TB 9-6625-1213-35

CHANGE 3

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR AC AMPLIFIER AM-1881/U (HEWLETT-PACKARD, MODELS 450A AND 450AR), AM-4826/U (HEWLETT-PACKARD, MODEL 465A), AND HEWLETT-PACKARD, MODEL 466A

Headquarters, Department of the Army, Washington, DC
2 April 1990

TB 9-6625-1213-35, 5 March, 1982, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

Remove pages	***Insert pages***
11 and 12	11 and 12

2. File this change in front of the publication for reference purposes. **This change incorporates DA Form(s) 2028 dated 9 February 1989 and 11 January 1990.**

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

WILLIAM J. MEEHAN
Brigadier General, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-34C, Block No. 319, requirements for calibration procedures publications.

PIN: 050680-003

TB 9-6625-1213-35

CHANGE 2

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR AC AMPLIFIER AM-1881/U (HEWLETT-PACKARD, MODELS 450A AND 450AR), AM-4826/U (HEWLETT-PACKARD, MODEL 465A), AND HEWLETT-PACKARD, MODEL 466A

Headquarters, Department of the Army, Washington, DC
31 August 1987

TB 9-6625-1213-35, 5 March, 1982, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

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By Order of the Secretary of the Army:

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TB 9-6625-1213-35

CHANGE 1

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR AC AMPLIFIER AM-1881/U (HEWLETT-PACKARD, MODELS 450A AND 450AR), AM-4826/U (HEWLETT-PACKARD, MODEL 465A), AND HEWLETT-PACKARD, MODEL 466A

Headquarters, Department of the Army, Washington, DC
13 December 1984

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5 through 8	5 through 8

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REPRINT INCLUDES CHANGES 1 THROUGH 3

*TB 9-6625-1213-35

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

CALIBRATION PROCEDURE FOR AC AMPLIFIER AM-1881/U (HEWLETT-PACKARD MODELS 450A AND 450AR), AM-4826/U (HEWLETT-PACKARD MODEL 465A), AND HEWLETT-PACKARD MODEL 466A

Headquarters, Department of the Army, Washington, DC
5 March 1982

♦REPORTING OF ERRORS♦

You can help improve this publication 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, should be mailed directly to Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-TMD-EP, Redstone Arsenal, AL 35898-5000. FAX to DSN 788-2313 (commercial 256-842-2313). A reply will be furnished directly to you.

*This bulletin supersedes TB 9-6625-1213-50,19 May 1971, and' TB 11-6625-353-3511; 13 June 1969, including all changes.

SECTION I
IDENTIFICATION AND DESCRIPTION

1. Test Instrument Identification. This bulletin provides instructions for the calibration of Ac Amplifier AM-1881/U (Hewlett-Packard Models 450A and 450AR), AM-4826/U (Hewlett-Packard Model 465A), and Hewlett-Packard Model 466A. The manufacturer's 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. Differences among models are described within the text.

b. Time and Technique. The time required for this calibration is approximately 1 hour per instrument, using the dc and low frequency technique.

2. DA Form 2416 (Calibration Data Card)

a. Forms records, and reports required for calibration personnel at all levels are prescribed by TB 750-25-1. DA Form 2416 must be annotated in accordance with TB 750-25-1 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) 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
Models AM-1881/U, 450A, and 450AR	
Power input requirements	115 V ±10%, 50 to 1000 Hz
Gain AM-1881/U 450A and 450AR	 20 or 40 dB ±0.13 dB at 1 kHz 20 or 40 dB ±0.125 dB at 1 kHz
Frequency response (open circuit) 20-dB gain 40 dB gain	 Range: 5 Hz to 1 MHz Accuracy: ±0.5 dB Range: 2 Hz to 1.2 MHz Accuracy: ±1 dB Range: 10 Hz to 1 MHz Accuracy: ±0.5 dB Range: 5 Hz to 2 MHz Accuracy: ±1 dB
Stability	±2% with ± 10% change in line voltage
Distortion	<1% from 2 Hz to 100 kHz <2% above 100 kHz except <5% for 450AR
Noise level	40-dB gain, less than 40 µV; 20-dB gain less than 250 µV (referred to input)
Model 466A	
Power input requirements	115 V ±10%, 50 to 400 Hz
Gain: 20 and 40 dB	 ±0.2 dB at 1000 Hz
Frequency response	Range: 10 Hz to 1 MHz Accuracy: ±0.5 dB; down 3 db or less at 5 Hz and 2 MHz
Output voltage	1.5 V max across 1500 ohms
Distortion	Range: 10 Hz to 100 kHz Accuracy: Less than 1%; less than 5% to 1 MHz
Noise	75 µV referred to input
AM-4826/7 (Model 465A)	
Power input requirements	115 V ±10%, 50 to 400 Hz
Voltage gain	20 or 40 dB ±1%
Frequency response	Range: 100 Hz to 50 kHz Accuracy: ±0.1 dB Range: 5 Hz to 1 MHz Accuracy: Less than 2 dB down
Output	>10 V open circuit and >5 V into 50 ohms
Distortion	Range: 10 Hz to 100 kHz Accuracy: Less than 1% Range: 5 to 10 Hz and 100 kHz to 1 MHz Accuracy: Less than 2%

