DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR ATTITUDE-HEADING REFERENCE SET BENCH TEST SET AN/ASM-298 (NSN 4920-00-851-8749)

Headquarters, Department of the Army, Washington, DC
17 April 1978

REPORTING OF ERRORS

You can help improve this manual by calling attention to errors and by recommending improvements and stating your reasons for the recommendations. Your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) should be mailed direct to commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-MA-Q, Fort Monmouth, NJ 07703. A reply will be furnished direct to you.

Section I. IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides information for the periodic calibration of Attitude-Heading Reference Set Bench Test Set AN/ASM-298 (fig. 1). The equipment being calibrated will be referred to as the "Test Instrument" throughout this bulletin.

*This bulletin supersedes TB 11-6615-252-35, 17 June 1974.

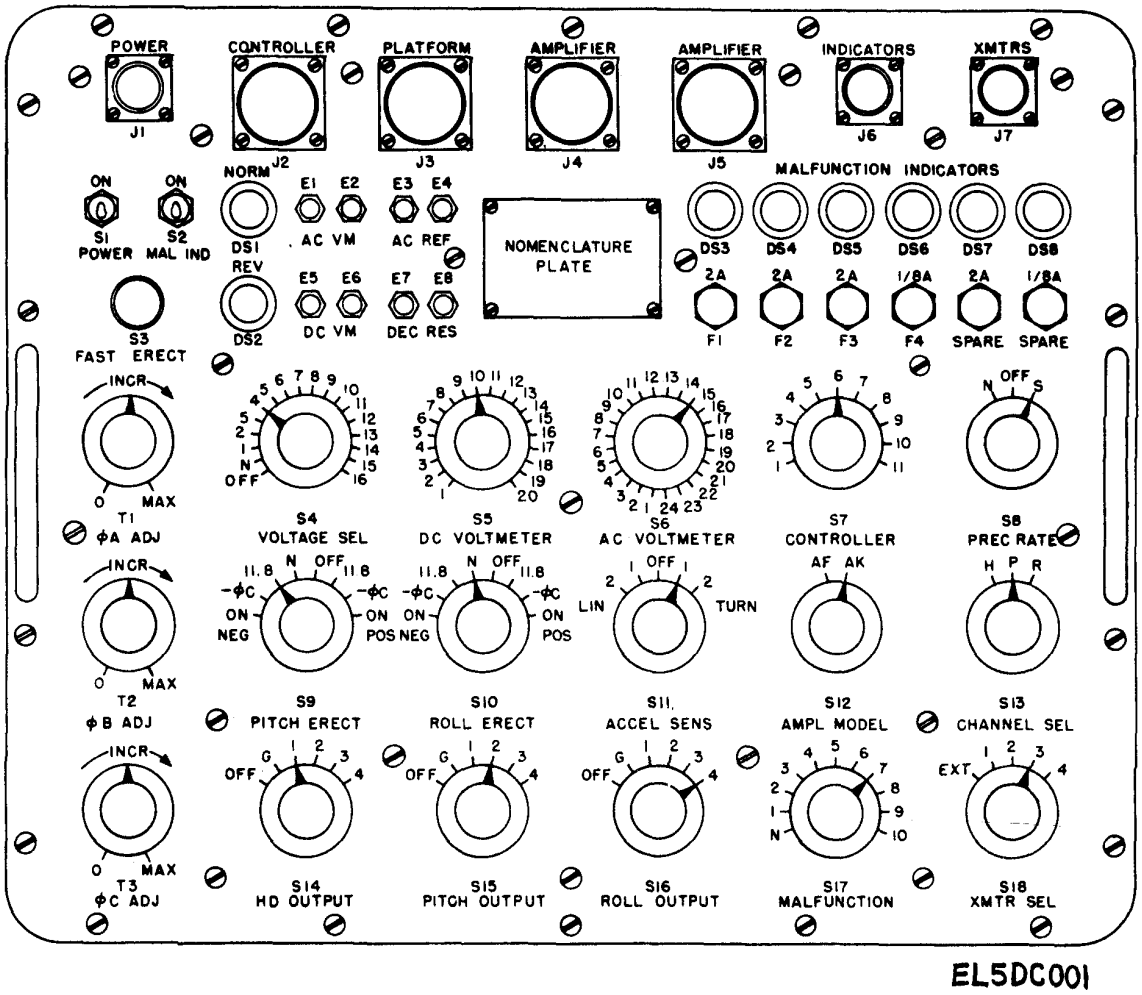

Figure 1. Attitude-Heading Reference Set Bench Test Set, AN/ASM-298, Front panel view.

a. The time required for performing this calibration is approximately 1 hour using the dc-low frequency technique.

b. The interval of calibration will be found in TB 43-180.

2. Calibration Data Card (DA Form 2416). *a.* Forms, records and reports required for calibration personnel at all levels are prescribed by 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 sentence in which they appear. When adjustments are in tables, the (R) will follow the designated adjustment. Report only those adjustments made and
designated with (R).

3. Calibration Description. Test Instrument parameters and performance specifications are listed in table 1.

Table 1. Calibration Description

Test Instrument parameters	Performance specifications
Power input	115/200V, 3 phase Y 4 wire; Phase rotation A-B-C, 400 Hz
Voltage output	115v, 400 Hz, 3-phase; each phase adjustable from 92v to 138v independently.
	78v, phase A.
	27v ±1 vdc.
	26v, 400 Hz; each phase.
	11.8 vac; center tapped (isolated phase A).
	5v ±0.25v, 400 Hz single phase isolated.
	2.5v ±0.2v. 400 Hz single phase.
	10v, 400 Hz, phase A.

