

**LOUDSPEAKER ARRANGEMENTS FOR CONFERENCE SERVICE**  
**KS-19134, L1 CONFERENCE SET**

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**1. GENERAL**

**1.01** This section describes the KS-19134, List 1 Conference Set which provides portable loudspeaking facilities and high quality microphones for use on telephone conference calls with large groups of listeners. With this apparatus both local and distant speech or distant speech only may be reproduced on loudspeakers. Local speech may also be transmitted to the telephone line without being reproduced on the loudspeakers. An automatic output level control amplifier in the local microphone circuit controls the level of the local speech to the telephone line and a second fast-acting automatic output level control amplifier in the loudspeaker circuit equalizes the level of local and distant speech.

**1.02** The conference set is a portable pre-assembled system in two carrying cases. It can be connected to any one-party station line or PBX station line in place of the regular station set. It is not arranged for connection to key equipment requiring on "A" lead.

**1.03** Other sections of interest in the application of the conference set are:

AB22.334 — Loudspeaker Arrangements for Conference Service and Service Observing

AB22.335 — Loudspeaker Paging Systems

AB22.335.1 — Loudspeaker Paging Systems — Transmission Characteristics of Loudspeakers

AB48.153.9 — KS-16617, L1 Amplifier

AB48.155 — KS-16754, L3, L4 Amplifiers

C70.210.00 — KS-19134, L1 Conference Set — Identification

C70.210.01 — KS-19134, L1 Conference Set — Installation and Maintenance

C70.210.02 — KS-19134, L1 Conference Set — Connections

**2. DESCRIPTION OF EQUIPMENT**

**2.01** The KS-19134, List 1 Conference Set consists of the following items:

- 1 — KS-19134, List 2 Amplifier — Control Unit
- 1 — KS-19134, List 3 Loudspeaker Assembly
- 1 — 53A Operator's Set
- 1 — Modified 701B Telephone Set
- 1 — Altec 682A Microphone with Altec 26A Desk Stand

A detailed description of each unit may be found in Section C70.210.00.

**2.02** The conference set is illustrated in Figs. 1-5. A typical installation is shown in Fig. 6.

**2.03** Provisions are made to:

- (a) Reproduce both local and distant talkers' speech on the loudspeaker system.
- (b) Transmit the local talker's speech to the telephone line only. (No speech reproduced over the loudspeakers.)
- (c) Reproduce incoming speech only over the loudspeakers. (The local microphone or Princess set transmitter is muted in this mode of operation.)

## SECTION AB22.334.1

**2.04** Jacks are provided for connecting the operator's set, two loudspeakers and either the telephone set or the microphone. Terminals are provided for connecting the telephone line and extra loudspeakers when required. An E1A ringer is connected across the telephone line terminals to signal an incoming call. Incoming line levels of approximately -45 VU and higher will operate the automatic output level control for equalizing the local and distant speech levels.

**2.05** Telephone calls can be originated at the control unit using the 53A headset or at the 701B modified telephone set. Calls can also be received at either location.

**2.06** Installation and maintenance instructions are provided in Section C70.210.01. Telephone line and subscriber equipment connections are specified in Section C70.210.02. Operating instructions are pasted inside the cover of the control unit.

**2.07** A schematic of the conference set is included in Section C70.210.01. Maintenance should consist primarily of tube replacements and repair of parts visibly damaged. For all other troubles the set should be repaired on the Red Ball Plan.

**2.08** The KS-16754, L3 Amplifier in the control unit can be directly replaced with any other L3 unit, but the KS-16617, L1 amplifier cannot be replaced. It has been modified to provide power to all other units in the conference set.

### 3. TRANSMISSION CONSIDERATIONS

#### A. General

**3.01** When loudspeaker conference arrangements are ordered by the subscriber, it is advisable to review the physical arrangements if time permits and determine their effects on transmission. The location, size and acoustic arrangements of the conference room, number of listeners, number and location of speakers, etc., should be reviewed. The nature and location of subscriber owned loudspeaker equipment should be known if it is to be connected to the conference set. A suitable power outlet and ground will be needed, and a check should be made to

see if there is a quiet telephone line available, free of extension stations, pick ups, or other parties that could interfere with the call.

