

## 459-TYPE PLUGS

### MOUNTING AND USE ON SMALL CROSSBAR SWITCHES

CONTENTS	PAGE
1. GENERAL . . . . .	1
2. USE OF 459-TYPE PLUGS . . . . .	1
3. APPARATUS . . . . .	2
4. MOUNTING PROCEDURES . . . . .	2
 Figures	
1. 459-Type Plugs (3-Wire Switches) . . . . .	2
2. 459-Type Plugs (6-Wire Switches) . . . . .	2
3. 459-Type Plugs (On 6-Wire Switch) . . . . .	4

#### 1. GENERAL

1.01 This section covers the method of mounting 459-type plugs on small crossbar switches for service observing, line test, and make-busy applications.

1.02 This section is reissued for the following reasons:

- (a) To add the P4BR cord to the 459B plug
- (b) In Table A, add reference to 459F plug that it is available only on associated cord
- (c) To change plug 495C to 459C in Table A
- (d) To change KS-8010 switch to 400409363 switch in Table A
- (e) To update format.

Revision arrows are used to emphasize the more significant changes. This reissue does not affect the Equipment Test List.

1.03 The following Bell System Practices are referenced within this section:

TOOLS	DESCRIPTION
030-721-701	Small Crossbar Switch Requirements and Adjusting Procedures
030-721-801	Small Crossbar Switch Piece-Part Data and Replacement Procedures
032-325-801	P-15A417 Cord Holder Mounting and Use on Crossbar Switches

1.04 The 459-type plugs (Fig. 1 and 2) consist of a 2-part, molded shell containing preformed contact springs and, in some cases, a grounding spring. Clamp springs fasten the shell halves together and prevent reopening of the shell after assembly. When mounted in position on the switch, the plug is self-supporting.

#### 2. USE OF 459-TYPE PLUGS

2.01 The 459-type plugs are designed to cover seven variations that are distinguished by code suffix A through G. Selection of a particular code depends on the intended use of the plug and the number of multiple strips in the associated vertical unit.

2.02 The types and their prospective uses are described in Table A.

2.03 Refer to Section 032-325-801 for information on using the P15A417 cord holder to support service observing and miscellaneous test cords on small crossbar switches.

#### NOTICE

Not for use or disclosure outside the Bell System except under written agreement

### 3. APPARATUS

#### 3.01 *List of Tools and Materials:*

TOOLS	DESCRIPTION
363	Spring adjuster
<b>MATERIALS</b>	
—	Plastic electrical tape, 0.007-inch thick

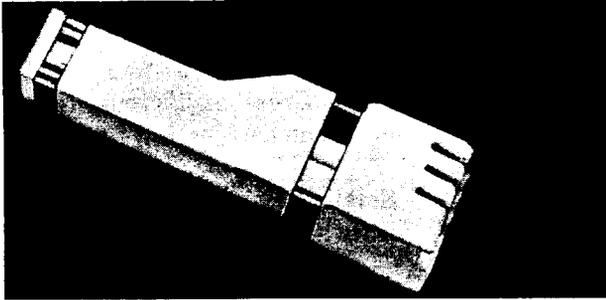


Fig. 1—459-Type Plugs (3-Wire Switches)

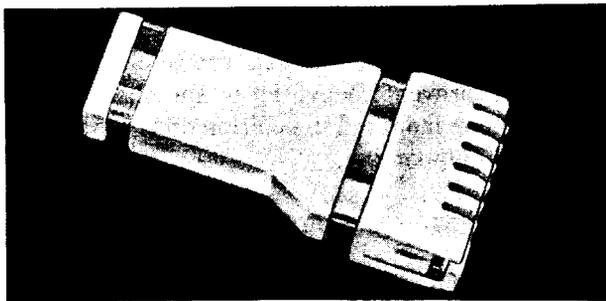


Fig. 2—459-Type Plugs (6-Wire Switches)

### 4. MOUNTING PROCEDURES

#### 4.01 *General:*

- (a) Before inserting the plug on the vertical unit, as shown in Fig. 3, position the slots of the plug in line with the vertical bars of the switch and the jaw of the plug in line with the metal lug of the frame.
- (b) **Vertical Units With HON Springs:** On some switches of early manufacture, the front tab of the HON restoring spring may have been bent slightly forward during adjustment and a

fully inserted plug may touch the tab. To provide operating clearance in this case, the fully inserted plug should be backed out approximately 0.020 inch. If desired, the plug may be modified to limit the extent of insertion by applying two layers of plastic electrical tape, approximately 1/8 inch by 3/4 inch by 0.007 inch thick, across the rear surface of the plug jaw. Later manufacture of the switches and plugs will insure clearance in all cases.

