INSTALLATION

LEICH* L55 PBX

1. GENERAL

1.01 This section supplies information relative to the installation of the Leich L55 PBX. Other descriptive and maintenance information, as well as functional schematics and interconnection diagrams, are contained in other sections of the 503-400 series of General System Practices.

2. INSTALLATION

2.01 The location of the switchboard shall be in accordance with the customer's desire; however avoiding areas where excessive dust, dampness, corrosive fumes or severe vibration might be encountered. Consideration should be given to lighting arrangements so that the line and supervisory lamps will be clearly visible. The location selected for the PBX should have an electric outlet reasonably close to provide power for a repairman's lamp or soldering iron.

2.02 A space not less than 30 inches in depth shall be provided at the rear of the PBX for maintenance purposes. In no case shall the switchboard be placed with the back against a wall or partition. When a condition such as this arises the customer should be requested to provide a cut-out in the wall the size of the width and height of the PBX. The switchboard is then recessed in the cut-out with the back panel flush with the other side of the wall. The switchboard shall, in most cases, be securely fastened to the floor, using approved fasteners.

2.03 All nails should be removed from the shipping box before the switchboard is removed, to prevent possible damage to the finish. The switchboard should be inspected for damage during transportation before delivery to the customer. A routine test of the equipment should be made at this time. No attempt should be made to move or lift the switchboard with the side panels and writing shelf attached. Use a roller dolly or hand truck to avoid personal injury or damage to the PBX. Cord units may be removed to reduce the weight of the switchboard. When this is done the cord units shall be carefully packed with a sheet of cardboard between the units to prevent damage.

2.04 Wood insulating strips shall be used on concrete or terrazzo floors. These strips are not furnished with the PBX but shall be made up locally. These usually consist of 3/8" or 1/4" plywood in 1-1/2" or 2" width strips. See Fig. 1. Insulating bushings are supplied with the PBX and should be used when fastening to other than wood floors. When lead covered cable is used, care must be taken that the sheath does not touch the switchboard framework. Two layers of tape should be used to insulate the cable sheath from the metal framework. The cable may enter the PBX through the entrance hole provided or the floor, as re-

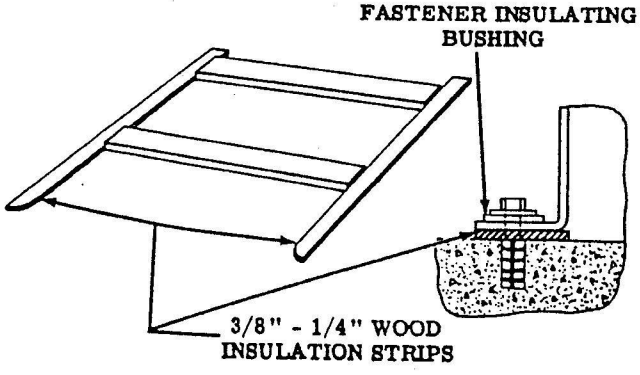

Figure 1. Insulation of PBX Frame From Concrete Floors

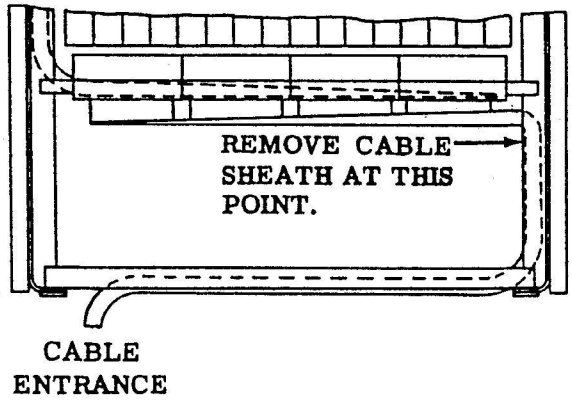

Figure 2. Floor Entrance of PBX Cable

* ℠ Automatic Electric Company.