**3.02** It may be necessary to have a drop installed to the conference location, and noise and transmission tests on the line are desirable if time permits.

**3.03** Arrangements of the equipment should be made for maximum listener effect and minimum acoustic feedback. The considerations discussed in Sections AB22.334, AB22.335 and AB22.335.1 will be helpful. Preconference tests with the local test desk will help detect any unforeseen difficulties.

#### B. Connections to Subscriber Equipment

**3.04** The conference set should give good performance in conference rooms and small auditoriums up to about 100,000 cubic feet in volume. The actual size will depend greatly on acoustic characteristics as discussed in Section AB22.335. In larger auditoriums, the 10-watt output may be insufficient or the speaker coverage may be inadequate. Many locations will have loudspeakers permanently installed that give better coverage of the audience. Those systems may be connected in place of the KS-19134, L3 Loudspeaker Assemblies if they are designed for a 70-volt line and can handle at least 10 watts.

**3.05** In larger auditoriums where complete P.A. systems are installed and available, they may be connected to the conference set. With the proper switch settings, the power amplifier in the control units is disconnected, and the compression amplifier is connected directly to the subscriber owned P.A. system. The unit can be connected for 50-ohm or 600-ohm termination, balanced or unbalanced. It will be necessary to determine the type of input to the subscriber's P.A. system and select the arrangement that gives the best match. Preliminary tests should be made with the subscriber's P.A. system, and the AT1 attenuator at the rear of the control unit should be adjusted to provide voice levels to the P.A. system that are within its operating range.

**C. Noise Control**

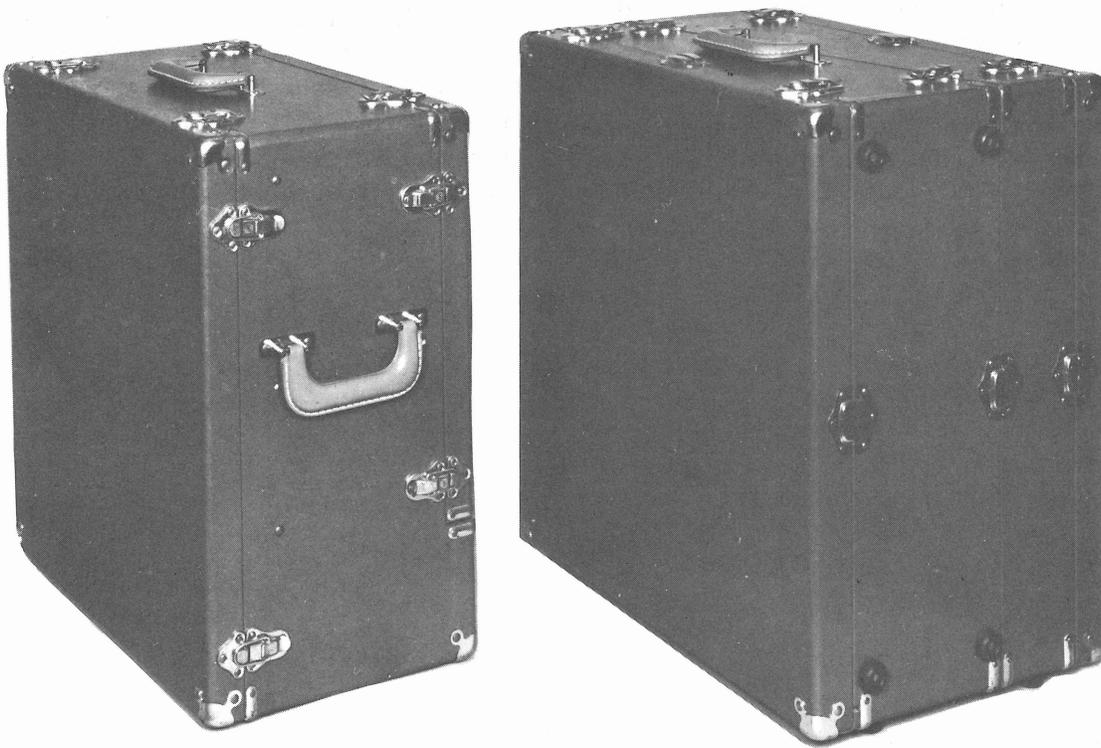
**3.06** Howling in the system can be caused by insufficient loss in the acoustic path between the loudspeakers and the microphone. Near-howling conditions will cause reverberations. These can be eliminated by relocating the equipment to increase loss in the acoustic feedback path. It may be necessary in some cases to restrict the use of microphones and employ the KS-16504 handset only.

