MINIATURE TEST/TALK SYSTEM

PIECE PARTS AND REPLACEMENT PROCEDURES

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1. GENERAL

1.01 This section covers information for the repair of the Miniature Test/Talk System and associated repair parts.

1.02 When this section is reissued, the reason for reissue will be listed in this paragraph.

1.03 Figures in this section illustrate the various piece parts and their relation to other parts of the apparatus. The piece part numbers of the various parts are given together with the names of the parts.

1.04 The test/talk panels shown in the illustrations for this section do not contain jack modules. The jack modules that will be mounted in the test/talk panels are to be chosen by the telephone company line engineer.

1.05 Unless otherwise specified, all piece-part data and replacement procedures pertain to all versions of the miniature test/talk panels. When piece-part data pertains to a particular panel, it will be specified by the frame it is associated with. Panels not containing the equipment being discussed should be disregarded.

1.06 Each test/talk panel discussed is referred to as an ED-6C110-10 numbered piece of equipment. These panels can also be identified by a KS number. A cross-reference changing the ED numbers to KS numbers is given in Table A.

1.07 No replacement procedures are given for screws or other parts where the procedure is obvious and consists of a simple operation.

1.08 When repairing the Test/Talk System, information in the following sections may be useful:

- 069-120-811—Skinning and Preparing Wire for Cross-Connections on Distributing Frames and Cross-Connection Fields
- 069-140-811—Soldered Connections—Using Soldering Coppers-Methods of Making and Removing
- 069-132-811—Punched-Type or Wire-Type Terminals (Not Having Notches or Perforations)—Method of Making and Removing Wrapped Connections.

2. TOOLS AND MATERIALS

2.01 The list of tools and materials for repairing the Miniature Test/Talk System follows:

Code or Spec No.	Description
KS-8740	Soldering copper
	No. 1 Phillips-type screwdriver

	3-inch C screwdriver
	4-inch screwdriver
KS-20551	Wire unwrapping tool
KS-16363	Wire wrap gun and associated stationary bit
	B long-nose pliers
KS-21345	Connecting block removal tool
418A	5/16- and 7/32-inch open double-end flat wrench.

3. REMOVING HOUSING OR FACEPLATE

3.01 Access to the internal components of the test/talk panels are necessary before the panels can be serviced. The information in the following six paragraphs will be used to remove the panels or the housing that covers the internal components of the test/talk panels.

A. Existing High Conventional Distributing Frames

3.02 The test/talk panels for the existing conventional distributing frame are ED-6C110-10, G63, G64 and G65. Figure 1 shows the G63 and Figure 2 shows the G64 panel. The only difference between these two panels is the mounting arrangement. Figures 1 and 2 show the different ways to mount the panel. Figure 3 shows the G65 panel. Access to the internal components of the test/talk panels is given in the following steps:

(1) Remove the 6-32 X l/4-inch mounting screws in the test/talk panel shown in either Figures 1, 2, or 3.

Note: The G65 test/talk panel contains six mounting screws which hold the sheet metal frame together. The G63 and G64 panel contains only three mounting screws.

(2) Remove the top sheet metal panel from the bottom, revealing the internal components inside the panel.

B. New Conventional Distributing Frame (Including Low Profile Conventional Distributing Frame)

3.03 The test/talk panels for the new conventional distributing frame are ED-6C110-10, G24, G25 and G26. These panels are the size of the 89-type connecting block. Figure 4 shows the G24, and the G25 panel is shown in Figure 5. The difference between these two panels is that the G24 panel does not have an AC1 transmitter and is used primarily for the No. 3 ESS System.

Note: The G24 panel is factory furnished with two jack modules and two jack module blanks (see Fig. 4).

Figure 6 shows the G26 panel which can be used with either of the two preceding panels for expansion. Access to the internal components of these test/talk panels is given in the following steps:

(1) Loosen the two No. 8 tap-type, 1/2-inch panhead screws shown in Figure 5.

(2) Pivot the panel face upward from the bottom, exposing the components inside. See Fig. 7.

(3) Remove the transparent wiring guard bracket shown in Figure 8.

C. Double-Sided Protector Frame

3.04 The test/talk panels for the double-sided protector frame are ED-6C110-10, G44 and G43. Figure 9 shows the G44 panel and Figure 10 shows the G43 panel. Access to the internal components of these test/talk panels is given in the following steps:

(1) Remove the 6-32 by 1/2-inch mounting screw which holds the sheet metal face panel to the mounting brackets. See Fig. 9 or 10.

(2) Pull the face panel forward at the top, pivoting the panel at the bottom as shown in Figure 11. This reveals the internal components of the panel.

D. COSMIC Framework

3.05 The test/talk panels for COSMIC framework are ED-6C110-10, G28 and G23. Figure 12 shows the G28 panel and Figure 13 shows the

G23. These panels are used together as a pair and each panel has the same physical dimensions as a 64-pair connecting block. Access to the internal components of these two test/talk panels is given in the following steps:

(1) Using the KS-21345 connecting block removal tool, align the inclines on the face of the tool with the ***snap-in*** lock on the top rear of the test/talk panel as shown in Figure 14.

(2) Press forward on the tool to release the top of the panel from the frame. This allows the top of the panel to hinge forward from the bottom.

(3) Remove the test/talk panel from the frame by lifting it off of the bottom hinge.

E. Modular Protector Frame

3.06 The test/talk panels for the modular protector frame are ED-6C110-10, G8, G9 and G10. Figure 15 shows the G8 panel and Figure 16 shows the G9 panel. The difference between these two panels is that the G9 does not contain the AC1 transmitter and its associated pushbutton jack module. Figure 17 shows the G10 test/talk panel. Access to the internal components of these test/talk panels is given in the following steps.

(1) Remove the 6-32 by 1-inch mounting screws as shown in Figure 15.

Note: The G10 test/talk panel contains six mounting screws holding the face panel intact while the G8 and the G9 panel contains only four.

(2) Remove the panel face from the frame.

(3) The wiring bracket shown in Figure 18 may or may not need to be removed depending on the accessibility of the component to be replaced.

Note: The wiring bracket is plastic and removal is accomplished by spreading the two plastic hooks away from the sheet metal bracket. See Fig. 18.

F. Service Observing Panel

3.07 The KS-21330, L2 service observing panel shown in Figure 19 is used to monitor the usage of ESS switching equipment. The back of the panel is protected by a clear plastic enclosure attached to the mounting bracket by two 10-32 by 3/8-inch mounting screws. Access to the internal components of this panel is gained by the removal of these two mounting screws.

4. REPLACEMENT OF COMPONENTS

4.01 The mounting screws for Part 4, "Replacement of Components," are shown in Figure 15. This panel is a typical arrangement since the jack modules will vary as deemed necessary by the telephone company line engineers.

A. Fuse Block

4.02 To replace the 18A fuse block shown in Figure 20, determine the type of test/talk panel and refer to the appropriate paragraph, 3.02 through 3.06, to determine the means of accessing the internal components. Instructions for replacing the 18A fuse block follows:

(1) Remove the wire wrapped lead with the wire unwrapping tool on the back of the fuse block. This lead connects the fuse block to the pin jack.

(2) Unsolder the power leads from the Thomas and Betts eyelet.

(3) Remove the two self tapping fuse block mounting screws.

(4) Remove and replace the 18A fuse block.

(5) Reassemble by reversing these steps.

Note 1: The power supply wires are soldered to the rear of the 18A fuse block through Thomas and Betts eyelets. This item is factory furnished and included with a fuse block when a replacement is ordered. The fuse block also includes three pieces of heat shrinkable tubing.

Note 2: Each 18A fuse block contains a WESTERN ELECTRIC* 70A fuse. This fuse

is removed by pressing forward on the fuse block cap and twisting the cap counterclockwise.

*Registered trademark of Western Electric Co.

B. Pin Jack

4.03 To replace the KS-20667, L1 pin jack shown in Figure 21, determine the type of test/talk panel and refer to the appropriate paragraph, 3.02 through 3.06, to determine the means of accessing the internal components. Steps for removal of the pin jack follows:

(1) Remove the soldered lead on the back of the pin jack.

(2) Remove the mounting nut on the rear of the pin jack.

(3) Remove the pin jack by pulling it through the front of the test/talk panel.