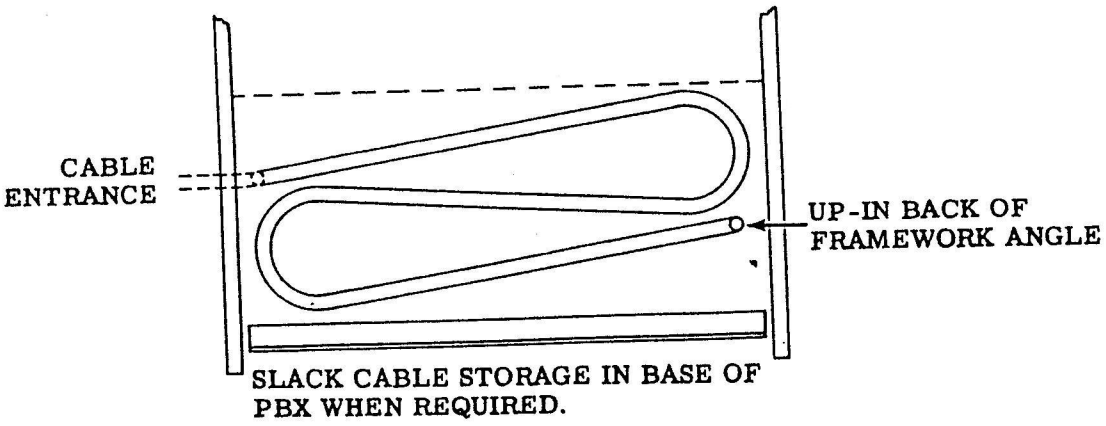

Figure 3. Cable Arrangement When PBX Must Be Moved For Servicing

quired. See Figs. 2 and 3. Seal the cable entrance hole with an approved sealing compound.

2.05 Place the writing shelf in position on the frame, start its four flat head screws, and then tighten them. If a dial and second headset jack are required, they should be mounted and wired at this time.

Trunk and Cord Units

2.06 The trunk jack units and cord circuit units will generally be arranged as shown in Figs. 4 and 5 before delivery of the PBX. Local instructions should be followed when less than a full complement of these units is required.

2.07 Cord circuit units equipped with 4-foot cords shall have the three cord conductors tied in one overhand knot as shown in Fig. 7. Avoid wedging cord conductors between units when installing these units in the PBX.

Cross-Connecting Arrangement

2.08 The PBX cable may be terminated on connecting blocks, or on binding post chambers located in a floor or wall mounted apparatus cabinet, building terminal box or other suitable location (see Fig. 6). A second method may be used in which case the local or house distributing cable is terminated directly on blocks mounted in the lower rear of the PBX frame. These are then cross-connected to the PBX terminal blocks. Station lines shall appear first, then trunks followed by battery and ground. The last pair of the cable is generally used for generator.

2.09 The location selected for the PBX terminal shall be:

(a) Close to that of the incoming C. O. trunk facilities and the local or house distributing cable.

(b) Accessible to plant forces at any time.

(c) Dry, of an even temperature and equipped with commercial power outlets for the operation of a portable lamp and soldering iron and a power source to operate the PBX power equipment.

Connecting Battery Feeders

2.10 Battery and ground leads should be checked carefully for correct polarity before being connected to the PBX. The use of a voltmeter or test receiver is recommended. Connect battery to terminals 1-4, ground to terminals 45-48 and generator and ground to terminals 22 and 24 of the miscellaneous terminal block respectively. Verify each pair as covered above, then strap all the tip sides of the same group together for ground and all ring sides of the same group together for battery. Strap cable pairs used for battery supply in the switchboard cable in the same matter.

Through Supervision

2.11 Cord units are factory wired for blocked supervision (J-Wiring) but may be modified, when required, for through supervision (K-Wiring). This modification is shown on the circuit drawing.

