BOOTHS AND SHELVES — INDOOR

INSTALLATION

1.00 INTRODUCTION

This section covers the installation of 5, 6, 10, and 11-type telephone booths, including directory lights, blowers, and ventilators. It also covers the installation of the 19A shelf.

2.00 LOCATING

Dimensions

2.01 The measurements of a 5, 6, 10, or 11-type telephone booth equipped with end panels are as follows:

	Feet	Inches
Width	2	6-1/2
Depth*	2	6-1/2
Height	6	11-1/4

* If equipped with 60- or 62-type back panels, add 9/16 inch.

Preliminary Survey

2.02 If the location specified by the service order or its attachment conflicts with the customer's wishes or with any general requirements listed below, consult your supervisor before starting the installation.

2.03 General Requirements

- The distance between the front of the booth and any wall or fixture must be 24 inches for access to the booth. When the booth faces the public side of a sales counter or fixture, the distance shall be increased to 36 inches.
- To prevent damage from excessive heat or water, locate booths away from radiators, steam pipes, hot air registers, flushing traps, or sinks.
- Booths shall not block access to wall fuse boxes or switches.
- The approach to each booth must be free of hazards, such as stairways leading down, trap doors, or flooring in an unsafe condition.
- Where practicable, booths shall be installed in well lighted locations. In darker locations, electric lighting shall be provided for all booths.
- To avoid inductive effects, obtain as great a separation as possible (minimum 6 inches) between the booth with its associated wiring and neon signs, neon wiring, all transformers, and similar high-voltage devices.
- Provide sufficient space over the top of the booth to permit access for maintenance of the booth lighting equipment. If this is not practicable, arrange with the public telephone agent or customer to provide a removable panel or similar facility.
- The booths covered herein shall not be exposed to the elements.

3.00 ASSEMBLING AND PLACING

3.01 Booths are shipped assembled unless the order states that they are to be shipped unassembled (knocked down), in which case all screws and other material are included in the shipment.

3.02 Screw holes for the assembly are aligned to facilitate assembly in the field. When assembled, the sides of the booth unit shall make contact with the separators or panels along their entire length. Assemble booths in accordance with the layout as shown in Fig. 1.

3.03 When it is necessary to remove or attach end panels in the 5- or 6-type booths equipped with smooth gold-brown matted linings, remove the corner mouldings to gain access to screw holes. The corner mouldings are snapped on over clips. To remove, insert the end of a screw driver behind the moulding and turn until the moulding snaps off. End panels of other type booths may be attached or removed without disturbing corner mouldings.

3.04 When the back of the booth is not exposed, install a booth having a soft wood back. Where the back is exposed, install 60- or 62-type panels with the same finish.

3.05 When the side of the booth is not exposed or appearance is not important, a panel is not required; however, a booth separator should be installed.

3.06 Set each booth on the floor so it is level and does not rock. Where the floor is not level or even, place wooden shims under the sides to level it. Be sure to place shims under the middle area of the floor to prevent sagging or flexing. The top of the door must be aligned with the booth door frame when the booth is closed.

3.07 The booth must be level so that the coin collector will function properly. Level as follows:

1. Place a dime (or mark the size of a dime) as shown in Fig. 2.
2. Suspend a plumb line, as shown in Fig. 2, from a tack temporarily located in the center of the top edge of the booth so that it hangs about 1/2 inch from the floor.
3. Shim the booth as covered in 3.06 until the plumb line is centered within the area of the dime or mark.

3.08 Avoid setting booths on floors with considerable slope, such as ramps or inclined passageways between rooms. When locations such

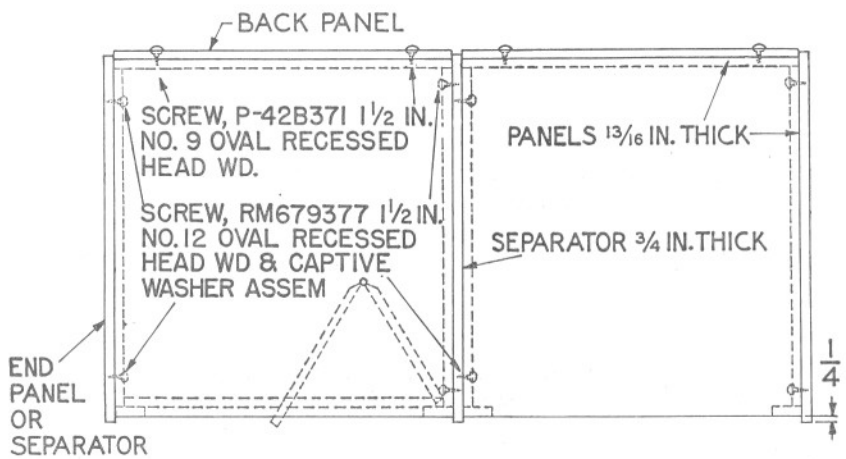


Fig. 1 — Typical Layout

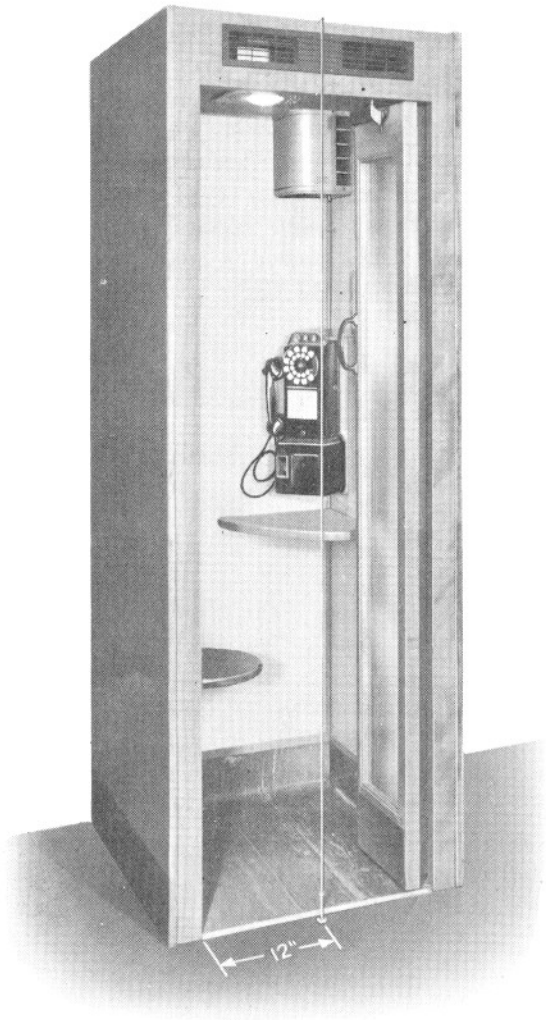


Fig. 2 — 11-type Booth with Plumb Line

as these cannot be avoided, be sure each booth is placed level with a minimum step up to enter. In multiple installations of this type, attach separator to highest booth first.

3.09 Any exposed gap of 1/4 inch or more between the floor and the booth shall be sealed with strips of wood, stained to match the finish of the booth.

3.10 In multiple installations, line up the booths so their front and tops present a straight line before attempting to fasten them together. Do not attempt to assemble booth types 5, 6, 10, and 11 with the 1 type because of the difference in height.

4.00 INSTALLATION OF TELEPHONE WIRING

4.01 In selecting the type wire or cable, refer to the C Section entitled Selection of Wire and Cable.

4.02 Signaling Grounds

Number of Booths	Options		
	Cable Pairs	Conductors of Station Wire	No. 14 Ground Wire
1 - 6	1	1	
6 - 12	2	2	1
12 or more	1 per 6 booths	1 per 6 booths	1

4.03 Inside wiring cable shall be terminated on a suitable connecting block installed in the ceiling of one of the booths or in the immediate vicinity.

4.04 Where triple wire is used, it shall be run to the connecting block of each booth. On booths equipped with 3- or 4-type light fixtures, the connecting block is mounted on a bracket which is attached to the side of the fixture.