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 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.

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

Item	Common name	Minimum use specifications	Manufacturer and model (part number)
A1	AC/DC VOLTMETER	Range: 8 mV to 10.15 V ac; 6.24 to 46 V dc; 100 Hz to 50 kHz Accuracy: ±0.25% ac: ±0.1% dc	Hewlett-Packard, Model 3490AOPT060 (3490AOPT060)
A2	AUTOTRANSFORMER	Range: 105 to 125 V ac Accuracy: ±1%	General Radio, Model W10MT3AS3 (7910809)
A3	DISTORTION ANALYZER	Range: 750 µV to 1 V ac Frequency: 10 Hz to 600 kHz Distortion: less than 1%	Hewlett-Packard, Model C41-334A (7911957)
A4	OSCILLATOR	Range: 20 Hz to 2 MHz Flatness: ±0.25%	Hewlett-Packard, Model 652A (MIS-10224)
A5	SIGNAL GENERATOR (PRECISION OSCILLATOR)	Range: 2 Hz to 2 MHz Distortion: 0.25% or less	Krohn-Hite, Model 4100 AR-8 (7915951)
A6	VOLTMETER	Range: 10 mV to 10 V at 20 Hz to 1 MHz Accuracy: ±1.5% Range: 10 V at 1.2 to 2 MHz Accuracy: ±3%	John Fluke, Model 8922A/AA (8922A/AA)

Table 3. Accessories Required

Item	Common name (official nomenclature)	Description (part number)
B1	ADAPTER[1]	BNC T-type, 2 jacks, 1 plug (MS35173-274C)
B2	ADAPTER	Double banana jacks to BNC plug (7909403)
B3	ADAPTER[1]	Single banana jack to alligator clip (black) (7907560)
B4	ADAPTER	Single banana jack to alligator clip (red) (7907556)
B5	CABLE[1]	30-in., RG-58/U; BNC plug terminations (7907467)
B6	CABLE[1]	30-in., RG-58/U; double banana plug terminations (7907470)
B7	CABLE[1]	36-in., RG-58/7; BNC plug to double banana plug terminations (7907471)

Table 3. Accessories Required

Item	Common name (official nomenclature)	Description (part number)
B8	CABLE	36-in., RG-58/U; double banana plug to probe and alligator clip (7911305)
B9	LEAD[2]	12-in., No. 18; single banana plug terminations (red) (7907495)
B10	LEAD[2]	12-in., No. 18; single banana plug terminations (black) (7907496)
B11	TERMINATION	Hewlett-Packard, Model 11048B (7911587)

[1]Three required.
[2]Two required.

SECTION III
CALIBRATION PROCESS FOR AC AMPLIFIER AM-1881/U (HEWLETT-PACKARD MODELS 450A AND 450AR)

6. Preliminary Instructions

a. The instructions outlined in paragraphs **6** and **7** are preparatory to the calibration process. Personnel should become familiar with the applicable sections 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 VOLTAGE is used or exposed during the performance of this calibration. DEATH ON contact may result if personnel fail to observe safety precautions.

WARNING

Selenium rectifiers are contained in this TI. When selenium rectifiers burn out, poisonous fumes are released. Do not inhale fumes or handle rectifiers until they have cooled.

NOTE

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 11-6625-353-35 and the manufacturer's manuals for this TI.

