*TB 9-4920-367-24

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
10 June 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 9-4920-367-35, dated 13 September 1984, including all changes.

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. 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
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, AN/GSM-287 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 me, the four-to-one accuracy of the equipment selected is shown in parenthesis.

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

Common name	Minimum use specifications	Manufacturer and model (part number)
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	Druck, DPI145/R (MIS-45842)

Table 3. Accessories Required

Common name	Description (part number)
HOSE	3-ft, 3000 psi operating pressure; female 7/16-20 NF ends for 37° angle fittings (p/o 7913310)
HOSE	5-ft, 5000 psi operating pressure (p/o 7913310)
NITROGEN TANK	Compressed cylinder (7916197)
PNEUMATIC PRESSURE CONTROLLER	MIS-10324 (MIS-10324)
REGULATOR	MIS-10325 Type II
RUBBER TUBING	1/4-in. ID, 1/8-in. wall rubber tubing (7909926) (p/o 7913310)
RUBBER TUBING	7/16-in. ID rubber tubing (18204-6) (p/o 7913310)
TEE	Stainless steel swivel nut (8491696) (p/o 7913310)
TUBING CONNECTOR	1/2-in. ID hose to 1/4-in. ID hose (p/o 7913310)
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.

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

NOTE

Insure that pneumatic pressure standard 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.

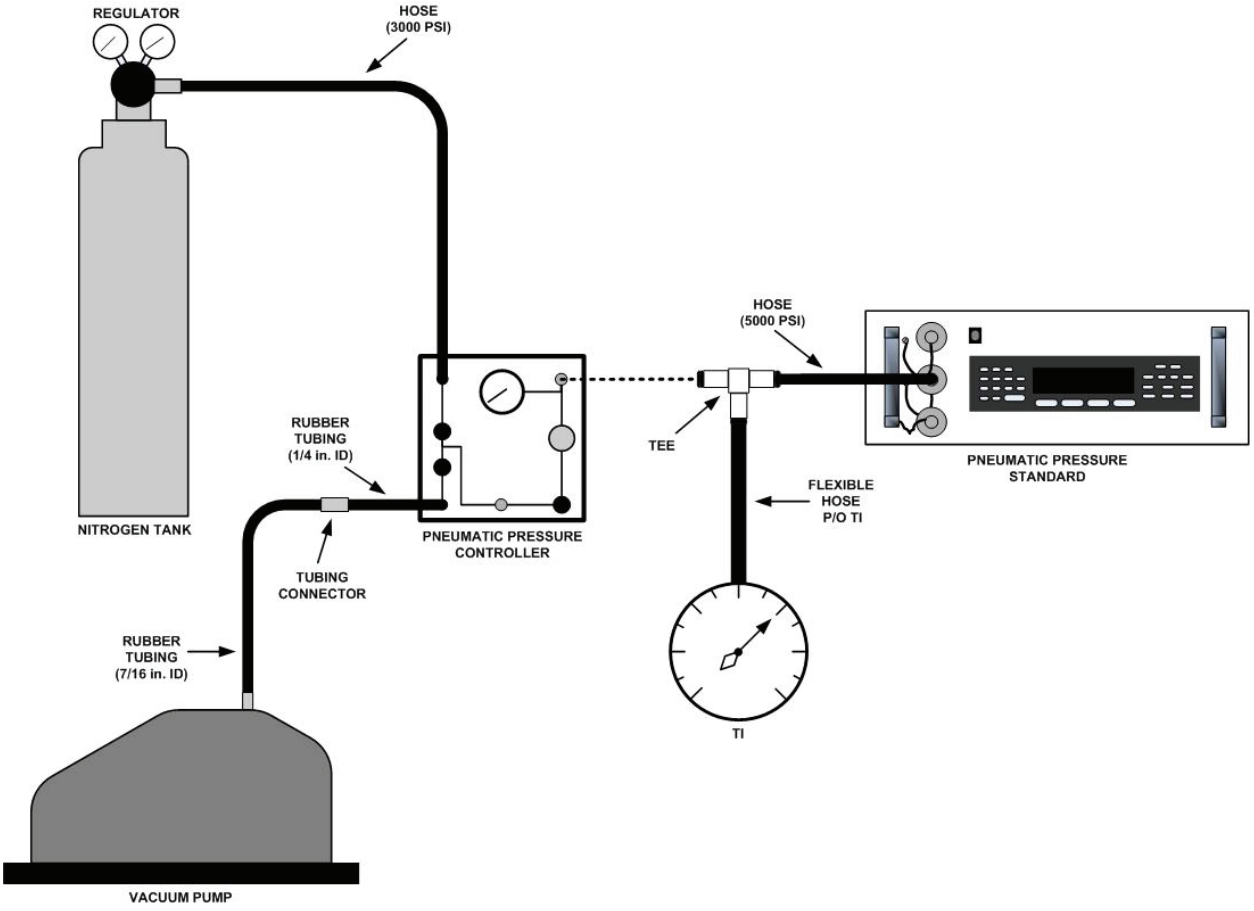

Figure 1. Vacuum and pressure check - equipment setup.

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

d. Configure pneumatic pressure standard to measure in. Hg.

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.

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

g. Energize vacuum pump.

h. Open nitrogen tank valve and adjust regulator 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 for indication of 5 in. Hg on TI. Pneumatic pressure standard 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.

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

b. Adjustments. No adjustments can be made.

9. Pressure

a. Performance Check

(1) Configure pneumatic pressure standard to measure psi.

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

(3) Press **ZERO** pushbutton on pneumatic pressure standard.

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

(5) 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

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

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

(8) 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. 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

0810105

Distribution:

To be distributed in accordance with the initial distribution number (IDN) 342823, requirements for calibration procedure TB 9-4920-367-24.

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.