4.05 To gain access to this connecting block, open the lens in the light fixture from the inside of the booth. Use a screw driver to open the 4-type fixture and a 544A key to open the 3-type fixture.

5.00 INSTALLATION OF ELECTRIC SERVICE WIRES

Under no circumstances shall any makeshift or temporary electrical connections be made of booth lighting equipment.

5.01 Work in connection with the installation of electric service wires, or extension of such wiring, should be provided for by the public telephone agent and must be in accordance with local regulations and conform to the National Electrical Code.

5.02 A ground wire may be run from a suitable building ground when the electric service for booths is supplied by service wires connected to old-fashioned knob and tube work. Do not use telephone signaling ground for this purpose.

5.03 Each booth shall be equipped with a light fixture and a power cable or interconnecting cable. Power cables, when provided on booths, are equipped with a plug for attachment to the electric outlet. Cutout switches are also provided if desired. Rubber covered cables other than the No. 18 high temperature blower cable should not be used with the 4-type fixture.

5.04 Before connecting the power cable of telephone booths equipped with a KS-14125 blower to the power supply receptacle, remove the retaining block (used for shipping purposes) from the upper end of the blower. Replace and tighten wing nuts on the blower after removing the retaining block. Although later type blowers are not equipped with shipping blocks, they should be checked before the power is connected. Store the blocks as covered in 11.10.

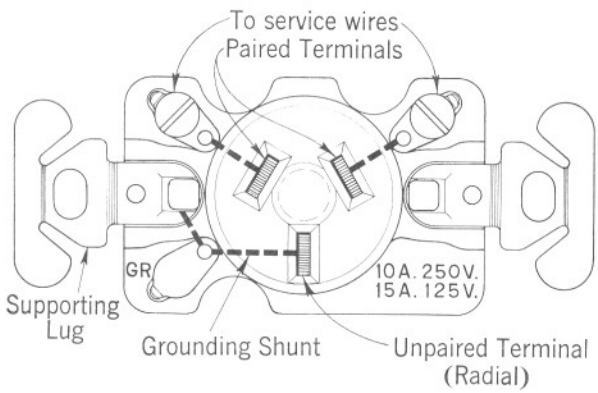


Fig. 3 — 3-wire Flush-type Receptacle with Grounding Shunt

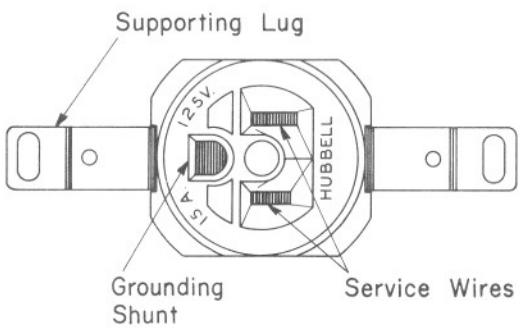


Fig. 4 — Hubbell No. 5261, 3-wire Grounding-type Convenience Outlet

Power Receptacles

5.05 Receptacles shall be located 87 inches above the floor and within a radius of 24 inches from either upper rear corner. On 1- and 2-type booths, the receptacle shall be 92 inches. In multiple installations, the receptacle shall be installed near the end which is most practicable.

3-wire Receptacle and Attachment Plug

5.06 The Hubbell No. 7189, 3-way flush-type plug receptacle, or its approved equivalent, is grounded by a shunt from the unpaired terminal to the outlet box through the supporting lugs as shown in Fig. 3.

5.07 When a 3-wire grounding-type convenience outlet such as the Hubbell No. 5261 type is used (see Fig. 4), use a P-11C739 cable which is equipped with a Hubbell No. 5265, 3-wire grounding-type armor cap (see Fig. 5).

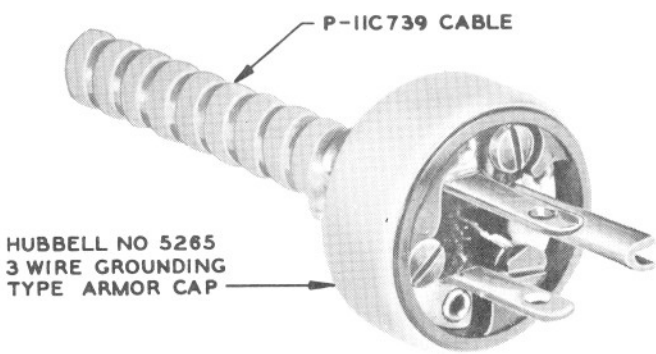


Fig. 5 — Hubbell No. 5265, 3-wire Grounding-type Armor Cap

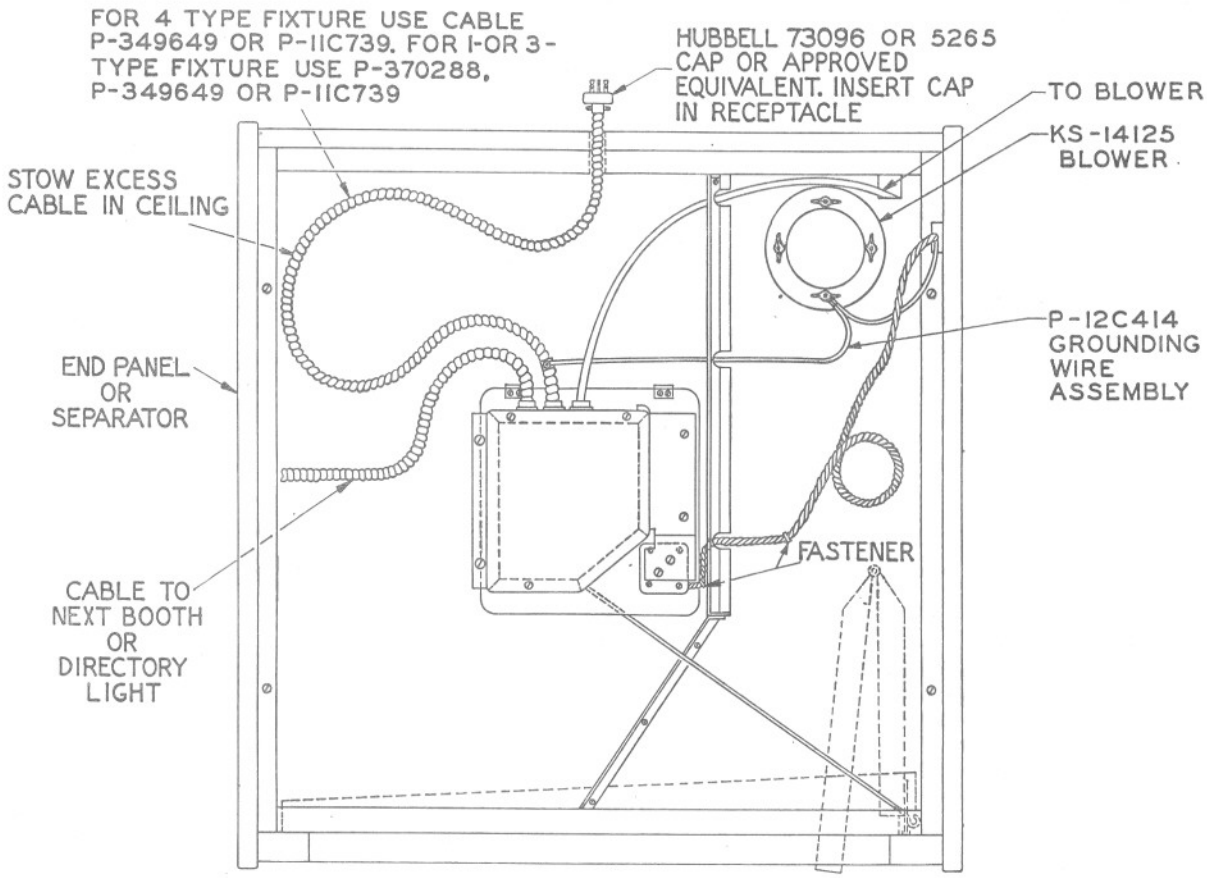


Fig. 6 — Typical Installation for 3-way Receptacle

5.08 Fig. 6 shows the 2-conductor armored flexible cable which shall be used to connect the 3-way receptacle and the booth lighting equipment.

