*TB 9-6920-430-50

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR REMOTE PRESSURE MEASURING SYSTEM 11567561 NSN 6920-01-045-0563 (VALIDYNE MODEL PS201)

Headquarters, Department of the Army, Washington, DC
22 March 1985

REPORTING OF ERRORS

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*This technical bulletin supersedes TB 9-6920-430-50, dated 6 May 1981.

SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of the Remote Pressure Measuring System, 11567561, Validyne Model PS201. 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.

2. DA Form 2416 (Calibration Data Card)

a. Forms, records, and reports required for calibration personnel at all levels are prescribed TM 38-750. DA Form 2416 must be annotated in accordance with TM 38-750 for each calibration performed.

b. Adjustments to be reported on DA Form 2416 are designated (R) at the end of the sequence 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
Pressure	Range: 0 to 10,000 psi Accuracy: ±200 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 Sets AN/GSM-286. Alternate items may be used by the calibration 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. If alternate items are used, those items must NEVER be calibrated with oil. 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.

CAUTION

Test gage in table 2 must be clean to prevent contamination of Gas Pumping Unit (GPU). Gage must NEVER be calibrated with oil. Calibrate ONLY with MIL-P-27415 (NSN 9135-00-882-1793) Grade A Argon gas. ALWAYS backflush test gage with freon prior to use until thoroughly clean. Failure to do so will result in contamination.

5. Accessories Required. The accessories listed in table 3 are used in this calibration procedure.

Table 2. Minimum Specifications of Equipment Required

Item	Nomenclature	Minimum use specifications	Manufacturer, model and part number
A1	PRECISION TEST GAGE	Range: 0 to 10,000 psi Accuracy: ±50 psi, ascending ±100 psi descending	U.S. Gauge M/N 132274 (7907650)

Table 3. Accessories Required

Item	Common Name	Description and part number
B1	Adapter*	Adapter, Straight, 1/2" NPT to 1/2" OD tube, stainless steel, 37 degree flare (MS51503B8-8S or 8-8GTXSS) NSN 4730-00-783-8138
B2	Reducer*	Reducer, 1/2" OD tube to 1/4" OD tube, stainless steel, 37 degree flare (MS51534B8-4S) NSN 4730-00-784-2613
B3	Nut*	Nut, 1/2" OD tube, stainless steel (MS51531B8S) NSN 4730-00-316-8964
B4	Gas supply bottle**	CGA 677 (Argon gas: MIL-P-27415, Type 1, Grade A) NSN 9135-00-88-882-1793
B5	Hose assembly, test**	(11567563) NSN 6920-01-044-5082 Length: 60 inches, Quantity: 3
B6	Hose assembly, test**	(11509720-001) NSN 4720-01-0990-3185 Length: 36 inches, Quantity: 1
B7	Cross Assembly**	(11567562) NSN 6920-01-044-5083
B8	Liquid**	Leak detecting (snoop) NSN 6850-00-621-1820
B9	Tape, Anti-sieze*	(MIL-T-2773) NSN 8030-00-889-3535

*Provided by calibration team.
**Provided by site.

SECTION III
PRELIMINARY OPERATIONS

6. Preliminary Operations

a. The instructions in paragraphs **6** are **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 prefix B see table 3.

WARNING

HIGH PRESSURE GAS is used during the performance of this calibration. Serious injury may result if personnel fail to observe safety precautions.

7. Equipment Setup

WARNING

Serious injury may result if you fail to observe safety precautions. The TI calibration should be performed in a well ventilated room. High pressure gas (up to 6000 psi) exists when performing the TI calibration procedure. Gas bottle (item B4, table 3 and figure 1) must be secured to a building column, carrying cart, or any available upright object to minimize movement of bottle should its gas supply be unintentionally released. The wrenches used in this procedure must be open-end type, not more than 8 inches long. Wrenches more than 8 inches long can cause excessive tightening to over stress or break fittings, which can result in personal injury. Do not attempt to tighten fittings with system pressurized.

Be sure the personnel are not in line with the gas supply valve outlet when performing the next step. Escaping gas can injure skin and eyes, and direct inhalation of the gas can result in suffocation.

a. Purge the gas supply adapter by slowly opening (CCW) the valve on the gas bottle (B4) until gas can be heard escaping. Close (CW) the gas bottle valve after allowing gas to escape slowly for approximately one second.

WARNING

The safety chains on the Test Hose Assemblies (items B5 and B6) must be fastened to an eyelet. If fastening to an eyelet is not possible, then the chains must be wrapped around the adjacent fittings.

CAUTION

Anti-seize tape MIL-T-2773 must be applied to the threads of Adapter B1, figure 1, to prevent miscalibration due to leakage. The tape must not overlap the initial thread or cross threading may, occur.

b. Connect equipment as shown in figure 1. Connect hose assemblies (B5 and B6) using 1/2 and 9/16 inch wrenches; tighten securely. Set aside transducer fitting protective cap.

