

## KS-16831 AMPLIFIERS IDENTIFICATION AND ASSEMBLY

### 1. GENERAL

1.01 This section is reissued to change Table A<sup>7</sup> to show the provision for low output impedance. ↙ ↘

1.02 This section describes the KS-16831, List 1 and List 3 amplifiers, the List 5 carrying case, and the List 6 bracket assembly.

1.03 This equipment is for use on local program and wide-band circuits.

1.04 Associated apparatus cases permit installation in manholes, on poles, or on relay racks.

1.05 The KS-16831, List 1 amplifier is designed for use on 5, 8 and 15 kc local program circuits. It consists of a printed wiring amplifier card (KS-16860, List 1 amplifier) which contains the preliminary stages, assembled with the output stage transistor, gain control, input and output transformers, monitoring jacks, terminals, and other components on a small chassis with a removable cover. The unit is arranged for mounting in the KS-16831, List 5 carrying case or on mounting bars on a relay rack. In addition to the main output, a separate independent output for connecting a vu meter and jacks for high impedance headphone monitoring is also provided. The amplifier is designed to operate from a 48-volt battery or from a 120-volt 60-cycle source by use of the KS-16831, List 4 power supply. The external appearance of the amplifier with cover removed is shown in Fig. 1. The amplifier mounted on a bracket for use in a 467-type apparatus case is shown in Fig. 2.

1.06 The KS-16831, List 3 amplifier is designed for use on facsimile and high speed data circuits requiring bandwidths up to 552 kc. It has the same external appearance and mounting arrangements as the List 1 amplifier. The List 3 amplifier is not equipped with input or output transformers. They must be mounted external to the amplifier. The amplifier with cover in place is shown in Fig. 3.

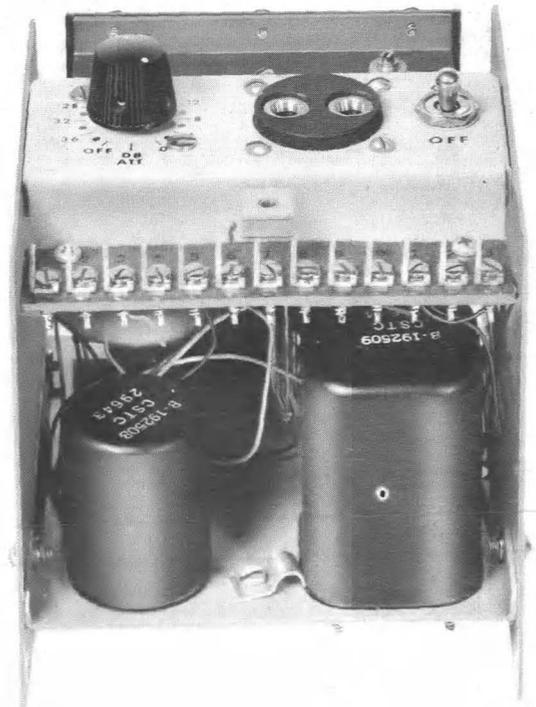
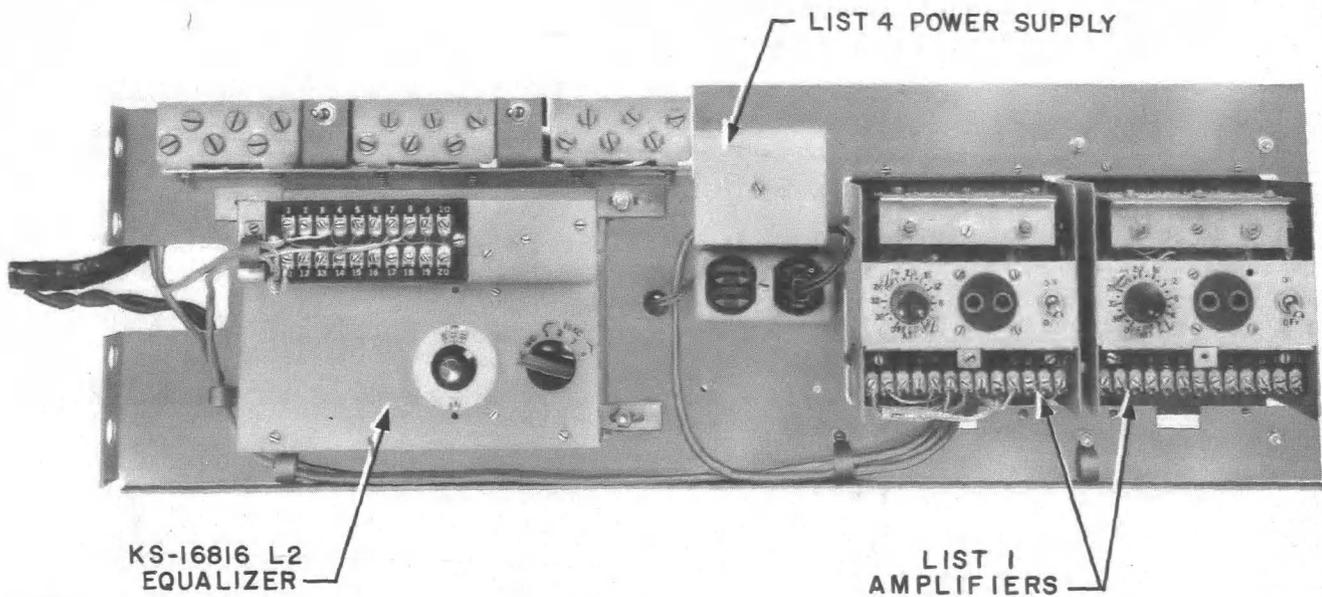