NOTE

When indications specified in paragraphs **8** through **11** are not within tolerance, perform the power supply check prior to making adjustments. After adjustments are made, repeat paragraphs **8** through **11**. Do not perform power supply check if all other parameters are within tolerance.

NOTE

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

7. Equipment Setup

a. Remove protective cover from TI only to make adjustments. Replace immediately upon completion of adjustments.

b. Connect TI to autotransformer (A2).

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

d. Set TI power switch to ON and allow 10 minutes for warm-up.

8. Gain and Stability

a. Performance Check

(1) Connect oscillator (A4) and ac/dc voltmeter (A1) to TI INPUT, using cables and termination (B6, B7, and B11).

CAUTION

Do not set GAIN switch to 40 DB until instructed. Damage to equipment may result.

(2) Set GAIN switch to 20 DB.

(3) Adjust oscillator frequency far 1000 Hz and amplitude for a 1-V indication on ac/dc voltmeter.

(4) Connect ac/dc voltmeter to TI OUTPUT. If ac-dc voltmeter does not indicate between 9.85 and 10.15 V, perform **b**(1) below.

(5) Record ac/dc voltmeter indication.

(6) Vary autotransformer (A2) from 105 to 125 V ac and back to 115 V. Ac/dc voltmeter will indicate within ±2 percent of indication recorded in (5) above.

(7) Connect ac/dc voltmeter to TI INPUT and adjust oscillator output for a 100-mV indication on ac/dc voltmeter.

(8) Set GAIN switch to 40 dB and connect ac/dc voltmeter to TI OUTPUT. If ac/dc voltmeter does not indicate between 9.85 and 10.15 V, perform **b**(1) and (2) below.

b. Adjustments

(1) Adjust R6 (fig. 1) for a 10-V indication on ac/dc voltmeter (R).

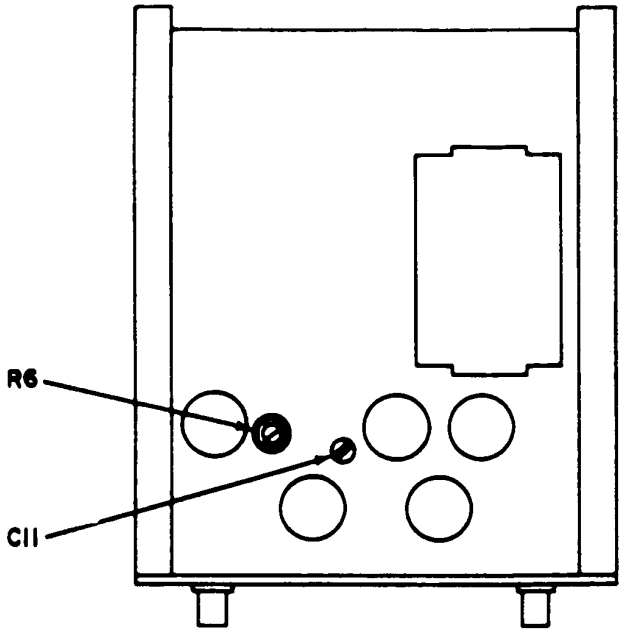

Figure 1. AM-1881/U and Models 450A and 450AR.

(2) Repeat **a**(1) through (4) above and if required, adjust R6 for best in-tolerance indication.

9. Frequency Response

a. Performance Check

(1) Connect oscillator (A4) to TI INPUT, using cable and termination (B7 and B11).

(2) Connect voltmeter (A6) to TI OUTPUT, using leads (B9 and B10), and set GAIN switch to 40 dB.

(3) Adjust oscillator frequency for 1000 Hz and ,set up 0-dB reference on 0.1 V range. Record TI output voltage as indicated on voltmeter.

(4) Adjust oscillator frequency for 20 Hz, 10 kHz, 100 kHz, 500 kHz, and 1 MHz in succession while adjusting output level as necessary to maintain voltmeter indication recorded in (3) above. If indication on oscillator meter is not within ±0.5 dB of reference-level indication for each frequency, perform **b**(1) below.

(5) Adjust oscillator frequency for 2 MHz. If indication on oscillator meter is not within ±1 dB of reference-level indication, perform **b**(1) below while repeating (4) and (5) above for best compromise.

(6) Repeat technique of (3) and (4) above with oscillator output set to 0-dB reference on 1-V range and TI GAIN switch set to 20 dB.

