*TB 9-6670-259-24

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR PORTABLE WHEEL-LOAD WEIGHERS GENERAL ELECTRO DYNAMICS, MODEL MD400 LOADOMETER CORPORATION, TYPE A, AND WESTWEIGH SCALE COMPANY, MODEL WSA-20000 AG

Headquarters, Department of the Army, Washington, DC
10 July 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 9-6670-259-35, dated 6 January 1993.

SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Portable Wheel-load Weighers, General Electro Dynamics, Model MD400, Loadometer Corporation, Type A**,** and Westweigh Scale Company, Model WSA-20000 AG. 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 2 hours, using the physical techniques.

2. Forms, Records, and Reports. Forms, records, and reports required for calibration personnel at all levels are prescribed by TB 750-25.

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[1]
Model MD400	Capacity: 0 to 20,000 lbs Accuracy: ±2% indicated value
Type A and model 20000AG	Capacity: 0 to 20,000 lbs Accuracy: ±1% indicated value

[1]This procedure may be used to calibrate like items, provided the correct performance specifications are known.

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-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.

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)
LOAD CELL	Range: 1960 to 20,400 lbs Accuracy: ±0.25%	Model USP1-20B
LOAD CELL INDICATOR	Range: 1960 to 20,400 lbs Accuracy: ±0.25%	Force Torque Indicator, MGCPLUS, (13589298)

Table 3. Accessories Required

Common name	Description (part number)
ADAPTER, FLAT SURFACE	(7916834) part of (7916273)
ADAPTER, STUD	(7916278) part of (7916273)
BASE PLATE	(7917056) part of (7916273)
HYDRAULIC FORCE H-FRAME	Holding frame for applied force (7916273)
WEIGHT DISTRIBUTION PLATE	(7917059) part of (7916273)

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 section before beginning the calibration.

b. Items of equipment used in this procedure are referenced within the text by common name 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 manufacturers' manuals for this TI.

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

7. Equipment Setup

WARNING

HIGH VOLTAGE is used or exposed during the performance of this calibration. DEATH ON CONTACT may result if personnel fail to observe safety precautions. REDUCE OUTPUT(S) to minimum after each step within the performance check where applicable.

a. Assemble equipment as shown in figure 1.

b. Connect load cell indicator to a 115 V ac power source. Energize all equipment and allow unit to warm-up for 15 minutes.

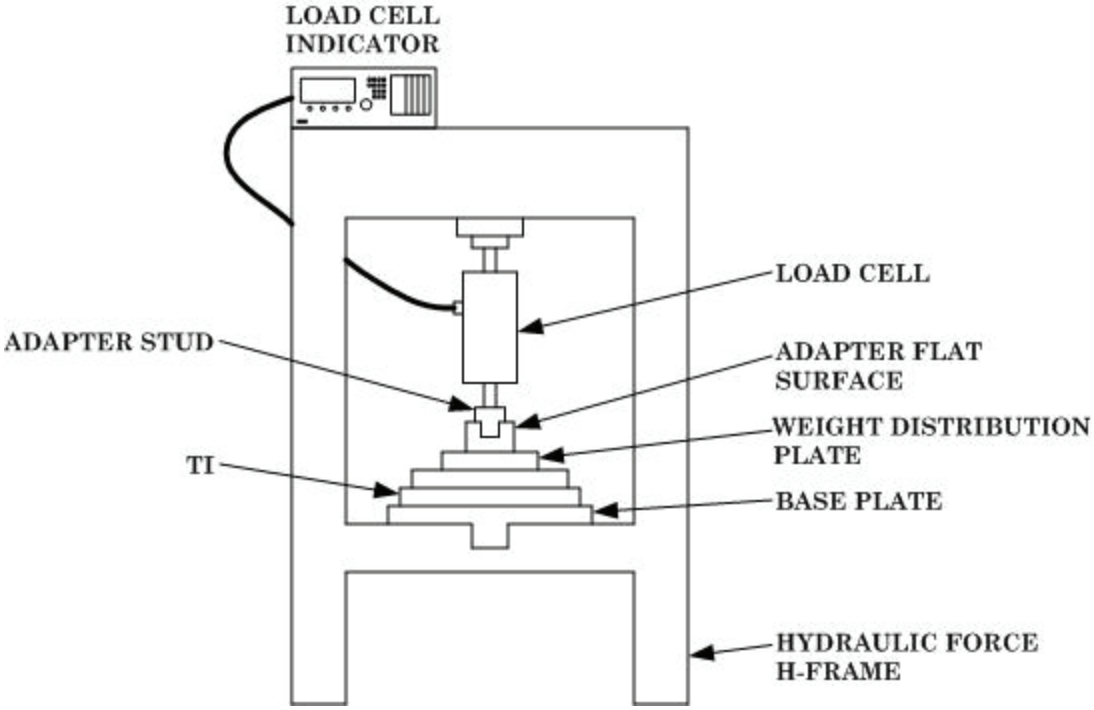

Figure 1. Weight calibration - equipment setup.

c. Set TI to full scale.

d. Exercise load cell and TI as described in (1) through (5) below:

(1) Apply force slowly to load cell and TI to obtain an approximate capacity.

CAUTION

Do not exceed capacity load on either TI or load cell.

(2) Release force to obtain 0 indication on indicator.

(3) Repeat **d** (l) and (2) above two more times.

(4) Adjust TI to read 0. For model MD400, rotate **ZERO** adjustment knob until hairline is in 0 position; for Type A and model 20000AG, refer to procedures listed in (5) through (7) below.

(5) Install crank to square shank at top of spring housing, adjust in cw direction until full scale is read.

(6) Adjust ccw until indicator moves to top of window.

CAUTION

Do not turn ccw past this point. Damage to bottom of spring housing can occur.

(7) Adjust slowly cw until indicator moves to center and cross line on indicator matches with cross line of window. TI should read 0.

(8) Readjust indicator, if necessary, to obtain a reading of 0.

8. Range and Accuracy

a. Performance Check

(1) Slowly apply force for TI indications listed in table 4 for the model MD400 and table 5 for the Type A and model 20000 AG. Load cell indicator will indicate within limits specified. Refer to calibration chart issued with load cell for actual force values.

NOTE

Final value of force must be approached using increasing value.
If desired point is overshot, decrease force.

(2) Reset TI to 0.

b. Adjustment. No adjustments can be made.

Table 4. Range and Accuracy - Model MD400

Test instrument indications (lbs)	Load call indicator indications(lbs)	
	Min	Max
2,000	1,960	2,040
4,000	3,920	4,080
6,000	5,880	6,120
8,000	7,840	8,160
10,000	9,800	10,200
12,000	11,760	12,240
14,000	13,720	14,280
16,000	15,680	16,320
18,000	17,640	18,360
20,000	19,600	20,400

Table 5. Range and Accuracy - Type A and Model 20000 AG

Test instrument indications(lbs)	Load cell indicator indications(lbs)	
	Min	Max
2,000	1,980	2,020
4,000	3,960	4,040
6,000	5,940	6,060
8,000	7,920	8,080
10,000	9,900	10,100
12,000	11,880	12,120
14,000	13,860	14,140
16,000	15,840	16,160
18,000	17,820	18,180
20,000	19,800	20,200

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:

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

Official:

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

0813506

Distribution:

To be distributed in accordance with the initial distribution number (IDN) 342302, requirements for calibration procedure TB 9-6670-259-24.

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.