Fig. 1 - List 1 Amplifier

1.07 The KS-16831, List 5 carrying case is a portable metal box which provides mounting facilities for two KS-16831 amplifiers and two KS-16831, List 4 power supplies. The mounting plate for the power supplies is equipped with two power receptacles and a power cord 6 feet long for connecting to the power source. The case may be used in its portable form for field service or may be mounted on a standard 19-inch relay rack by means of brackets supplied with it. The brackets are stored inside the cover when not in use and when required may be fastened to each end of the case with screws. Fig. 4 shows a view of the carrying case. The mounting brackets, as stored in the cover, are shown in Fig. 5.

1.08 The KS-16831, List 6 bracket assembly shown in Fig. 6 is a subassembly for mounting in a list 5 carrying case. It consists of a metal frame, six 410D jacks, a terminal strip,



**Fig. 2 – List 1 Amplifiers, Mounted on Bracket of 467-Type Apparatus Case**

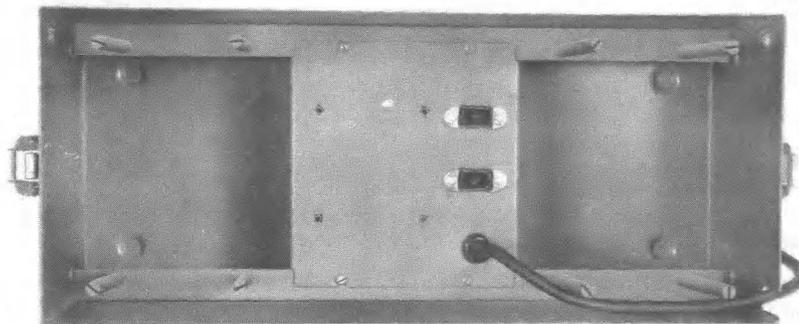
and a wiring harness. The metal frame provides mounting space for a KS-16816, List 2 equalizer and a KS-16831, List 4 power supply. The six 410D jacks provide access to the following circuits: LINE IN, EQUALIZER IN, EQUALIZER OUT, AMPLIFIER IN, AMPLIFIER OUT, and LINE OUT. The terminal strip provides for

LINE IN, LINE OUT, and ground connections. The wiring harness is equipped with spade-tipped leads for making connections to the amplifier, equalizer, and power supply.