NUMBER OF TRUNKS	TRUNK POSITION NUMBER													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
3						X	X	X						
4						X	X	X	X					
5					X	X	X	X	X					
6					X	X	X	X	X	X				
7				X	X	X	X	X	X	X				
8				X	X	X	X	X	X	X	X			
9			X	X	X	X	X	X	X	X	X			
10			X	X	X	X	X	X	X	X	X	X		
11		X	X	X	X	X	X	X	X	X	X	X		
12		X	X	X	X	X	X	X	X	X	X	X	X	
13	X	X	X	X	X	X	X	X	X	X	X	X	X	
14	X	X	X	X	X	X	X	X	X	X	X	X	X	X

NOTE: TRUNK POSITION 14 TO BE USED FOR A TIE TRUNK OR 1/2 OF A CONFERENCE UNIT.

Figure 4. Arrangement of Central Office or Tie Trunk Units of a Fully or Partially Equipped Position

Holding Bridge

2.12 The holding bridge in the cord circuits is adjustable to the range of the trunk to which it is to be connected. Generally, inductor H and resistance A should be connected as follows:

(a) When the trunk conductor loop resistance is 500 ohms or over, use W and T wiring. The bridge will be 150 ohms.

(b) When the trunk conductor loop resistance is between 400 and 500 ohms use T wiring. The bridge will be 250 ohms.

(c) When the trunk conductor loop resistance is between 200 and 400 ohms use W wiring. The bridge will be 350 ohms.

(d) When the trunk conductor loop resistance is below 200 ohms omit W and T wiring. The bridge will be 450 ohms.

(e) The trunk conductor loop resistance plus the loop resistance of the longest station will not be greater than the limiting loop of the trunk to which it is connected less the 33 ohm resistance of the supervisory (AS) relay.

Two Position Installation

2.13 Only one side panel is required between the two positions. The hooks for mounting one side panel are removed and the positions lined up with each other. Drill holes through the center panel (see Fig. 7) and bolt the positions together using 1-1/2" x 3/8" cap screws with washers and nuts. Eight-foot cords with special cord weights are used (see Fig. 8).

The attendants' position circuits should be modified to include the grouping relays and one additional lead should be provided between the two pair of headset jacks.

2 Position Buzzer, Ringing and Battery Circuit

2.14 When two positions are grouped together, provide a single battery key and buzzer cut-off key for both positions to avoid the possibility of

key being falsely operated. The modifications required are described in (a) through (d) below. Cabling and strapping details are provided on drawing W-6280 which is furnished with the two position grouping equipment.

(a) Battery Supply - The battery for position 2 must be wired through the battery key in position 1.

(b) Buzzer Circuit - The two positions must be modified for use with one auxiliary signal circuit. The buzzer and ON-OFF switch must be located in position 1.

(c) Ringing Supply - The two positions must be equipped with one ring supply.

(d) Battery Circuit Fusing - When battery is supplied over cable pairs from the central office or when supplied from a building or local battery which is inaccessible for the replacement of the fuses, fuse blocks and fuses are to be located in each PBX position.

2.15 When less than fully equipped, the station and trunk jacks should be grouped toward the right side of position one (left position) and toward the left side of position two (right position). The cord circuits should be located in the same manner. Modify the cord units for two position installations by removing the 4-foot cords and mounting an idler pulley assembly onto each frame. Thread an 8-foot cord, leading the terminal end through the hole in the escutcheon, under the two outside bottom pulleys of the weight, up over the idler pulley, back under the single top pulley of weight, and up through the channel in the frame. Repeat with the second cord, then place a clamp over both cords and fasten it to the frame.

Tie Trunk Units and Manual Conference Equipment

2.16 Mount tie trunk and manual conference circuit units in the lower rear portion of the switchboard below the terminal strips. When this space is occupied with cross-connecting terminal strips or other equipment, mount the units in a separate floor or wall mounted apparatus cabinet.