(4) Replace the pin jack by reversing the preceeding steps.

Note: Every test/talk panel that contains pin jacks, has four jacks; two associated with the ground leads and two with the voltage leads. The pin jacks associated with the ground has a 12K ohm resistor soldered between them. This resistor must be unsoldered before either of these two pin jacks can be removed.

C. AC-1 Transmitter

4.04 To replace the AC-1 transmitter shown in Figure 22, determine the type of test/talk panel and refer to the appropriate paragraph, 3.02 through 3.06, to determine the means of accessing the internal components. Steps for removal of the AC-1 transmitter follows.

(1) Remove the two 4-40 by 1/4-inch screws which hold the transmitter bracket (P-12E541) shown in Figure 22 to the test/talk panel.

(2) Loosen the two transmitter lead screws to remove the lead wires on the transmitter. See Figure 22.

(3) Remove and replace the AC-1 transmitter.

(4) Secure the transmitter and bracket to the test/talk panel with the two mounting screws.

(5) Replace the lead wires.

D. Jack Module

4.05 To replace the complete jack module shown in Figure 23, determine the type of test/talk panel and refer to the appropriate paragraph, 3.02 through 3.07, to determine the means of accessing the internal components. Instructions for removal of the jack module follows:

(1) Mark and tag each wire to be replaced.

(2) Remove the wires from the jacks with a wire unwrapping tool.

(3) Remove the four 2-56 by 3/16-inch mounting screws as shown in Figure 23.

Note: If a designation strip is used in conjunction with the jack module insert, the designation strip must be snapped off to reveal two of the jack module mounting screws.

(4) Remove and replace the entire jack module.

(5) Replace the mounting screws and the wiring.

E. Jack

4.06 To replace a jack in the jack module, determine the type of test/talk panel and refer to the appropriate paragraph, 3.02 through 3.07, to determine the means of accessing the internal components. Each individual jack can be removed from the jack module without the removal of the jack module from the test/talk panel. Removal of a jack follows.

(1) Mark and tag each wire to be removed.

(2) Remove the wires from the jack with a wire unwrapping tool.

(3) Remove the jack mounting screw which holds the jack to the jack module. See Fig. 24.

(4) Remove and replace the jack.

(5) Replace the mounting screws and rewrap the wires.

F. Jack Module Insert

4.07 To replace a jack module insert, determine the type of test/talk panel and refer to the appropriate paragraph, 3.02 through 3.07, to determine the means of accessing the internal components. Removal of a jack module insert follows:

(1) Mark and tag each jack.

(2) Remove each jack mounting screw on each jack and remove the jack from the module insert.

(3) Remove the four jack module mounting screws.

(4) Replace the jack module insert. See Fig. 25.

(5) Reverse the proceedure for reassembly.

5. JACK MODULE

5.01 The KS-21745 jack module has three basic designs; a 9-hole mounting arrangement, (Fig. 25), a 10-hole mounting arrangement (Fig. 26), and a 3-hole arrangement (Fig. 27).

5.02 Each jack module is comprised of various combinations of jacks, hole plugs, LEDs, pushbutton switches or lamp socket mountings. Table B lists each KS-21745 jack module and the components that comprise each module.

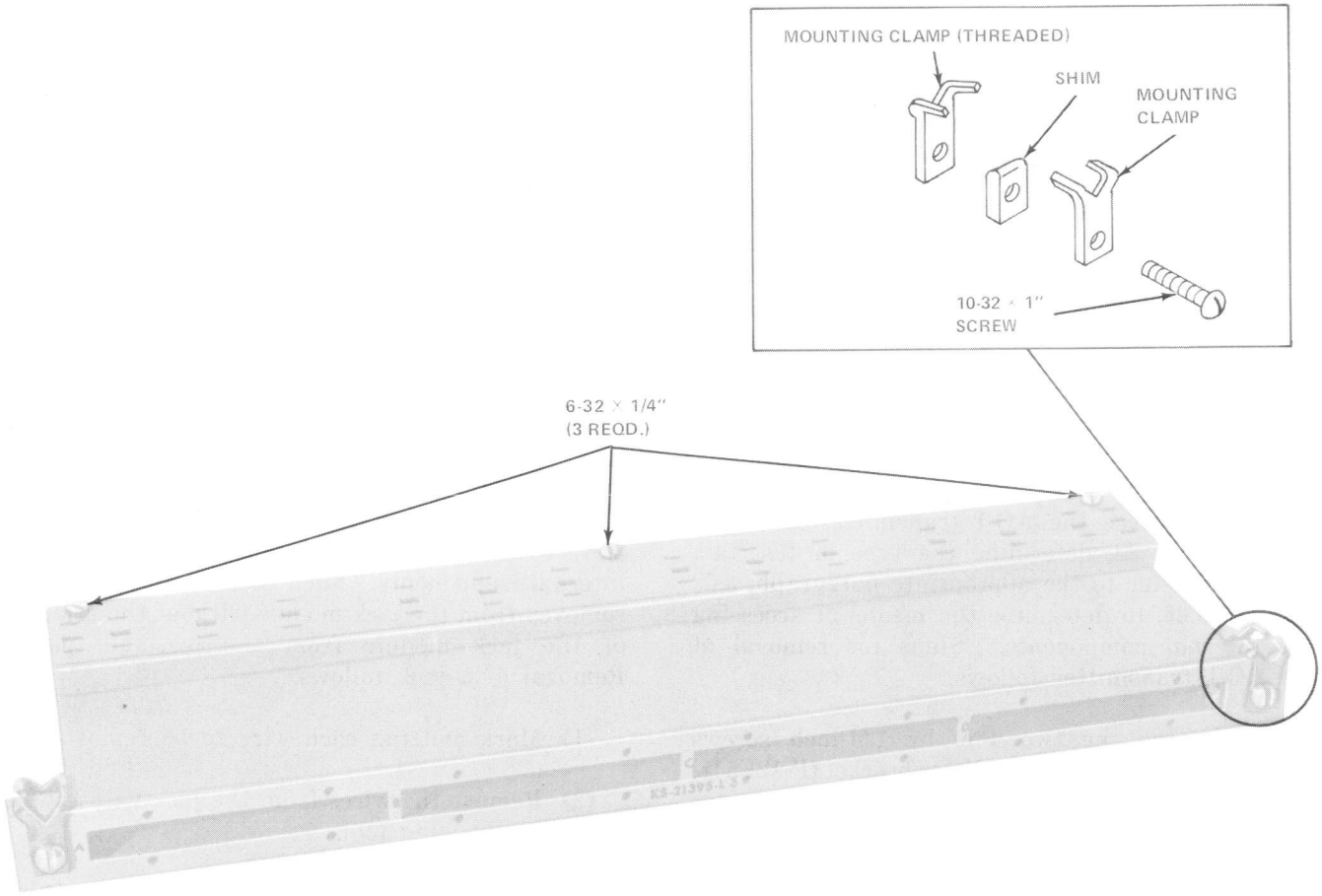

Fig. 1—KS-21395-L3; ED-6C110-10, G63 Test/Talk Panel for 336-type Terminal Strip Mounting