(7) Adjust oscillator frequency for 1.2 MHz. If indication on oscillator meter is not within ±1 dB of reference-level indication, perform **b**(1) and (2) below.

b. Adjustments

(1) Adjust C11 (fig. 1) for an in-tolerance indication (R).

(2) Adjust oscillator output to minimum and repeat **a**(2) through (7) above.

10. Distortion

a. Performance Check

(1) Connect equipment as shown in figure 2.

(2) Adjust signal generator (A5) frequency for 10 Hz and output for an 8-V indication on distortion analyzer (A3) voltage meter.

(3) Measure and record distortion. Distortion will be less than 1 percent.

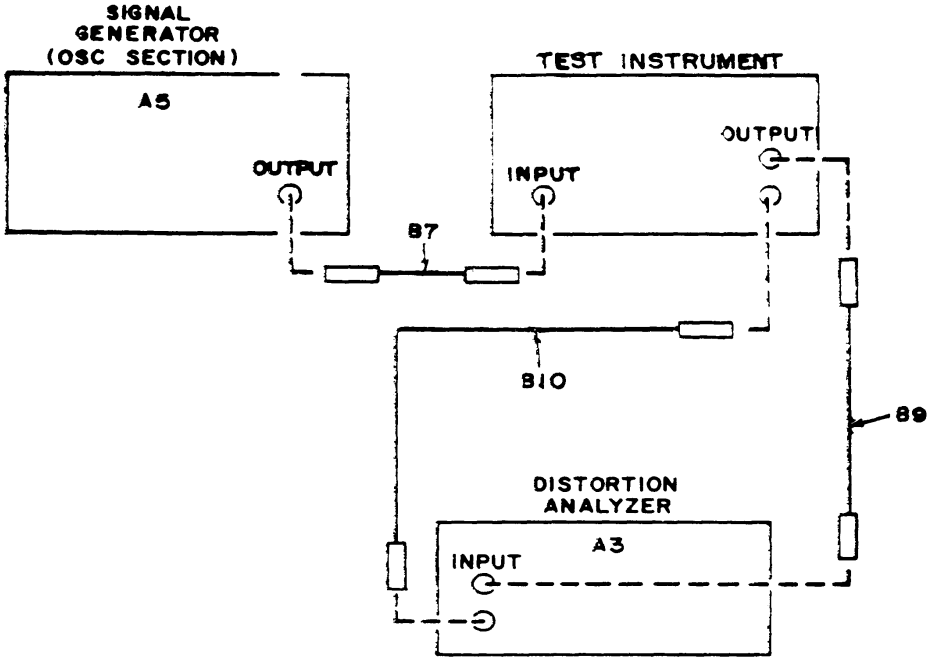

Figure 2. Distortion Check - equipment setup.

(4) Repeat (2) and (3) above far frequencies of 50 Hz, 1 kHz, and 100 kHz.

b. Adjustments. No adjustments can be made.

11. Noise

a. Performance Check

(1) Disconnect signal generator (A5) from TI INPUT.

(2) Short TI INPUT, using lead (B10). Set GAIN switch to 40 DB.

(3) Measure TI OUTPUT noise level with distortion analyzer (A3) voltmeter function. Distortion analyzer will indicate less than 4 MV (40 μV referred to input).

(4) Set GAIN switch to 20 DB. Distortion analyzer will indicate less than 2.5 mV (250 μV referred to input).

b. Adjustments. No adjustments can be made.

12. Power Supply

NOTE

Do not Perform power supply check if all other parameters are within tolerance.

a. Performance Check. Connect ac/dc voltmeter (A1) to junction of R27 and C7 (fig. 3) and chassis ground, using cable (B8). If ac/dc voltmeter does not indicate between 6.24 and 6.36 Vdc, perform **b** below.

b. Adjustments. Adjust R27 (fig. 3) for a 6.30-V indication on ac/dc voltmeter (R).

