KS-16622, L1 AMPLIFIER — DESCRIPTION

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1. GENERAL

1.01 This section provides descriptive information on the KS-16622, L1 Amplifier which has a maximum output of 30 watts. The amplifier is designed for general purpose use on local program circuits such as music distribution, where high quality transmission is required. This section is reissued to include Fig. 4 which was omitted in the previous issue.

1.02 The amplifier is ac operated and is designed to mount in a 19" relay rack or cabinet. The gain controls, power switch, pilot light, and fuse holder are mounted on the front of the unit. A removable front cover provides access to the terminals and wiring side of the chassis. A removable perforated rear cover protects the electron tubes.

1.03 Fig. 1 shows the front view of the amplifier with the front and rear covers assembled. Fig. 2 shows a rear view of the unit with the perforated cover removed. Fig. 3 shows

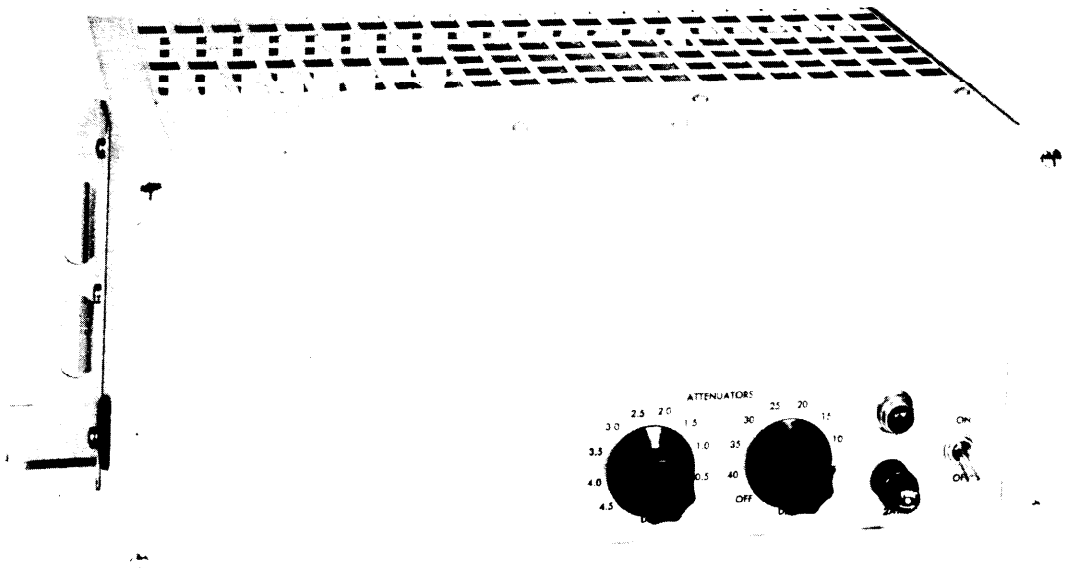

Fig. 1 — Front View of Amplifier

a front view of the amplifier with the front cover removed. The input connections are made to the terminal strip on the left side. The output connections are made to the terminal strip in the upper right corner. The power connections are made to the center terminal strip.