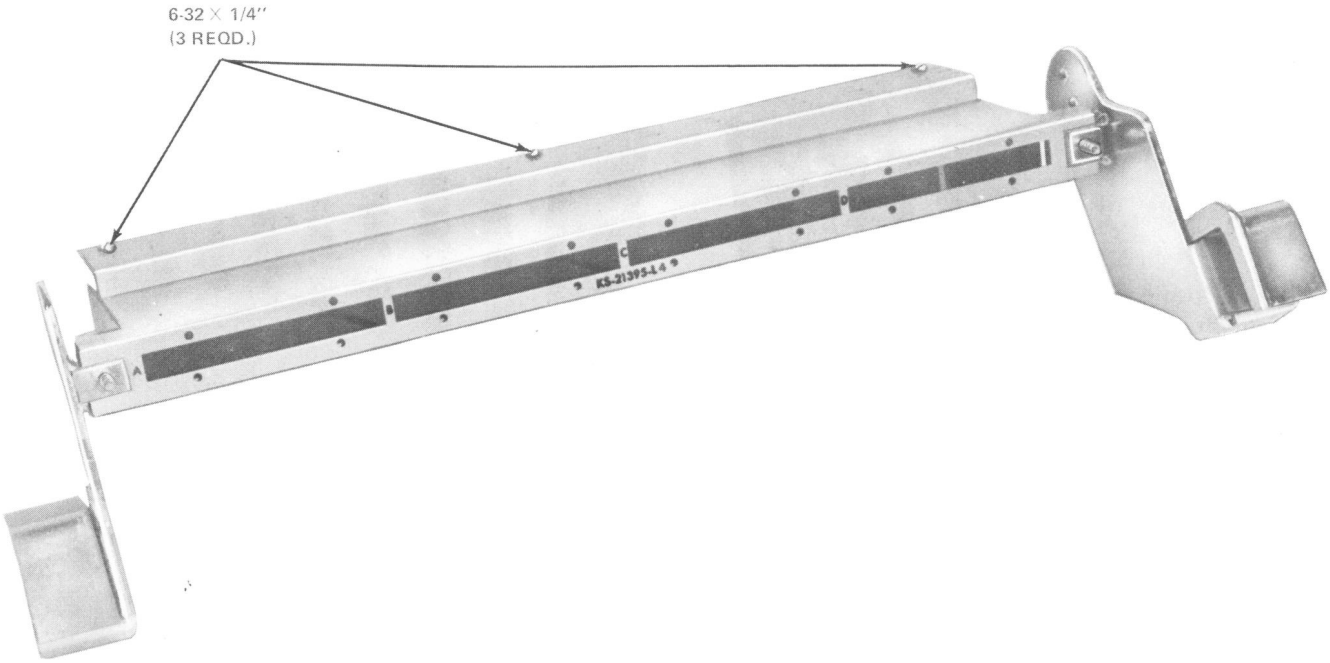

Fig. 2—KS-21395-L4; ED-6C110-10, G64 Test/Talk Panel for Guard Rail Mounting

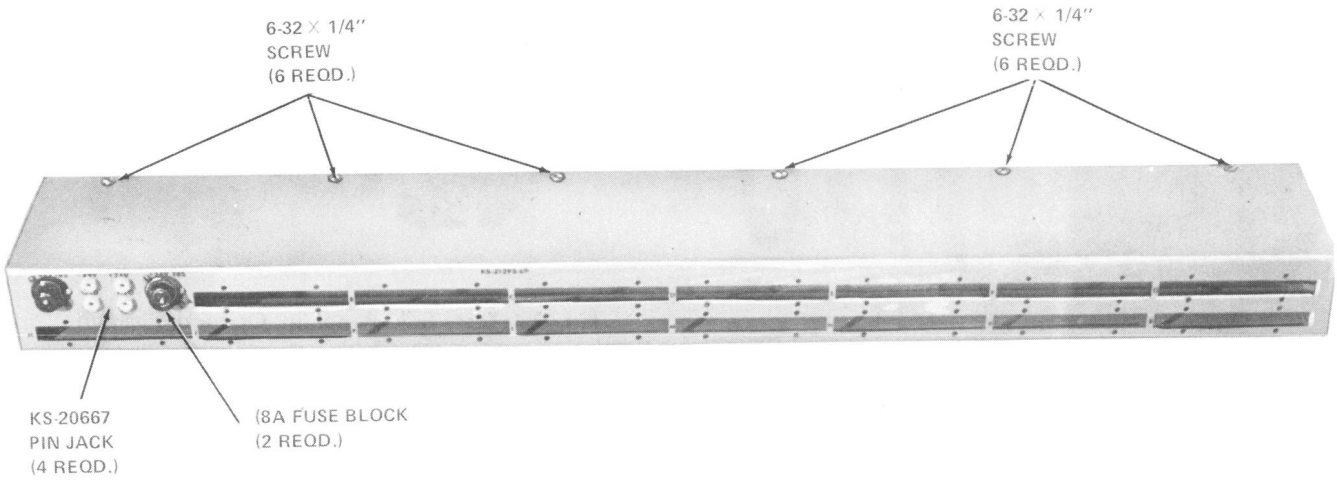

Fig. 3—KS-21395-L5; ED-6C110-10, G65 Test/Talk Panel for Guard Rail Mounting

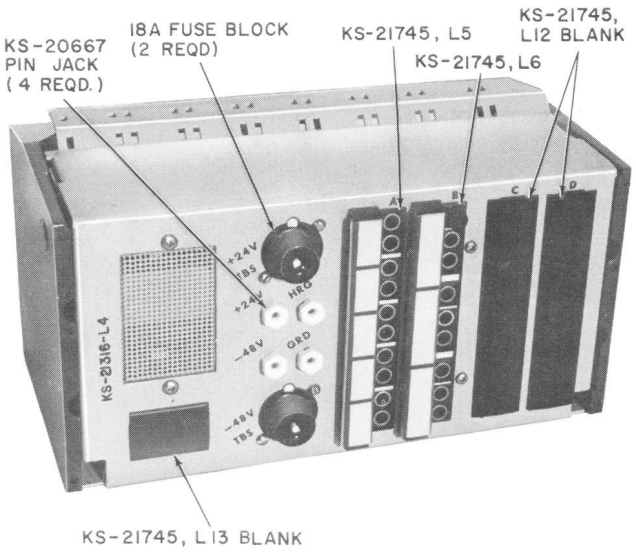

Fig. 4—KS-21316-L4; ED-6C110-10, G24 Test/Talk Panel With Factory Supplied Components