2-wire Receptacle and Attachment Plug

5.09 A parallel blade, single not duplex, flush-type receptacle for 2-wire attachment plugs should be provided. Grounding is accomplished by terminating the ground wire jumper attached to the armor of the cable under one of the attachment screws of the locking ring as shown in Fig. 7.

5.10 Connection between the 2-wire receptacle and the booth lighting equipment is made with a 2-conductor armored flexible cable, the plug end of which is secured in the receptacle by means of a locking ring and locking-type plug as shown in Figs. 7 and 8.

5.11 To install the booth armored cable assembly, remove the screws in the receptacle cover plate and attach the locking rings to the receptacle with the two longer screws furnished with the ring. Remove and substitute the screws one at a time. Terminate the ground wire jumper under one of the screws.

5.12 Use an interconnecting cable P-349647 to connect lighting equipment in booths at multiple installations. One receptacle may be used to supply not more than 10 booths; however, local regulations may require an additional plug receptacle when more than six booths are in an installation.

5.13 After observing instructions in 5.04, insert plug into receptacle. Test for polarity as outlined in 8.00.

5.14 Plug receptacle arrangements provide a ready means for opening the lighting circuit, which shall be done whenever any work is done on booth or directory lighting. A cutout switch shall be considered for built-in booths, or where it is desirable to arrange one or a group of booths under control of a switch which can be operated from inside the booth.

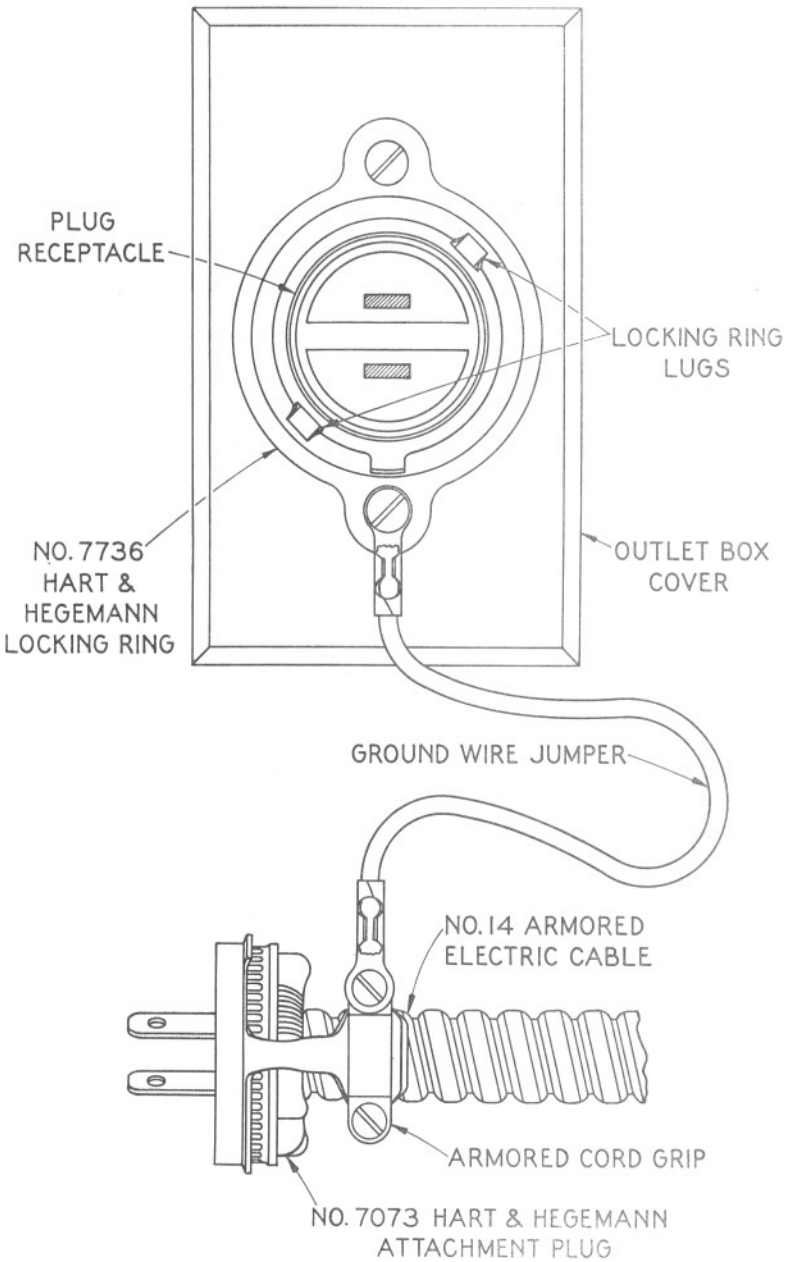


Fig. 7 — 2-wire Receptacle and Plug

Booth Cutout Switch

5.15 To install a booth cutout switch, fasten a 1/2-inch floor flange to the top of the ceiling and then fasten the switch box to it by means of a chase nipple through the middle knock-out hole in the box. The toggle of the switch shall be mounted so it will be accessible from within booth through opened light fixture (Fig. 9).

5.16 A P-349715, 16-inch low temperature booth cable may be used instead of the P-349647 when a booth is equipped with a 3A-type light fixture. Therefore, the switch can be placed immediately to the right of the fixture instead of to the front, to make the toggle switch accessible from within the booth.