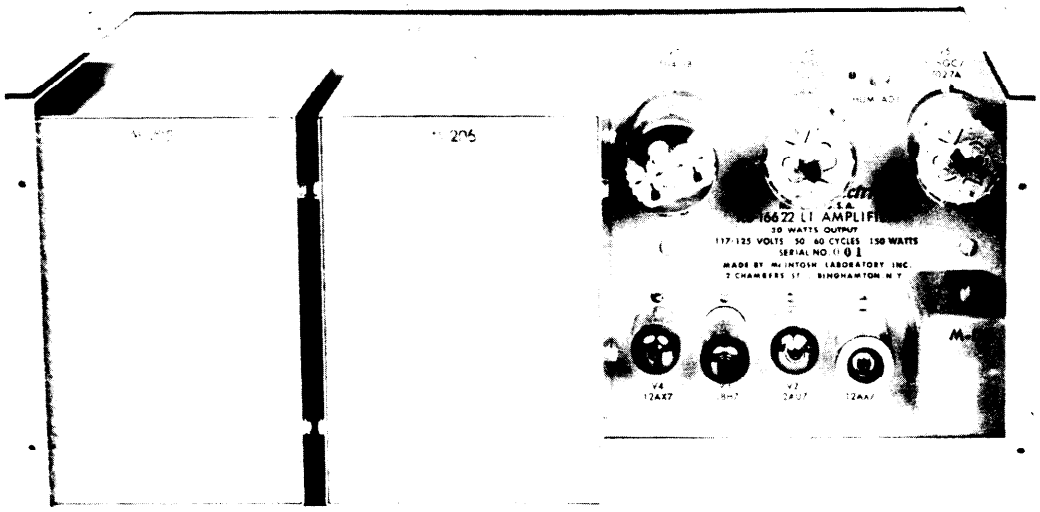

Fig. 2 — Rear View of Amplifier

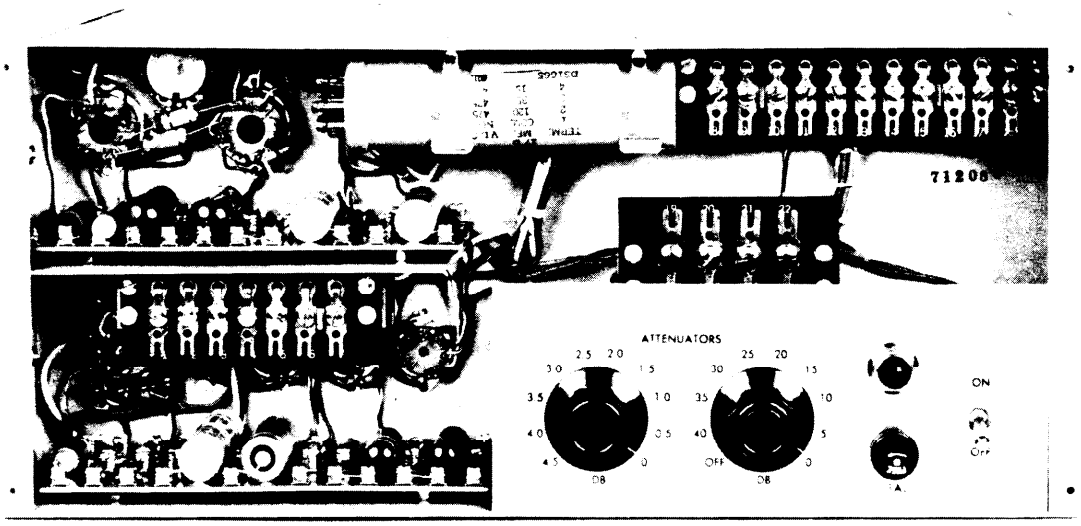

Fig. 3 — Front View of Amplifier with Front Cover Removed

1.04 The application schematic, SD-95282-01 includes connecting information, a circuit schematic, and a parts list. The detailed circuit descriptions is included in CD-95282-01.

2. ELECTRICAL CHARACTERISTICS

2.01 The typical electrical characteristics of the amplifier are as follows:

Power Supply:

110-130 volts 60 cycles, 150 watts maximum.

Power Output:

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

Output Impedances:

1, 4, 8, 16, 150 and 600 ohms. 70.7 volts may be obtained from the 150-ohm output. Internal output impedance is approximately 10 per cent of rated load.

Input Impedances:

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

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 20,000 cycles within 1 db.

Output Noise:

—45 dbm maximum (unweighted) — does not change with gain control setting. Signal-to-noise ratio 90 db minimum.

Gain Control Range:

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

3. MECHANICAL CHARACTERISTICS

3.01 The mechanical characteristics of the amplifier are as follows:

Size:

Width: 19" (arranged for mounting on a standard 19" relay rack).

Height: 7"

Depth: 9" (extends 5" to the front and 4" to the rear of the mounting surface).

Weight: 40 pounds

Finish: Light gray

Electron Tubes:

The following tubes are required for the amplifier and are not furnished with the unit.

TUBE DESIGNATION	TUBE TYPE	FUNCTION
V1	12AX7	Voltage Amplifier
V2	12AU7	Voltage Amplifier and Phase Inverter
V3	12BH7	Push-Pull Voltage Amplifier
V4	12AX7	Push-Pull Driver Amplifier
V5	6L6GC	Push-Pull Output
V6	6L6GC	
V7	5U4GB	Rectifier

4. MOUNTING ARRANGEMENTS

4.01 The amplifier is equipped with removable mounting flanges so that the unit can be mounted in a bay or cabinet. The unit may also be mounted on a table or shelf, if required. The amplifier should be mounted so that the controls face the front.

