/ASM-61 is a general purpose instrument for use in tests where flux valve, slaving, and power supply checks of gyro magnetic compasses are required.

a. Identification

Nomenclature	Gyro Magnetic Compass Test Set AN/ASM-61
National Stock Number	6625-00-885-5869
Size	14 x 6 1/2 x 35/8 in. (356 x 165 x 92 mm)
Weight	51/2 lb (2.5 kg)
Reference	TM 11-6625-247-15

b. Specifications

Frequency meter:	
Range	360 to 440 Hz
Accuracy	± 1%
Milliammeter:	
Range:	0 to 1.6 mA
Accuracy	±3% of full scale

c. Calibration

Time required	1.5 hours (approx.)
Technique	DC-Low Frequency
Interval	In accordance with TB 43-180

1-4. General Instructions

a. Calibration Reporting. During the performance of this procedure, annotate DA Form 2416 (Calibration Data Card) in accordance with TM 38-750.

b. Test Instrument. Gyro Magnetic Compass Test Set AN/ASM-61 will be referred to as the test instrument.

SECTION II
EQUIPMENT REQUIREMENTS

NOTE

Minimum use specifications are the principal parameters required for performance of the calibration, and are included to assist in the selection of alternate equipment, which may be used at the discretion of the calibrating activity. Satisfactory performance of alternate items shall be verified prior to use. All applicable equipment must bear evidence of current calibration.

2-1. Equipment Required. Equipment required for calibration performance tests is listed in table 1. Secondary transfer standards identifying numbers are shown in parentheses in the calibration equipment column.

Table 1. Equipment Required

Item No.	Common name	Minimum use specifications	Calibration equipment
A1	Audio oscillator	Range: 376.2 Hz to 424.2 Hz Accuracy: ±2%	Audio Oscillator TS-421C/U (8616377)
A2	Electronic voltmeter	Range: 47 Vac to 153 Vac Accuracy: ±0.2%	Electronic Voltmeter ME-202A/U (7912.06)
A3	Counter	Range: 376.2 to 424.2 Hz	Digital Readout Electronic Counter AN/USM-207A (7910823)

Table 1. Equipment Required - Continued

Item No.	Common name	Minimum use specifications	Calibration equipment
A4	Decade resistor	Resistance requirement: 150,m000 ohms Accuracy: ±1%	Decade Resistor ZM-16A/U (7910328)
A5	Power supply	Output data: 0 to 500V-200 ma, 0 to -150V-5 ma, AC 6.3V-10A	Power Supply PP-3135/U (7907346-2)

*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.

2-2. Accessories Required. Accessories required for calibration performance tests are listed in table 2.

Table 2. Accessories Required

Item No.	Common name	Description
B1	Connector adapter (2 required)	Single banana jack-to-alligator clip (red)
B2	Connector adapter	BNC plug-to-double banana jack
B3	Adapter	Single banana jack-to-pin plug
B4	Electrical lead (2 required)	12 in., No. 18 (red) single banana plug terminations
B5	Electrical lead (2 required)	24 in., No. 18 (black) single banana plug terminations
B6	Radio frequency cable assembly	26 in., RG-58C/U BNC plug-to-alligator clips
B7	Radio frequency cable assembly	30 in., RG-58/U double banana plug terminations
B8	Test lead	2 ft. 3 in. long 18 AWG

SECTION III
PRELIMINARY OPERATIONS

NOTE

It is recommended that personnel familiarize themselves with the entire procedure before performing calibration.

3-1. Preparation

a. The test instrument requires no special checks or warm up prior to operation.

b. Remove test instrument from its protective cover.

c. Test Instrument VOLTS AC-DC meter pointer must indicate zero with no power applied. If necessary, adjust mechanical zero adjustment screw located on front of meter.

3-2. Special Environmental Conditions. Test Instrument voltage indication will not be valid if test procedures are performed at temperatures above 90°F.

SECTION IV
CALIBRATION PROCESS

WARNING

HIGH VOLTAGE is used during the performance of this calibration. DEATH ON CONTACT may result if personnel fail to observe safety precautions.

