

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR
DOPPLER SIMULATOR
AN/GPM-60
(NSN 5841-00-945-8494)

Headquarters, Department of the Army, Washington, DC
9 January 1980

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SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides information for the periodic calibration of Doppler Simulator AN/GPM-60 (fig. 1) and is to be used by calibration personnel at all levels. Doppler Simulator AN/GPM-60 will be referred to as the TI (test instrument) throughout this bulletin.

a. Model variations. This procedure pertains to only one model of the AN/GRM-60.

b. Time and Technique. The time required for calibration of this simulator is approximately 2 hours using the dc-low frequency technique.

c. Interval of calibration. Refer to TB 43-180 for the

interval of calibration.

2. Calibration Data Card (DA Form 2416). *a.* Forms, records, and reports required for calibration personnel at all levels are prescribed by TM 38-750, DA Form 2416 must be annotated in accordance with TM 38-750 for each calibration performed.

b. There are no reportable adjustments in this procedure. Refer to paragraph 9 if the TI is out of the prescribed tolerance.

*This bulletin supersedes TB 11-5841-267-35/1, 29 November 19(

3. Calibration description. TI parameters and performance specifications which pertain to this calibration

are listed in table 1. The SM-450/APN-168 is part of the AN/GPM-60 but does not require calibration.