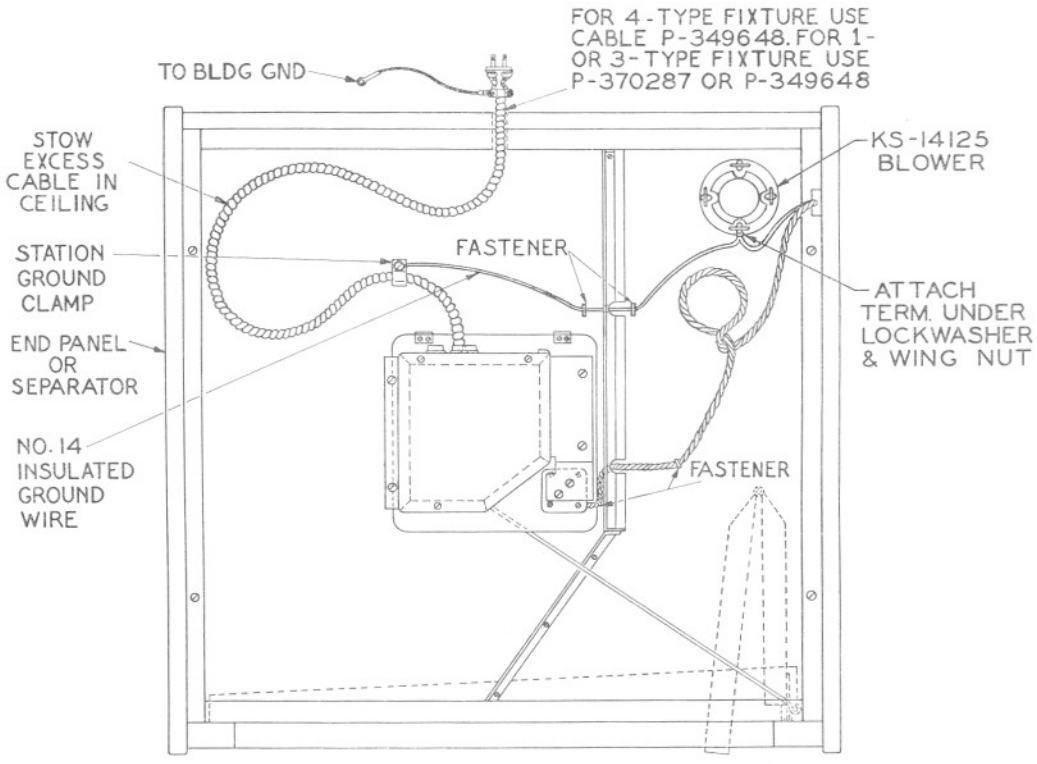


Fig. 8 — Typical 2-wire Cable Arrangement

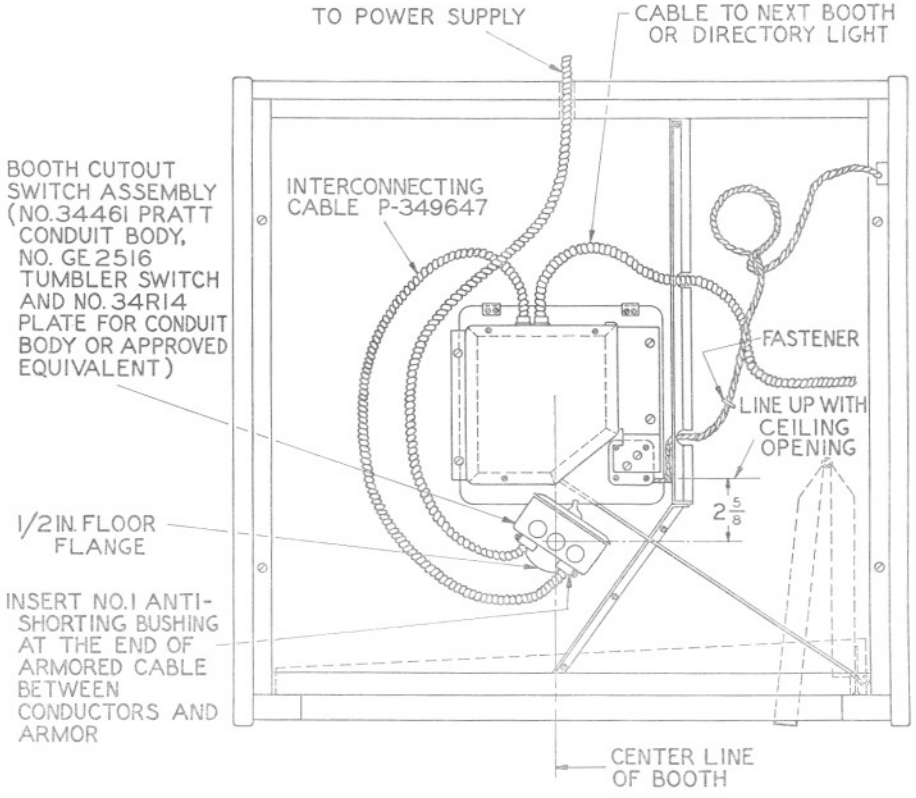


Fig. 9 — Typical Cutout Switch Installation with 4-type Light Fixture

6.00 CABLE CONNECTIONS AT LIGHT FIXTURES

6.01 At the 3-type light fixture, make cable connections as shown in Fig. 10 and connect each cable shown only when required. When 3-wire cable P-370288 is used, the ground conductor (green) is automatically grounded to the fixture through its box connection.

6.02 At the 4-type light fixture, make connections as shown in Fig. 11. Connect each cable shown only when required. Spade terminals shall be inserted squarely and to their full depth into the slot to provide maximum separation between terminals. The lamp is under control of the booth door. To obtain continuous illumination in the booth, connect red strap lead from lamp socket to terminal 2 instead of terminal 1 on the light fixture terminal strip.

7.00 INSTALLATION OF 2-TYPE LIGHT FIXTURE

7.01 When called for on an order, the booth will be delivered wired for a directory light, but the light and shelf are added in the field to avoid damage in transportation. Do not install a directory light without installing a directory shelf under it.

Before starting to connect any electrical wiring, be sure the power cable is pulled out of the power receptacle or the power shut off by throwing the toggle switch if the booth is so equipped.