4-1. Frequency Meter

a. Performance Check

(1) Connect the output of audio oscillator (A1) and the input of counter (A3) across the terminals of **FREQUENCY METER** of the Test Instrument, using radio frequency cable assemblies (B6) and (B7), and connector adapter (B2).

(2) Adjust the audio oscillator frequency to 400 Hz, and the output amplitude until reed vibration can be seen on **FREQUENCY METER** of the Test Instrument.

(3) Adjust the audio oscillator frequency for maximum vibration of each reed on **FREQUENCY METER** under test. Counter (A3) shall indicate ±1% of frequency marked on meter under test. Tests shall be performed at each division mark on meter under test.

NOTE

The Test Instrument may contain any of the following frequency meters

1. Frahm, Catalog No: 4997, range 380 to 420 Hz, 10 divisions, 4 Hz per division.

2. Winslow, Model 459-3644, range 360 to 440 Hz, 8 divisions, 10 Hz per division.

3. Winslow, Model 460, range 380 to 420 Hz, 8 divisions, 5 Hz per division.

4. Frahm, no model indicated, range 360 to 440 Hz, 10 divisions, 8 Hz per division.

5. Other manufacturer's models may be encountered.

b. Adjustments. No adjustments can be made.

4-2. Milliammeter

a. Performance Check

(1) Connect the equipment as designated in figure 2.

(2) Adjust the controls of decade resistor (A4) for 150,000 ohms.

(3) Position Test Instrument switch S1 to **SLAVE CHECK**.