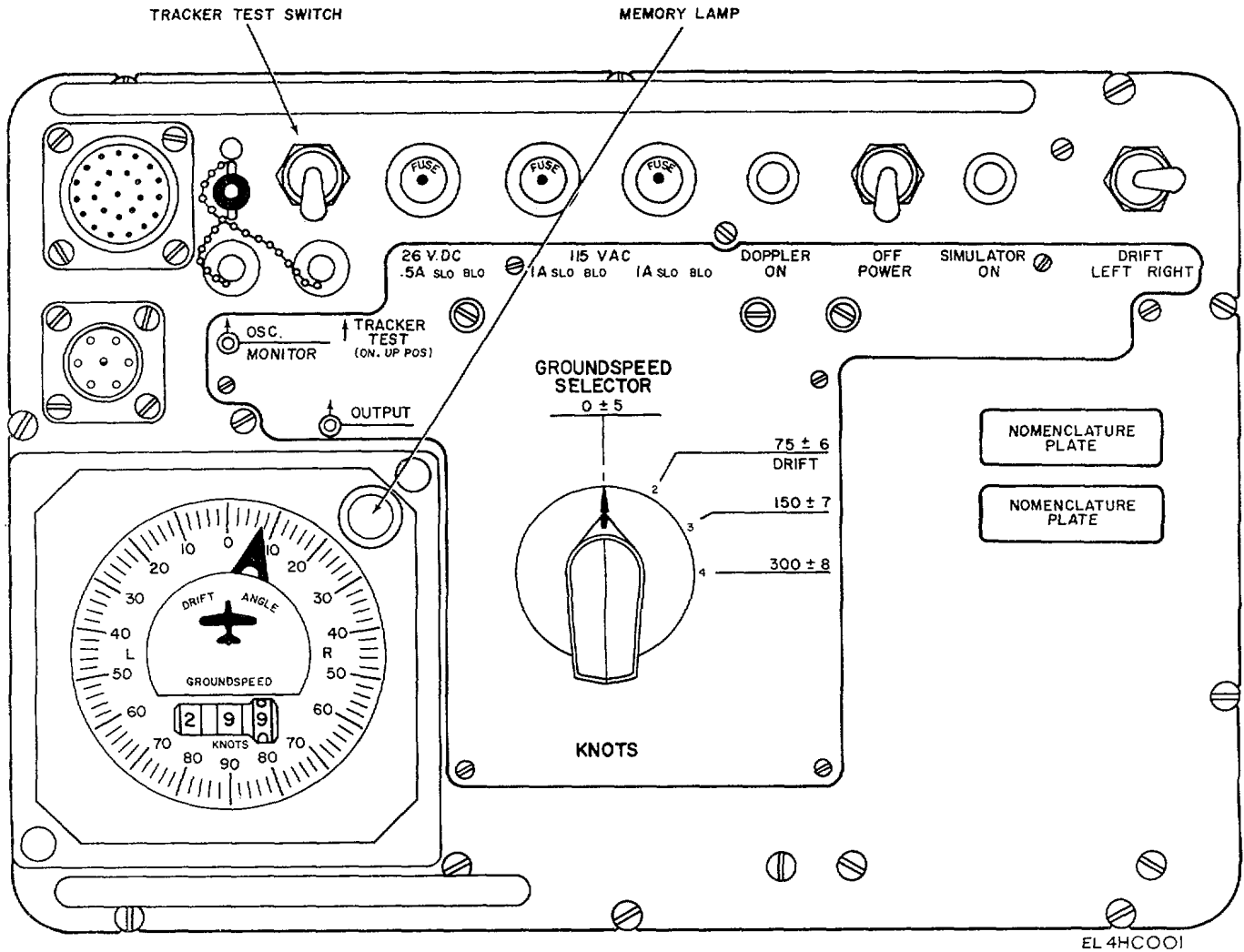


Figure 1. Doppler Simulator AN/GPM-60, front panel view.

Table 1. Calibration Description

Test instrument parameters	Performance specifications
Input requirements	Line voltage input; 115V, single phase, 400 Hz, power consumption 30VA. DC input; 26 V, 15W.
Output signals	8V peak to peak square wave, frequency 11,992 Hz, 12,792 Hz, and 14,290 Hz.

**SECTION II
EQUIPMENT REQUIREMENTS**

4. Equipment Required. Table 2 identifies the specific equipment used in this calibration procedure. This equipment is issued with the secondary transfer calibration standards set NSN 6695-00-621-7877, calibration standards set AN/GSM-256, and electronic maintenance shop sets, and is to be used in performing this calibration. 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.

5. Accessories Required. The accessories required for this calibration are listed in table 3 and are issued as indicated in paragraph 4 above. When necessary, these items may be substituted by equivalent items unless specifically prohibited.

Table 2. Equipment Required

Item	Common name	Minimum use specifications	Calibration Equipment and identifying No.
1I	Distortion Indicator (Analyzer).	Range: (Nulling frequency) 1982 to 4400. Accuracy: $\pm 3\%$.	Hewlett-Packard Model 334A (7911957) (TS-723/U).
A2	Frequency Counter.	Range: 11,982 to 14,440. Accuracy: $\pm 0.5\%$	S-D 1037M-2 (7910823). Hewlett-Packard Model 5245L (AN/USM-459).
A3	Oscilloscope.	Range: DC to 15,000 Hz, 3.8 to 4.2 Volts. Accuracy: $\pm 3\%$.	Tektronix R561B (7911440). Hewlett-Packard Model 180D (AN/USM-281) (#).
A4	Power Supply.	Range: 115V 400Hz.	NH Research Model SF 613-1 (MIS10222). ¹
A5	Power Supply.	Range: 26V 400 Hz.	Hewlett-Packard Model 745A. ²
A6	Power Supply.	Range: ± 28 VDC.	CS 36CR30 (7907346-2) JF 407.

¹400 Hz bench power may be used.

²400 Hz bench power with a step down transformer may be used.

Table 3. Accessories Required

Item	Common name	Description
B1	Cable Assembly.	12 in. RG-58A/U with BNC terminations.
B2	Cable Assembly.	26 in. RG-58A/U with BNC terminations.
B3	Adapter Connector.	BNC "T" connector.
B4	Wire*	Stranded insulated with pinjack on one end.
B5	Adapter Connector.	As necessary to mate BNC to oscilloscope input.

*Quantity and length as required.

**SECTION III
PRELIMINARY 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 during the performance of this calibration. DEATH ON CONTACT may result if personnel fail to observe safety precautions.

NOTE

Unless otherwise specified, verify the results of each test and, whenever the test requirement is not met, take corrective action before continuing with the calibration. Additional maintenance information is contained in the technical manual, TM 11-5841-267-45.