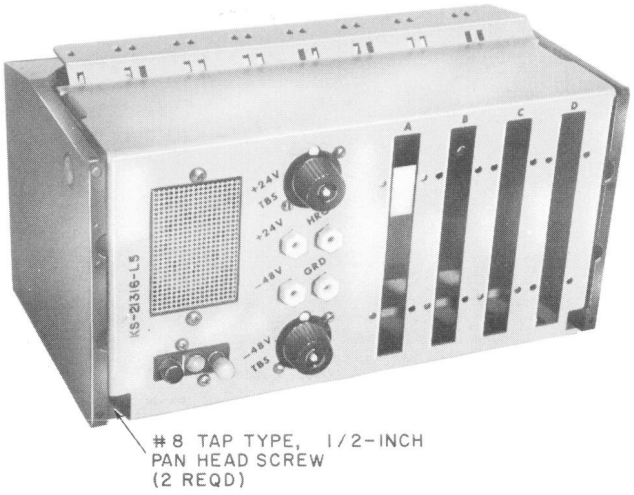

Fig. 5—KS-21316-L5; ED-6C110-10, G25 Test/Talk Panel

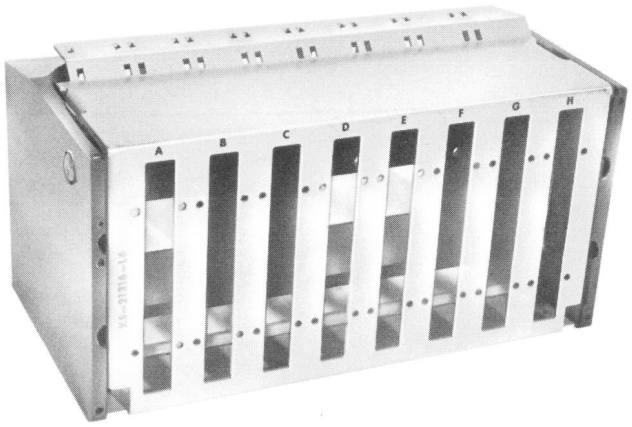

Fig. 6—KS-21316-L6; ED-6C110-10, G26 Test/Talk Panel

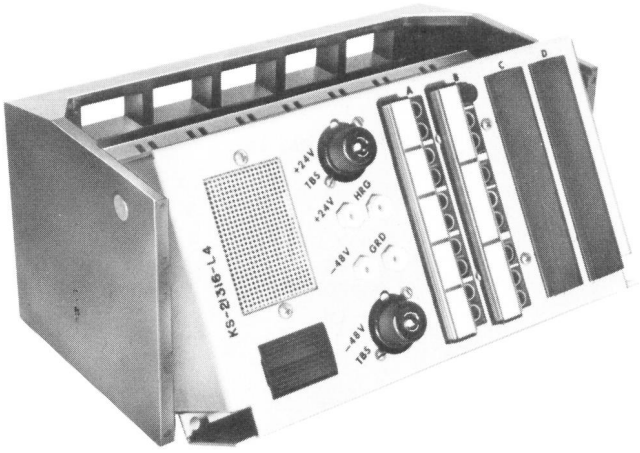

Fig. 7—Test/Talk Panel in Opened Position

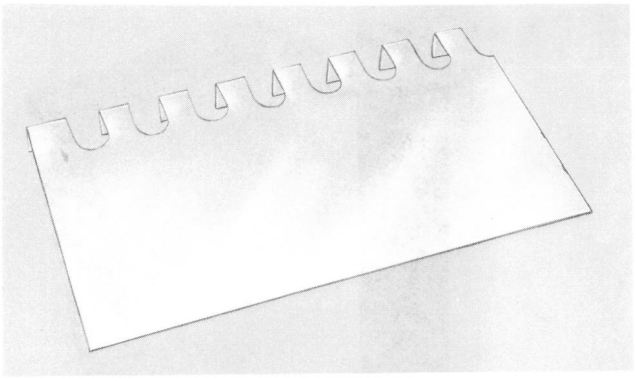

Fig. 8—Wiring Guard Bracket

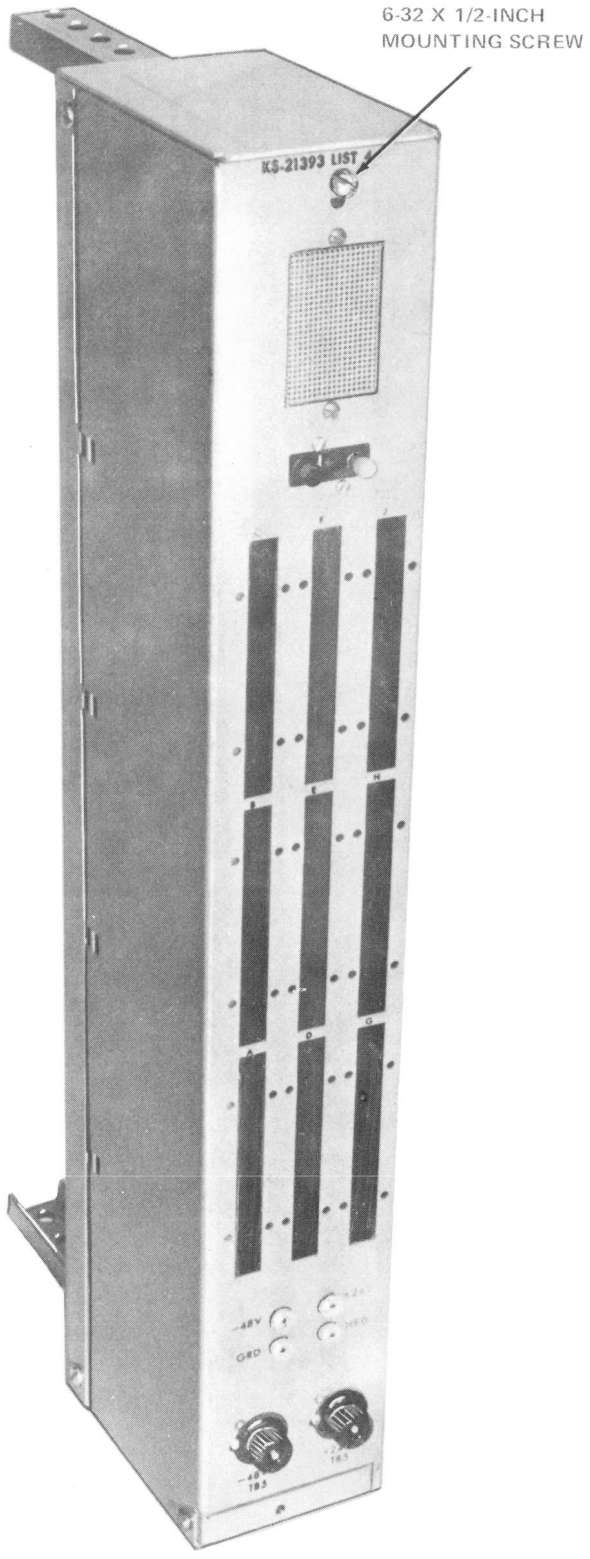

Fig. 9—KS-21393-L4; ED-6C110-10, G44 Test/Talk Panel

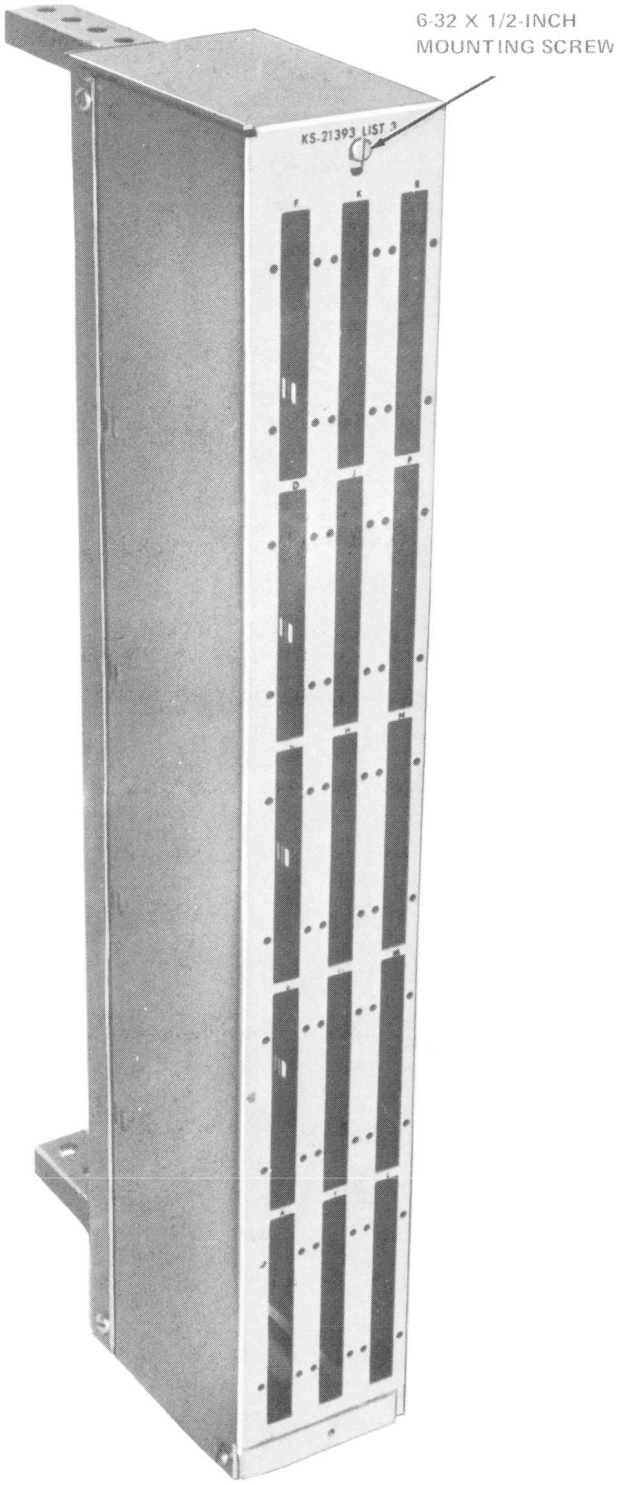