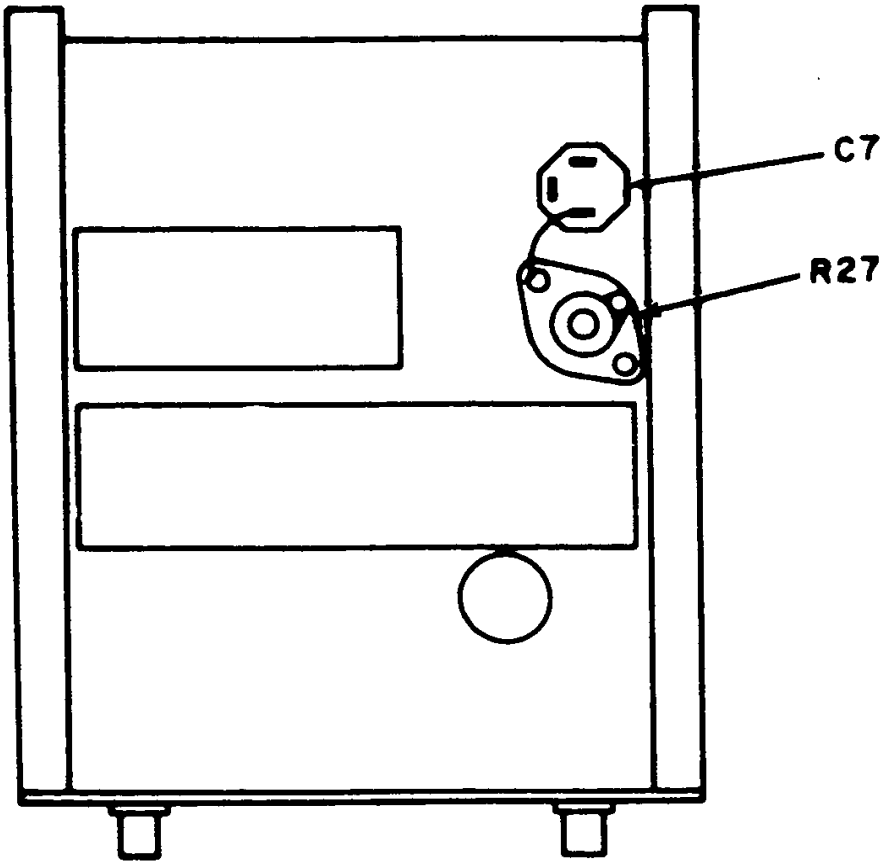

Figure 3. AM-18911U and Models 450A and 450AR.

13. Final Procedure

a. Deenergize and disconnect all equipment.

b. When all parameters are within tolerance, annotate and affix DA Label 80 (US Army Calibrated Instrument). When the TI limited or special calibration, annotate and affix DA Label 163 (US Army Limited or Special Calibration). When the TI cannot be adjusted within tolerance, repair the TI in accordance with the maintenance manual If repair is delayed for any reason or the TI cannot repaired with local resources, annotate and affix Form 2417 (US Army Calibration System Reject Instrument) and inform the owner/user in accordance with TB 750-25-1.

SECTION IV
CALIBRATION PROCESS FOR AC AMPLIFIER, HEWLETT- PACKARD MODEL 466A

14. Preliminary Instructions

a. The instructions outlined in paragraphs **14** and **15** are preparatory to the calibration process. Personnel should become familiar with sections I, II, and IV 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 VOLTAGE is used or exposed during the performance of this calibration. DEATH ON CONTACT may result if personnel fail to observe safety precautions.

WARNING

Selenium rectifiers are contained in this TI. When selenium rectifiers burn out, poisonous fumes are released. Do not inhale fumes or handle rectifiers until they have cooled.

NOTE

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 manufacturer's manual for this TI.

NOTE

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

15. Equipment Setup

a. Remove protective cover from TI only to make adjustments and replace immediately upon completion of adjustments.

b. Connect TI to autotransformer (A2).

c. Connect autotransformer to a 115-Vac source and adjust for 115 V.

16. Gain and Stability

a. Performance Check

(1) Connect oscillator (A4) and ac/dc voltmeter (A1) to TI INPUT, using adapter, cables, and termination (B1, B5, B7, and B11).

CAUTION

Do not set GAIN switch to 40 DB until instructed. Damage to equipment may result.

(2) Set GAIN switch to 20.

(3) Adjust oscillator frequency for 1000-Hz and output amplitude for 8 mV as indicated on ac/dc voltmeter.

(4) Connect ac/dc voltmeter to TI OUTPUT. If ac/dc voltmeter does not indicate between 78.17 and 81.87 mV rms, perform **b**(1) below.

(5) Vary autotransformer (A2) from 105 to 125 V and back to 115 V. Ac/dc voltmeter will remain between 78.17 and 81.87 mV.

