KS-16740-L2 AMPLIFIER
(ALTEC 437B)
TRANSMISSION TESTS

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1. GENERAL

1.01 This issue replaces issue 1, dated February, 1960. It is reissued to include additional information regarding gain-frequency and noise tests. Changes are indicated by marginal arrows.

1.02 This section outlines the transmission tests and requirements for the KS-16740, L2 Amplifier which is used in the KS-16740 Amplifier System. The amplifier is the same as the Altec-Lansing 437B Amplifier which is used in the S-17 Amplifier System.

1.03 The tests outlined in this practice should be made on the amplifier when it is placed in service unless it is known to operate satisfactorily. Routine tests should not normally be required. However, if the unit is in trouble, it should be cleared and all tests discussed in this section should be performed.

2. RECOMMENDED TEST EQUIPMENT

2.01 The following test equipment is satisfactory for use in making these amplifier tests. Any other equipment available which is electrically equivalent to an item in this list can, of course, be used.

200CD Oscillator (Hewlett-Packard)	2B or 3A Noise Measuring Set
201C Oscillator (Hewlett-Packard)	304H DuMont Oscilloscope
21A TMS (J94021A)	400-Type VTVM (Hewlett-Packard) KS-15560 or KS-15750 Tube Tester
Volt-Ohm-Milliammeter (20K ohms/volt) KS-14510	

2.02 There are two points to keep in mind when making transmission tests. The first is that ***GOOD*** test equipment should be used and second, it should be ***CALIBRATED PROPERLY.*** If these two things are observed, you are on your way toward making some good tests. Remember, ***POOR TESTS ARE A WASTE OF TIME, EFFORT, AND MONEY.***

2.03 All ac operated test equipment should be allowed to warm up sufficiently. This is important since it has a bearing on the stability of the equipment and accuracy of the test.

2.04 The frequency response of the oscillator should be checked over the range of frequencies it is to be used. The response should meet the requirements set forth in the practice for the oscillator. This will insure better results when making the gain-frequency test.

3. ELECTRON TUBE TEST

3.01 All electron tubes should be tested using a standard KS tube tester. The tubes should meet all their requirements.

4. GAIN-FREQUENCY TEST

4.01 The test setup for measuring the gain-frequency response is shown in Fig. 1. Chart I outlines the step procedure to be followed when making the test. The procedure may vary slightly depending on the testing equipment used.

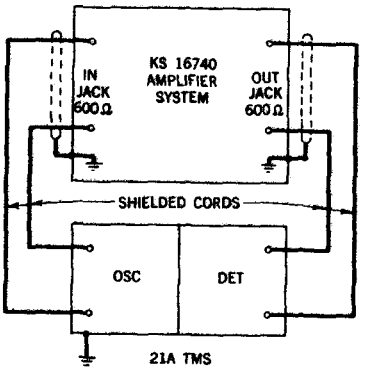

Fig. 1 – Test Setup for Gain-Frequency Test

CHART I

STEP	PROCEDURE	REMARKS
1	Connect 21A and amplifier to ac power.	
2	Connect circuit as shown in Fig. 1.	
→ 3	Set OSC to 1000 cycles and approximately −30 dbm.	
4	Turn DB ATT of amplifier to 0.	
5	Turn vernier GAIN control of amplifier to minimum.	
6	Increase OSC output level until DET (TMS) reads +24 dbm.	
7	Without changing OSC output level, connect OSC to DET (TMS).	Read DET (TMS).
8	Compute gain of amplifier. (OSC reading plus 24 dbm)	***Requirement:*** 44 ± 1 db
9	Without changing OSC output level, reconnect circuit as shown in Fig. 1.	
10	Slowly sweep OSC frequency from 50 to 15,000 cycles. Observe DET (TMS).	***Requirement:*** All frequencies should be +24 ± 0.5 dbm.

5. NOISE TEST

5.01 The noise test should be made in accordance with the test setup shown in Fig. 2. A 2B or 3A Noise Measuring Set should be used → with 15 KC flat weighting. Chart II outlines the step procedure for making the test. The procedure will vary slightly depending on which noise set is used.

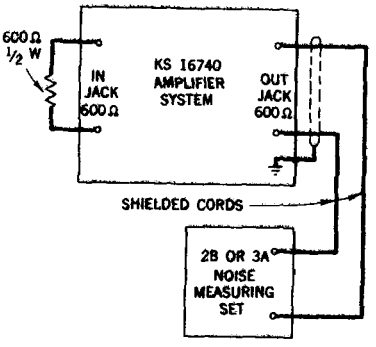

Fig. 2 – Test Setup for Measuring Noise

CHART II

STEP	PROCEDURE	REMARKS
1	Connect amplifier to ac power.	
2	Connect circuit as shown in Fig. 2.	
3	Insert INPUT and OUTPUT plugs of amplifier for 600-ohm impedance.	
4	Turn DB ATT of amplifier to 0.	
5	Turn vernier GAIN control to maximum.	
6	Read noise set.	*Requirements:* 20 dbrn, maximum.

6. DISTORTION TEST

6.01 The distortion test should be made in accordance with the test setup shown in Fig. 3. Chart III outlines the step procedure to be followed for the test. Fig. 4 shows a comparison between the input and output waveshapes where no harmonic distortion is present. The output waveshape should be considerably higher in amplitude than the input wave since the distortion is observed with maximum amplifier gain. Slight peaks and valleys on the output waveshape indicate the presence of distortion.

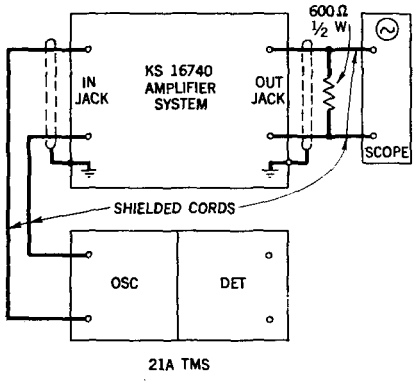

Fig. 3 – Test Setup for Observing Distortion (Waveshape)

CHART III

STEP	PROCEDURE	REMARKS
1	Connect amplifier and test equipment to ac power.	
2	Connect OSC to IN JACKS and DET (TMS) to OUT JACKS of amplifier.	
3	Adjust OSC for 1Kc.	
4	Turn DB ATT of amplifier to 0.	
5	Turn vernier GAIN control of amplifier to maximum.	
6	Adjust OSC output for DET (TMS) reading of +24 dbm.	

CHART III (Cont)

STEP	PROCEDURE	REMARKS
7	Without changing output level of OSC, connect circuit as shown in Fig. 3.	
8	Observe input and output waveshape.	***Requirements:*** Output waveshape shall appear the same as input except for amplitude. See Fig. 4.

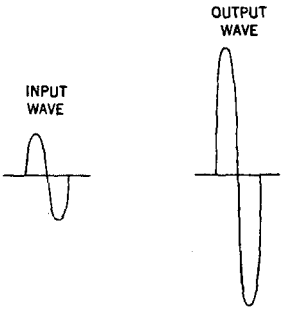

Fig. 4 – Comparison of Input and Output Waveshape (Distortion)