*TB 9-6680-284-35

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR STROBOSCOPES, GENERAL RADIO, MODELS 1531-A AND 1531-AB

Headquarters Department of the Army, Washington, DC
7 July 2004

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can improve this manual. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Commander, US Army Aviation and Missile Command, AMSAM-MMC-MA-NP, Redstone Arsenal, AL 35898-5000. A reply will be furnished to you. You may also provide DA Form 2028 information to AMCOM via e-mail, fax, or the World Wide Web. Our fax number is DSN 788-6546 or Commercial 256-842-6546. Our e-mail address is 2028@redstone.army.mil. Instructions for sending an electronic 2028 may be found at the back of this manual. For the World Wide Web, use https://amcom2028.redstone.army.mil.

*This bulletin supersedes TB 9-6680-284-35, dated 3 April 1990.

SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Stroboscope, General Radio, Models 1531-A and 1531-AB. The manufacturer's manual and TM 9-6625-2465-15 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 described in text.

b. Time and Technique. The time required for this calibration is approximately 1 hour, 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
Frequency	Range: 110 to 25,000 fpm Accuracy: ±1% of reading

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 or AN/GSM-705. 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. Where the four-to-one ratio cannot be met, the actual accuracy of the equipment selected is shown in parenthesis.

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. The following peculiar accessory is also required for this calibration: Motional Pickup Transducer (consisting of photo pickup, power supply, and magnetic holder), P/N 7913463 (6695-00-302-6923).

Table 2. Minimum Specifications of Equipment Required

Common name	Minimum use specifications	Manufacturer and model (part number)
AUTOTRANSFORMER	Range: 105 to 125 V ac Accuracy: ± 1%	General Radio, Type W10MT3AS3 (7910809) or Ridge, Model 9020A (9020A), or Ridge, Model 9020F (9020F)
FREQUENCY COUNTER	Range: 2.3 to 551 ms period Accuracy: 0.25% (period)	Fluke, Model PM6681/656 (PM6681/656)

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 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 procedure. Additional maintenance information is contained in the manufacturer's manual for this TI.

d. 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. Connect autotransformer to 115 V ac source and adjust for 115 V ac output.

b. Connect TI to autotransformer.

c. Set TI **POWER** switch to **ON** and allow 15 minutes for equipment to warm-up and stabilize.

d. Set range function control to 670-4170 and adjust **RPM** control to **3600**.

e. Adjust **HIGH CAL** trimmer until **CAL** indicator is either on or off (not blinking).

f. Adjust **RPM** control to **900**.

g. Adjust **LOW CAL** trimmer until **CAL** indicator is either on or off.

h. Repeat **d** through **g** above until **CAL** indicator stops blinking with **RPM** control set to **900** and **3600**.

8. Frequency

a. Performance Check

(1) Connect motional transducer to frequency counter.

(2) Connect motional transducer to 115 V ac source and press pushbutton **POWER**.

(3) Set range function control to **4000-25000** and adjust **RPM** control to **25000**.

(4) Direct light from TI strobotron into motional pickup. If frequency counter does not indicate between 2.376 and 2.424 ms, perform **b** below.

(5) Vary autotransformer from 105 to 125 V ac. Indication on frequency counter will remain within the limits stated in (4) above. Set autotransformer to 115 V ac.

(6) Repeat technique of (3) and (4) above for control settings listed in table 3. If frequency counter does not indicate within the limits specified, perform **b** below.

Table 3. Frequency Accuracy

Test instrument		Frequency counter indications (ms)	
Range function control	RPM control	Min	Max
4000-25000	15000	3.960	4.040
4000-25000	4000	14.851	15.151
670-4170	4170	14.246	14.533
670-4170	2000	29.702	30.303
670-4170	670	88.665	90.456
110-690	690	86.095	87.834
110-690	400	148.514	151.515
110-690	110	540.054	550.964

b. Adjustments

(1) Set range function control to **4000-25000**.

(2) Adjust **RPM** control to **21600**.

(3) Adjust **HIGH CAL** trimmer for 2.78 ms indication on frequency counter.

(4) Adjust **RPM** control to **5400**.

(5) Adjust **LOW CAL** trimmer for 11.11 ms indication on frequency counter.

(6) Repeat (2) through (5) above to compensate for interaction of adjustments.

(7) Set range function control to **670-4170** and adjust **RPM** control to **3600**.

(8) Adjust R7 (fig. 1) for 16.66 ms indication on frequency counter (R).

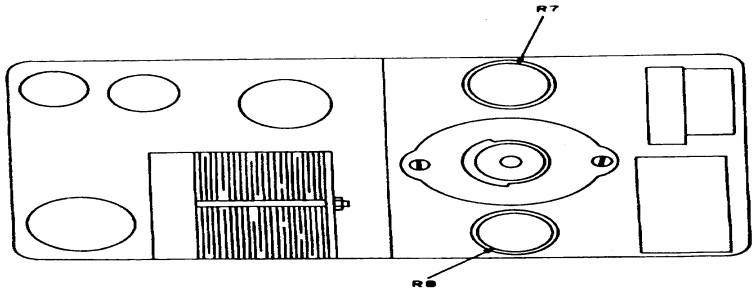

Figure 1. Frequency adjustment locations.

(9) Adjust **RPM** control to **900**. If frequency counter does not indicate between 66.00 and 67.340, repeat (1) through (8) above.

(10) Set range function control to **110-690** and adjust **RPM** control to **600**.

(11) Adjust R8 (fig. 1) for 100.0 ms indication on frequency counter (R).

(12) Adjust **RPM** control to **150**. If frequency counter does not indicate between 396.03 and 404 ms, repeat (1) through (6), (10), and (11) above.

(13) Repeat **a** above.

9. Final Procedure

a. Deenergize and disconnect all equipment.

b. Annotate and affix DA Label/Form in accordance with TB 750-25.

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
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Secretary of the Army

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Distribution:

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Instructions for Submitting an Electronic 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however, only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: "Whomever" whomever@redstone.army.mil
To: <2028@redstone.army.mil

Subject: DA Form 2028

1. **From**: Joe Smith
2. Unit: home
3. **Address**: 4300 Park
4. **City**: Hometown
5. **St**: MO
6. **Zip**: 77777
7. **Date Sent**: 19-OCT –93
8. **Pub no:** 55-2840-229-23
9. **Pub Title**: TM
10. **Publication Date**: 04-JUL-85
11. Change Number: 7
12. Submitter Rank: MSG
13. **Submitter FName**: Joe
14. Submitter MName: T
15. **Submitter LName**: Smith
16. **Submitter Phone**: 123-123-1234
17. **Problem**: 1
18. Page: 2
19. Paragraph: 3
20. Line: 4
21. NSN: 5
22. Reference: 6
23. Figure: 7
24. Table: 8
25. Item: 9
26. Total: 123
27. **Text**

This is the text for the problem below line 27.