(6) Set GAIN (DB) switch to 40. If ac/dc voltmeter does not indicate between 781.7 and 818.7 mV. perform **b**(2) below.

b. Adjustments

(1) Adjust R41 (fig. 4) for an 80- mV indication on ac/dc voltmeter (R).

(2) Adjust R44 (fig. 4) for an 800-mV indication on ac/dc voltmeter (R).

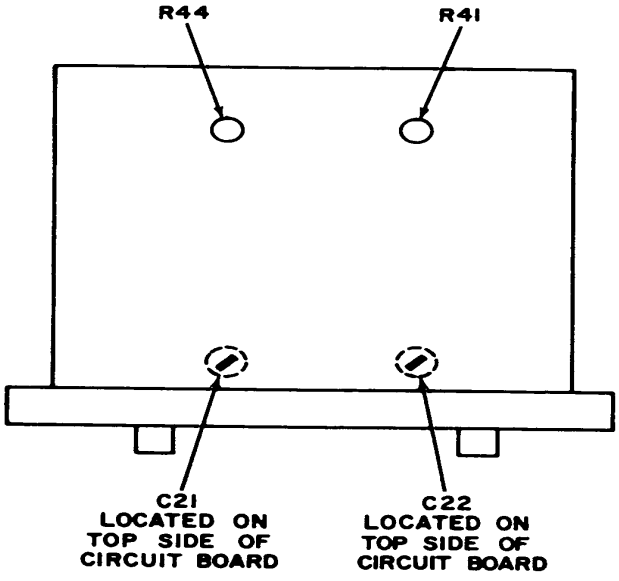

Figure 4. Model 466A-bottom view.

17. Frequency Response

a. Performance Check

(1) Substitute voltmeter (A6) for ac/dc voltmeter (A1), using cable (B5).

(2) Adjust oscillator (A4) frequency for 1000 Hz and set up 0-dB reference on 10 mV range.

(3) Record voltmeter indication.

(4) Adjust oscillator frequency for 20 Hz, 10 kHz 100 kHz, 500 kHz, and 1 MHz in succession while adjusting output level to maintain voltmeter indication recorded in (3) above. If indication on oscillator meter is not within to .5 dB of reference level established in (2) above for each frequency, perform **b**(1) below.

(5) Repeat (4) above at 2 MHz. Indication on oscillator meter will be within ±3 dB of reference level indication established in 2 above.

(6) Repeat (2) through (5) above with GAIN (DB) switch set to 20. If indication on oscillator meter is not within limits specified, perform **b**(2) below.

b. Adjustments

(1) Adjust oscillator frequency for 1 MHz and for a 0-dB reference on 10 mV range. Adjust C21 (fig. 4) until voltmeter indicates level recorded by **a**(3) above (R)

(2) Adjust oscillator frequency for 1 MHz and for a 0-dB reference on 10 mV range. Adjust C22 (fig. 4) until voltmeter indicates level recorded in **a**(3) above(R)

18. Distortion

a. Performance Check

(1) Connect signal generator (A5) to TI INPUT, using cable (B5).

(2) Connect distortion analyzer (A3) to TI OUTPUT, using cable (B7).

(3) Adjust signal generator frequency for 10 Hz and output for a 1-V indication on distortion analyzer voltmeter.

(4) Measure distortion. Distortion will be less than 1 percent.

(5) Repeat (3) and (4) above for frequencies of 50 Hz, 1 kHz, and 100 kHz.

b. Adjustments. No adjustments can be made.

19. Noise

a. Performance Check

(1) Disconnect signal generator (A5) from TI INPUT and short TI INPUT, using lead and adapter(B10 and B2).

(2) Measure TI output noise, using voltmeter function of distortion analyzer (A3). Distortion analyzer will indicate less than 750 μV (75 μV referred to input).

(3) Set GAIN (DB) switch to 40 DB and repeat (2) above. Distortion analyzer will indicate less than 7.5 mV (75 μV referred to input).

b. Adjustments. No adjustments can be made.

20. Final Procedure

a. Deenergize and disconnect all equipment.

b. 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, repair the TI in accordance with the maintenance manual When repair is delayed for any reason or the TI cannot be repaired with local resources, annotate and affix DA Form 2417 (US Army Calibration System Rejected Instrument) and inform the owner/user accordingly in accordance with TB 750-25-1.

