

KS-19601, LIST 1 AMPLIFIER

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1. GENERAL

1.01 This section describes the KS-19601, List 1 amplifier (SD-99431-01).

1.02 The KS-19601, List 1 amplifier is a solid state special purpose amplifier designed primarily for use in a 2-way communication system between the local test desk or cable test desk and the main distribution frame in telephone central offices. This amplifier provides two independent channels of amplification: a high-level channel and a low-level channel. The high-level channel is

used to drive loudspeakers at the main distribution frame with its input from a telephone headset transmitter at the test desk. The low-level channel is used to drive a telephone headset receiver at the test desk with input from low-level microphones at the main distribution frame.

1.03 The KS-19601, List 1 amplifier consists of two basic amplifier units: (a) a KS-19220, List 2 amplifier (described in Section 024-180-100) which provides amplification of the low-level channel signals, and (b) a KS-19221, List 1 amplifier (described in Section 024-181-100) for amplifying the high-level channel signals. These amplifiers, along with the necessary input and output transformers and a sidetone attenuation network, are assembled as a unit, the KS-19601, List 1 amplifier.

2. ELECTRICAL CHARACTERISTICS

2.01 Table A gives the typical electrical characteristics of this amplifier.

TABLE A
KS-19601, LIST 1 AMPLIFIER
TYPICAL ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	HIGH-LEVEL CHANNEL	LOW-LEVEL CHANNEL
Power Output	4 watts into rated resistive load with less than 5 percent harmonic distortion from 200 to 5000 cps.	+8 dbm with less than 5 percent harmonic distortion between 200 and 5000 cps.
Load Impedance	Output (1) 4 ohms Output (2) 600 ohms	600 ohms
Input Circuit	Balanced input; nominal impedance 600 ohms.	Balanced input; nominal impedance 100 ohms.
Gain	46 ±2 db	78 ±3 db
Frequency Response	Within 3 db of 1000-cps value between 200 and 5000 cps	Within 2 db of 1000-cps value between 200 and 5000 cps
Output Noise	-30 db	Less than -38 db.
Power Requirements	48 volts dc at 260 ma (talk battery)	

3. EQUIPMENT DESCRIPTION

3.01 Figure 1 is a front view of the KS-19601, List 1 amplifier with the protective cover removed, and Fig. 2 is a rear view with the protective cover removed. This amplifier consists of two plug-in amplifier units, two amplifier connector sockets, four transformers, a potentiometer, a sidetone attenuation network, and a terminal strip, all assembled on a 2- by 23-inch mounting plate and completely shop wired.

3.02 The assembly is arranged for standard 23-inch rack mounting. It is 6-3/4 inches deep and extends 4-1/4 inches beyond the mounting surface on the equipment side. Removable covers are provided to protect the circuit equipment when it is in use. The amplifier assembly weighs approximately 7 pounds and has a light gray finish.

3.03 The two plug-in amplifiers, KS-19220, List 2 and KS-19221, List 1 (see Fig. 1), are transistorized units. In each unit the circuit components are mounted on a printed wiring board which is attached to a metal faceplate. The faceplate also acts as a mounting bracket. The amplifiers plug directly into the amplifier connector sockets. Hand-operated wing-type fasteners are used to hold the amplifiers in place.

3.04 The gain control potentiometer for the KS-19221, List 1 amplifier is mounted in the mounting plate to the right of the amplifier unit. The gain control potentiometer for the KS-19220, List 2 amplifier is mounted in the faceplate of the amplifier unit. Screwdriver slots are provided in each potentiometer shaft for adjusting gain.