Fig. 10—KS-21393-L3; ED-6C110-10, G43 Test/Talk Panel

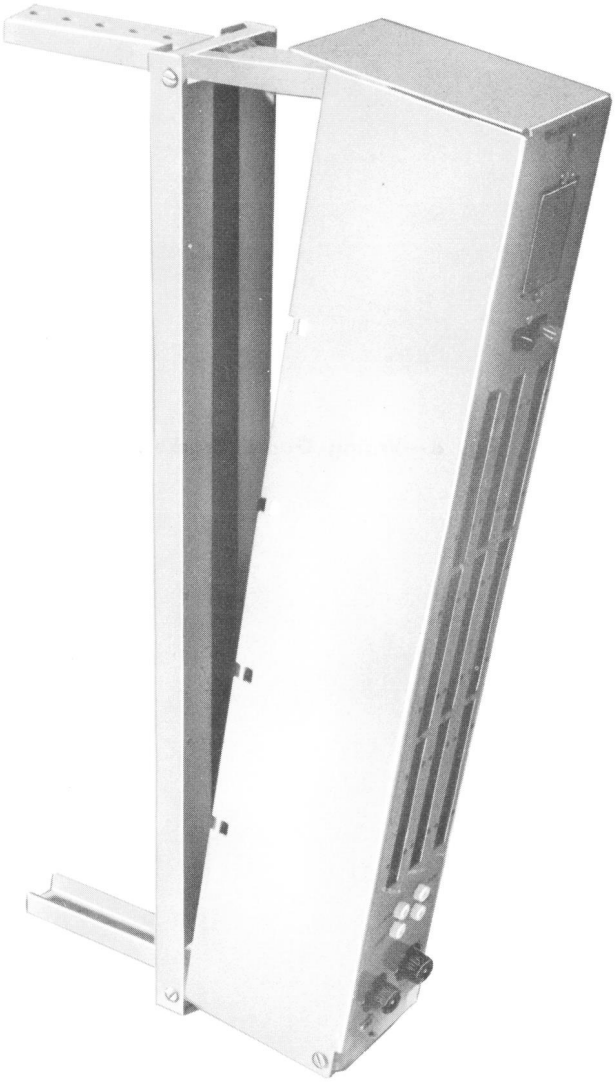

Fig. 11—Test/Talk Panel in Opened Position

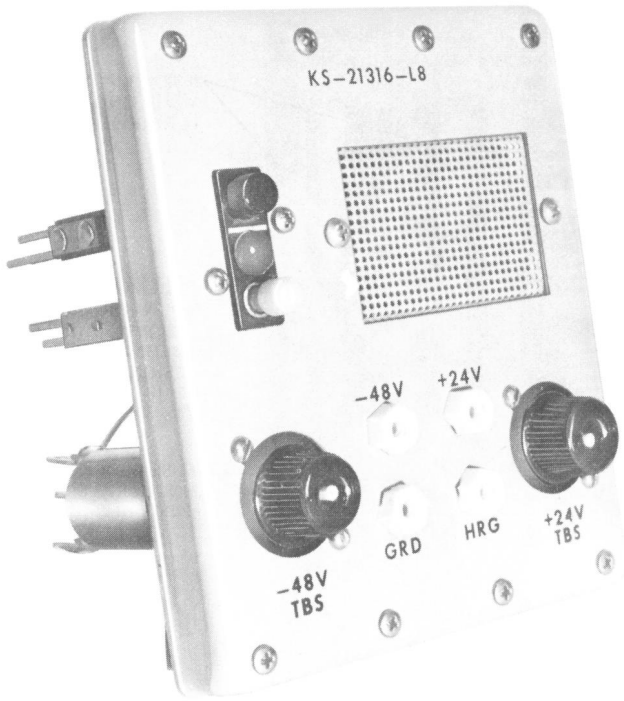

Fig. 12—KS-21316-L8; ED-6C110-10, G28 Test/Talk Panel

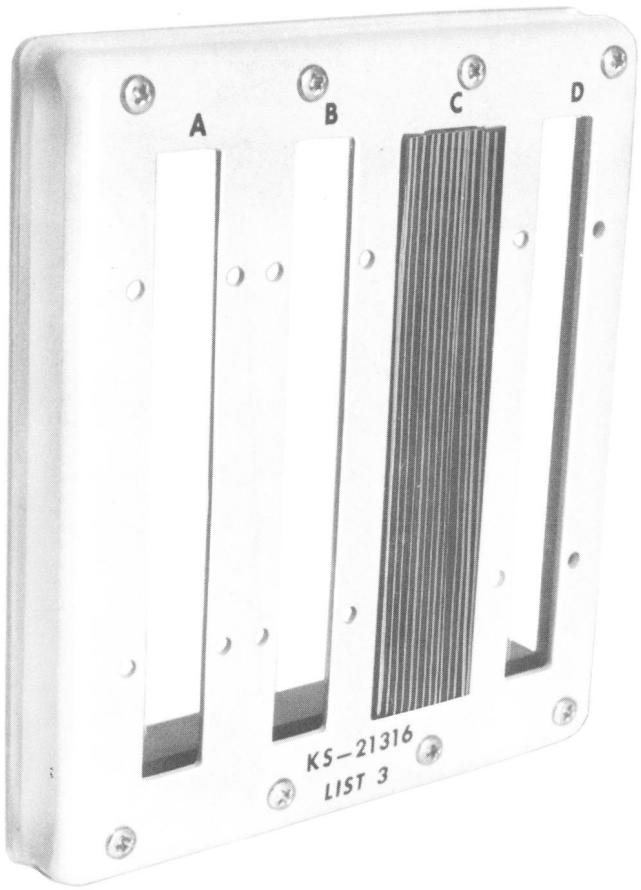

Fig. 13—KS-21316-L3; ED-6C110-10, G23 Test/Talk Panel

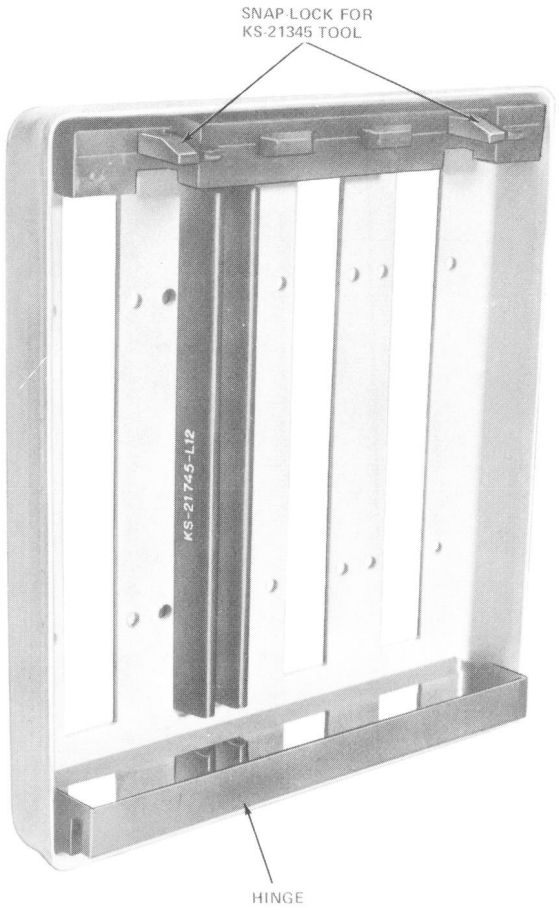

Fig. 14—Rear View of KS-21316-L3

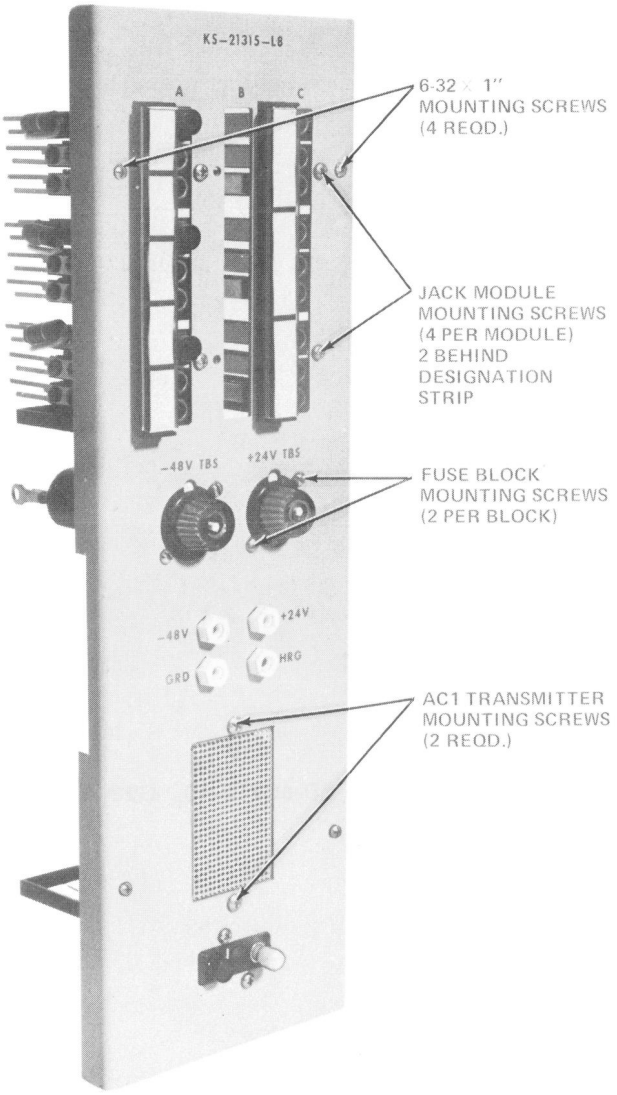

Fig. 15—KS-21315-L8; ED-6C110-10, G8 Test/Talk Panel (Typical Arrangement)

