PLUGS ASSOCIATED WITH SWITCHBOARD CORDS AND METHOD OF REPLACING S3A CORDS PIECE-PART DATA AND REPLACEMENT PROCEDURES

1. GENERAL

1.01 This section covers the information necessary for ordering parts of plugs associated with switchboard cords. It also covers approved procedures for replacing the plugs on the cords and for replacing S3A cords.

1.02 This section is reissued to:

- Correct (black) shell part number of 309 plug in Table A
- Correct 2.02
- Change 3.02(d)(11).

1.03 Part 2 of this section covers the piece-part numbers and the corresponding names of the parts which it is practical to replace in the field.

1.04 Part 3 of this section covers the approved procedures for the replacing of the parts covered in Part 2.

1.05 The length of a plug shell (new or reused) shall be sufficient to completely cover the tip connecting plate insulator.

1.06 When replacing a plug associated with a cord which is equipped with a cushion, replace the old cushion with a new cushion as covered in Section 032-322-811.

1.07 For 309- and 310-type plugs, electrically nonconductive plastic shell screws should be used as replacements for the previous brass shell screws. The plastic shell screw, piece-part 840218226, is manufactured without a formed thread. A thread is formed as the screw is steadily turned in the tapped hole under constant axial thrust. The screw should be inserted until it is flush with the plugshell. It should be inserted perpendicular to the axis of the plug, not tilted. A screw that is tilted may permit the plugshell to slide over it and slip off the plug. While tightening the screw with the KS-2348 screwdriver, care should be exercised to avoid stripping the screw slot. When the screw is properly seated in position, the screw slot should be in line with the long axis of the plug within 30 degrees. In this position, the head of the screw offers maximum resistance to damage. If the plastic screw is removed from the plug, the screw should be replaced. Repeated insertion may result in crossthreading and weak threads.

2. PIECE-PART DATA

2.01 The piece-part numbers of the various parts are given together with the names of the parts as listed by the Western Electric Merchandise Department. Where these names differ from those in general use in the field, the latter names, in some cases, are shown in parentheses.

2.02 When ordering the ▶S3A◀ cord, give both the code and name, S3A cord.

2.03 When ordering parts for plugs (Table A), give both the part number and name of the part: P-475860 Shell. Do not refer to the BSP number or to any information shown in parentheses following the name of the part.

3. REPLACEMENT PROCEDURES

3.01 *List of Tools*

TABLE A
PIECE-PARTS OF PLUGS

	CODE NUMBER OF PLUGS			
	309	310	347C	347D
SHELL (RED)	P-475817	P-475860	P-243875	
SHELL (BLACK)	P-474886	P-474887		P-243876
SHELL (GRAY)	P-294650	P-294651		
SHELL (GREEN)	P-42L064	P-42L065		
SCREW (SHELL SCREW)	840218226	840218226	P-285371	P-285371
SCREW (CORD CONN)	P-484150	P-484150	P-484150	P-484150
WASHER (UNDER TIP CONN SCREW)	P-210695	P-210695	P-210695	P-210695
WASHER (UNDER SLEEVE CONN SCREW)			P-210695	P-210695

Note: All replacement shells are made of nylon.

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
255	Grooved pliers (for replacing 309 and 310 plugs)
316	Plug remover and attacher (for replacing 309 and 310 plugs)
	Note: A 201 tool for 309 plug or a 202 tool for 310 plug together with a 200 tool may be employed where it is desired to continue using these older tools instead of a 316 plug remover and attacher.
317	Plug remover and attacher (for replacing 347 plugs)
	Note: A 318 plug remover and attacher together with a 200 tool may be employed when it is desired to continue using these older tools instead of a 317 plug remover and attacher.
485A	Smooth-jaw pliers
KS-2348	Cord repair screwdriver
KS-5263	Cord repair table
KS-6278	Connecting clip (for use on the 893 cords)

3.02 *Replacement of Plugs*

(a) Before replacing a plug at a B position which is occupied or grouped at an occupied position, ground the sleeve of the cord at the cord shelf with the 1W13B cord. This will operate a relay and disconnect the trunk cord from the operator telephone circuit. This will also avoid introducing noise into the associated operator telephone circuit.

(b) When starting a plug replacement at any type of switchboard position, pull the cord out from the plug shelf, remove the shell screw using the KS-2348 screwdriver, discard the screw, and take off the shell.

Note: Magnetization of the KS-2348 screwdriver facilitates the handling of the lockwashers. In order to magnetize or remagnetize one of these screwdrivers, the blade may be held against the field pole of an operating ringing machine for about 30 seconds.

(c) Where a 316 or 317 plug remover and attacher is available, proceed as follows.

(1) Place the plug in the chuck of the plug remover, and tighten the chuck by turning the handle in a counterclockwise (CCW) direction while holding the collar stationary, either manually or by inserting the bolt into one of the holes in the collar.

(2) If held by the bolt, insert the bolt into a hole in the collar which will leave the connecting screws of the plug facing in the direction most convenient for removing them.

(3) Using the KS-2348 screwdriver, remove the connecting screws and discard them since they are not to be reused. Then restore the bolt if it was used.

(4) Remove the plug from the cord by holding the cord firmly with the left hand or with the 255 pliers, and again turn the handle of the plug remover in a CCW direction.

(5) Remove the plug from the plug remover, and discard it.

(6) Substitute a new plug in the chuck of the plug remover, and tighten as covered in (1).

(7) Thread conductors having cord tips into the plug, holding the untipped sleeve conductor of the 3-conductor cord bent tightly back on the cord butt.