NOTE

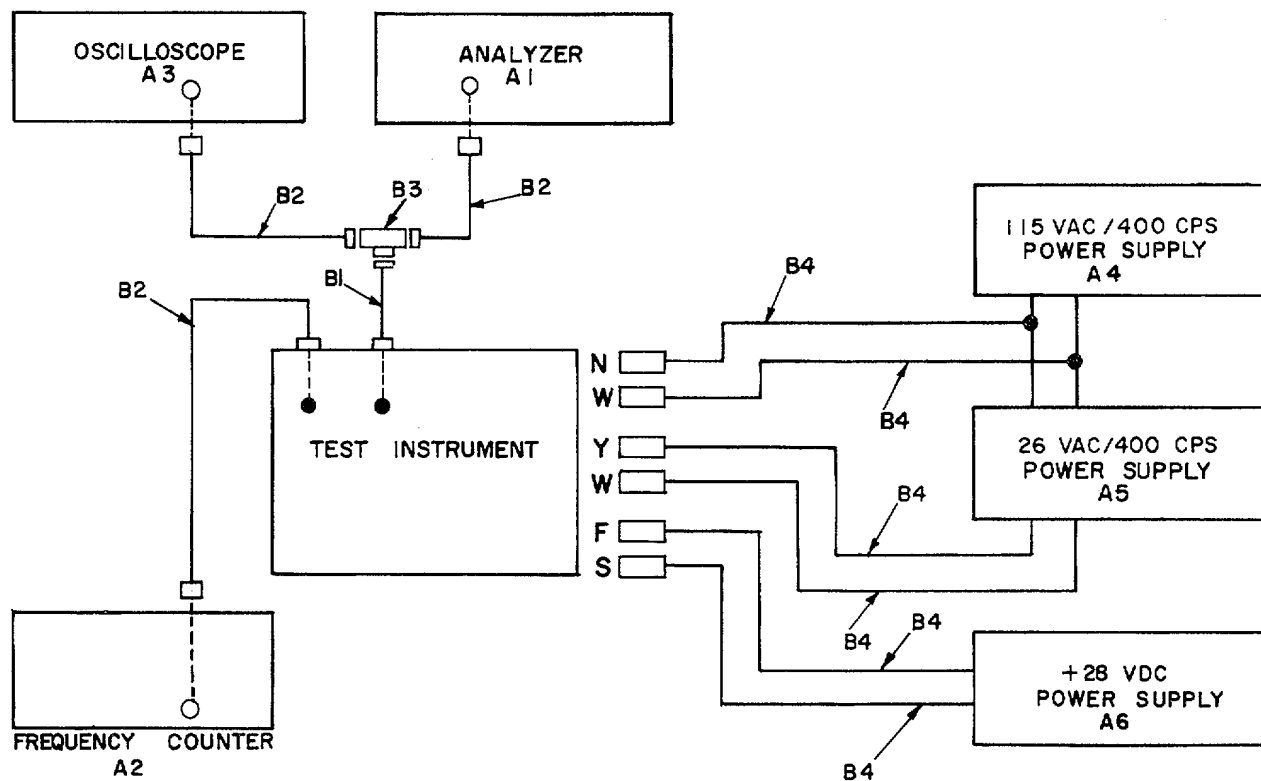
Unless otherwise specified, all controls and control settings refer to the TI.

7. Preliminary Procedure. Remove TI from its protective case and place on the working surface for convenient access to the calibration equipment and the power sources.

**SECTION IV
CALIBRATION PROCESS**

8. Groundspeed Noise Shaper Frequency Check. a. Performance Check.

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



EL4HC002

Figure 2. Groundspeed Noise Shaper Frequency Check, equipment setup.

(2) With power supplied as indicated in figure 2, set TI POWER switch to on.

(3) Turn GROUND SPEED SELECTOR switch to position 1.

(4) Observe indications on the calibration equipment as shown in table 4.

b. *Adjustments.* No adjustments can be made.

equipment and reinstall TI in protective case.

b. In accordance with TM 38-750, 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, annotate and affix DA Form 2417 (US Army Calibration System Rejected Instrument).

9. Final Procedure. a. Deenergize and disconnect all

Table 4. Calibration Values

Test Instrument	Frequency Counter		VRMS Oscilloscope indication		Distortion Indicator nulling frequency	
	Min	Max	Min	Max	Min	Max
GS SEL switch position 1	0	0	0	0	0	0
2	11,982	12,002	3.0	3.4	1982	2002
3	12,782	12,802	3.0	3.4	2782	2802
4	13,380	14,440	3.0	3.4	3380	4400

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