KS-19602 L1 AMPLIFIER

DESCRIPTION

1. GENERAL

1.01 This section describes the KS-19602 L1 general purpose program amplifier. This amplifier is designed for use in music distribution systems or for use in other applications where large amounts of high quality audio output power are required.

1.02 This section is reissued to delete C2, C17 and C18, to add C19, C20, and R26, and to make other changes to the schematic diagram. Also, the ON-OFF marking on the panel illustrated in Fig. 1 has been corrected to agree with actual panel stamping.

1.03 The KS-19602 L1 amplifier is ac operated and is capable of low distortion amplification of signals which contain frequencies from 20 to 20,000 hertz. It is designed for mounting on standard 19-inch relay racks. Fig. 1 and 2 show the front and rear views of the amplifier; Fig. 3 shows a schematic diagram of the amplifier.

1.04 The application schematic is SD-99432-01 and includes connecting information, circuit schematic, and operating voltages. The detailed circuit description is covered on CD-99432-01.

2. ELECTRICAL CHARACTERISTICS

2.01 The following electrical characteristics are typical for the KS-19602 L1 amplifier:

Power Supply:

117 to 125 volts 60 hertz 100 watts maximum.

Power Output:

25 watts continuous, 20 to 20,000 hertz with less than 0.5% harmonic distortion into rated resistive load.

Input Impedances:

150 and 600 ohms balanced or unbalanced, and 10,000 ohms bridging.

Output Impedances:

1, 4, 8, 16, 150, 200, and 600 ohms, 70.7 volts may be obtained from the 200-ohm output.

Maximum Input Level:

+10 dBm for 150- and 600-ohm inputs,
+34 dBm for bridging input.

Maximum Gain:

66 dB for rated input and output impedances.
42 dB for bridging input to rated output impedances.

Frequency Response:

20 to 15,000 hertz within ±0.5 dB.
15,000 to 20,000 hertz within +0.5 and −1.0 dB with respect to 1000 hertz.

Output Noise:

−44 dBm maximum (unweighted). Signal to noise ratio 88 dB minimum.

Gain Control Range:

44.5 dB in 0.5 dB steps and OFF with two controls having 5 and 0.5 dB steps.

3. MECHANICAL CHARACTERISTICS

3.01 The mechanical characteristics of the KS-19602 L1 amplifier are as follows:

Size:

Width: 19 inches (arranged for mounting on a standard 19-inch relay rack)

Height: 5-1/4 inches

Depth: 10 inches (extends 5-1/4 inches to the front and 4-3/4 inches to the rear of the mounting surface)

Weight: 33 pounds

Finish: Light gray

Electron Tubes: These are not furnished with the amplifier.

DESIGNATION	TUBE TYPE	FUNCTION
V1	6AV6	Voltage Amplifier
V2	12AU7	Phase Inverter
V3	12BH7	Push-Pull Voltage Amplifier
V4	7591	Push-Pull Output
V5	7591	Push-Pull Output

4. EXTERNAL CONNECTIONS

4.01 Input connections should be made to the terminals located at the rear of the amplifier. The terminal strip upon which the input terminals are mounted is that terminal strip on the right when viewed from the rear of the amplifier. Connections should be made to terminals 1 through 7 as follows:

INPUT ARRANGEMENT	CONNECT TO TERMINALS
Bridging (10,000 ohms)	1 and 2
150 ohms	3 and 5
600 ohms	3 and 4
600-ohm center tap	5
Circuit Ground	6
Chassis Ground	7

4.02 The output connections may be made to the terminals located at the rear of the amplifier. The terminal strip upon which the output terminals are mounted is that terminal strip on the left when viewed from the rear of the amplifier. Connections should be made to terminals 1 through 11 as follows:

OUTPUT IMPEDANCE	STRAP TERMINALS	CONNECT TO TERMINALS
1 ohm	2 to 3 and 4 to 5	2 and 5
4 ohms	3 to 4	2 and 5
8 ohms	3 to 4	2 and 6
16 ohms	3 to 4	2 and 7
150 ohms	None	8 and 9
200 ohms or 70.7 volts	None	9 and 10
600 ohms	None	8 and 11
Circuit Ground	None	1

4.03 The output connections may also be made by means of a plug inserted into an octal-type socket located adjacent to the output terminal strip. Connections for the plug and straps on the output terminal strip should be connected as follows:

OUTPUT IMPEDANCE	STRAP TERMINALS ON TERMINAL STRIP	CONNECT TO TERMINALS ON PLUG
1 ohm	2 to 3 and 4 to 5	1 and 2
4 ohms	3 to 4	1 and 2
8 ohms	3 to 4	1 and 3
16 ohms	3 to 4	1 and 4
150 ohms	None	5 and 6
200 ohms or 70.7 volts	None	6 and 7
600 ohms	None	5 and 8

4.04 The amplifier circuit and chassis grounds are brought out to separate input terminals. The feature provides flexibility in grounding the amplifier to avoid "ground loops". The amplifier is normally provided with input terminals 6 and 7 strapped (W option).

4.05 Power is supplied to the amplifier through a power cord equipped with a standard 3-prong connector plug. The third lead in the power cord is connected to chassis ground.

5. INSTALLATION

5.01 The amplifier is designed to operate satisfactorily at room temperatures up to 100°F. Several amplifiers may be mounted in a

relay rack or cabinet without forced ventilation provided the room ambient temperature does not exceed 100°F. At least 100 square inches of open area should be provided above the top amplifier and below the bottom amplifier when they are mounted in an enclosed cabinet.