SECTION V
CALIBRATION PROCESS FOR AC AMPLIFIER AM-4826/U
(HEWLETT-PACKARD MODEL 465A)

21. Preliminary Instructions

a. The instructions outlined in paragraphs **21** and **22** are preparatory to the calibration process. Personnel should become familiar with sections I, II, and V 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 VOLTAGE is used or exposed during the performance of this calibration. DEATH ON CONTACT may result if personnel fail to observe safety precautions.

WARNING

Selenium rectifiers are contained in this TI. When selenium rectifiers burn out, poisonous fumes are released. Do not inhale fumes or handle rectifiers until they have cooled.

NOTE

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 11-5820-740-15 and the manufacturer's manual for this TI.

NOTE

When indications specified in paragraphs **23** and **24** are not within tolerance perform the power supply check prior to making adjustments After adjustments us made, repeat paragraphs **23** and **24**. Do not perform power supply check if all other parameters are within tolerance.

NOTE

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

22. Equipment Setup

a. Remove protective cover from TI only to make adjustments and replace immediately upon completion.

b. Connect TI to autotransformer (A2).

c. Connect autotransformer to a 115-Vac source and adjust for 115-V.

d. Set GAIN switch to 20 DB and LINE switch to ON and allow 15 minutes for warm-up.

23. Gain, Stability, and Frequency Response

a. Performance Check

(1) Connect oscillator (A4) and ac/dc voltmeter (A1) to TI INPUT, using cables, adapter, and termination (B6, B7, and B11).

(2) Adjust oscillator frequency for 1 kHz and output for a 1-V indication on ac/dc voltmeter.

(3) Connect ac/dc voltmeter to TI OUTPUT. Ac/dc voltmeter will indicate between 9.9 and 10.1 V ac.

(4) Vary autotransformer (A2) from 105 to 125 V ac and back to 115 V while observing ac/dc voltmeter. Ac/dc voltmeter will indicate within limits of (3) above.

(5) Adjust oscillator amplitude for a 1-V indication on ac/dc voltmeter.

(6) Set GAIN switch to 40 dB. Ac/dc voltmeter will indicate between 9.9 and 10.1 V ac.

(7) Adjust oscillator frequency to 1 kHz and output amplitude for a 9-V indication on ac/dc voltmeter

(8) Set up zero-reference level on oscillator in expanded mode function.

(9) Vary oscillator frequency, from 100 Hz to 50 kHz while maintaining zero-reference level established in (8) above. Ac/dc voltmeter will indicate between 8.9 and 9.1 V.

(10) Set GAIN switch to 20 DB.

(11) Repeat (7) through (9) above.

(12) Substitute voltmeter (A6) for ac/dc voltmeter, using cable (B7).

(13) Repeat (7) and (8) above.

(14) Vary oscillator frequency from 10 Hz to 1 MHz while maintaining zero-reference level on oscillator. If voltmeter does not indicate between 7.2 and 10.8 V, perform **b** below.

(15) Set GAIN switch to 40 DB and repeat (7). (8), and (14) above If out-of-tolerance conditions exist, set GAIN switch to 20 DB and perform **b** below.

b. Adjustments

(1) Set oscillator frequency for 1 MHz and output for 1 V (verify with voltmeter)

(2) Adjust C5 (fig. 5) until voltmeter indicates 8.5 V (R).