NUMBER OF CORDS	CORD UNIT POSITION NUMBER														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
3							R	S	R						
4							R	S	R	S					
5						S	R	S	R	S					
6						S	R	S	R	S	R				
7					R	S	R	S	R	S	R				
8					R	S	R	S	R	S	R	S			
9				S	R	S	R	S	R	S	R	S			
10				S	R	S	R	S	R	S	R	S	R		
11			R	S	R	S	R	S	R	S	R	S	R		
12			R	S	R	S	R	S	R	S	R	S	R	S	
13		S	R	S	R	S	R	S	R	S	R	S	R	S	
14	R	S	R	S	R	S	R	S	R	S	R	S	R	S	
15	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R

R - RED CORD
S - SLATE CORD

Figure 5. Arrangement of Cord Units of a Partially Equipped Position

When equipment units are mounted outside the switchboard or associated jacks are mounted in other than positions 10-14, a longer than standard cable length of interconnecting cable is required. Such cable should be made up locally using the same type of sockets as the standard cable unit. The cable and sockets should be wired in accordance with the circuit drawing.

3. INSTALLATION TESTS

3.01 Test the PBX as explained in GSP 503-400-500.

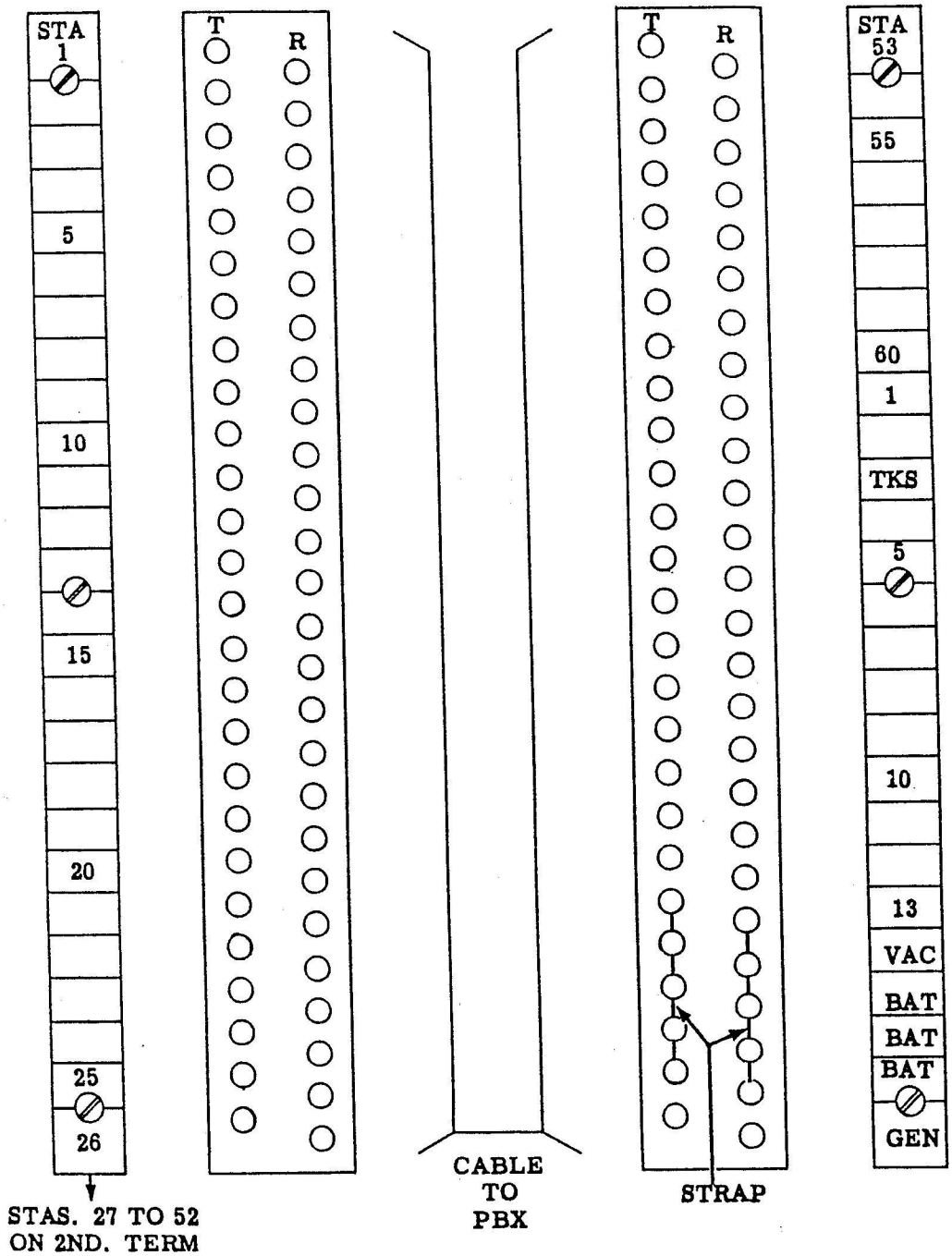

Figure 6. Cross-Connecting Terminal For 60 Line PBX

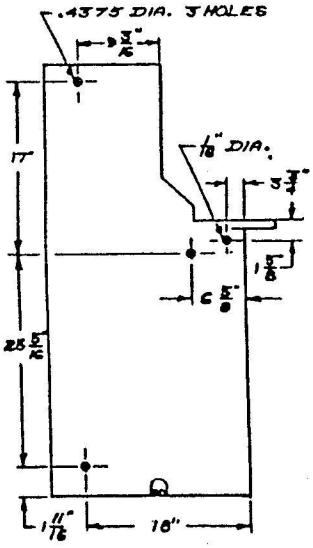

Figure 7. End Panel Drilling for Two Position Switchboard

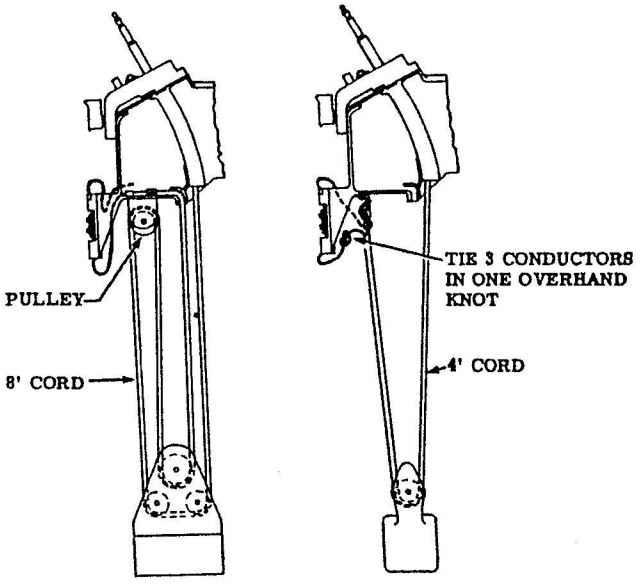

Figure 8. Method of Installing Cords

4. ASSEMBLING CABINET

4.01 Set the top of the cabinet on the frame and start its three sets of screws and washers into the fasteners. Slide the top back against the frame, center it from side to side, and tighten the screws.

4.02 Hang the side panels on their hooks and start the four sets of screws and washers. Position the panels along the front edges of the top and along the front edges of the recesses in the writing shelf, then tighten the screws.

4.03 Insert the front and rear doors top edge first, then slide the lower edge back over the bottom flange of the frame and allow the door to drop into position. Additional force is required when inserting the top edge of the front door, since a spring in the top flange of the frame must be compressed.

5. FINAL INSPECTION

5.01 Before turning the PBX over to the users, check the following items and correct them if necessary:

(a) The exposed side of the instruction card should be the one bearing instructions for the type of central office by which the PBX is served.

(b) The exterior and interior of the PBX should be clean, free from wire clippings and other debris, and present a neat appearance.

(c) The PBX should be level, with each section securely fastened to the floor if practicable.

(d) Cable conductors should be properly fanned through the appropriate holes in the fanning strips, and properly connected to the correct terminals on the blocks.

(e) Cable sheaths should be insulated from the PBX framework.

(f) Unused cable entrance holes in the end panels should be covered with a suitable plate.