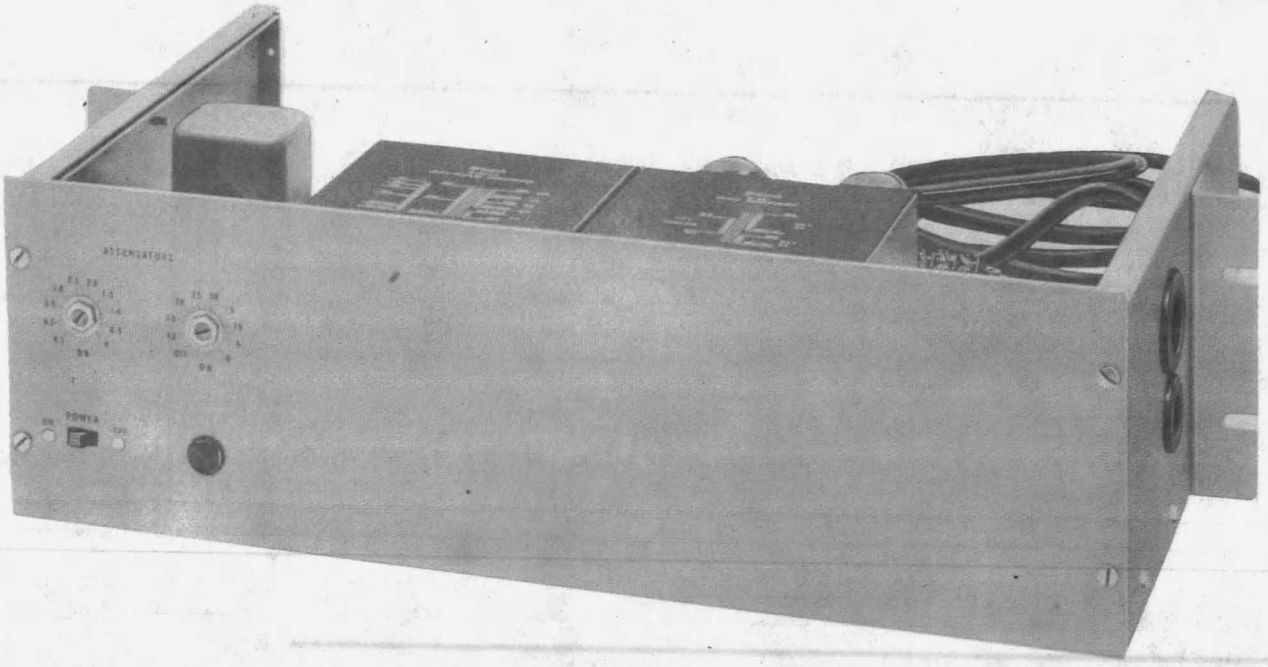

Fig. 1 — KS-19602 L1 Amplifier, Front View

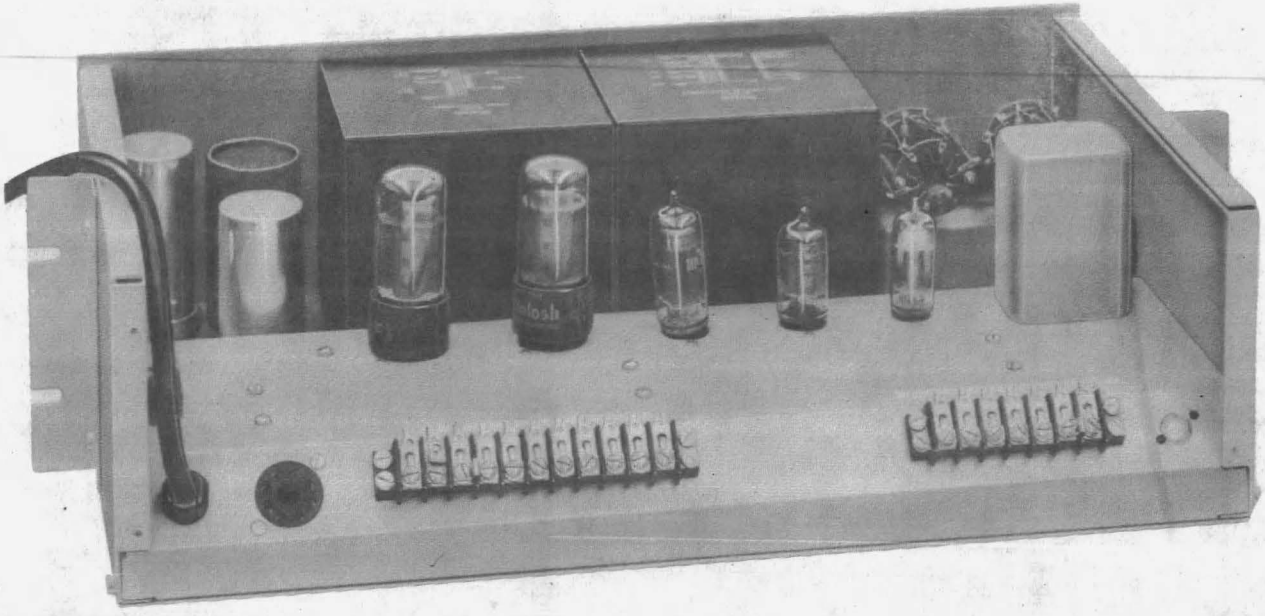

Fig. 2 — KS-19602 L1 Amplifier, Rear View

NOTES:

1. UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES ARE IN OHMS AND CAPACITANCE VALUES ARE IN MICROFARADS.
2. VOLTAGE VALUES ARE MEASURED BETWEEN THE POINTS SHOWN AND TERMINAL 6 (INPUT) USING A VOLTMETER HAVING A MINIMUM OF 10 MEGOHMS RESISTANCE.
3. VOLTAGE VALUES REPRESENT TYPICAL VALUES WITH NO SIGNAL INPUT AND NOMINAL LINE VOLTAGE.
4. ALL RESISTORS ARE 1/2 WATT WITH ±10% TOLERANCE UNLESS OTHERWISE SPECIFIED.