7.02 To install a 2B light fixture at existing installations, drill a 1-inch hole. When a

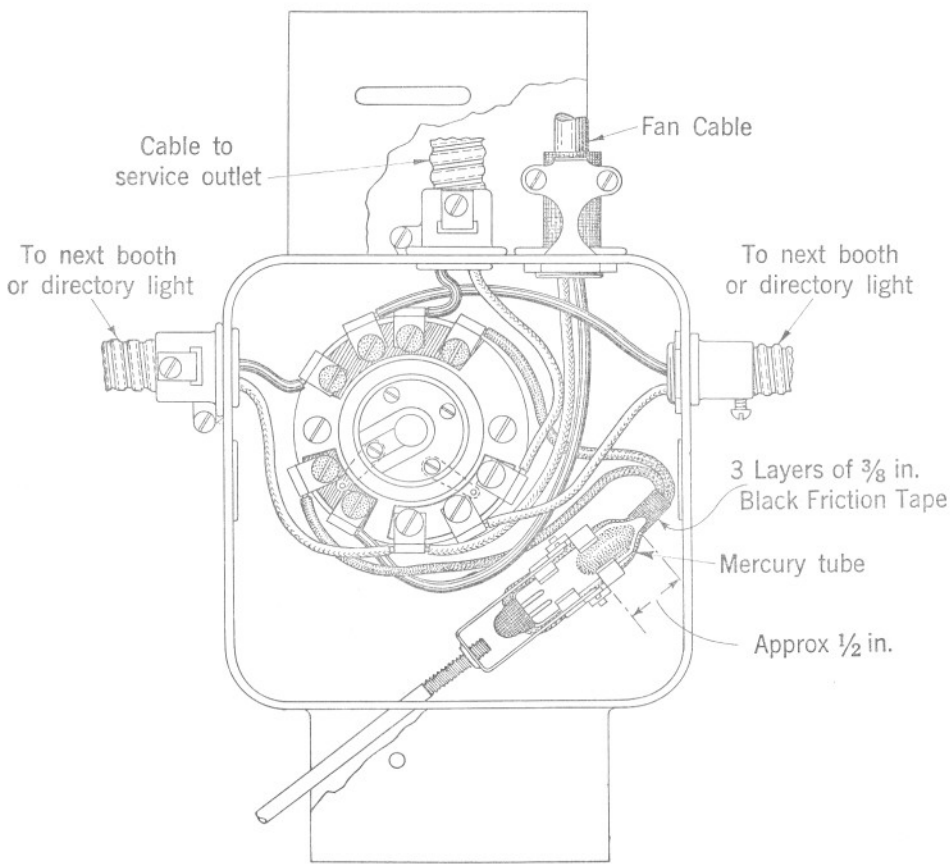


Fig. 10 — 3A Light Fixture Viewed from Within the Booth

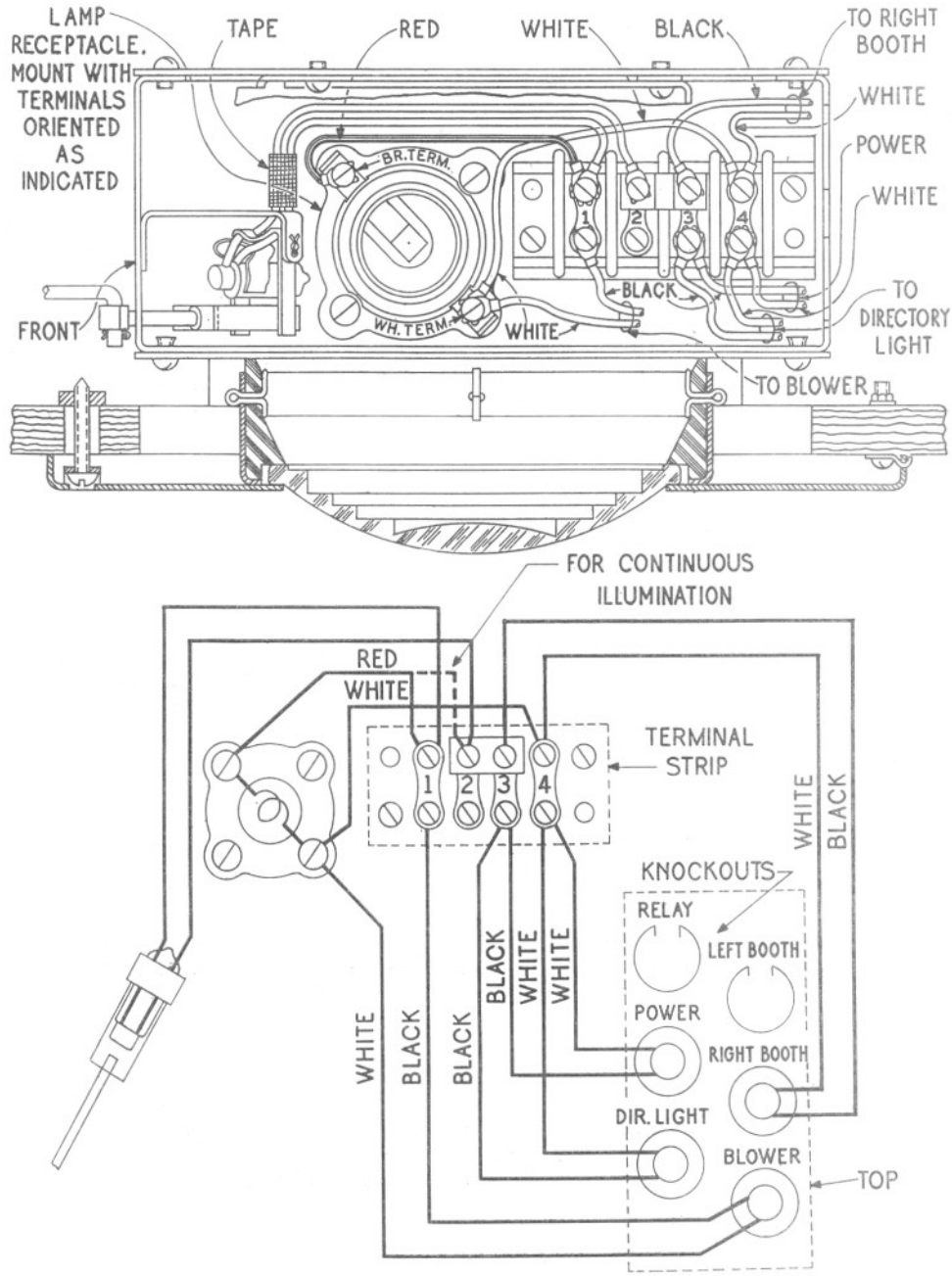


Fig. 11 — 4A Light Fixture for Four Cables

2D-type fixture is used, follow instructions in Fig. 12. Cut a hole large enough to permit passage of the plug and 90-degree connector attached to the cable. Remove end panel for drilling and cutting.

7.03 The 61-type end panel has an inconspicuous center punch mark approximately 1/16 inch in diameter located on the center line of the panel 60-5/16 inches above the bottom edge, to indicate the proper spot for drilling the mounting hole for the directory light fixture.

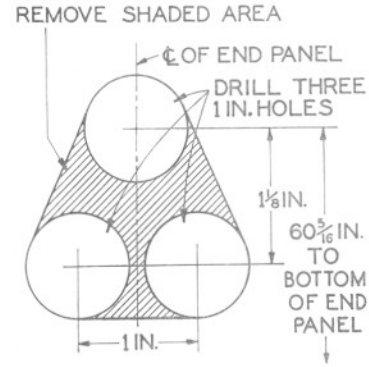


Fig. 12 — Hole for 2D Fixture

7.04 Fig. 13 shows the 2B light fixture installed on 61- and 51-type panels.

7.05 Make connections to the booth lamp receptacle as shown in Figs. 10 and 11.

8.00 TESTING POLARITY OF BOOTH LIGHTING EQUIPMENT

8.01 Use a locally approved neon testing device to satisfactorily determine which is the ungrounded wire.

8.02 Terminate the line side of the circuit (black wire) on the center contact of each lamp socket. Terminate the grounded side of the circuit (white wire) on the shell, or fixture of each lamp socket. This is very important in the case of directory lights.

8.03 Make polarity tests as follows:

1. Check the lamp socket where the booth wiring is brought in to be sure the line side of the wire is connected to the brass-colored terminal of the receptacle, and the grounded wire is connected to the other terminal.

2. Check all other lamp sockets to ensure that the polarity is continuous throughout the booth wiring and that the ground has been continued to all the cable armor.