Section II. EQUIPMENT REQUIREMENTS

4. Equipment Required. Table 2 lists minimum use specifications and equipment required for performing this calibration. The equipment listed is issued with the secondary transfer calibration sets and electronic maintenance shop sets and is to be used in performing this calibration. Minimum use specifications are provided to assist in the selection of alternate equipment. Alternate equipment may be used provided it bears evidence of calibration. Any alternate equipment selected must meet or exceed the minimum use specification.

5. Accessories Required. The accessories listed in table 3 are issued as described above and are to be used in performing this calibration. When necessary, these items may be substituted by equivalent items unless specifically prohibited.

Table 2. Equipment Required

Item number	Common name	Minimum use specifications	Calibration equipment
A1	Decade Resistor	Range: 500 to 1500 ohms	ZM-16/U or Biddle-Gray 601147-1
A2	Voltmeter	Range: 1 vdc Accuracy: ±0.1%-	ME-202/U JF 887ABAN
A3	Electronic Voltmeter	Range: 115 vac Accuracy: ±3%	ME-30/U HP 400 H or (H-P 3344A)

Table 3. Accessories Required

Item number	Common name	Description
B1	Leads (6 required)	26 inch leads with banana plug terminations.
B2	Adapters	Banana to pin type, female.

Section III. CALIBRATION PROCESS

WARNING

HIGH VOLTAGE is used during the performance of this calibration. DEATH ON CONTACT may result if personnel fail to observe safety precautions.

NOTE

Become familiar with the entire procedure prior to performing calibration.

6. Preliminary Procedure. *a.* Open the pressure relief valve in the front of the Test Instrument to equalize inside and outside air pressures.

b. Unlatch and remove the cover. Release the quick-lock fasteners and open the door in the cover. Remove cables from cover storage space.

c. Connect the Test Instrument to the respective power source by means of the power cable, CS-10374/ASM-298, connected to POWER receptacle J1 and a bench power outlet of 115 vac, 3-phase, 4-wire, 400Hz phase rotation A-B-C.

d. Turn ϕA ADJ T1, ϕB ADJ T2 and ϕC ADJ T3 counterclockwise to 0 and turn VOLTAGE SEL switch S4 to OFF.

e. Set POWER switch S1 to ON; NORM indicator DS1 should light indicating a normal condition.

f. If REV indicator DS2 lights, set POWER switch S1 to OFF and recheck the bench power to equipment connections for proper phase rotation.

g. Repeat steps e and f above until proper indication is obtained.

h. Connect voltmeter (A3) to terminals E 1 and E2 (high to El red, low to E2 black) of the Test Instrument.

I. Turn AC VOLTMETER switch S6 to 1, and adjust OA ADJ T1 clockwise for an indication of 115 vac on the voltmeter.

j. Turn AC VOLTMETER switch S6 to 2, and adjust 9B ADJ T2 clockwise for an indication of 115 vac on the voltmeter.

k. Turn AC VOLTMETER switch S6 to 3, and adjust OC ADJ T3 clockwise for an indication of 115 vac on the voltmeter.

l. Turn POWER switch S1 to OFF.

NOTE

Unless otherwise specified, verify the results of each test and take corrective action whenever the test requirement is not met before continuing with the calibration.

7. Precision Rate Current Source, Low Range. *a. Performance Check*.

(1) Turn DC VOLTMETER switch S5 to 8, and PREC RATE switch S8 to OFF.

(2) Connect decade resistor (Al) across pins T and V of J3 using two leads (B1) and adapters (B2).

(3) Adjust decade resistor to 1000 ohms.

(4) Connect voltmeter (A2) (isolated from ground) across resistor (A1).

(5) Set POWER switch to ON and allow at least 15 minutes for warm-up.

(6) Turn PREC RATE switch S8 to N.

(7) If voltmeter does not indicate between 1.089 and 1.111 volt dc, perform *b* (1) below.

(8) Disconnect voltmeter from resistor and connect between E5 and E6, ground.

(9) If voltmeter does not indicate between 1.089 and 1.111 millivolts, perform *b*(2) below.

(10) Turn PREC RATE switch S8 to OFF.

(11) Voltmeter will indicate between 1.089 and 1.111 millivolts.

b. Adjustments.

(1) Adjust R10 (located on inside top of rear chassis) until voltmeter indicates 1.1 volts dc. (R)

(2) Repeat a(4) through (9) and adjust R10 for best possible condition.

8. Precision Rate Current Source, High Range. *a. Performance Check*.

(1) Connect decade resistor (A1) across pins U and V of J3 using two leads (B1) and adapters (B2).

(2) Adjust decade resistor to 1000 ohms.

(3) Connect voltmeter (A2) across resistor (A1).

(4) Turn PREC RATE switch S8 to S.

(5) If voltmeter does not indicate between 10.89 and 11.11 volts dc, perform *b*, below.

b. Adjustments. Adjust R13 (located on inside top of rear chassis) until voltmeter indicates 11 volts dc. (R)

9. Final Procedure. *a.* Set POWER switch S1 to OFF, disassemble the test equipment, and return the Test Instrument to its case.

b. In accordance with TM 38-750, annotate and affix DA Label 80 (US Army Calibration System). When the Test Instrument cannot be adjusted within tolerance, annotate and affix DA Form 2417 (Unserviceable or Limited Use).

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-36A, Calibration Procedures requirements for AN/ASM-298.

U.S. GOVERNMENT PRINTING OFFICE: 1978-765-006/720
892-258

TEAR ALONG PERFORATED LINE

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO	TABLE NO.

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER	SIGN HERE:

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ▸ ARE OBSOLETE.

P.S.—IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.