**3.07** The telephone line may be a source of noise. A good test is to establish connection to a balanced termination and listen for noise, crosstalk, etc., from the loudspeakers. Where time permits, the noise sources should be located or the pair changed, if line noise is unsatisfactory.

**3.08** The conference set can be checked for noise. With the set adjusted in accordance with Section C70.210.01, a 1000-cycle 600-

ohm balanced oscillator may be connected in place of the telephone line, and a 600-ohm 10-watt resistor is placed across the 70-volt line terminals. With sufficient tone input to bring the VU meter reading to the red line, the speaker volume control is adjusted to develop 70 volts across the load resistor. At this point an oscilloscope may be used to test for distortion in the output. If the tone input is replaced with a 600-ohm resistor, the voltage across the load resistor should drop below 1.5 volts with the limiter control fully clockwise and 0.1 volt with the limiter control fully counterclockwise.

**3.09** The ground may be a source of noise, particularly when the conference set is connected to a subscriber's P.A. system with unbalanced input. It may be necessary to ground the conference set to the P.A. system ground or use shielded connections to reduce hum.



**Fig. 1 – KS-19134, L2 & L3 Units Closed and Ready for Transporting**

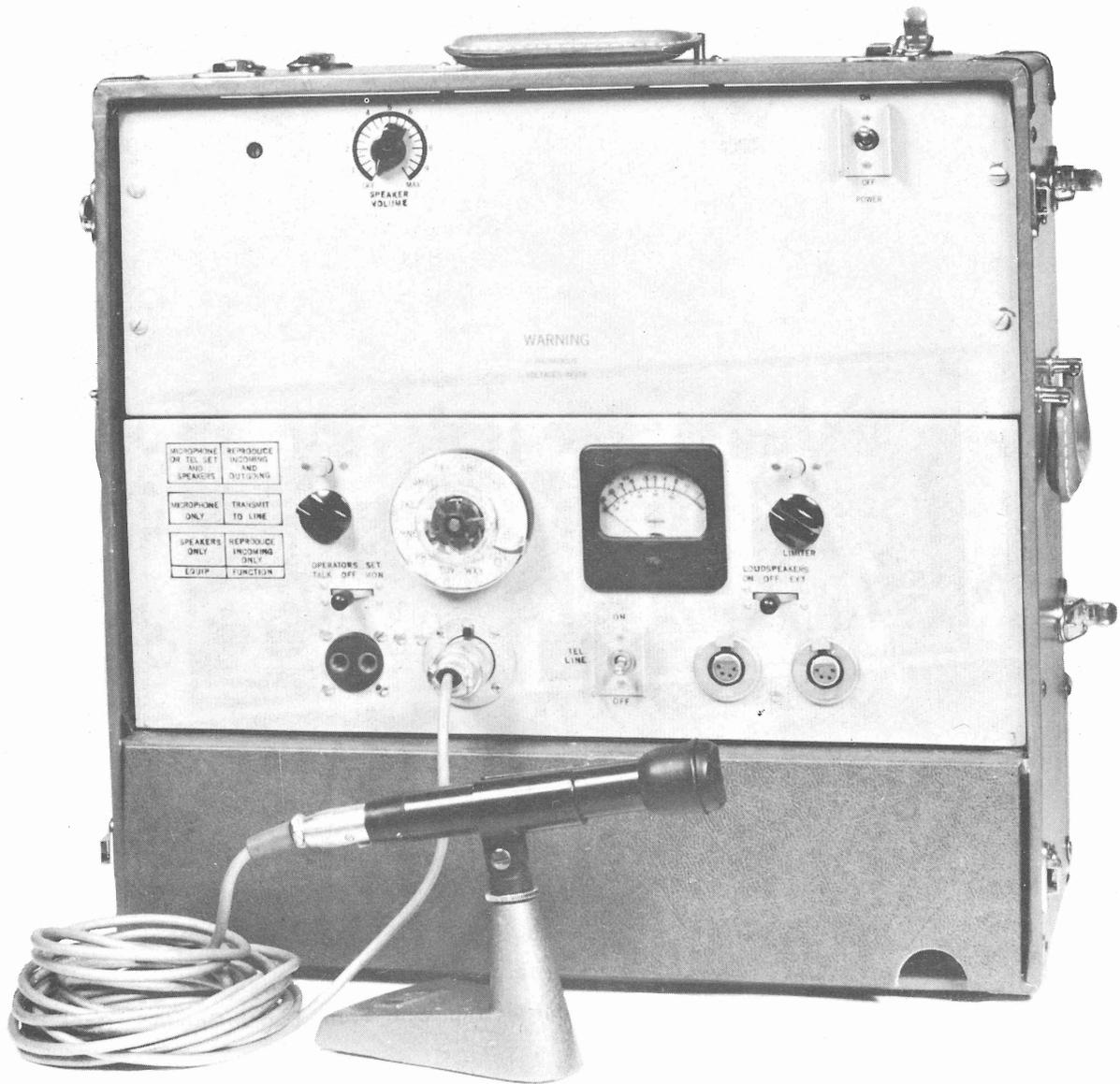


Fig. 2 - KS-19134, L2 Amplifier — Control Unit with Microphone

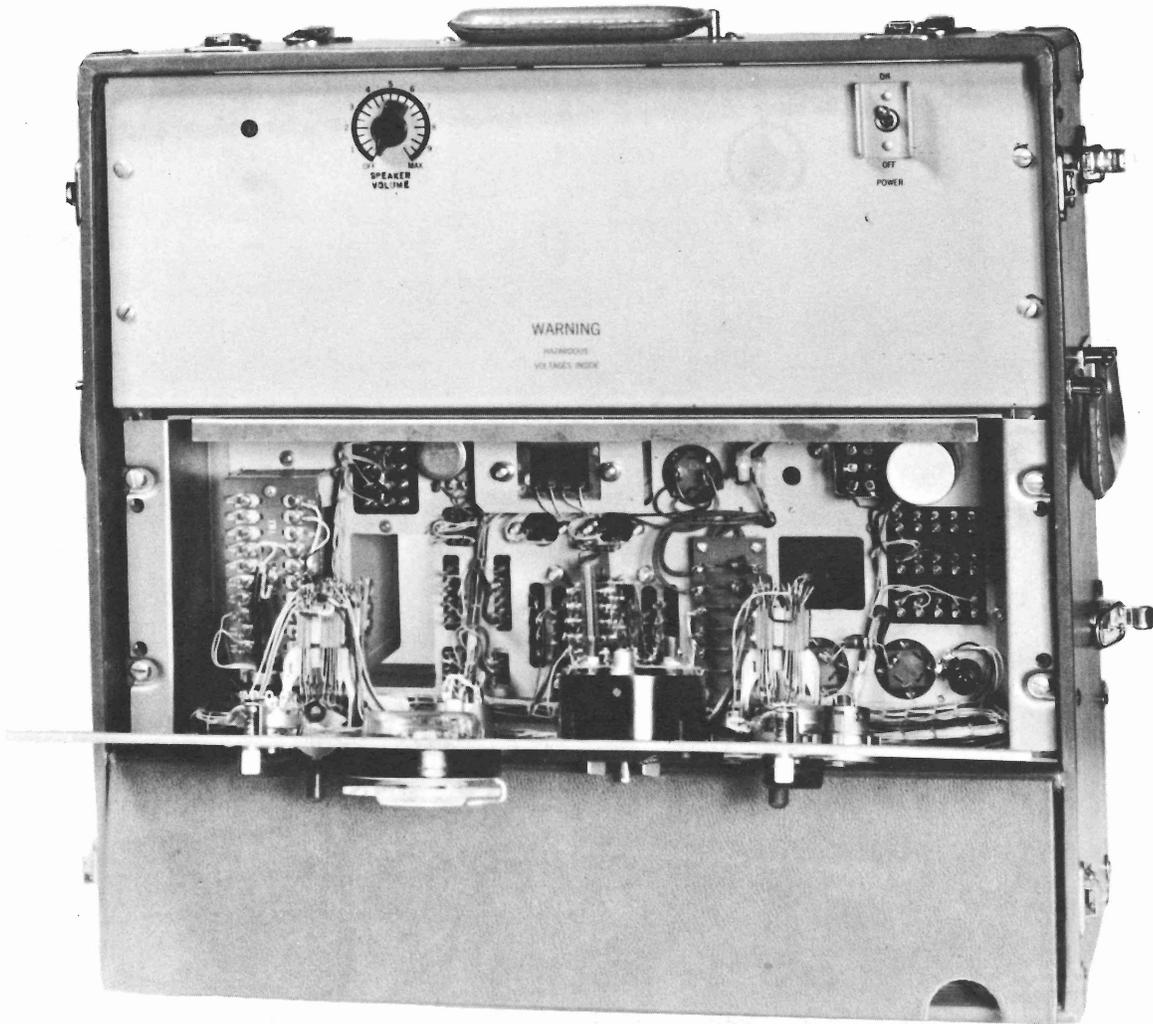


Fig. 3 - KS-19134, L2 Amplifier — Control Unit with Front Panel Open

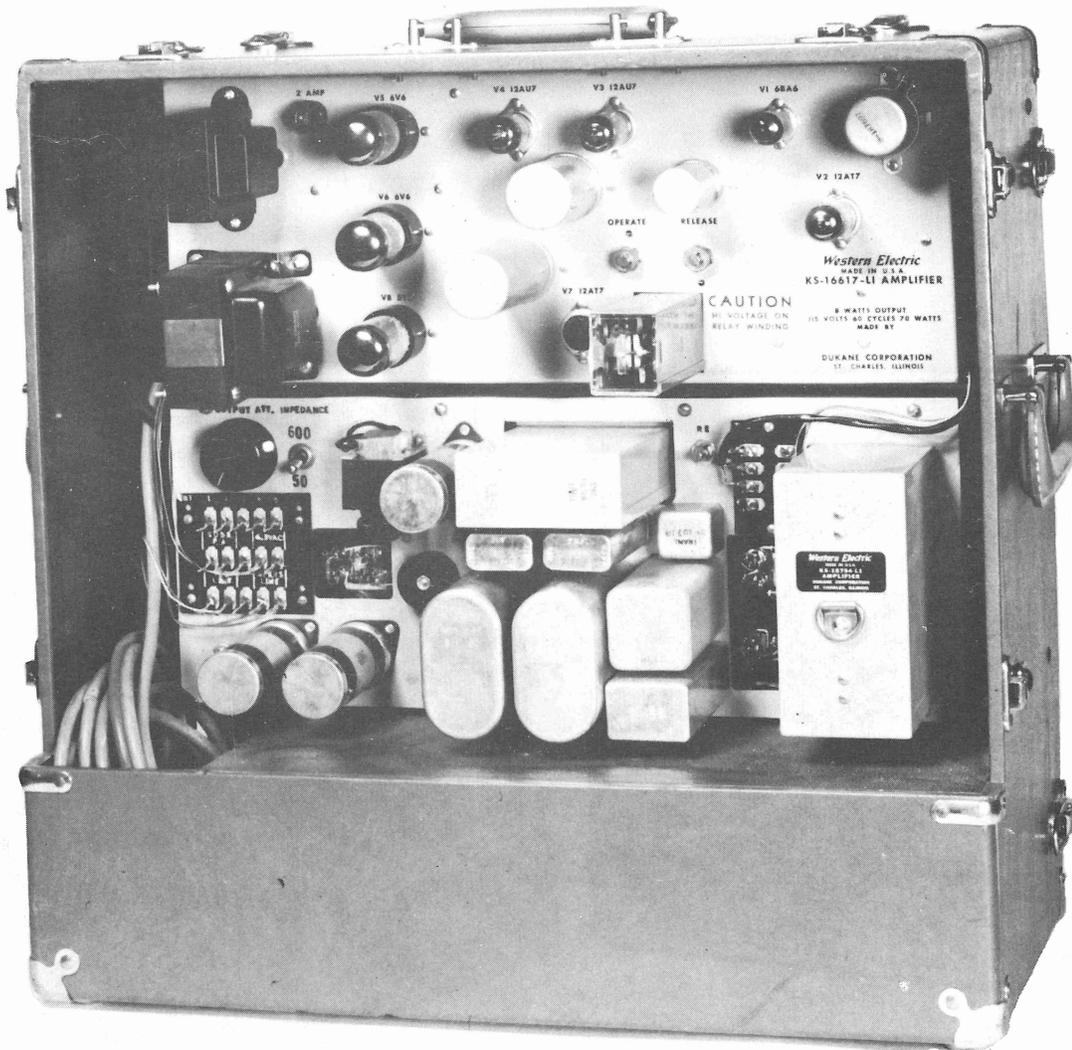
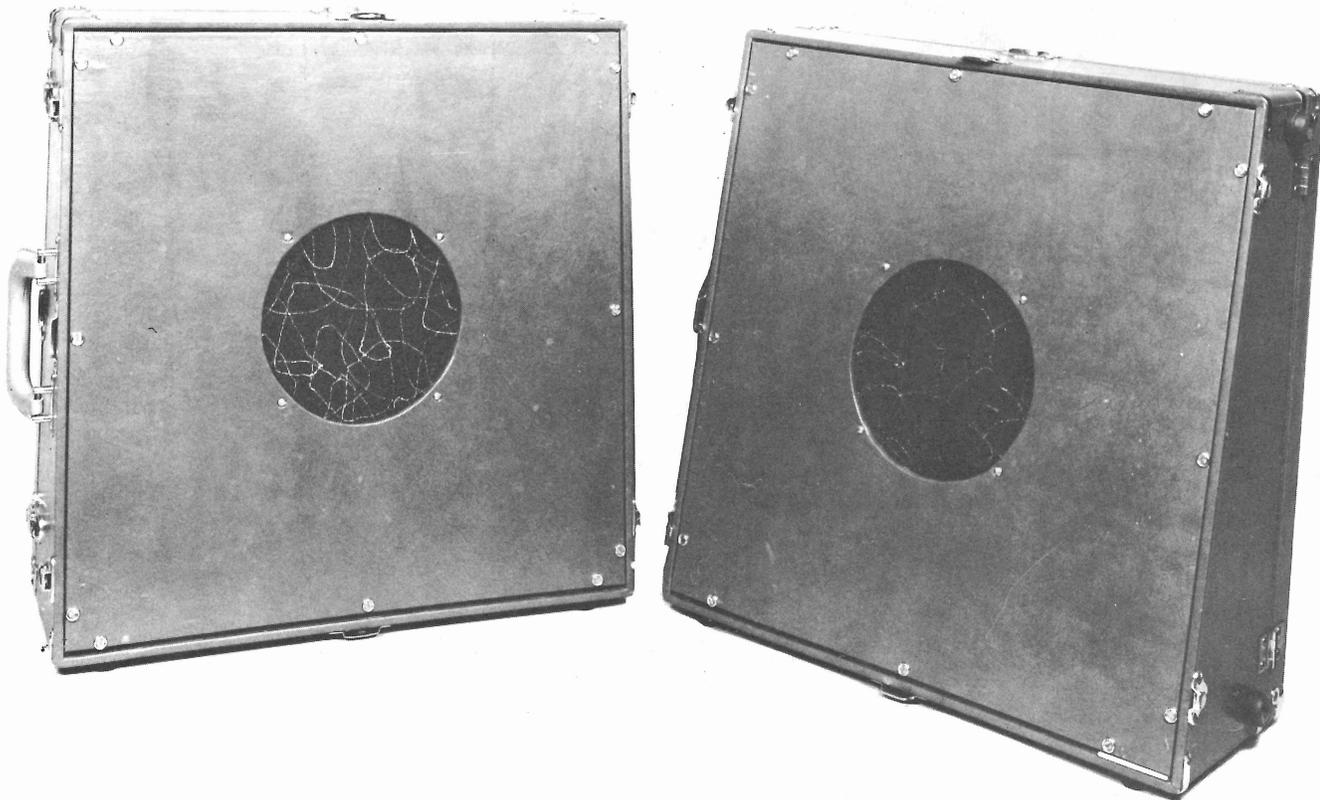