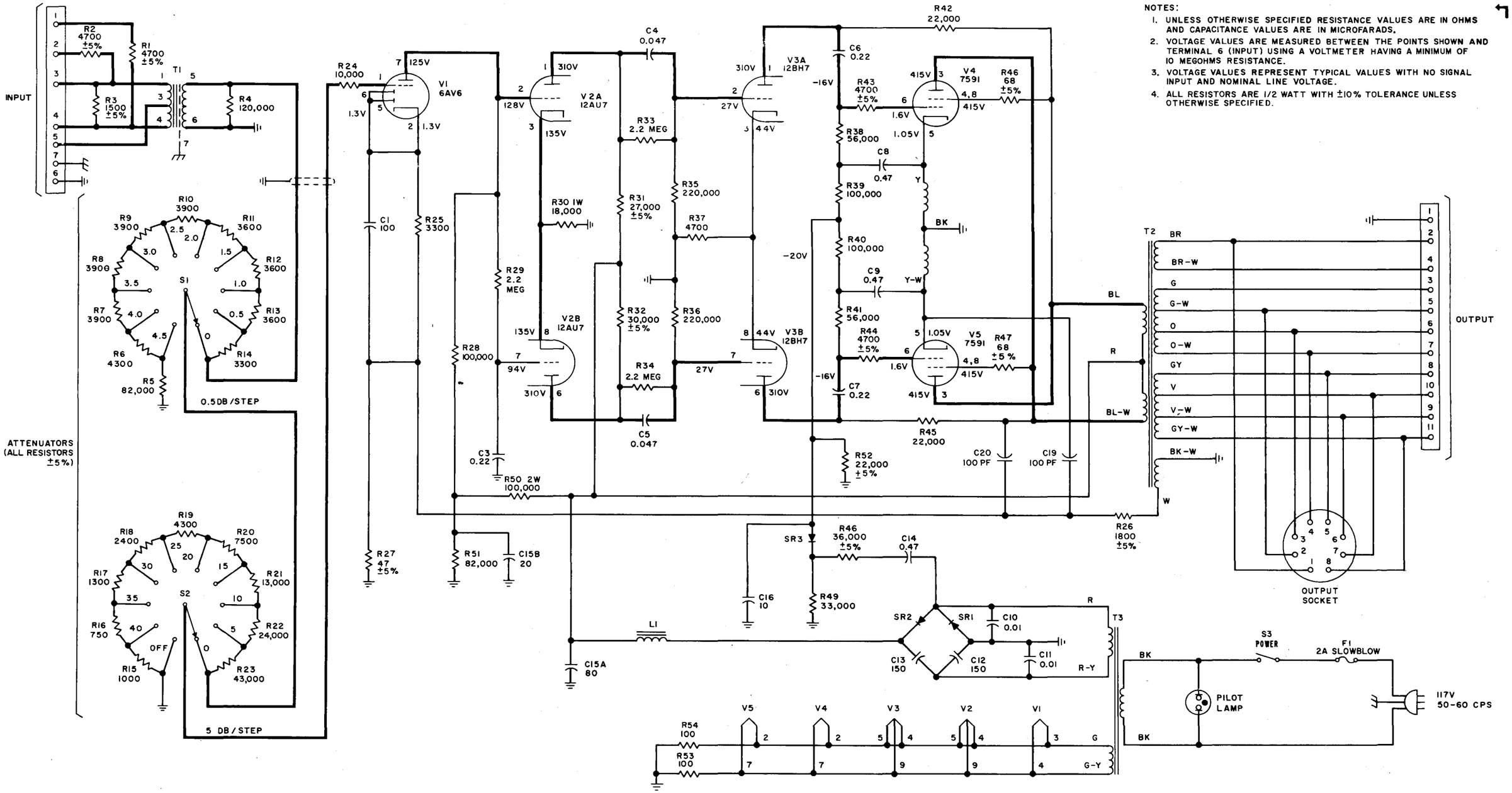

Fig. 3 — KS-19602 L1 Amplifier, Schematic Diagram