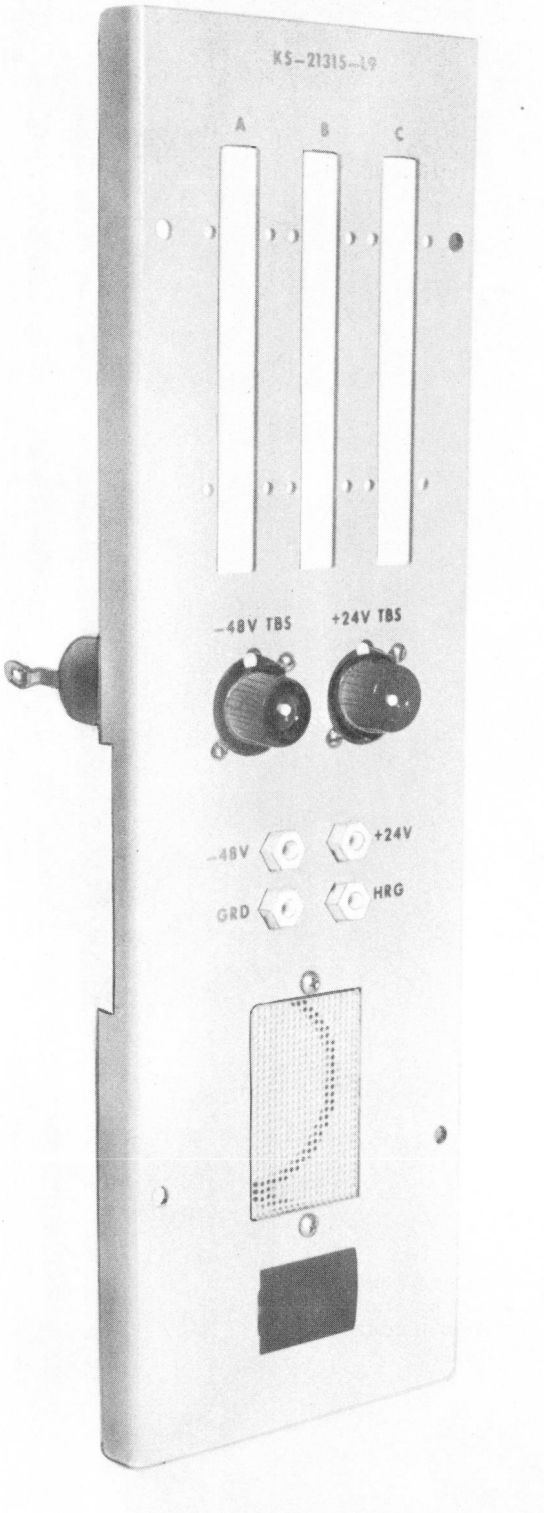

Fig. 16—KS-21315-L9; ED-6C110-10, G9 Test/Talk Panel

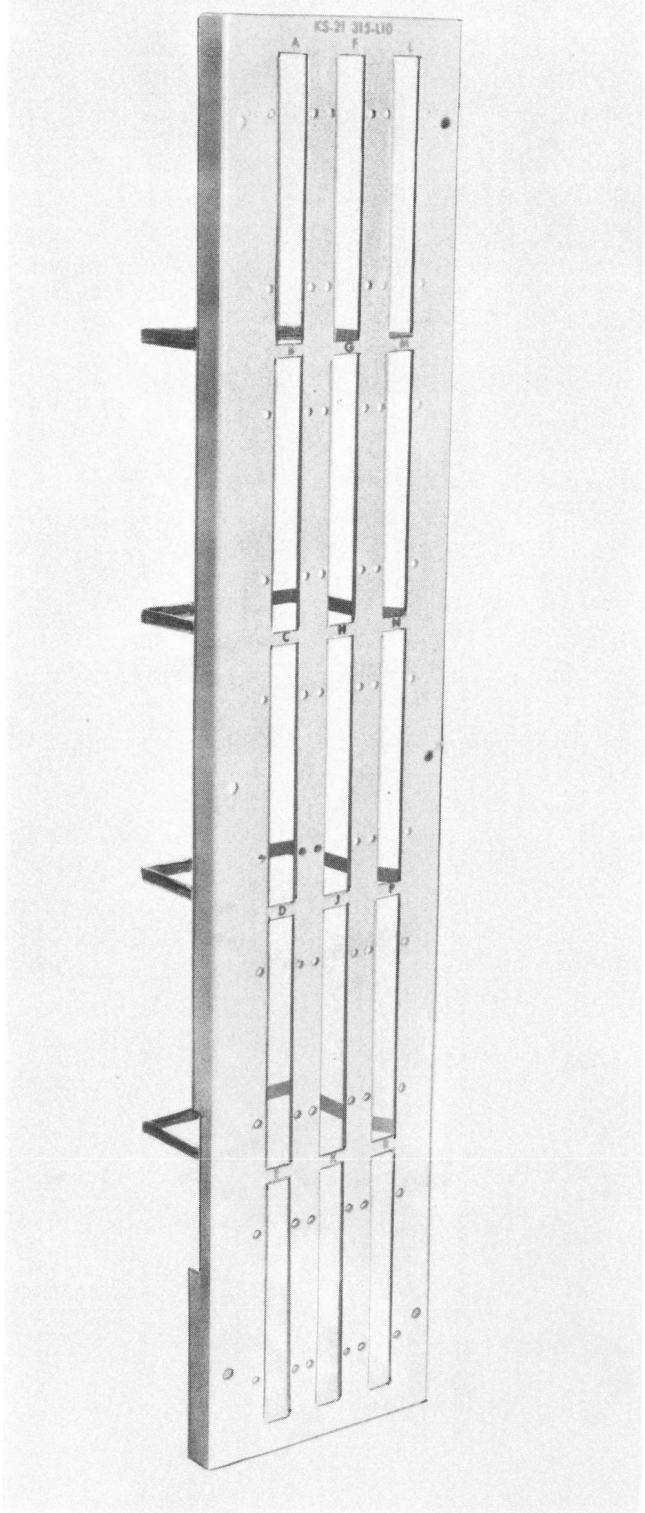

Fig. 17—KS-21315-L10; ED-6C110-10, G10 Test/Talk Panel

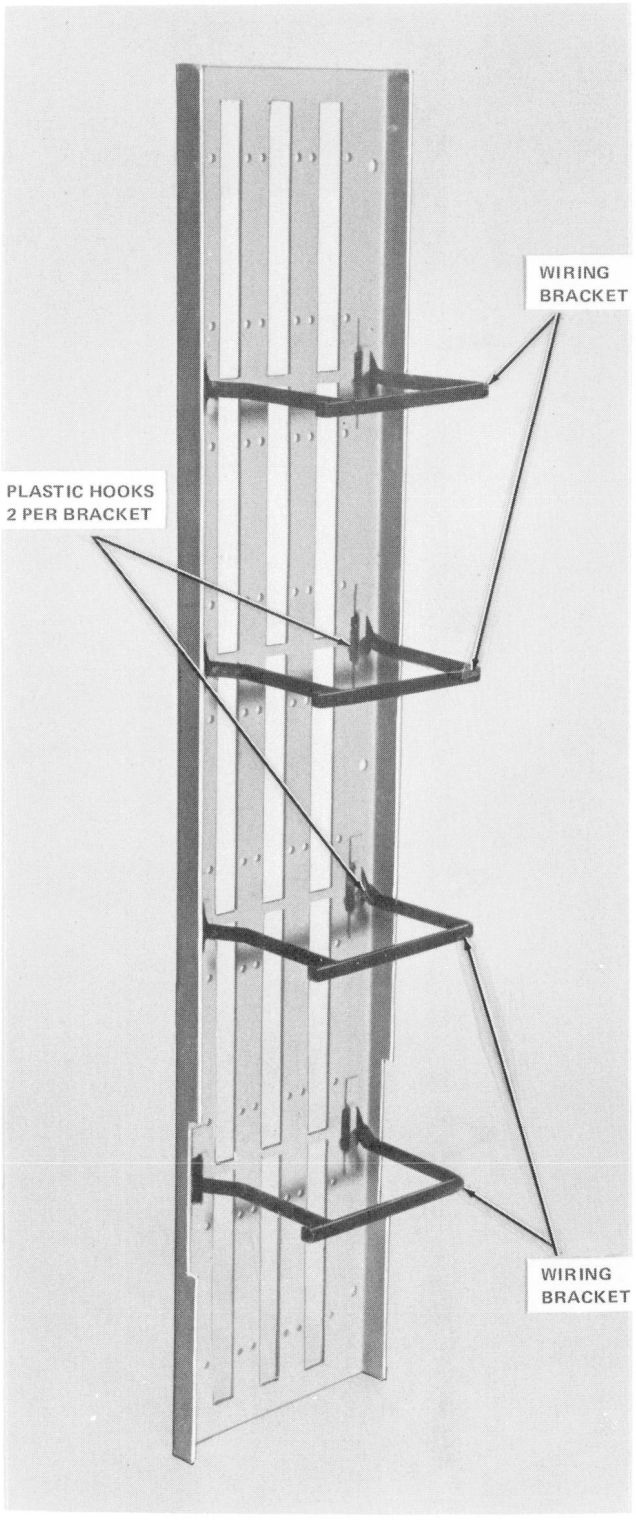

Fig. 18—Test/Talk Panel With Wiring Brackets

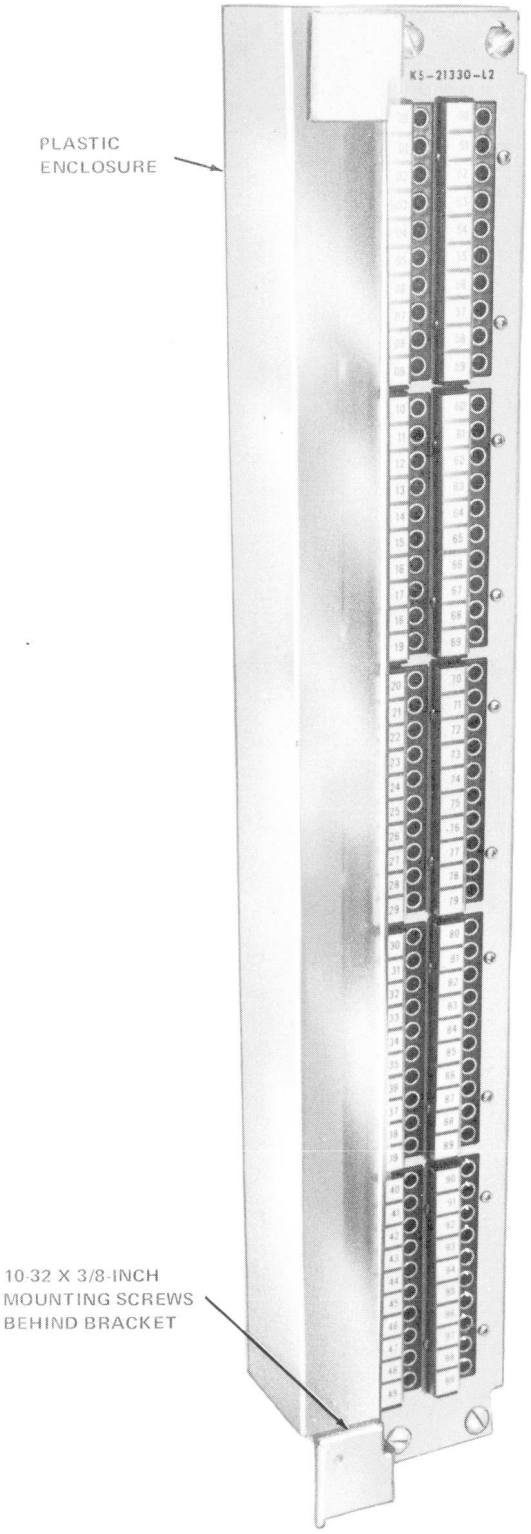

Fig. 19—KS-21330-L2 Service Observing Panel

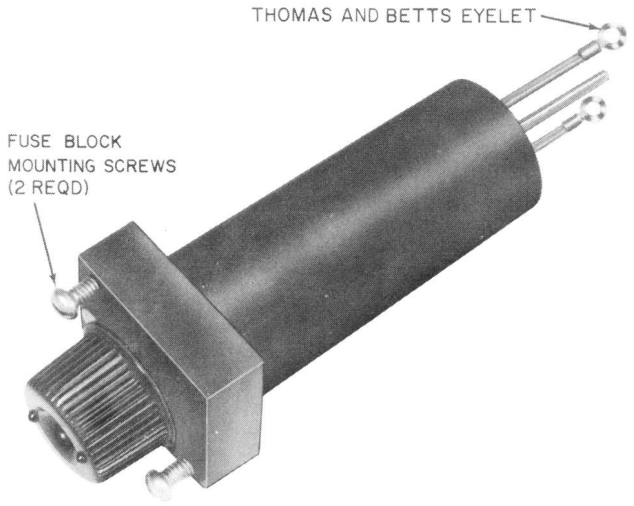

Fig. 20—18A Fuse Block

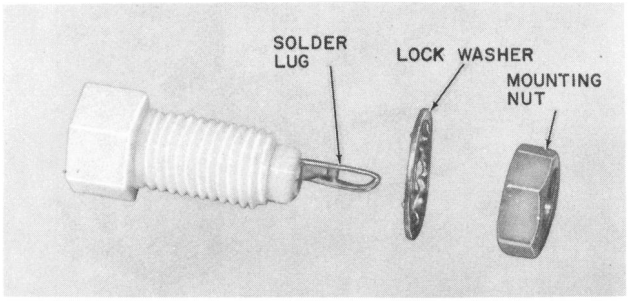

Fig. 21—20667-L1 Pin Jack

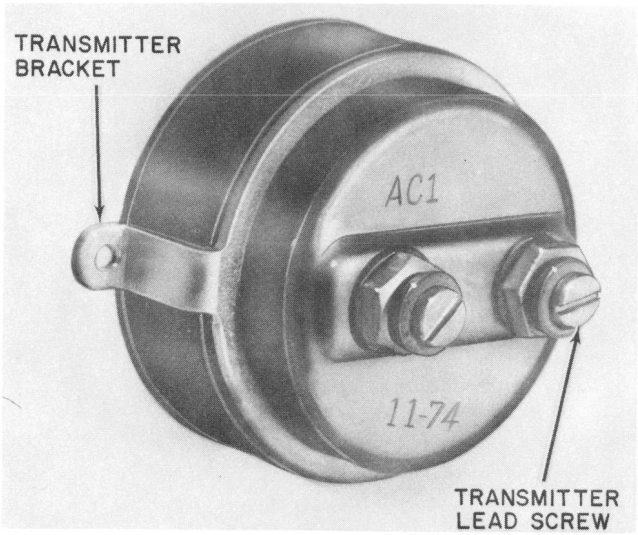

Fig. 22—AC-1 Transmitter and Bracket

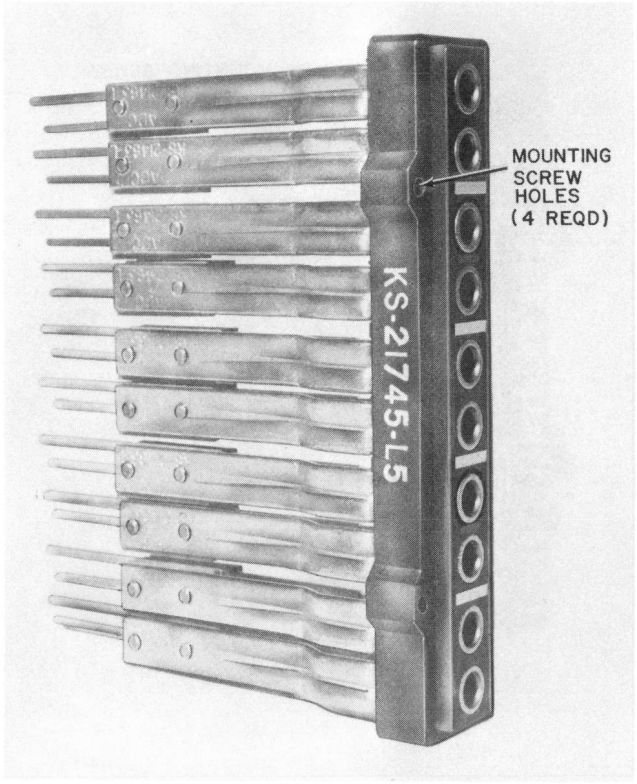

Fig. 23—Jack Module with Jacks Installed

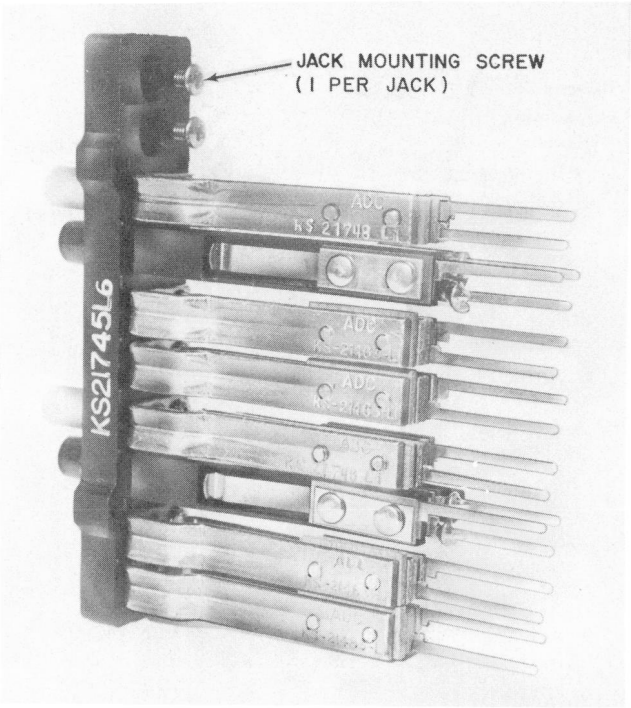

Fig. 24—Jack Module—Two Jacks Removed

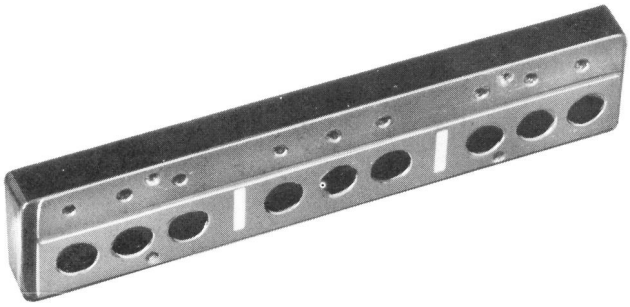

Fig. 25—Jack Module Insert

Fig. 26—10-hole Jack Module

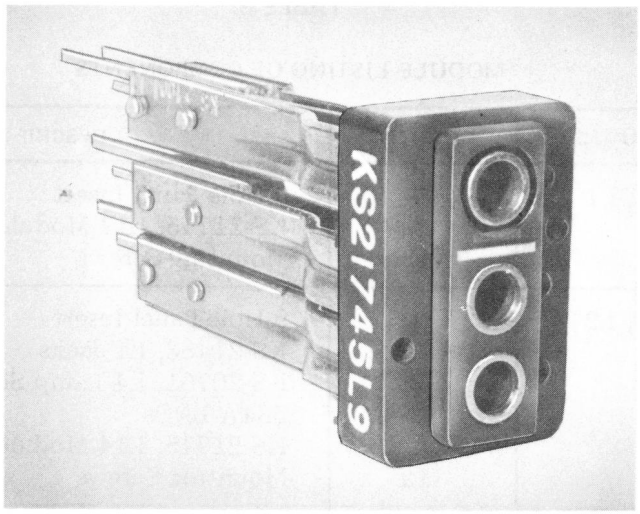

Fig. 27—3-hole Jack Module

TABLE A

ED # CONVERSION TO KS#

GROUP*	ED-6C110-10	KS
A	G63 G64 G65	21395, L3 21395, L4 21395, L5
B	G24 G25 G26	21316, L4 21316, L5 21316, L6
C	G43 G44	21393, L3 21393, L4
D	G23 G28	21316, L3 21316, L8