#### (c) **Vertical Units Positioned Unevenly:**

Switch failure may occur in some cases if the vertical assemblies are positioned unevenly, thus causing the 459-type plug to interfere with the holding armature of the adjacent switch. When interference is found, it can be corrected in almost all cases by readjusting the position of the high vertical unit in the switch frame so that the vertical unit rests against the bottom plate of the switch frame. This is done by loosening the two vertical unit mounting screws (left hand thread) and moving the unit downward as far as it will move. The position of the select wires with respect to the trapping zone, as covered in Section 030-721-701, must be rechecked after such readjustment. Information and figures found in Section 030-721-801 will aid in the readjustment.

#### 4.02 **Mounting the 459A or 459B Plug:**

- (1) When inserting or withdrawing the plug, slightly rock the heel end of the plug up and down to avoid applying excess contact force that might disengage the vertical bars.
- (2) Carefully insert the plug until the rear surface of the plug jaw just presses against the metal lug of the frame. See subparagraph 4.01(b).

#### 4.03 **Mounting the 459C, D, E, F, or G Plug:**

- (1) When inserting or withdrawing a plug having a ground spring, slightly rock the heel end of the plug up and down to facilitate depressing and moving the ground spring along the underside of the metal lug.
- (2) Take care to avoid butting the ground spring against the metal lug. The loop of the ground spring, in its free position, should extend 0.022 ±

TABLE A

## 459-TYPE PLUGS (USE AND DESCRIPTION)

PLUG CODE	INTENDED USE	NO. OF MULTIPLE STRIPS	NO. OF CONTACT SPRINGS	ON CORD NUMBER	CONTACT POSITION GROUNDED	COLOR OR
459A (See Note 1)	Service Observing	3	3	P3BE	None	Black
459B (See Note 1)	Tracing Call	6	6	P4BR	None	Black
459B (See Note 1)	Service Observing	6	6	P6R	None	Black
459C	Mk Bsy	6	6	None	0	Red
459D	Mk Bsy	6	6	None	3	Yellow
459E	Mk Bsy	3	3	None	0	Red
459F (See Notes 1 & 2)	Line Test	3	3	W3BK	None	White
459G	Mk Bsy	3	3	None	2	Green

**Note 1:** Available only on associated cord.

**Note 2:** Connected to 471A jack - cord includes →400409363← switch and 2000 ohms resistance.

0.003 inch, as gauged by eye, above the front end of the plug jaw.

(3) If it becomes necessary to reposition the ground spring, use the 363 spring adjuster as follows. Carefully engage the horizontal right end

of the ground spring in the slot of the tool. Rotate the tool clockwise to lower or counter-clockwise to raise the height of the loop on the spring.

(4) Insert the plug until the rear surface of the plug jaw just presses against the metal lug of the frame. See subparagraph 4.01(b).

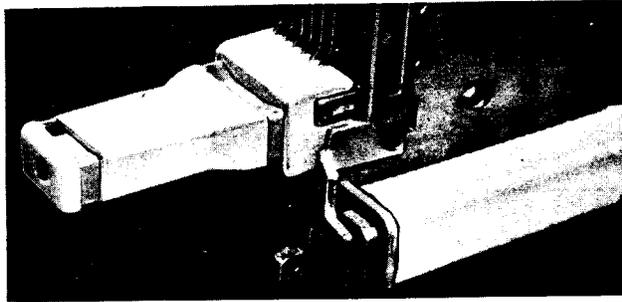


Fig. 3—459-Type Plugs (On 6-Wire Switch)