(8) Hold the cord firmly in the left hand or with the 255 pliers and press it into the heel of the plug (to engage the threads) and screw on the plug by turning the handle of the plug remover in a clockwise (CW) direction.

(9) Check that the cord tips on the conductors do not catch on the edges or terminals of the plug. If the condition occurs, disengage the cord tips and untwist the conductors before screwing the plug on further; otherwise, cord tips and conductors may become damaged.

(10) Screw the plug to its final position on the cord.

Note: With the plug in position, both cord tips should come over their respective screw holes without appreciable slack and the serving, if any, should just be covered by the heel of the plug. Where solderless cord tips are not provided on 3-conductor cords, the ring conductor should be beneath the tip conductor; while on 2-conductor cords, the sleeve conductor should be under the tip conductor.

(11) Without holding the cord, turn the handwheel of the plug remover to the position which is most convenient for placing the terminal screws with the KS-2348 screwdriver. Then secure the tool in this position by sliding the bolt into the nearest corresponding hole in the collar.

(12) On cords equipped with cord tips, place the tip over the terminal plate so that the seam is at the bottom. Place a new connecting screw on the tip of the KS-2348 screwdriver, and secure the ring conductor (or the sleeve, in the case of 2-conductor cords) to the terminal plate. Where cord tips are used, exercise care that when tightening the screw, the cord tip is parallel with the long axis of the plug in order to guard against the possibility of immediate or subsequent crosses with the inside surface of the plug body. When cord tips are not used, make sure that no strands of the conductors are caught in the lower threads of the screw before tightening the screw.

(13) Place a new connecting screw and lockwasher on the tip of the KS-2348 screwdriver and with these secure the tip conductor to the tip terminal as covered in (12).

(14) Remove the plug from the plug remover, and equip it with a good shell of the proper color using a new shell screw. Make sure when replacing the shell that it is long enough to cover the terminal screw cut out.

Caution: When tightening the screw, exercise care that the KS-2348 screwdriver is not permitted to slip and cause a burr on the screw which might result in cutting fingers or causing other damage. Where the burrs cannot be effectually and quickly removed by rubbing over once or twice with the knurled portion of the KS-2348 screwdriver, replace the screw. Screwdriver blades which are dull on one end should

be inverted, and those dull on both ends should be replaced.

(d) Where a 316 or 317 plug remover and attacher is not available, proceed as follows.

(1) Using the KS-2348 screwdriver, remove the connecting screws and discard them since they are not to be reused.

(2) Grasp the cord firmly with the 255 pliers, close to the plug. Remove the plug by turning the plug in a CCW direction with the hand or the 485A pliers. If the pliers are used, grasp the plug at the flat portion of the plug over the ring screw hole. Discard the plug.

(3) Thread conductors having cord tips into the new plug, holding the untipped sleeve conductor of the 3-conductor cord bent tightly back on the cord butt.

(4) Hold the cord firmly with the 255 pliers near the serving, and press the plug onto the cord sufficiently to engage the threads.

(5) Screw the plug on the cord with the hand or the 485A pliers, to a point within two or three turns of its final position.

Note: With the plug in position, both cord tips should come over their respective screw holes without appreciable slack and the serving, if any, should just be covered by the heel of the plug. Where solderless cord tips are not provided on 3-conductor cords, the ring conductor should lie beneath the tip conductor; while on 2-conductor cords, the sleeve conductor should be under the tip conductor.

(6) On cords equipped with cord tips, place the tip over the terminal plate so that the seam is at the bottom.

(7) Place a new connecting screw on the tip of the KS-2348 screwdrvier, and secure the ring conductor (or the sleeve in the case of 2-conductor cords) to the terminal plate.

(8) Where cord tips are used, exercise care that when tightening the screw, the cord tip is parallel with the long axis of the plug in order to guard against the possibility of immediate or subsequent crosses with the inside surface of the plug body.

(9) When cord tips are not used, make sure that no strands of the conductors are caught in the lower threads of the screw before tightening the screw.

(10) Place a new connecting screw and lockwasher on the tip of the KS-2348 screwdriver and with these secure the tip conductor to the tip terminal as covered in (6) through (9).

Note: Magnetization of the KS-2348 screwdriver facilitates the handling of the lockwashers. In order to magnetize or remagnetize one of these screwdrivers, the blade may be held against the field pole of an operating ringing machine for about 30 seconds.

(11) Equip the plug with a new shell of the proper color, using a new shell screw in accordance with Table A.

Caution: When tightening the screw, exercise care that the KS-2348 screwdriver is not permitted to slip and cause a burr on the screw which might result in cutting fingers or causing other damage. Where the burrs cannot be effectually and quickly removed by rubbing over once or twice with the knurled portion of the KS-2348 screwdriver, replace the screw. Screwdriver blades which are dull on one end should be inverted, and those dull on both ends should be replaced.

3.03 ***Replacement of S3A Cords:*** To replace an S3A cord, proceed as follows.

(1) Disconnect the cord from the cord shelf.

(2) Disconnect the link from the stay band, and remove the cord from the switchboard.

(3) Remove the link from the replacing cord.

(4) Insert the cord through the hole in the plug seat.

(5) Connect the link to the stay band from the cord side, and connect it in place by closing the loop with the 255 pliers.

(6) Connect the cord to the cord shelf.

(7) Before placing a cord back in service, test that it is free from the following:

- Opens
- Crosses
- Transposed conductors
- Noise which may be due to loose connections within the plug or to a defective cord.

Use the testing equipment available at the switchboard or elsewhere within the office.