E	G8 G9 G10	21315, L8 21315, L9 21315, L10

*GROUP A — Existing Conventional Distributing Frame
GROUP B — New Conventional Distributing Frame (Including Low Profile Conventional Distributing Frame)
GROUP C — Double-Sided Protector Frame
GROUP D — COSMIC Type Frame
GROUP E — Modular Protector Frame

TABLE B

MODULE LISTING OF COMPONENTS

KS MODULE NUMBER	QUANTITY	DESCRIPTION
KS-21745, L1	1 1 13	9-Hole Panel Insert KS-21745, L14 Module Mounting Screws
KS-21745, L2	1 6 3 3 1 13	9-Hole Panel Insert KS-21463, L1 Jacks KS-20761, L4 Lamp Socket Mounting 534A LEDs KS-21745, L14 Module Mounting Screws
KS-21745, L3	1 6 3 1	9-Hold Panel Insert KS-21463, L1 Jacks KS-21001, L1 Jacks KS-21745, L14 Module
KS-21745, L4	1 1 14	10-Hole Panel Insert (unequally spaced) KS-21745, L14 Module Mounting Screws
KS-21745, L5	1 10 1 14	10-Hole Panel Insert (unequally spaced) KS-21463, L1 Jacks KS-21745, L14 Module Mounting Screws
KS-21745, L6	1 4 2 2 2 2 1 14	10-Hole Panel Insert (unequally spaced) KS-21463, L1 Jacks KS-21748, L1 Pushbutton Switches KS-20761, L4 Lamp Socket Mountings Heyco P-250 Hole Plugs 534A LEDs KS-21745, L14 Module Mounting Screws