Fig. 4 - KS-19134, L2 Amplifier — Control Unit with Back Cover Removed



**Fig. 5 – KS-19134, L3 Loudspeaker Assembly**

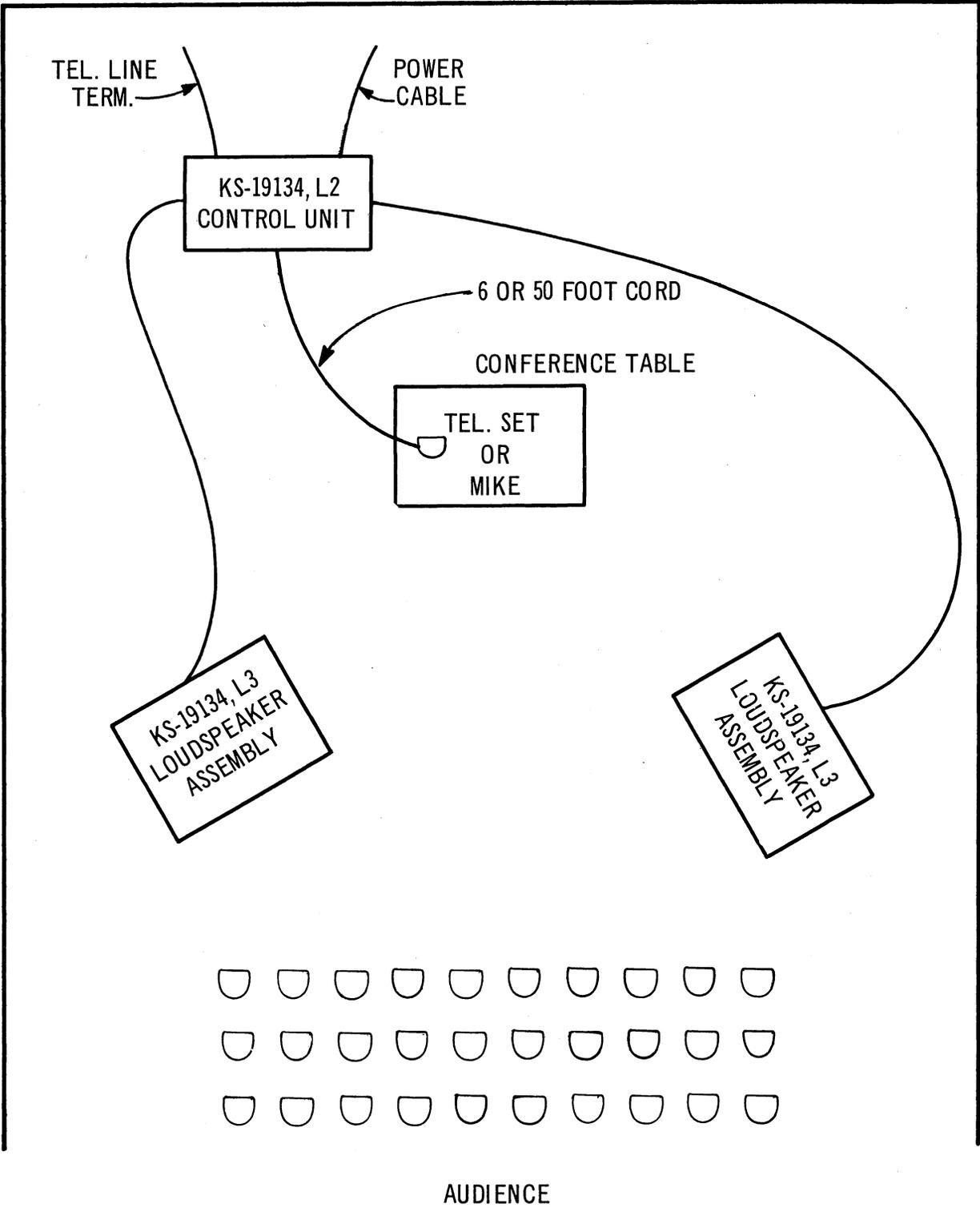


Fig. 6 - KS-19134, L1 Conference Set - Typical Installation