TB 9-4920-367-35

Change 2

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR SPAR BLADE CHECKING AND FILLING UNIT AND SPAR BLADE CHECKING UNIT SIKORSKY, PART NUMBERS S1670-15000-25 AND S1670-15002-2

Headquarters, Department of the Army, Washington, DC
24 May 1989

TB 9-4920-367-35, 13 September 1984, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

Remove pages	*Insert pages*
5 and 6	5 and 6

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

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Chief of Staff

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Change 1

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CALIBRATION PROCEDURE FOR SPAR BLADE CHECKING AND FILLING UNIT AND SPAR BLADE CHECKING UNIT SIKORSKY, PART NUMBERS S1670-15000-25 AND S1670-15002-2

Headquarters, Department of the Army, Washington, DC
20 May 1988

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DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR SPAR BLADE CHECKING AND FILLING UNIT AND SPAR BLADE CHECKING UNIT SIKORSKY, PART NUMBERS S1670-15000-25 AND S1670-15002-2

Headquarters, Department of the Army, Washington, DC
13 September 1984

♦REPORTING OF ERRORS♦

You can help improve this publication by calling attention to errors and by recommending improvements and stating your reasons for the recommendations. Your letter or DA Form 2028, Recommended Changes to Publications, should be mailed directly to Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-TMD-EP, Redstone Arsenal, AL 35898-5000. FAX to DSN 788-2313 (commercial 256-842-2313). A reply will be furnished directly to you.

This bulletin supersedes TB 55-4920-347-34-1, 12 January 1973.

SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Spar Blade Checking and Filling Unit and Spar Blade Checking Unit, Sikorsky, Part Numbers S1670-15000-25 and S1670-15002-2. 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. None.

b. Time and Technique. The time required for this calibration is approximately 2 hours, using the physical technique.

2. DA Form 2416 (Calibration Data Card). Forms, records, and reports required for calibration personnel at all levels are prescribed by TB 750-25-1. DA Form 2416 must be annotated in accordance with TB 750-25-1 for each calibration performed.

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
Vacuum	Range: 0 to 30 in. Hg Accuracy: ±0.25 in. Hg
Pressure	Range: 0 to 20 psi Accuracy: ±0.25 psi

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. 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 ratio between the standard and TI.

5. Accessories Required. The accessories listed in table 3 are issued as indicated in paragraph 4 above and are 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	PNEUMATIC PRESSURE STANDARD	Vacuum: Range: 0 to 30 in. Hg Accuracy: 0.0625 in. Hg Pressure: Range: 0 to 20 psi Accuracy: 0.0625 psi	Cybersystems, Inc., Model ZA00225A1, (MIS-30859)

Table 3. Accessories Required

Item	Common Name	Description (Part Number)
B1	HOSE	3-ft, 3000 psi operating pressure; female 7/16-20 NF ends for 37° angle fittings (p/o 7913310)
B2	HOSE	5-ft, 5000 psi operating pressure (p/o 7913310)
B3	NITROGEN TANK	Compressed cylinder (7916197)
B4	PNEUMATIC PRESSURE CONTROLLER	MIS-10324
B5	REGULATOR	MIS-10325 Type II
B6	RUBBER TUBING	1/4-in. ID, 1/8-in. wall rubber tubing (7909926) (p/o 7913310)
B7	RUBBER TUBING	7/16-in. ID rubber tubing (18204-6) (p/o 7913310)
B8	TEE	Stainless steel swivel nut (8491696) (p/o 7913310)
B9	TUBING CONNECTOR	1/2-in. ID hose to 1/4-in. ID hose (p/o 7913310)
B10	VACUUM PUMP	Welsh Scientific, Model 1400BG (7915322)

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 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 the prefix B, see table 3.

NOTE

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.

NOTE

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

7. Equipment Setup

NOTE

Insure that pneumatic pressure standard (A1) transducers have been zeroed within the last 8 hours.

a. Remove brass fitting with nipple from flexible hose of TI.

b. Connect equipment as shown in figure 1. (Connect TI to 0-20 PSIA inlet port on pneumatic pressure standard.)

c. Open exhaust valve, shutoff valve, and inlet valve on pneumatic pressure controller (B4).

d. Position controls on pneumatic pressure standard as indicated in (1) through (6) below:

(1) Set POWER switch to ON and allow 1 minute for warm-up.

(2) SOURCE pushbutton to INT.

(3) UNITS DISPLAYED switch to IN HG.

(4) RANGE pushbutton to 0-20.

(5) SENSITIVITY pushbutton to LOW.

(6) Press RESET pushbutton.

e. Lightly tap TI and compare TI ambient atmospheric pressure indication to indication on pneumatic pressure standard. If TI indication does not agree with pneumatic pressure standard within ±0.25 in. Hg, adjust the calibration adjustment (located beneath the glass face of TI) to agree with pneumatic pressure standard indication.