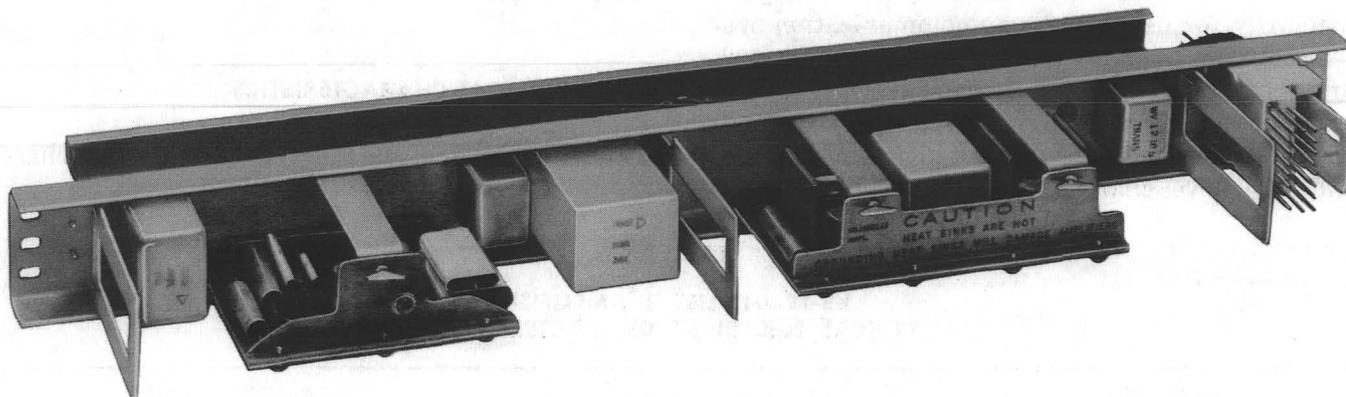


Fig. 1 — KS-19601, List 1 Amplifier — Front View with Cover Removed

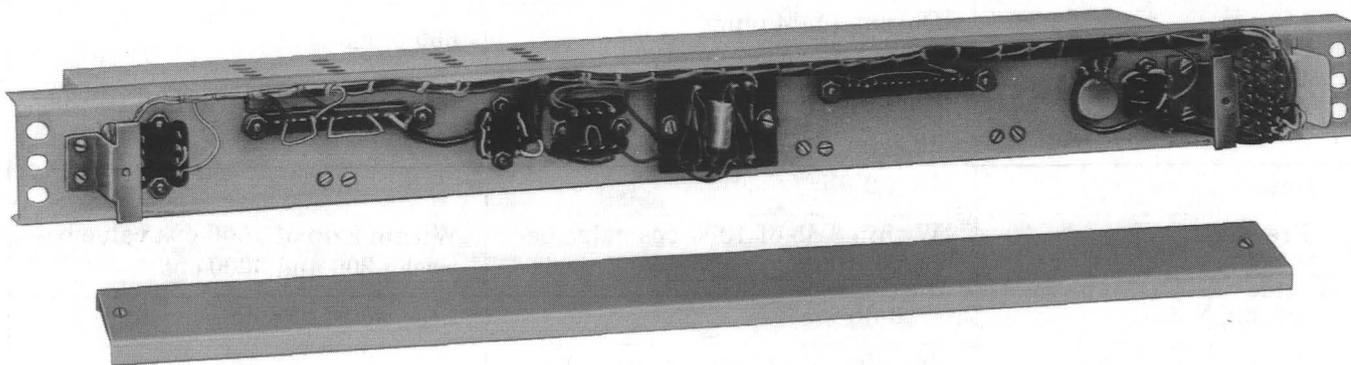


Fig. 2 — KS-19601, List 1 Amplifier — Rear View with Cover Removed

3.05 A circuit board containing the components of the sidetone attenuation network is mounted near the rear center of the assembly.

3.06 The amplifier circuits are terminated at the rear of a D3A terminal strip (TB1) mounted on the right side of the assembly. The circuits are extended through the terminal strip to wire-wrap terminals on the front, where all external wiring connections are made. External connections to the amplifier are as shown in Fig. 3.

4. FUNCTIONAL DESCRIPTION

4.01 The KS-19601, List 1 amplifier provides two channels of amplification: a low-level channel and a high-level channel. The amplifier includes a sidetone attenuation network. Figure 3 is a schematic of the amplifier with external connections shown.

4.02 The low-level channel input signal from the input source, such as a low-level microphone, is fed through transformer T1 to the input of the KS-19220, List 2 amplifier. The amplifier provides maximum gain of 78 ± 3 db and is adjustable through the gain control potentiometer (provided in the KS-19220, L2 plug-in amplifier

unit) from a minimum of approximately 43 db. The output of the amplifier is terminated in transformer T2. Transformer T2 provides a 600-ohm impedance match for connecting the amplifier output to a 600-ohm load such as a telephone headset receiver.

4.03 The high-level channel input is supplied from a balanced 600-ohm source such as the transmitter of a telephone headset transmitter. The input signal is connected through transformer T3 and gain control potentiometer R1 to the KS-19221, List 1 amplifier. The amplifier provides approximately 46-db gain and is adjustable through the gain control potentiometer R1. The amplifier output is connected to output transformer T4. The secondary of transformer T4 has two windings: (a) a 4-ohm winding for connecting to a 4-ohm speaker, and (b) a 600-ohm winding for connecting to a 600-ohm load.

