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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
21 March 1979

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*This bulletin supersedes TB 9-4935-558-50-1, dated 16 August 1976.

SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of hold back test fixture 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. 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. Adjustments to be reported on DA Form 2416 are designated (R) at the end of the sentence in which they appear. When adjustments are in tables, the (R) will follow 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 ± .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 transfer calibration standards set and is to be used in performing this procedure. 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. The accuracies listed in table 2 provide a four-to-one accuracy ratio between the standard and test instrument. 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 listed in table 3 are issued with secondary transfer calibration standards set and are to be used in this calibration procedure. When necessary, these items may be substituted by equivalent items unless specifically prohibited.

Table 2. Minimum Specifications of Equipment Required

Item	Common name	Minimum use specifications	Manufacturer and model (part number)
A1	Micrometer	2.1515 ±.001 in.	SK-D--4850-107 P/O SK-A-4850-103
A2	Weight set	94 ±1 lb.	8598963 P/O 10-10525
A3	Weight table	1 ±.25 lb.	SK-A-4850-104

Table 3. Accessories Required

Item	Common name	Description (part number)
B1	Calibration stand	SK-D-4850-106
B2	C-clamp	SK-D-4850-105

SECTION III
PRELIMINARY OPERATIONS

6. Preliminary Instructions.

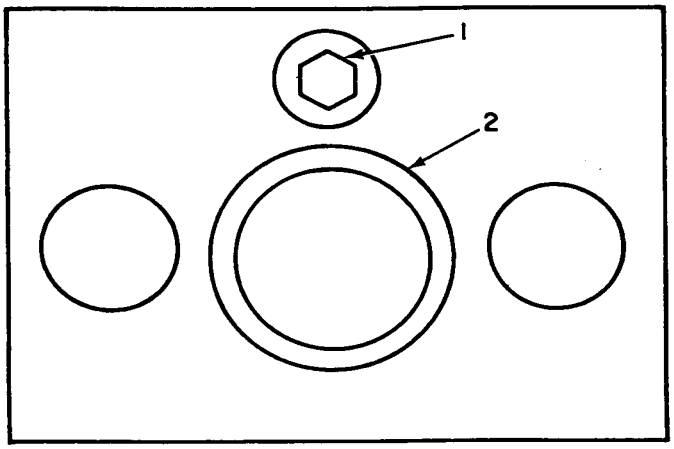
a. The instructions outlined in this section are preparatory to the calibration process. Personnel should become familiar with the entire bulletin before beginning the calibration.

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.

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 (B1). 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

NOTE

Unless otherwise specified, verify the results of each test and take corrective action whenever the test requirement is not met before continuing with the calibration.

8. Force Dimension and Load Check

a. Performance Check

(1) Place the weight table (A3) 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 (B2) 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 (A1) on the TI and measure the internal depth of the slider. The micrometer frame will indicate the dimension on the calibration ±.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 (A1) and C-clamp (B2) 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 follows:

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

NOTE

A .001 inch shim will move the gauge reading approximately 10 lbs. The shim utilized in the TI is laminated from .002 inch shim stock. The thickness can be reduced by removing one or more .002 inch laminates or by sanding the shim, using 400 grade sandpaper.

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

(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 ± inch/pounds.

(10) Repeat the performance checks of **8a** above.

9. Final Procedure

a. Deenergize and disconnect all equipment.

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.

By Order of the Secretary of the Army:

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