

*TB 9-6680-288-40

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR FLOW METERS BROOKS, MODELS 1355-V AND 1355EAB

Headquarters, Department of the Army, Washington, DC
8 July 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.

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*This document supersedes TB 9-6680-288-50, dated 7 June 1997.

SECTION I IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Flow Meters, Brooks, Models 1355-V and 1355EAB. 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 throughout this bulletin.

a. Model Variations. Model variations are described in the text.

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 applications which pertain to this calibration are in table 1.

Table 1. Calibration Description

| Test instrument parameters | Performance specifications |
|----------------------------|--|
| Flow rate: Model 1355-V | Range: 07 to 0.7 cfm air Accuracy: 7% of full scale |
| Flow rate: Model 1355EAB | Range: 0.5 slm (standard liter per minute) to 1.5 slm in air Accuracy: 0.03 slm or better |

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, and Secondary Transfer Calibration Standars 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 the 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: Graph paper, 10 x 10 squares to 1/2 inch; 7 x 10 inch sheet, and envelopes, any suitable size.

Table 2. Minimum Specifications of Equipment Required

| Common name | Minimum use specifications | Manufacturer and model (part number) |
|-----------------|--|---|
| FLOW METER | Range: 0.07 cfm to 30 gph air Accuracy: $\pm 3\%$ | Schutte and Koerting, Model 18200 (18200) |
| FLOW METER | Range: 0.5 to 1.5 lpm Accuracy: $\pm 1\%$ | N/A - various manufacturers |
| PRESSURE SOURCE | Range: 0.07 cfm to 30 gph air | N/A - various manufacturers |

SECTION III CALIBRATION PROCESS

6. Preliminary Instructions

a. The instruction 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

WARNING

To avoid injury to personnel and equipment, check that all valves on pressure source are closed.

NOTE

Remove micrometer assembly from flow meter, model 1355-V, before beginning calibration. The micrometer calibration parameters are not included in this bulletin.

- a. Assemble flow meter using 1-RY-b tube and BJ-8 float.
- b. Connect equipment as shown in figure 1.

NOTE

When the TI is not within tolerance, perform the specified adjustment and continue the performance check. When the TI is not within tolerance and no adjustment is specified, the deficiency must be corrected before continuing with the procedure.

8. Flow Rate for Models 1355-V and 1355EAB

a. Performance Check

(1) Slowly open the regulator valve on pressure source until pressure gage on output side of regulator indicates approximately 30 psi.

(2) Open TI inlet valve.

(3) Carefully open needle valve (fig. 1) until flow meter indicates 22.5 mm.

(4) Using sing calibration curve K-4881 furnished with flow meter, determine and record the flow meter cfm indication.

(5) Using graph paper plot the exact point of intersection of the TI centimeter scale indication and the indication recorded in (4) above. See (fig. 2) for sample calibration curve graph.

(6) Repeat technique of (3) above using 60.5 mm, 96.0 mm and 123.0 mm respectively, plotting each indication on graph paper as described in (4) and (5) above.

b. Adjustments. No adjustments can be made.

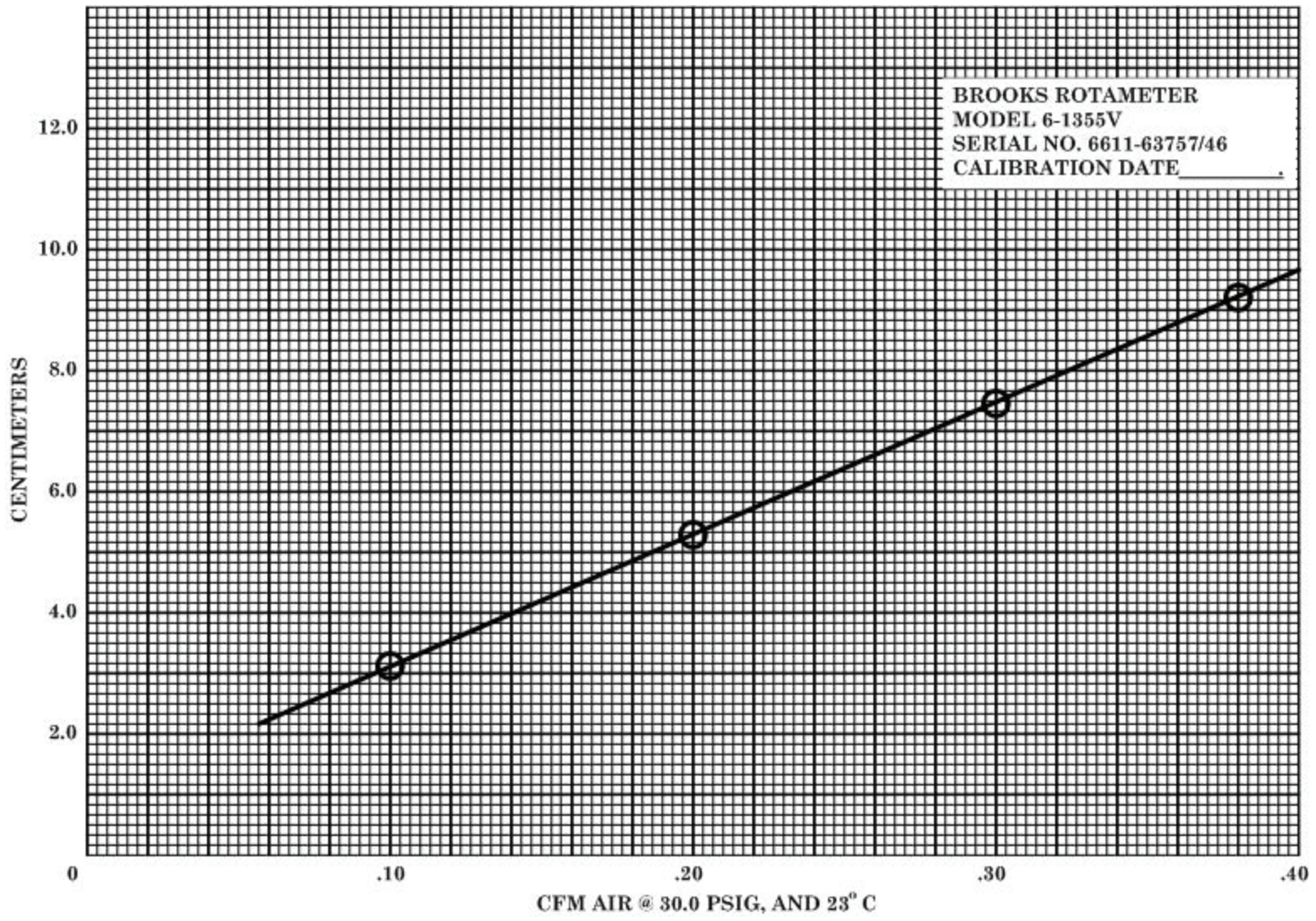


Figure 2. Sample calibration curve graph.

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 9-6682-288-40.

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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.