8.04 To correct the polarity of a lighting circuit fed from a 2-wire receptacle, reverse the plug in the receptacle.

8.05 Polarity of booth lighting shall be corrected at the point of reversal.

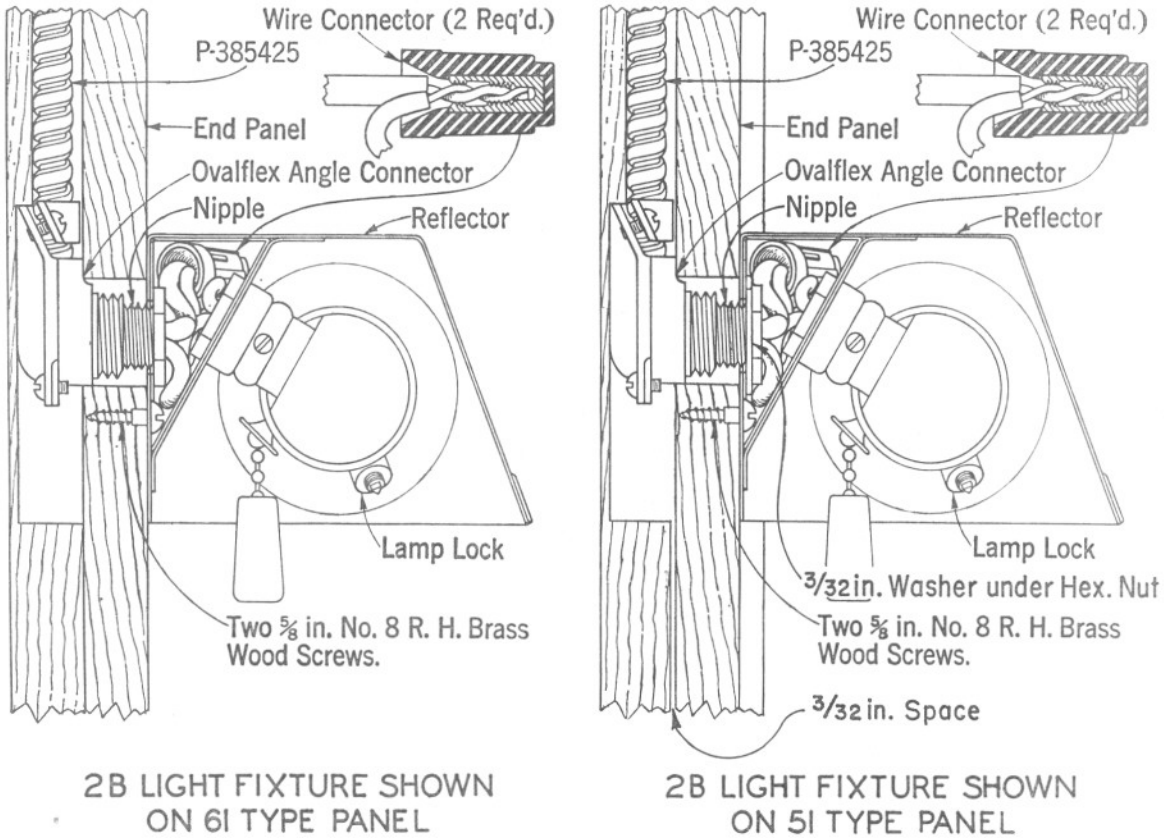


Fig. 13 — Installation of 2-type Light Fixture

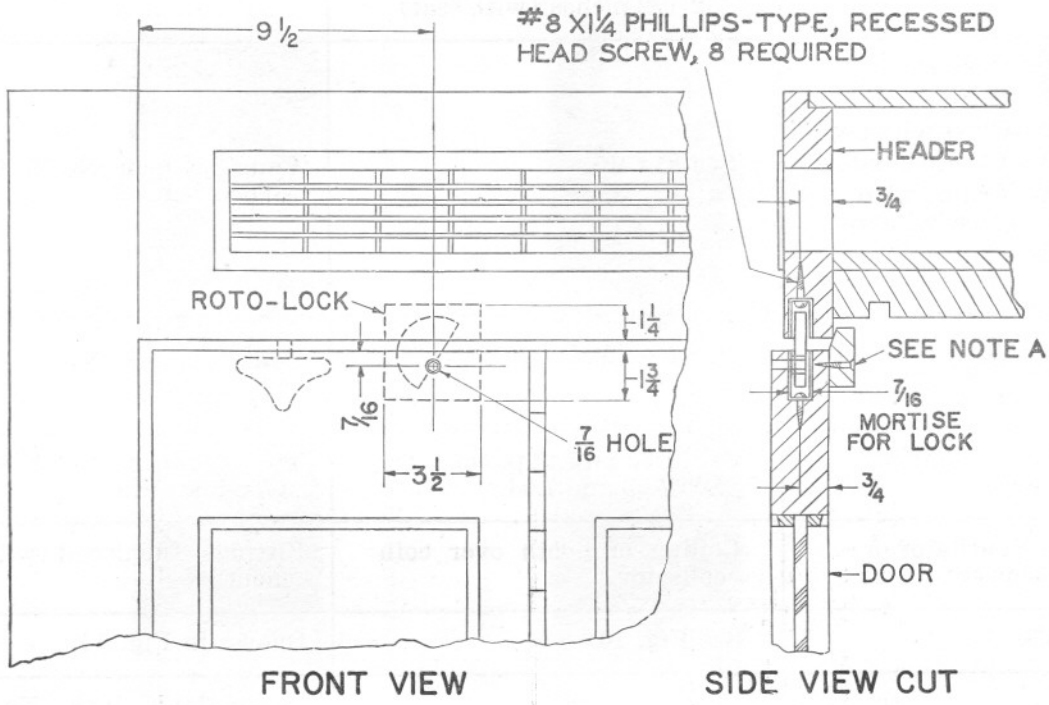
8.06 Where the polarity is found to be reversed at a 3-wire receptacle, the booth lighting equipment should be left disconnected and arrangements made to have the fault corrected in the building wiring.

9.00 INSTALLATION OF ROTO-LOCK

9.01 The Roto-Lock, which is used to lock doors of indoor and outdoor type wooden booths at attended locations, is installed as illustrated in Fig. 14 and described in 9.02.

9.02 Install the Roto-Lock as follows:

1. Remove the guide pin and door stop to enable the booth door to swing out.
2. Drill and cut out mortise in booth header observing dimensions in Fig. 14.
3. Mount male and female components flush with surface of door and header.
4. Viewed from the outside, the lock shall be assembled so as to engage when turned in a clockwise direction.



Note: Replace P-381074 (1-1/2 inch) door stop screws with 1-inch wood screws (three required).

Fig. 14 — Installing the Roto-Lock

10.00 CONVERSIONS, ADDITIONS, AND CHANGES

Fasteners for booth parts and their locations are shown in Table A.

11.00 BOOTH LIGHTING EQUIPMENT

In all cases, where working on the electric wiring, disconnect the booth power cable or open the electric service switch to be positive that the booth lighting circuit is dead.

TABLE A

Booth Part or Fixture	Location in Booth	Fasteners
167A Backboard	Right rear corner. Top of backboard 63 inches from floor (without seat) and 52-1/2 inches (with seat).	Six 1/4-inch – 20 x 1-5/8-inch, Hex-head Cap Screws and 1/4-inch – 20, Tee Nuts.
KS-14123 Card Frame List 1—Frame only List 2—Glass window List 3—Plastic window List 4—Frame with glass window List 5—Frame with plastic window	See Fig. 15.	Four 3/4-inch, No. 8 FH Bright Wood Screws.
Booth Cutout Switch or Plug Fuse Cutout	Top of ceiling as shown in Fig. 9.	Two 1/2-inch, No. 8 RH Blued Wood Screws.
2-type Light Fixture (directory)	Centered on end panel. See 7.03 and 7.04.	Two 5/8-inch, No. 8 RH Brass Wood Screws.
KS-8164 Ventilator or 14125 Blower	Ceiling of booth over coin collector.	Fittings furnished with equipment.
Roto-Lock	See Fig. 14.	Shown in Fig. 14.
101T or 101U Seat	Left-rear corner with top of seat 20 inches from floor.	Seven 1-1/4 inch, No. 14 RH Blued Wood Screws; four 1-1/4-inch 20 x 1-inch, Hex-head Screws; and 1/4-inch – 20, Tee Nuts.
18A, 18C, or 18D Shelf	See Fig. 15.	Six 3/4-inch, No. 8 RH Blued Wood Screws.
18E Shelf	See Fig. 15.	Six 7/8-inch, No. 8 Phillips-type OH Wood Screws, zinc plated; and No. 8 Counter-Sunk Washers, nickel plated.

11.01 When additional lighting fixtures are required at existing locations, the extension of electric service wires shall be arranged for on the same basis as for new installations (see 5.00).