4.02 The amplifier should operate satisfactorily at room ambient temperature up to 100° F. Several may be mounted in a relay rack or cabinet provided there is at least 3-1/2" of space between amplifiers. 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. This will provide an open path for convection currents to flow which will provide some cooling.

5. EXTERNAL CONNECTIONS

5.01 The input connections are made to the terminal board located on the left side under the front cover of the amplifier. The input terminals are marked one through seven and should be connected as follows:

TABLE I

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

5.02 The amplifier circuit and chassis grounds are brought out to separate terminals on the input terminal strip. These terminals are normally strapped together. However, they may be separated in order to provide flexibility in grounding the amplifier to avoid "ground loops" which might introduce noise into the circuit.

5.03 The output connections are made to terminals 8 through 18 located on the right-hand terminal strip under the front cover of the amplifier. Connections should be made as follows:

TABLE II

OUTPUT ARRANGEMENT	STRAP TERMINALS	CONNECT TO TERMINALS
1 ohm	14 to 15 and 16 to 17	14 and 17
4 ohms	15 to 16	14 and 17
8 ohms	15 to 16	13 and 17
16 ohms	15 to 16	12 and 17
150 ohms or 70.7 volts	8 to 9 and 10 to 11	8 and 11
600 ohms	9 to 10	8 and 11
Center Tap (600 ohms)	9 to 10	9

5.04 A "circuit ground" (terminal No. 18) is provided on the output terminal strip. This terminal may be used to ground the output circuit, if required.

5.05 The power connections are made to terminals 19 through 22 located on the center terminal strip under the front cover. The connections should be made as follows:

TABLE III

TERMINAL NO.	CONNECTIONS
19	Grounded side of ac (120-130V)
20	Grounded side of ac (110-120V)
21	Ungrounded side of ac
22	Chassis ground

5.06 In central office installations, type BF shielded wire, or equivalent, should be used for the 600-ohm circuits. The shields should be electrically continuous and should be grounded at the amplifier, only.

