

*TB 9-4935-558-40

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR HOLD BACK TEST FIXTURE

TA 20/14 10682724 AND 1045515

Headquarters, Department of the Army, Washington, DC
5 May 2008

Distribution Statement A: Approved for public release; distribution is unlimited.

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.

SECTION		Paragraph	Page
	I. IDENTIFICATION AND DESCRIPTION		
	Test instrument identification	1	2
	Forms, records, and reports.....	2	2
	Calibration description	3	2
	II. EQUIPMENT REQUIREMENTS		
	Equipment required	4	2
	Accessories required.....	5	2
	III. PRELIMINARY OPERATIONS		
	Preliminary instructions.....	6	3
	Equipment setup	7	3
	IV. CALIBRATION PROCESS		
	Force dimension and load check.....	8	4
	Final procedure.....	9	5

*This bulletin supersedes TB 9-4935-558-50-1, dated 21 March 1979.

**SECTION I
IDENTIFICATION AND DESCRIPTION**

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Hold Back Test Fixture TA 20/14 10682724 and 1045515. Drawing 10682724 was used as the prime data source in compiling these instructions. The hold back test fixture 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 one hour, using the physical 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. Test instrument parameters and performance, specifications which pertain to this calibration are listed in table 1.

Table 1. Calibration Description

Test instrument parameters	Performance specifications
Force dimension and load	Dimension between end of slider and bottom of dowel pins with 95 lbs. force applied shall be 2.1515 ± 0.001 in.

**SECTION II
EQUIPMENT REQUIREMENTS**

4. Equipment Required. Table 2 identifies the specific equipment 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 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 accessories are also required for this calibration: Calibration stand, SK-D-4850-106 and C-clamp, SK-D-4850-105.

Table 2. Minimum Specifications of Equipment Required

Common name	Minimum use specifications	Manufacturer and model (part number)
MICROMETER	2.1515 ± .001 in.	(SKD4850-107) P/O SK-A-4850-103
WEIGHT	94 ± 1 lb.	(8598963) P/O 10-10525
WEIGHT TABLE	1 ± .25 lb.	(SKA4850-104)

SECTION III PRELIMINARY OPERATIONS

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.

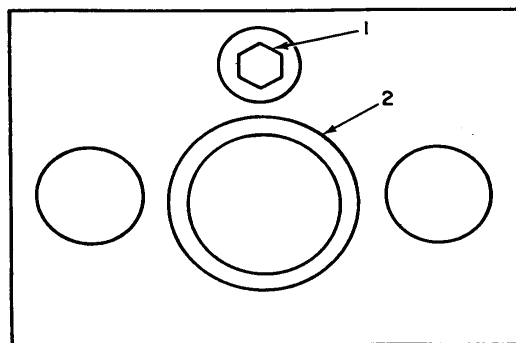
c. Unless otherwise specified, verify the result of each test and, whenever the test requirement is not met, take corrective action before continuing with the calibration. Adjustments required to calibrate the TI are included in this procedure.

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

7. Equipment Setup

a. Release any applied load on slide of TI force gage.

b. Stand the TI in an upright position on the calibration stand. Tighten the adjusting screw (1, fig. 1) only to the point where all the slack in the slider (2, fig. 1) is removed and the pointer on the gage just begins to deflect. Loosen adjusting screw slider until all the load on the force gage is removed. Tap the slider with finger. The pointer of the force gage should move with each finger tap if all the load is removed.



1 - Adjusting screw 2 - Slider

Figure 1. Top view test instrument.

**SECTION IV
CALIBRATION PROCESS**

8. Force Dimension and Load Check

a. Performance Check

(1) Place the weight table and 94 lbs. weight on the slider. TI force gage will indicate between 90.0 and 100.0. Record reading. If force gage reads out of tolerance return complete TI to depot.

(2) Remove weights and weight table from TI.

(3) Place C-clamp in a vise with C-clamp in a vertical position, with the adjusting screw on C-clamp on top. Place the TI on the C-clamp with TI slider on bottom and tighten until the force gage indicates the same reading as recorded in step (1) above.

(4) Position the micrometer frame on the TI and measure the internal depth of the slider. The micrometer frame will indicate the dimension on the calibration label ± 0.001 inch, if not perform **b** below. Disregard first figure (whole number) on calibration label when reading micrometer.

(5) Remove TI from C-clamp.

b. Adjustments

(1) Remove micrometer from and C-clamp from TI.

(2) Loosen the socket head adjusting screw (1, fig. 1), at the back of the slider, four turns.

(3) Position the TI on its back.

(4) Remove the socket head screw at the bottom center of the TI.

(5) Remove the shim(s) between the bottom of the gauge assembly and the frame.

(6) Remove the gauge assembly from the frame. Use care not to lose the loading ball that is between the pressure button of the gauge assembly and the end of the slider

(7) Clean the mating surfaces of the gauge assembly and the frame with a soft cloth.

(8) Adjust the shim thickness to achieve a correct micrometer frame reading as listed in (a) and (b) below:

(a) If the micrometer frame reads low, remove shim(s) as required.

(b) If the micrometer frame reads high, add shim(s) as required.

NOTE

A 0.001 inch shim will move the gauge reading approximately 10 lbs. The shim utilized in the TI is laminated from 0.002 inch shim stock. The thickness can be reduced by removing one or more 0.002 inch laminates or by sanding the shim, using 400 grade sandpaper.

(9) Install the loading ball in the slider, the gage and the shims into the TI frame. Insure that the loading ball is seated in socket of gauge assembly. Install socket head cap screw and torque to $105 \pm$ inch/pounds.

(10) Repeat the performance checks of **8 a** (1) through (5) 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:

Official:



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Distribution:

To be distributed in accordance with STD IDS No. RLC-1500, 2 January 2003, requirements for calibration procedure TB 9-4935-558-40.

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.

