

*TB 9-6660-274-40

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR HYGROGRAPH AND THERMOGRAPH SYSTEM, HONEYWELL, MODELS Y612X21- FH-11-111-77 AND 612X9HT-00-000-1M, WEATHERTRONICS, MODEL 5020, AND FOXBORO, MODEL A127

Headquarters, Department of the Army, Washington, DC
16 September 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	3
	III. CALIBRATION PROCESS		
	Preliminary instructions.....	6	3
	Equipment setup	7	3
	Temperature and humidity	8	4
	Final procedure	9	4

**SECTION I
IDENTIFICATION AND DESCRIPTION**

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Hygrograph and Thermograph System, Honeywell, Models Y612X21-FH-11-111-77 and 612X9HT-00-000-1M, Weathertronics, Model 5020, and Foxboro, Model A127. The manufacturers' manuals were used as the prime data sources 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 1 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. TI parameters and performance specifications which pertain to this calibration are listed in table 1.

Table 1. Calibration Description

Test Instrument Parameters	Performance Specifications
Input power requirements ¹	120 V ac, 25, 50, or 60 Hz or 250 V ac, 50 or 60 Hz
Relative humidity	Range: 0 to 100% RH Accuracy: ±5.0% RH from 10 to 90% RH
Temperature	Range: 0 to 100°F Accuracy: ±1°F

¹This specification is for information only and is not verified in this bulletin.

**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. 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. 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.

Table 2. Minimum Specifications of Equipment Required

Common name (official nomenclature)	Minimum use specifications	Manufacturer and model (part number)
AUTOTRANSFORMER	Range: 105 to 125 V ac Accuracy: $\pm 1\%$	Ridge, Model 9020A (9020A)
HUMIDITY GENERATOR	Range: 10 to 90% RH Accuracy: $\pm 1.25\%$ RH Range: 0 to 100°F Accuracy: $\pm 0.25^\circ\text{F}$	Thunder Scientific Corp., Model 2500ST

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 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 manufacturers' manuals for this TI.

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

7. Equipment Setup

a. Place TI in humidity generator.

NOTE

Adjust TI, inside chamber, so that the instrument can be read without opening chamber door.

b. Connect TI to autotransformer.

c. Connect autotransformer to 115 V ac source and adjust autotransformer for 115 V ac.

d. If necessary, install chart paper on TI.

e. Set TI power switch to **ON** position, and allow sufficient time for TI to warm-up and stabilize.

8. Temperature and Humidity

a. Performance Check

- (1) Set humidity generator temperature to 60 °F and humidity to 80%.

NOTE

Once humidity generator has reached temperature and humidity points established in **8 a** (1) above, allow TI to stabilize for at least 30 minutes before taking readings.

- (2) Record TI temperature and humidity indications. If TI does not indicate within limits specified in table 3, perform **b** below.

- (3) Repeat steps (1) and (2) above for remaining temperature and humidity settings in table 3. TI will indicate within limits specified.

Table 3. Temperature And Humidity Accuracy

Humidity generator settings		TI indication			
Temperature (°F)	Humidity (%)	Temperature (°F)		Humidity (%)	
		Min	Max	Min	Max
60	80	59	61	75	85
80	50	79	81	45	55
100	20	99	101	15	25

b. Adjustments

- (1) Adjust calibrating screw on right-hand end of hair housing until TI relative humidity indication is within 5.0 percent of humidity setting of humidity generator (R).

NOTE

When calibrating; screw is turned cw, indication is increased; when screw is turned ccw, indication is decreased.

- (2) Adjust ZERO adjustment until TI temperature indication is within 1.0°F of temperature setting of humidity generator (R).

- (3) Repeat **8 a** (1) through (3) 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:



JOYCE E. MORROW
*Administrative Assistant to the
Secretary of the Army*

0819802

GEORGE W. CASEY, JR.
*General, United States Army
Chief of Staff*

Distribution:

To be distributed in accordance with STD IDS No. RLC-1500, 2 January 2003, requirements for calibration procedure TB 9-6660-274-40.

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.

