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CHANGE 1

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR OSCILLOSCOPE OS-291/G

Headquarters, Department of the Army, Washington, DC

5 November 2003

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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 provide DA Form 2028 information to AMCOM via e-mail, fax, or the World Wide Web. Our FAX number is: DSN 788-6546 or Commercial 256-842-6546. Our e-mail address is: 2028@redstone.army.mil. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028. For the World Wide Web, use: <https://amcom2028.redstone.army.mil>.

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SECTION I IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Oscilloscope OS-291/G. Product description number CR-PD-0214-001 and TM 11-6625-3241-40 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 5 hours, using the dc and low frequency 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
Bandwidth	Dc to 150 MHz
Delta time and cursors	Cursors: Vertical and horizontal $\pm 1\%$
Vertical	Vertical deflection: < 2 mV div to 5 V div 2%
Horizontal	Trigger sensitivity: Sweep at 0.5 div p-p vertical deflection dc to 50 MHz Internal: 1.5 div p-p vertical deflection at 150 MHz External: Sweep at ≤ 50 mV p-p vertical deflection dc to 50 MHz, increasing to ≤ 150 mV p-p vertical deflection at 150 MHz Linearity: 1 st and 11 th markers on 1 st and 11 th vertical graticule line, markers in between to $< \pm 0.1$ major division

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. 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 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	Minimum use specifications	Manufacturer model (part number)
OSCILLOSCOPE CALIBRATOR	Voltage output: Range: 10 mV to 5 V Accuracy: $\pm 0.25\%$ Time markers: 0.5 ns to .5 s Leveled sine wave: Range: 10 mV to 3 V p-p Frequency: 10 Hz to 150 MHz Accuracy: $\pm 0.25\%$	(MIS38938) John Fluke, Model 5820A (5820A-5C-GHz)
CALIBRATOR	Voltage output: Range: .000200 to 20 V dc Accuracy: $\pm 0.25\%$	John Fluke, Model 5720A (MIS-35947)

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 TM 11-6625-3241-40.

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