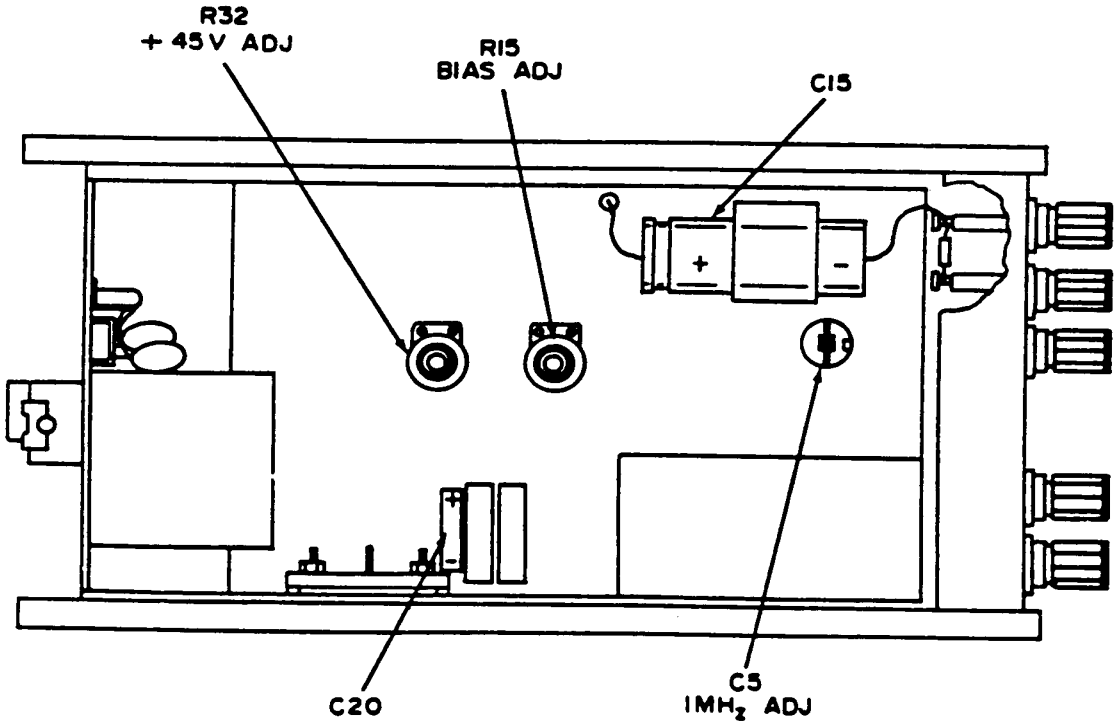

Figure 5. AM-4826/U (HP Model 465A) - top view.

24. Distortion

a. Performance Check

(1) Connect oscillator (A4) to distortion analyzer (A3). using cable and termination (B7 and B11).

(2) Adjust oscillator frequency for 10 Hz and amplitude for 1 V.

(3) Measure and record oscillator distortion.

NOTE

Do not change oscillator frequency or output.

(4) Set GAIN switch to 20 dB and connect oscillator to TI INPUT,. using cable and termination (B7 and B11).

(5) Connect distortion analyzer to TI OUTPUT, using cable (B6). Distortion analyzer will indicate less than 1 percent distortion after subtracting distortion recorded in 3 above.

(6) Repeat technique (1) through (5) above at values listed in table 4. Distortion analyzer will indicate within limits specified.

Table 4. Distortion Check

Test instrument GAIN switch settings	Test oscillator		Distortion analyzer indications (less test oscillator distortion)
	Frequency	Output amplitude (V)	
Delete	Delete	Delete	Delete
20	1 kHz	1	Less than 1%
20	100 kHz	1	Less than 1%
20	600 kHz	1	Less than 2%
40	10 Hz	0.1	Less than 1%
40	1 kHz	0.1	Less than 1%
40	100 kHz	0.1	Less than 1%
40	600 kHz	0.1	Less than 2%

b. Adjustments. No adjustments can be made.

25. Power Supply

NOTE

Do not perform power supply check if all other parameters are within tolerance.

a. Performance Check

(1) Connect ac/dc voltmeter (A1) between positive side of C20 (fig. 5) and chassis ground, using leads and. adapter (B9, B10, B3, and B4). If ac/dc voltmeter does not indicate between 44 and 46 V, perform **b**(1) below.

(2) Move positive lead to positive side of C15 (fig. 5). If ac/dc voltmeter does not indicate between 22.5 and 23.5 V dc, perform **b**(2) below.

b. Adjustments

(1) Adjust R32 (fig. 5) until ac/dc voltmeter indicates 45 V dc (R).

(2) Adjust R15 (fig. 5) until ac/dc voltmeter indicates 23 V dc (R).

26. Final Procedure

a. Deenergize and disconnect all equipment.

b. 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, repair the TI in accordance with the maintenance manual. When repair is delayed for any reason or the TI cannot be repaired with local resources, annotate and affix DA Form 2417 (US Army Calibration System Rejected Instrument) and inform the owner/user accordingly in accordance with TB 750-25-1.

TB 9-6625-1213-35

By Order of the Secretary of the Army:

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General, United States Army
Chief of Staff

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Brigadier General, United States Army
The Adjutant General

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