6. TRANSMISSION INFORMATION

6.01 Fig. 4 shows the typical frequency response of the amplifier.

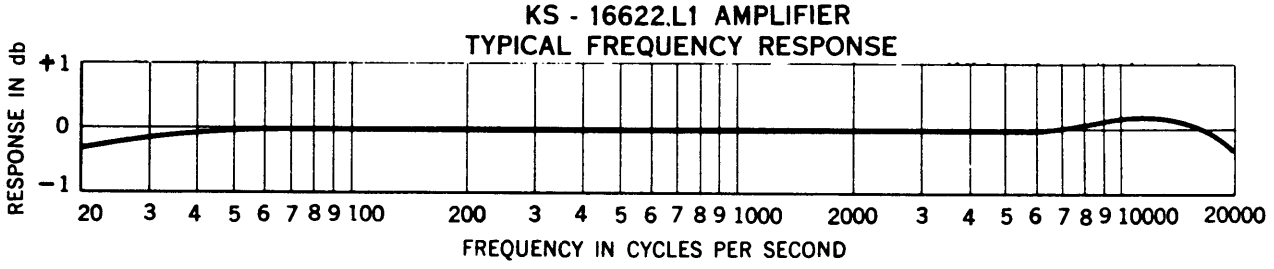

Fig. 4 — Frequency Response

6.02 Fig. 5 shows the typical harmonic distortion characteristic of the amplifier.

6.03 Fig. 6 shows the typical envelope delay characteristics of the amplifier in microseconds.

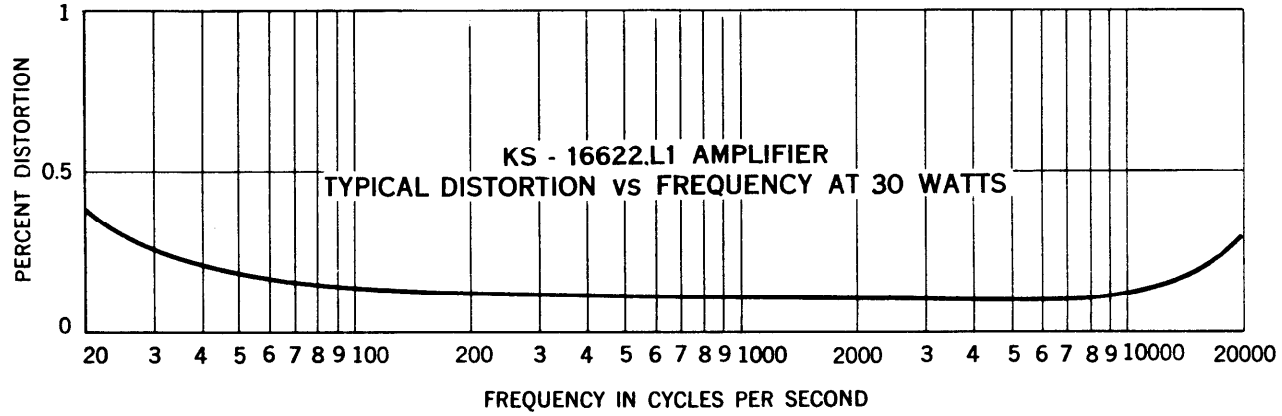

Fig. 5 — Harmonic Distortion

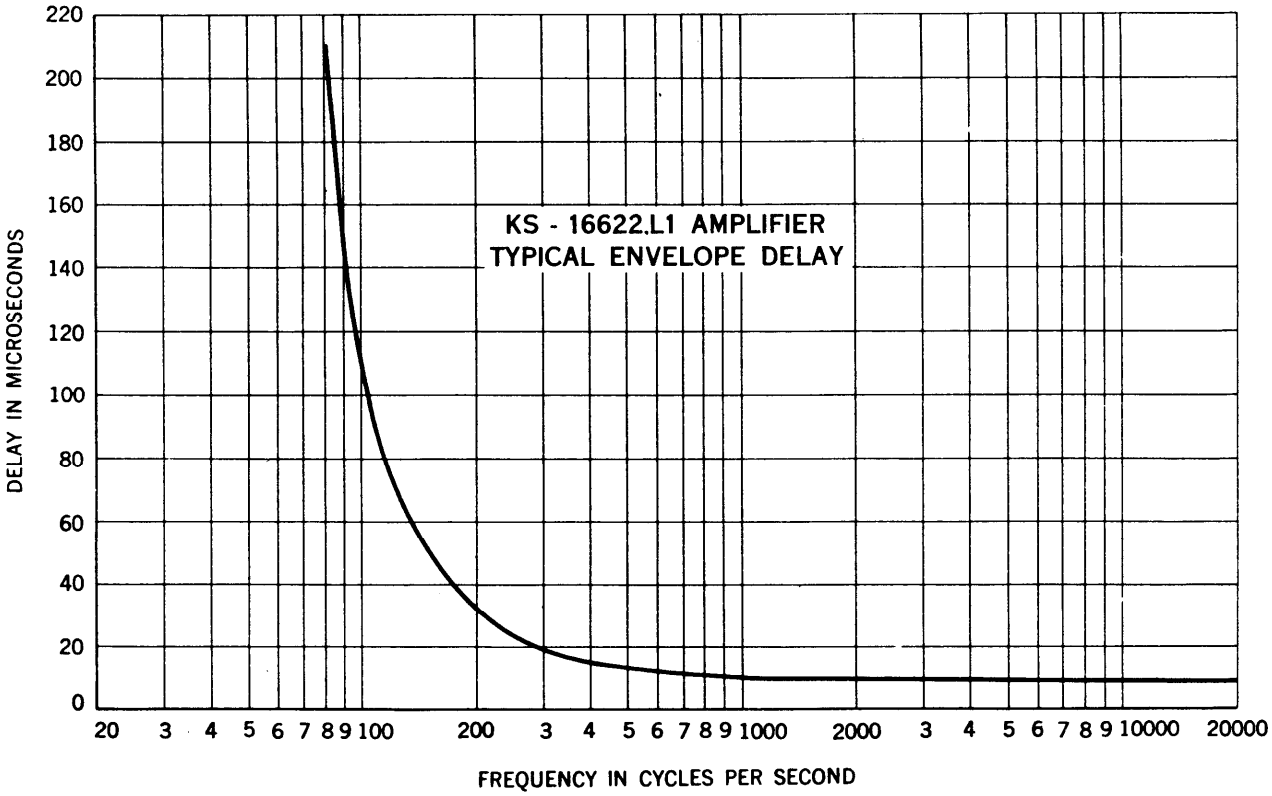

Fig. 6 — Envelope Delay Distortion