*TB 9-5210-201-40

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR SPRING TENSION GAGES, MODELS 70( )

Headquarters, Department of the Army, Washington, DC
3 July 2008

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, U.S. Army Aviation and Missile Command, ATTN: AMSAM-MMC-MA-NP, Redstone Arsenal, AL 35898-5000. A reply will be furnished to you. You may also send in your comments electronically to our E-mail address: 2028@redstone.army.mil or by fax 256-842-6546/DSN 788-6546. For the World Wide Web use: https://amcom2028.redstone.army.mil. Instructions for sending an electronic 2028 can be found at the back of this manual.

*This bulletin supersedes TB 9-5210-201-50, dated 14 December 1965.

SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Spring Tension Gages Models 70( ). The manufacturer's manual was used as the prime data source 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, table, and figures.

b. Time and Technique. The time required for this calibration is approximately ½ hour using the physical technique.

2. Forms, Records, and Reports

a. Forms, records, and reports required by 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 applications which pertain to this calibration are listed in table 1.

Table 1. Calibration Description

Test instrument parameters	Performance specifications
Type 70D[1] Graduation (grams): 5[2]	Range: 50-0-50 Accuracy: ± 2.5 (grams)
Type 70F[1] Graduation (grams): 1[2]	Range: 10-0-10 Accuracy: ±0.5 (grams)
Type 70G[1] Graduation (grams): 5[2]	Range: 50-0-50 Accuracy: ±2.5 (grams)
Type 70H[3] Graduation (grams): 2[2]	Range: 0-20 Accuracy: ±1.0 (grams)
Type 70J[3] Graduation (grams): 5[2]	Range: 0-150 Accuracy: ±2.5 (grams)

[1]Models 70D, 70F, and 70G are bi-directional gages.
[2]This specification is for information only and is not verified in this bulletin.
[3]Models 70H and 70J are mono-directional gages.

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 Reference Calibration Standards Set, NSN 4931-00-621-7878. 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 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 the calibration procedure. The following peculiar accessory is also required for this calibration: LINE, 1 lb test minimum.

Table 2. Minimum Specifications of Equipment Required

Common name	Minimum use specifications	Manufacturer and model (part number)
WEIGHT SET, GRAM	Range: 1 to 500 grams Accuracy: ±0.125 (grams)	2-301-5

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

a. Fold back handle of TI as shown in figure 1.

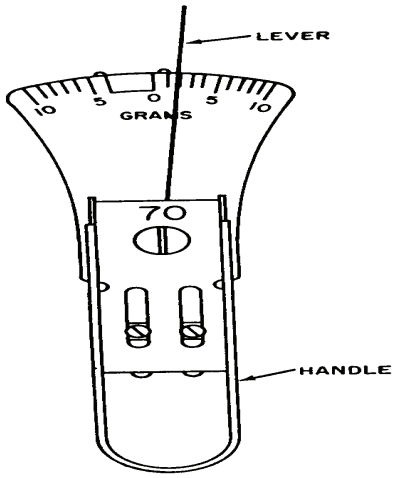

Figure 1. Spring tension gages 5210-366-4645 - typical view.

b. Remove adjustable tension attachment.

c. Check TI for zero setting. If necessary, adjust screws on top of TI. Depress lever of TI through its full range as shown in figure 1. Check for binding or interference. Check that lever returns to zero when released.

8. Accuracy

a. Performance Check

(1) Suspend a gram weight or combination of gram weights from the extreme tip of arm of TI as shown in figure 2. Check at full scale, $^1/_2$ scale, and $^1/_5$ scale, right hand and left hand as required.

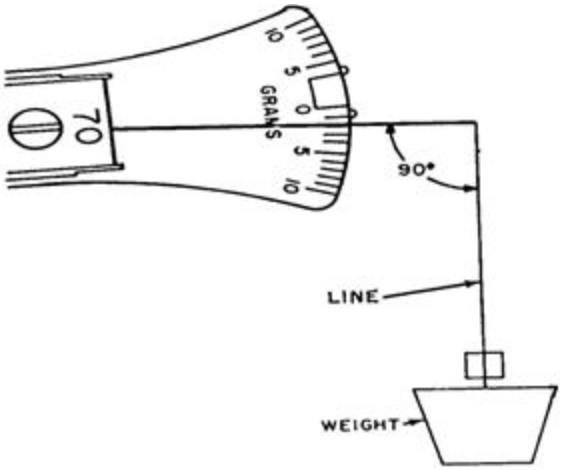

Figure 2. Spring tension gages - equipment setup

(2) Reading on scale of TI should coincide with weights suspended in (1) above within 1/2 graduation TI.

(3) Make a check at all cardinal points (numbered division) of TI.

NOTE

For accurate results, measuring lever must be held at right angle to line with suspended weight.

(4) For bi-directional gages, rotate unit under test 180° and repeat performance check.

b. Adjustment. No adjustment can be made.

9. Final Procedure

a. Fold handle forward on TI and replace adjustable tension attachment.

b. Annotate and affix DA label/form in accordance with TB 750-25.

By Order of the Secretary of the Army:

Official:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0812804

Distribution:

To be distributed in accordance with STD IDS No. RLC-1500, 2 January 2003, requirements for calibration procedure TB 9-5210-201-40.

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.