4.04 The sidetone attenuation network circuit provides coupling of sidetone to the test desk receiver. Signals from the primary of the high-level output transformer are coupled into the sidetone attenuation network consisting of diodes CR1, CR2, and CR3, capacitor C1, and resistors R2, R3, and R4. The attenuated sidetone signal is fed into the last stage of the low-level channel amplifier to provide sidetone to the test desk telephone receiver.

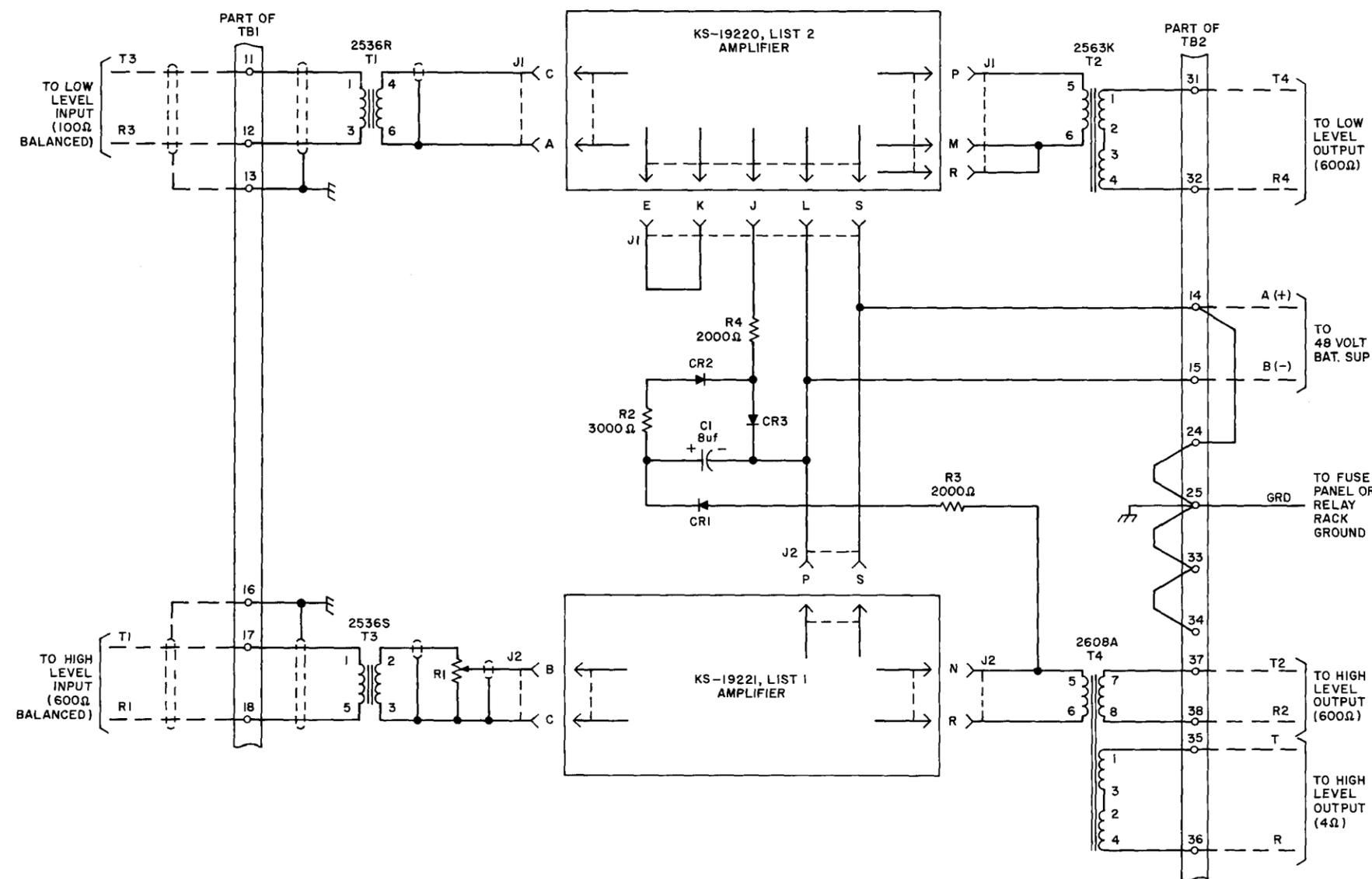


Fig. 3 — KS-19601, List 1 Amplifier — Schematic (Including External Connections)