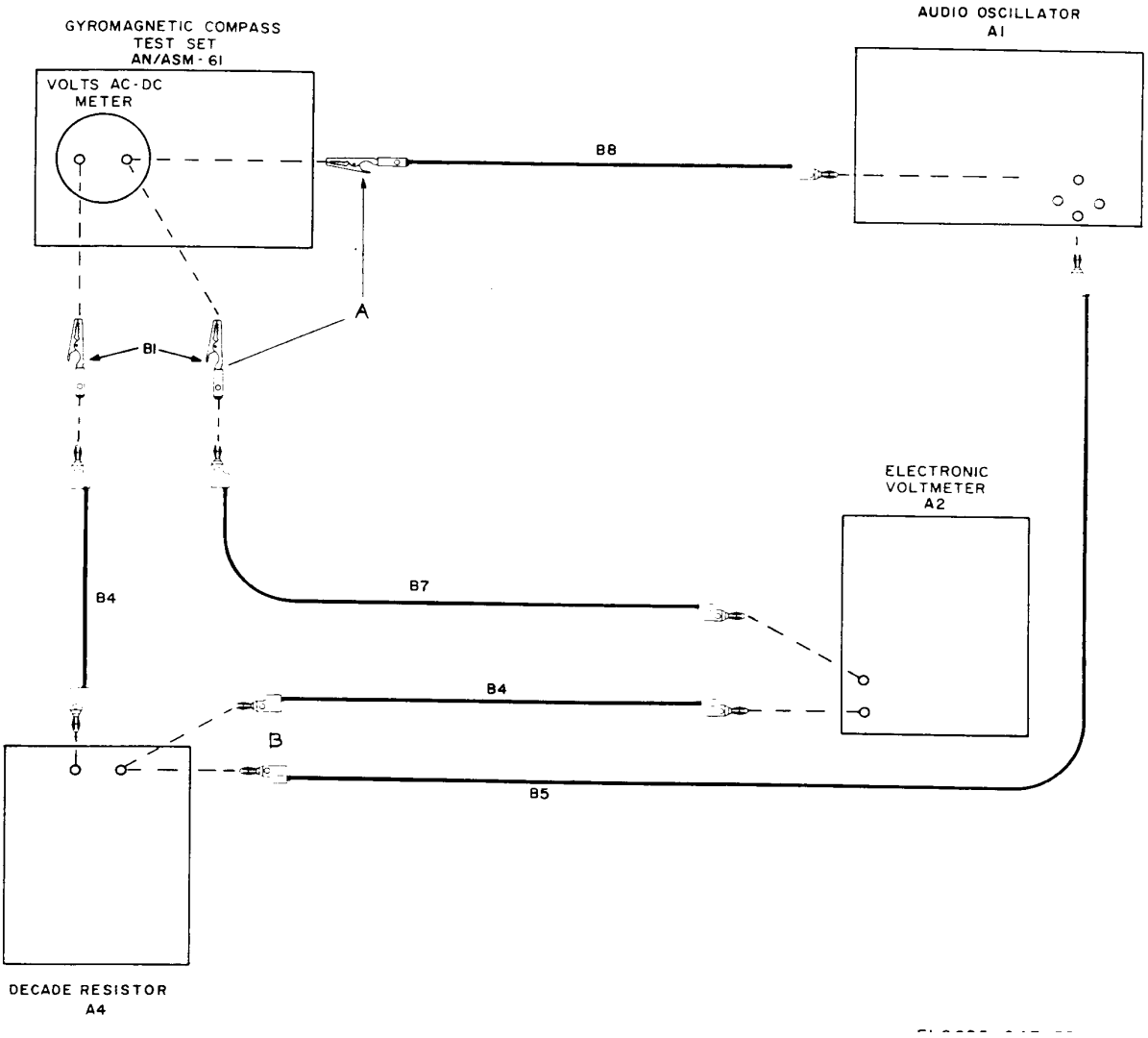

Figure 2. Gyro Magnetic Compass Test Set AN/ASM-61, milliammeter equipment setup.

(4) Adjust audio oscillator (A1) to 400 Hz and output amplitude for an indication of 150 (full scale) on Test Instrument VOLTS AC-DC meter.

(5) Indication of the electronic voltmeter (A2) shall be within the limits specified in table 3, columns 2 and 3.

Table 3. Milliammeter Check

Test instrument VOLTS AC-DC meter indication	Electronic voltmeter indication (volts ac)	
	Minimum	Maximum
150	147	153
100	97	103
50	47	53

(6) Repeat the procedure given in (4) and (5) above for the Test Instrument test meter indications of 100 and 50 as specified in table 3.

(7) Reduce the audio oscillator output amplitude to zero. Remove decade resistor (A4) from the setup. Disconnect the test leads from the meter, and connect the lead sets designed A and B in figure 2 to pins A and B, respectively, of P-1 on the front panel of the Test Instrument.

(8) Position Test Instrument switch S1 to **POWER CHECK**, and switch S5 to AB.

(9) Repeat the procedure (table 3, line 1 only) given in (4), and (5) above. Requirements shall be as indicated in table 3.

(10) Reduce the audio oscillator output to zero. Disconnect the lead sets designated A from connector P-1 and reconnect to pin C of the connector. Position Test Instrument switch S5 to BC.

(11) Repeat the procedure (table 3, line 1 only) given in (4), and (5) above. Requirements shall be as indicated in table 3.

(12) Turn the audio oscillator power ON-OFF switch to OFF. Remove the audio oscillator from the test setup and insert power supply (A5). Use adapters (B3) where required.

(13) Position Test Instrument switch S5 to 28 VDC Connect lead set A and B to connector P-1 pins A and D, respectively.

(14) Turn the power supply power switch to ON and adjust the output voltage for an indication of 30 on the Test Instrument VOLTS AC-DC meter.

(15) Indication on the electronic voltmeter shall be between 27 and 33 volts dc.

b. Adjustments. No adjustments can be made.

4-3. Final Procedure

a. Deenergize and disconnect all equipment.

b. In accordance with TM 38-750, annotate and affix DA Label 80 (US Army Calibration System). When the test instrument cannot be adjusted within tolerance, annotate and affix red tag, DA Form 2417 (Unserviceable Test Instrument or Limited Use).

c. Replace the test instrument protective case.

By Order of the Secretary of the Army:

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Distribution:

To be distributed in accordance with DA Form 12-36A, (qty rqr block No. 835). Calibration requirements for AN/ASM-61.

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