11.02 When booth lighting assemblies are not of the proper type, remove existing assembly and install proper assembly.

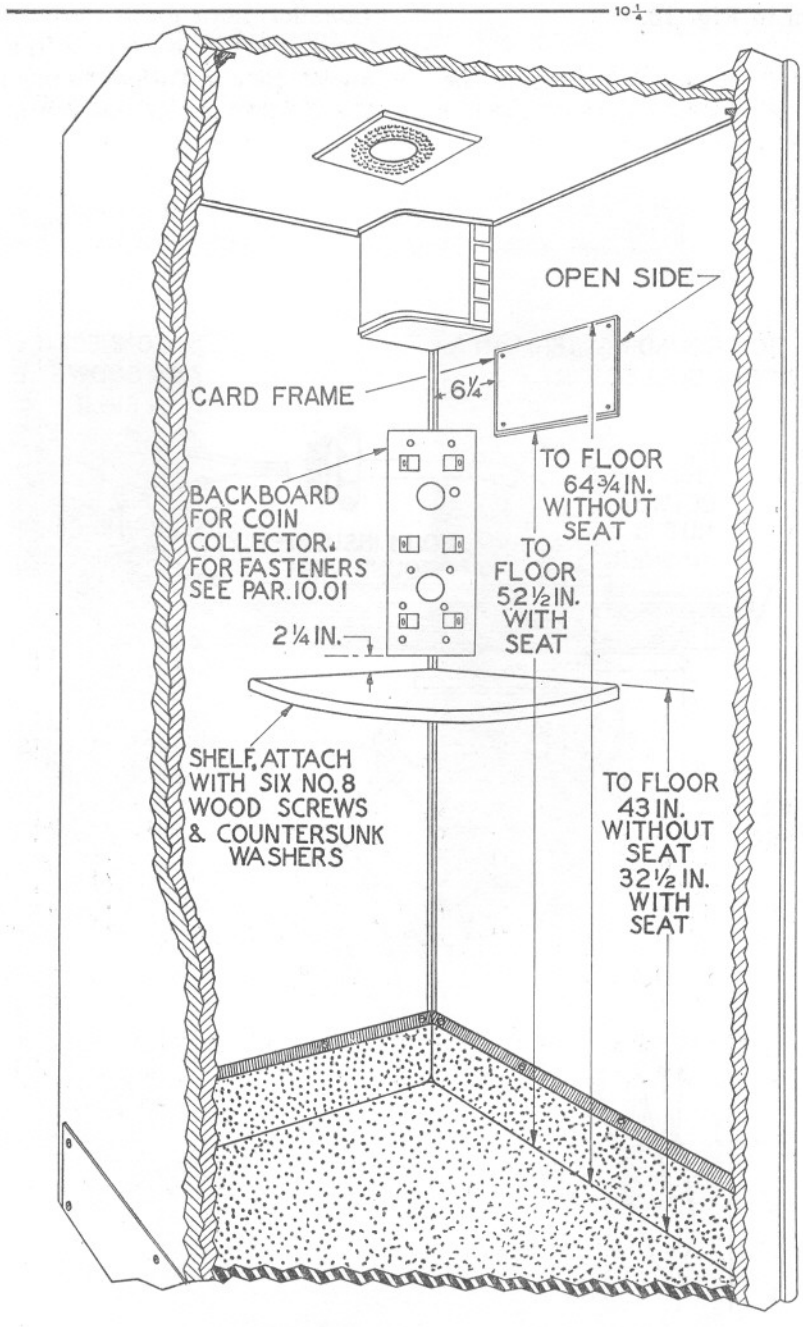


Fig. 15 — Locating Booth Accessories

11.03 Install a complete new ceiling assembly with associated switch-operating parts and cables when light fixtures and the associated apparatus are required at an installation when no booth light was provided.

Installation of Ventilator

11.04 Install KS-8164 ventilator in 5- and 6-type booths as shown in Fig. 16.

11.05 If practicable, drill ceiling from inside the booth. Locate 1-inch hole for the KS-8164 ventilator 2-1/16 inches from rear inner wall and 2-1/16 inches from side inner wall as shown in Fig. 16. If the ceiling is metal-lined, cut through the metal with a 1-inch hole saw; then drill the wood with a 1-inch auger bit.

11.06 If holes must be drilled from above, locate holes from inside the booth as in 11.05. Then drill through ceiling with a small drill point (smaller than guide screw on auger bit). Using these guide holes, the ceiling may be drilled from above. Be careful not to use too much pressure on the drill towards the completion of the drilling

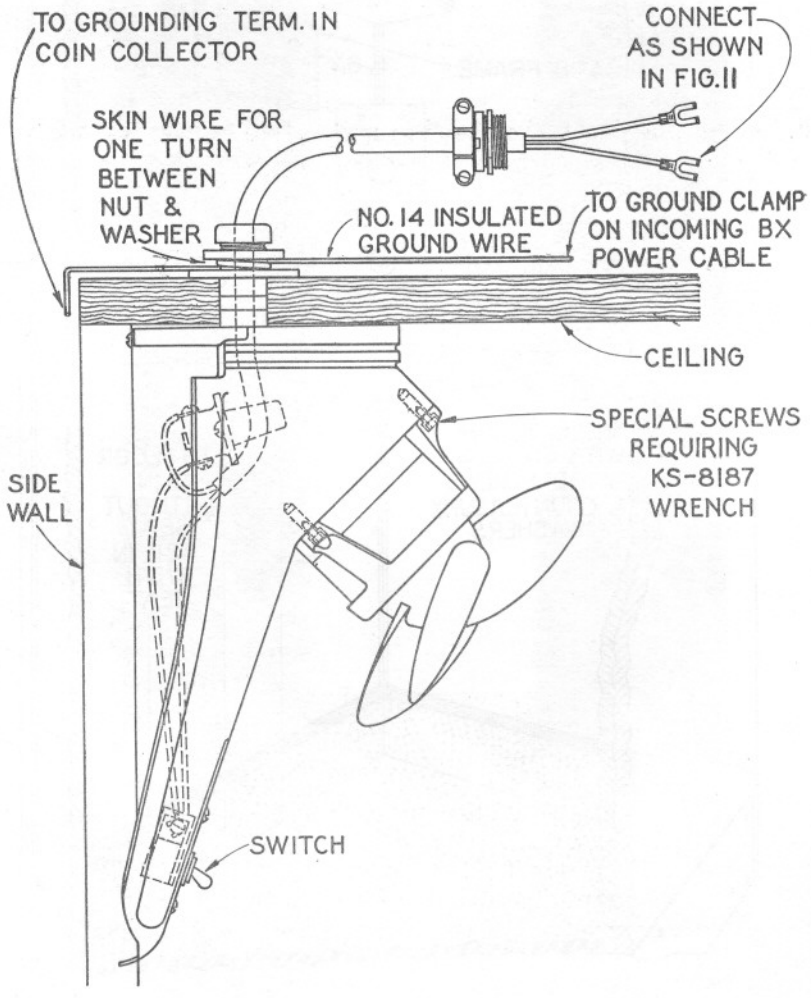


Fig. 16 — KS-8164 Ventilator

operation, otherwise the under surface of the ceiling will splinter around the hole.

11.07 Remove pipe bushing, nut, and washer from pipe stem (KS-8164 ventilator) as these parts cannot be passed through the 1-inch hole.

11.08 Pass ventilator cable upward through the 1-inch hole in ceiling and replace fittings on cable, being sure to replace first in proper sequence the washer, nut, and bushing on the KS-8164 ventilator cable.

11.09 A KS-8164 ventilator can be installed readily by passing a strong cord or wire downward through the 1-inch hole, tying it to the end of the fan cable, and then pulling the cord or wire while lifting the ventilator upward into place. Put washer, nut, and bushing on cord or wire in proper sequence and tie to door handle. Replace washer and nut on pipe stem projecting through ceiling, leaving hand tight while checking from within the booth that the ventilator is in proper position in relation to both walls of the booth. Tighten nut and bushing, remove cord or wire, and fasten cable and connector at light fixture as shown in Fig. 10.

Ground ventilator by passing one turn of coin collector grounding wire P-12C414 between washer and nut, as shown in Fig. 16.

Installation of Blower

11.10 At locations where the booth ceiling is accessible from the top, with booth roof open, the KS-14125 blower may be installed, where specified, in 10- and 11-type booths as follows:

1. Remove wing nuts from the top of the blower assembly and remove the retaining block. This block will be found in the list 1 and list 2 blowers only. The retaining block shall not be removed from the booth at any time, but shall be stored in the space above the booth ceiling for use when the booth is to be relocated or recovered.
2. Remove the intake tube of the blower assembly and lower it through the hole provided in the booth ceiling, resting the flange on the top side of the ceiling.
3. Disconnect the 8-inch assembly cable from the 40-inch extension cable by turning the twist-lock connector counterclockwise to release the locking plug from its socket.
4. Form the blower extension cable in the ceiling of the booth so that it rests in the notch of the metal ceiling partition, and drop the socket end of the twist-lock connector through the small opening in the corner of the booth ceiling. Connect the other end of the cable to the light fixture as shown in Fig. 11.
5. Remove the screws securing the cover at the bottom of the blower with a KS-8187 wrench, and remove the cover and blower motor from the blower housing.
6. Hold the remainder of the assembly against the booth ceiling with the mounting studs extending through the holes provided in the flange and through the top side of the ceiling.
7. Reach one arm through this part of the assembly and secure the lockwashers and wing nuts in place.
8. Rest the remainder of the blower assembly on top of the coin collector to bring the plug end of the assembly cable within reach of the twist-lock connector hanging from the ceiling. Insert the plug into the twist-lock connector and lock together by turning clockwise.
9. Work the slack of the blower cable back up into the channel behind the blower housing while raising the assembly into place. Make certain that the excess cable does not interfere with the blower operation by pulling all of the slack into the space between the ceiling and the roof of the booth.