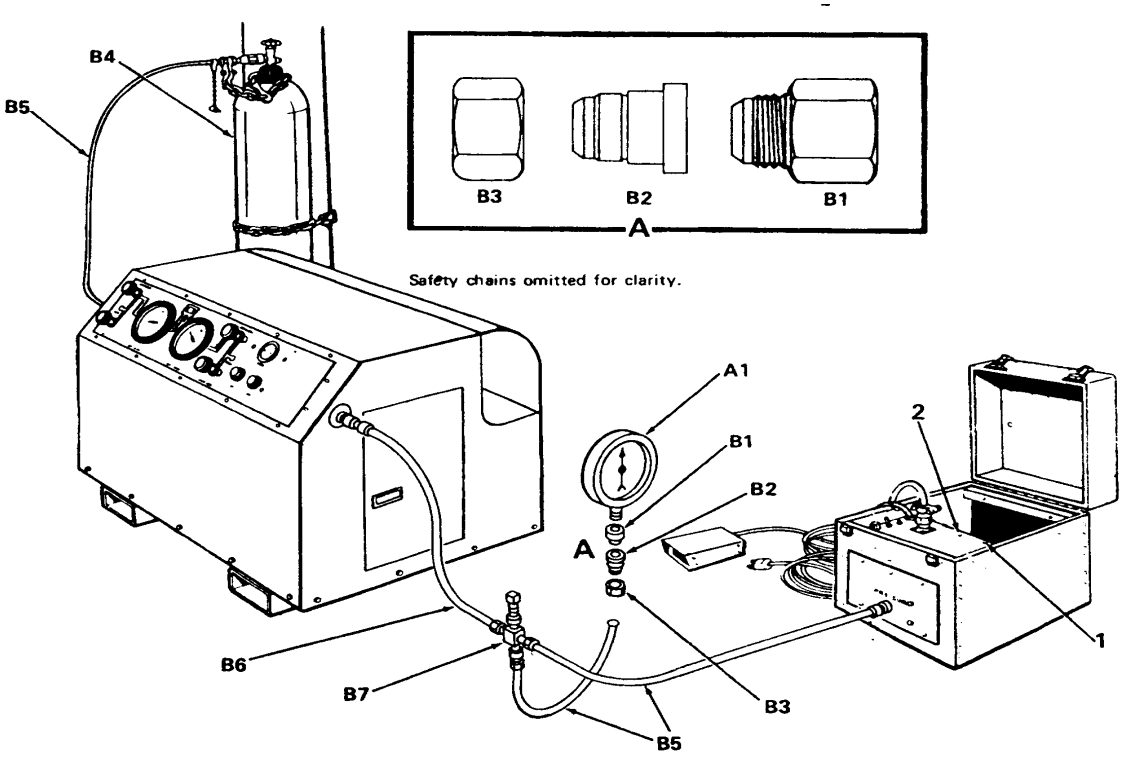

Figure 1. Equipment Setup.

c. Open the TI lid and remove the digital readout with its cable. Connect the digital readout cable to the TI. Place the digital readout next to the test gage (A1).

d. On the GPU, close (CW) the INLET SHUTOFF, INLET BLEED, OUTLET SHUTOFF, and OUTLET BLEED valves.

e. Very slowly open (CCW) the valve on the gas supply bottle (B4).

f. Using leak detecting liquid (B8), squirt some drops around all input gas system fittings.

WARNING

Do not attempt to tighten fittings with system pressurized. Serious injury can result if the high pressure fittings are loosened instead of tightened.

g. Visually check for gas bubbles indicating leakage. If leaks are detected, perform step **7h** below. If not, perform paragraph **8** below.

h. Close (CW) valve on gas supply bottle (B4). Bleed pressure down to 0 psi by opening (CCW) INLET BLEED VALVE on GPU; then, tighten leaky fittings. Close (CW) INLET BLEED valve. Perform steps **7e** through **7g** above.

8. TI Zero Calibration

a. Performance Check

(1) Connect the TI power cable to the 115 volt, 50 to 400 Hertz (Hz) power source. Set the TI power ON/OFF control to ON.

(2) Observe that the red power indicator illuminates. If not, verify power and check the TI fuse. Let the TI warm up for 10 minutes.

b. Adjustments. Adjust the zero control, (1, figure 1) under the plastic access hole cover until the TI digital readout indicates a 0 psi reading. (R)

9. TI Span Control Adjustment

a. Performance Check

(1) Open (CCW) INLET SHUTOFF and OUTLET SHUTOFF valves on GPU.

NOTE

System must be pressurized UP to 5,000 psi to ensure maximum accuracy. If pressurized beyond 5,000 psi, the system MUST be bled down to no more than 4,500 psi and repressurized to 5,000.

(2) Press the ON button on GPU. When OUTLET PRESSURE on Precision Test Gage indicates 5,000 psi, press OFF switch.

(3) Using leak detecting liquid (B8), squirt some drops around all output gas system fittings.

(4) Visually inspect for gas bubbles indicating leakage. If leaks are detected, perform step **9a**(5) below. If not, perform step **9a**(6) below.

(5) Close (CW) OUTLET SHUTOFF and open (CCW) OUTLET BLEED valves on GPU. When outlet pressure is bled to 0 psi, tighten leaky fittings. Close (CW) OUTLET BLEED and open (CCW) OUTLET SHUTOFF valves on GPU. Perform steps **9a**(2) through **9a**(4) above.

(6) The TI digital readout shall indicate 5,000 ±200 psi. If not, perform step **9b** below.

b. Adjustments. Adjust the TI span control, (2, figure 1.) under the plastic access hole cover until TI digital readout indicates the same pressure level as the Precision Test Gage (A1). (R)

10. Final Procedure

a. Close (CW) valve on Argon gas supply bottle (B4).

b. Close (CW) INLET SHUTOFF and OUTLET SHUTOFF valves on GPU.

c. Open (CCW) INLET BLEED and OUTLET BLEED valves on GPU to reduce pressure to 0 psi.

d. Deenergize and disconnect all equipment and reinstall transducer fitting protective cap and TI protective cover.

e. 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, make disposition in accordance with normal supply procedures. Annotate and affix DA Form 245 (US Army Calibration System Rejected Instrument) and inform the owner/user in accordance with TB 750-25-1.

TB 9-6920-430-50

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