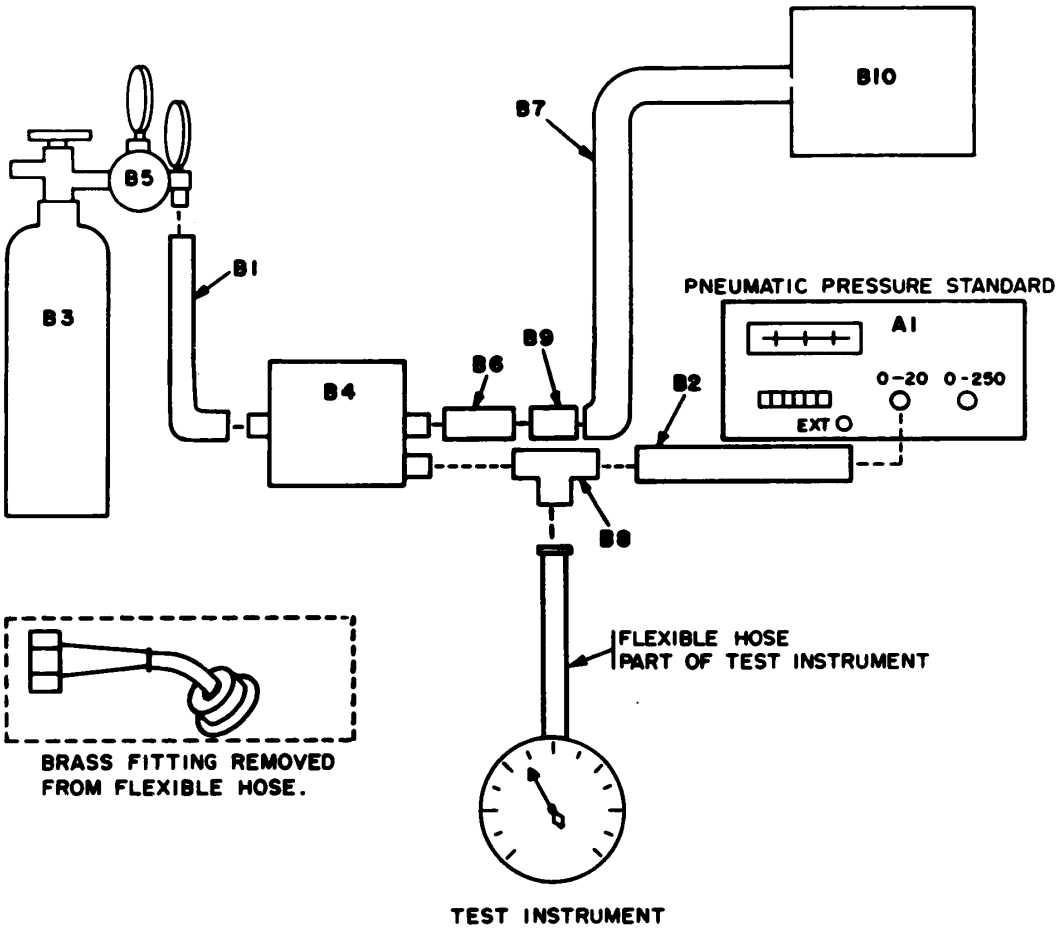

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Figure 1. Vacuum and pressure check - equipment setup

f. Close exhaust valve, metering valve, shutoff valve, and inlet valve on pneumatic pressure controller.

g. Energize vacuum pump (B10).

h. Open nitrogen tank (B3) valve and adjust regulator (B5) until gage indicates 22 psi.

WARNING

To prevent injury to personnel or damage to equipment, make certain that all components are within the range of the unit to be calibrated and all connections are securely sealed prior to applying pressure to TI. Never attempt to tighten connections with pressure applied.

8. Vacuum

a. Performance Check

(1) Operate pneumatic pressure controller (B4) for indication of 5 in. Hg on TI. Pneumatic pressure standard (A1) will indicate between 4.75 and 5.25 in. Hg.

(2) Repeat technique of (1) above for TI indications listed in table 4. Pneumatic pressure standard will indicate within limits specified.

b. Adjustments. No adjustments can be made.

Table 4. Vacuum Check

Test Instrument Indications (In. Hg)	Pneumatic Pressure Standard Indications (In. Hg)	
	Min	Max
10	9.75	10.25
15	14.75	15.25
20	19.75	20.25
25	24.75	25.25
29.9	29.65	30.15

9. Pressure

a. Performance Check

(1) Connect TI to 0-250 PSIA inlet port of pneumatic pressure standard (A1).

(2) Set pneumatic pressure standard UNITS DISPLAYED switch to PSIA and press RESET pushbutton.

(3) Operate pneumatic pressure controller (B4) for zero psi indication on TI.

(4) Press ZERO pushbutton on pneumatic pressure standard.

(5) Operate pneumatic pressure controller for indication of 5 psi on TI. Pneumatic pressure standard will indicate between 4.75 and 5.25 psi.

(6) Repeat technique of (5) above for TI indication listed in table 5. Pneumatic pressure standard will indicate within the limits specified.

Table 5. Pressure Check

Test Instrument Indications (Psi)	Pneumatic Pressure Standard Indications (Psi)	
	Min	Max
10	9.75	10.25
15	14.75	15.25
20	19.75	20.25

(7) Close nitrogen tank valve and adjust regulator (B5) for zero output.

(8) Adjust pneumatic pressure controller for zero indication on TI.

(9) Close inlet valve and slowly open exhaust valve on pneumatic pressure controller.

b. Adjustments. No adjustments can be made.

10. Final Procedure

a. Deenergize and disconnect all equipment and reinstall protective cover on TI.

b. When all parameters are within tolerance, 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, repair the TI in accordance with the maintenance manual. When repair is delayed for any reason or the TI cannot be repaired with local resources, annotate and affix DA Form 2417 (US Army Calibration System Rejected Instrument) and inform the owner/user accordingly in accordance with TB 750-25-1.

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JOHN A. WICKHAM, JR.
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Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

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