10. Reassemble the motor and cover to the blower framework.

11.11 At locations where the booth roof cannot be removed, install the KS-14125 blower (where specified) in 10- and 11-type booths as follows:

1. Proceed as covered in 11.10.

2. Remove the grill at the top of the front of the booth and pass the intake tube of the blower through the opening and drop into hole in ceiling provided for it.

3. Proceed as covered in 11.10.

4. Reach through the ventilator opening and form the blower extension cable in the ceiling of the booth so that it rests in the notch of the metal ceiling partition. Drop the locking plug through the small opening in the corner of the booth ceiling and pass the other end through a knockout in the light fixture box. While holding this cable in place with one hand, with the other hand place the locknut to secure the cable to the box from the underside of the light fixture.

5. Connect the cable from the underside of the light fixture in accordance with Fig. 11.

6. Proceed as covered in 11.10.

Ground blower by attaching spade clip on coin collector grounding wire, under lockwasher and wing nut, as shown in Fig. 6.

12.00 FINAL CHECK

12.01 Upon completion of every booth installation, a final inspection shall be made as follows:

- Booth must be complete in all parts; clean and free of burrs, sharp edges, projecting nail ends, or screwheads, which could present a hazard.

- Metal linings, faceplate of light fixture, ventilator, blower housing, and switch operating rod shall be free of grounds.

- Door must fit properly and operate freely.

- Light and ventilator shall cut out when the door is opened approximately 13 inches. If booth light is controlled by a KS-9786 relay, check operation from attendant's PBX.

- When provided, manual control switches and their associated equipment shall be checked for operation.

- Check blower or ventilator for noise.

13.00 19A SHELF

13.01 If the location specified on the service order or its attachment conflicts with the customer's wishes or with any of the general requirements listed below, consult your supervisor before starting the installation.

General Requirements

13.02 Location should be easily accessible to the public. Approach to the shelf shall be free of hazards such as a nearby staircase leading down, a trap door, or a floor in poor condition.

13.03 The shelf should be remote from radiators, steam pipes, or registers, to prevent damage to the shelf or apparatus from excessive heat or water. The mountings should not be exposed to the weather.

13.04 When a dial-type coin collector is installed, lighting should be adequate for dialing at all times.

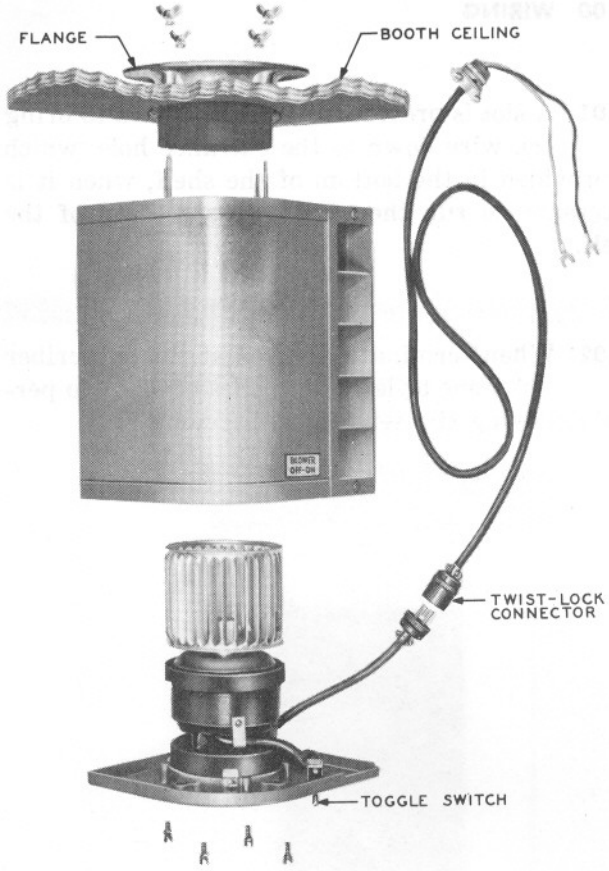


Fig. 17 — KS-14125 Blower

13.05 Shelves can be located singly as shown in Fig. 18.

13.06 When installed in a corner, the narrow end should face the wall as shown in Fig. 19.

13.07 When installed in groups, the directory compartment serves as a partition affording some degree of privacy.

13.08 When a lower mounting is necessary, such as in a veterans' hospital, the wood seat bracket used in telephone booths should be placed under the shelf to guard against possible damage to the shelf should someone use it as a seat.

13.09 Store subscriber sets (684- or 531-types) in compartments at the rear of the directory compartment as shown in Figs. 18 and 19.

13.10 This compartment has a lift-out cover provided with buttonhole slats for the mounting screws and a finger hole to permit ready removal. When a 684- or 531-type subscriber set is not available, or a metal covered or network set is needed, mount the subscriber set underneath the shelf toward the rear.

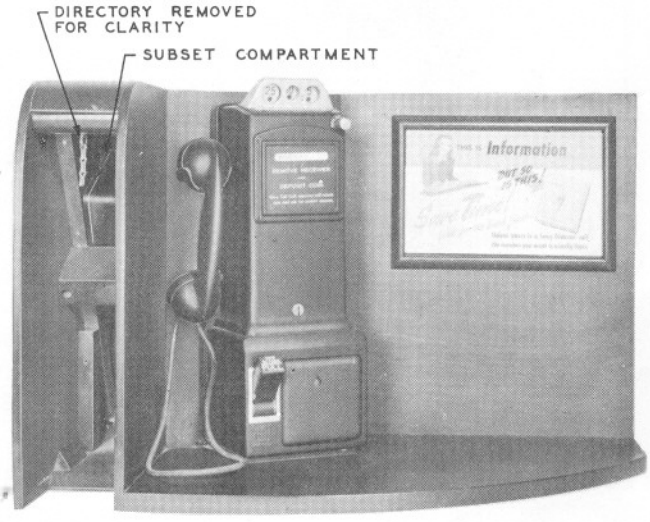


Fig. 18 — Singly Mounted 19A Shelf

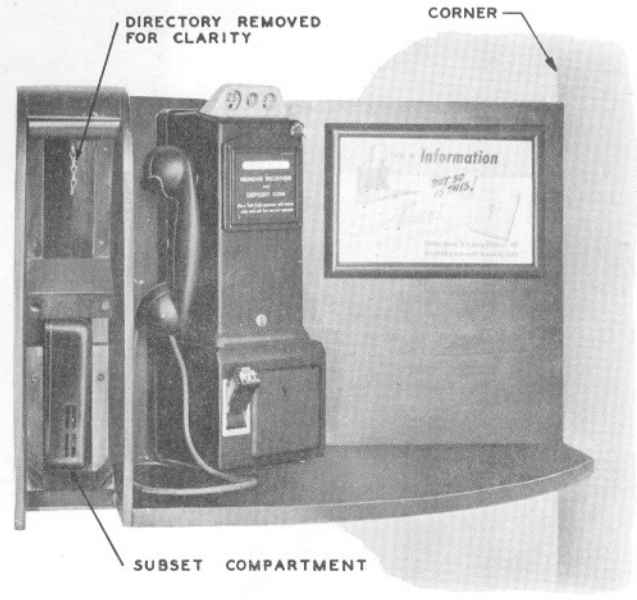


Fig. 19 — Corner Mounting 19A Shelf

13.11 Use the backboard furnished with the shelf to mount the shelf on wall surfaces. Refer to the C Section on backboards for information on mounting.

13.12 Attach shelf to backboard with seven 1/4 by 1-1/2 inch 20 FH machine screws furnished with the shelf.

13.13 Attach coin collector to the backboard with the eight P-210252 FH machine screws.

13.14 Place directory in binder and suspend binder from short piece of chain attached to eyebolt in the directory binder.

14.00 WIRING

14.01 A slot is provided in the backboard to bring the wire down to the entrance hole, which is provided in the bottom of the shelf, when it is necessary to run the wire across the top of the shelf.

14.02 When terminating wires at the subscriber set, leave at least 18 inches of slack to permit removing the set for maintenance.