**1.09** Electrical characteristics of these amplifiers are shown in Table A.



**Fig. 3 – List 3 Amplifier**



**Fig. 4 – List 5, Carrying Case, Top View**

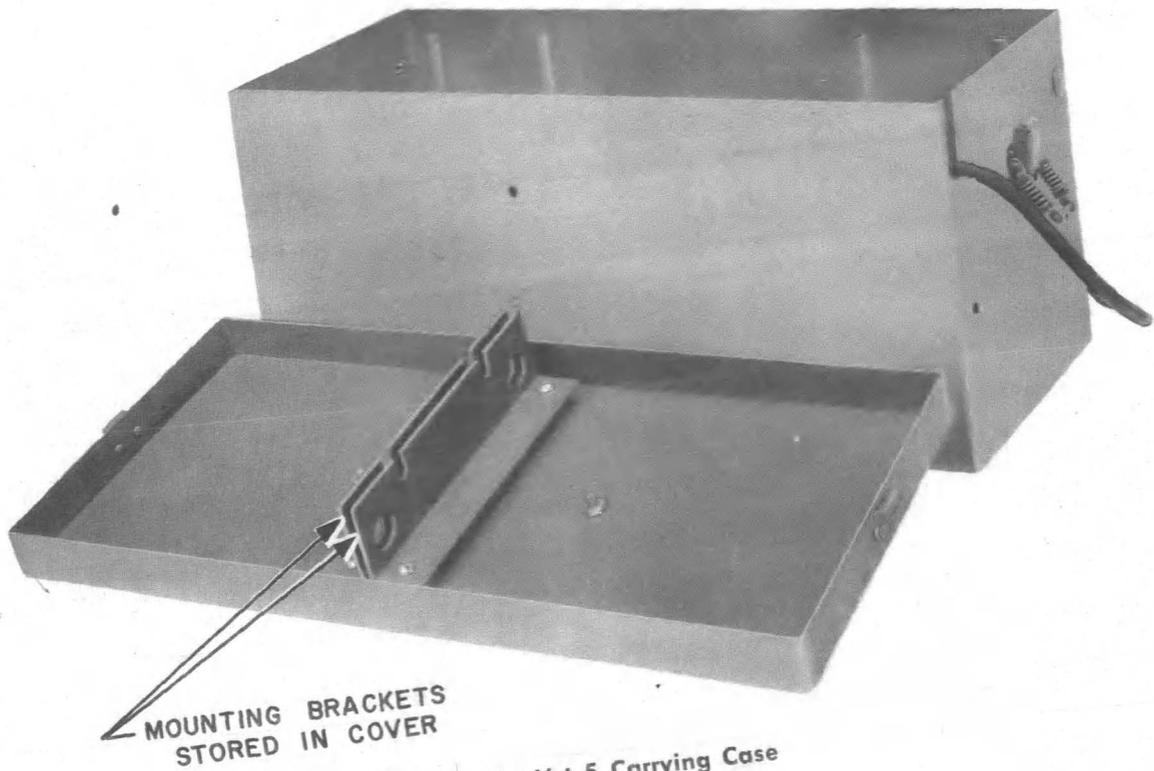


Fig. 5 - List 5 Carrying Case

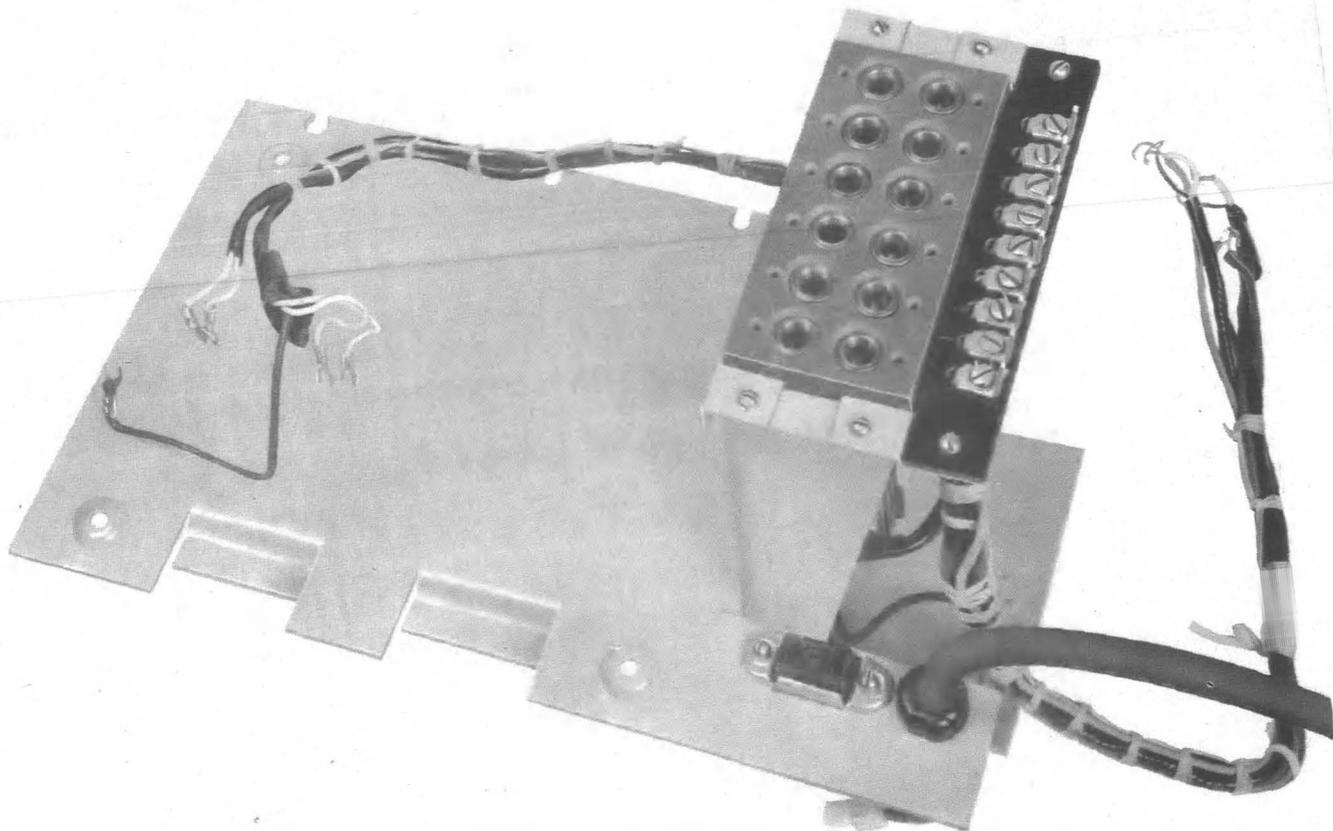


Fig. 6 - List 6 Bracket Assembly

**TABLE A**  
**ELECTRICAL CHARACTERISTICS**

Characteristic	KS-16831, List 1 Amplifier	KS-16831, List 3 Amplifier
1,000-Cycle Gain	42.5 $\pm$ 1 db	40.5 $\pm$ 2 db
Frequency Response	35 to 15,000: $\pm$ 0.5 db of 1,000-cps value	5 to 500,000 cps: $\pm$ 2 db of 1,000-cps value
Output Power	+22 dbm with 0.5% total harmonic distortion (rms)	+10 dbm with 1% total harmonic distortion (rms)
Noise	-60 dbm with dc-supply noise not exceeding 64 dbrn and 15 kc flat weighting	-60 dbm with dc-supply noise not exceeding 64 dbrn and 15 kc flat weighting
Gain Controls	Nineteen 2 $\pm$ 0.25 db steps — total 38 db and OFF position, Vernier control range 2 db	Nineteen 2 $\pm$ 0.25 db steps — total 38 db and OFF position, Vernier control range 2 db
Phase Shift	$\pm$ 30° from 35 to 15,000 cps	Not to exceed +40° at 5 cps and -70° at 500 kc
Impedance	150 or 600 $\Omega$ in 25*, 100, 150*, 600 $\Omega$ out	600 $\Omega$ in or out

\* With internal strapping changed for low output impedance.