KS-21745, L7	1 5	3-Hole Panel Insert Mounting Screws
KS-21745, L8	1 1 1 1 1 5	3-Hole Panel Insert KS-21748, L1 Pushbutton Switch Heyco P-250 Hole Plug KS-20761, L4 Lamp Socket Mounting 534A LED Mounting Screws
KS-21745, L9	1 2 1 5	3-Hole Panel Insert KS-21463, L1 Jacks KS-21001, L1 Jack Mounting Screws

TABLE B (Contd)

MODULE LISTING OF COMPONENTS

KS MODULE NUMBER	QUANTITY	DESCRIPTION
KS-21745, L10	1 10 1 1 1 14	10-Hole Panel Insert (equal spaced) KS-21463, L1 Jacks Designation Strip Card Cover Mounting Screws
KS-21745, L11	10 100 10 10 10 140	10-Hole Panel Inserts (equal spaced) KS-21463, L1 Jacks Designation Strips Cards Covers Mounting Screws
KS-21745, L12	1	Blank, Snap-in Panel for 9- or 10-Hole Insert
KS-21745, L13	1	Blank, Snap-in Panel for 3-Hole Insert
KS-21745, L14	1 1 1 2	Designation Strip Card Cover Mounting screws
KS-21745, L15	1 6 1 2 2 1 13	9-Hole Panel Insert KS-21463, L1 Jacks KS-21001, L1 Jack KS-20761, L4 Lamp Socket Mountings 534A LEDs KS-21745, L14 Module Mounting Screws
KS-21745, L16	1 2 4 2 1	9-Hole Panel Insert KS-21463, L1 Jacks KS-21463, L3 Jacks KS-21001, L1 Jacks KS-20761, L4 Lamp Socket Mountings