JACKS

49, 137, 138, 141, 166, 275, 295, 308, 347, 362, 365, 378, 494, 499, AND 500 TYPES

PIECE-PART DATA AND REPLACEMENT PROCEDURES

1. GENERAL

1.01 This section covers the information necessary for ordering parts to be used in the maintenance of the 49, 49B, 137, 138, 141, 166, 275, 295, 308, 347, 362, 365, 378, 494A, 499A, and 500A jacks. It also covers the approved procedures for replacing these parts.

1.02 This section is reissued to cover the 499A and 500A jacks and to add a paragraph defining information enclosed in parentheses.

1.03 Part 2 of this section covers the piece-part numbers and the corresponding names of the parts which it is practicable to replace in the field in the maintenance of these jacks. No attempt shall be made to replace parts not designated. Part 2 also contains explanatory figures showing the different parts. This information is called Piece-Part Data.

1.04 Part 3 of this section covers the approved procedures for the replacement of the parts listed in Part 2. This information is called Replacement Procedures.

2. PIECE-PART DATA

2.01 The figures included in this part show the various piece parts in their proper relation to other parts of the apparatus. The piece-part numbers of the various parts are given together with the names of the parts as listed by the Western Electric Company Merchandise Department. When 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 piece parts for replacement purposes, give both the number and the name of the piece part. For example, P-111777 Shell. Do not refer to the BSP number or to any information shown in parentheses following the piece-part number.

2.03 Information enclosed by parentheses ( ) is not ordering information. This information may be references to notes, parts referred to in other portions of the section and not considered replaceable, or part names in general use in the field if these names differ from those assigned by the manufacturer.

2.04 The 137, 138, 166, 275, 295, 308, 347, 362, 365, 378, 494A, 499A, and 500A jacks are similar in construction to the 141 jack, and the same piece parts should be ordered as for the 141 jack.

2.05 The jack units of the 137, 138, 141, 166, 275, 295, 308, 347, 362, 365, 378, 494A, 499A, and 500A jacks together with mounting screws shall be considered as piece parts and may be obtained by removing a jack unit from any jack mounting having the same code. No attempt should be made to replace individual springs of these jacks.

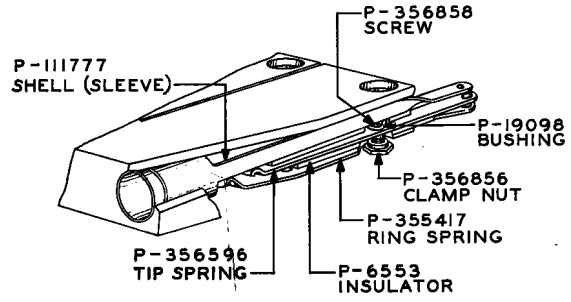

Fig. 1 – 49-Type Jack

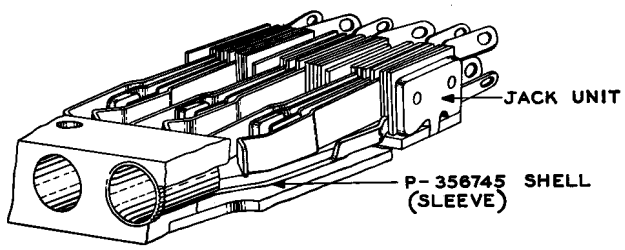

Fig. 2 – 141 Jack

3. REPLACEMENT PROCEDURES

3.01 *List of Tools*

CODE OR SPEC NO.	DESCRIPTION
124	Sleeve Terminal Locking Tool
245	3/8- and 7/16-Inch Hex. Open Double-End Flat Wrench
407A	Sleeve Remover
408A	Jack Mounting Counterbore
409A	Jack Sleeve Crimper
414B	Automatic Hammer
KS-6854	3-1/2 Inch Screwdriver
—	3-Inch C Screwdriver (or the replaced 3-inch cabinet screwdriver)
—	Long Nose Pliers (or the replaced 6-1/2 inch P-long-nose pliers)
—	5-Inch Diagonal Pliers

3.02 Before making any replacement of the parts of a jack, remove the associated circuit from service in accordance with the approved procedures.

3.03 The 137, 138, 166, 275, 295, 308, 347, 362, 365, 378, 494A, 499A, and 500A jacks are similar in construction to the 141 jack, and the same procedures should be employed as for the 141 jack.

3.04 After making any replacement of parts in a jack, and before remounting the jack mounting in the switchboard, check the jack on which the parts have been replaced. Check the 141-type multiple jacks used in No. 9 and No. 10 switchboards, as covered in Section 032-353-501. Check the other type jacks as covered in Section 032-350-502. After the jack mounting is remounted, check that all jacks in that mounting meet the requirements covered in the section specified above as applicable.

SLEEVE

Removal of Sleeve

3.05 Unsolder the connection from the sleeve terminal and, in the case of 141 and similar jacks, remove all excess solder. In the case of 275 and similar jacks having a local contact spring soldered to the sleeve terminal and in the same slot of the spring assembly, it will be necessary to separate the spring and sleeve terminals at this time.

3.06 Before using the 407A sleeve remover, make sure that its entire tap portion extends beyond the feet of the yoke and the knurled locknut. Screw the tap portion about two or three turns into the sleeve slowly but steadily as shown in Fig. 3 until there is considerable resistance to turning. Screw the knurled locknut tightly against the face of the sleeve and lock the tool to the sleeve by holding the locknut firmly while turning the tap portion slightly in a clockwise direction. With a rotary motion of the tool, rock the sleeve back and forth through a small arc (20 degrees to 30 degrees) until the sleeve is free of the pin. This is indicated by the sleeve turning in the mounting. On the 49-type jack, continue rocking the sleeve until the sleeve terminal is broken off. This is indicated by the free movement of the sleeve in the mounting. On the 141 and similar jacks, exercise care in freeing the sleeve of the pin not to break the sleeve from the terminal.

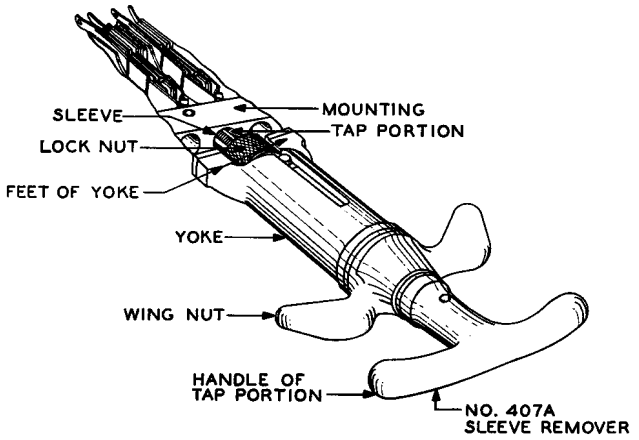

Fig. 3 – Method of Tapping Sleeve With 407A Sleeve Remover

3.07 Holding the yoke portion of the 407A sleeve remover so that the feet of the yoke are in line with the jack mounting, turn the wing nut in a clockwise direction until the feet of the yoke come into contact with the face of the jack mounting as shown in Fig. 4. If the sleeve is being replaced on a jack which is close to the stile casing of the switchboard, it may be

necessary to straddle vertically the sleeve being removed or, in extreme cases where this cannot be done, hold one foot of the yoke against the stile casing and insert an insulating spacer equal to the thickness of the stile casing under the other foot of the yoke. Continue to turn the wing nut until the sleeve can readily be pulled out of the mounting.

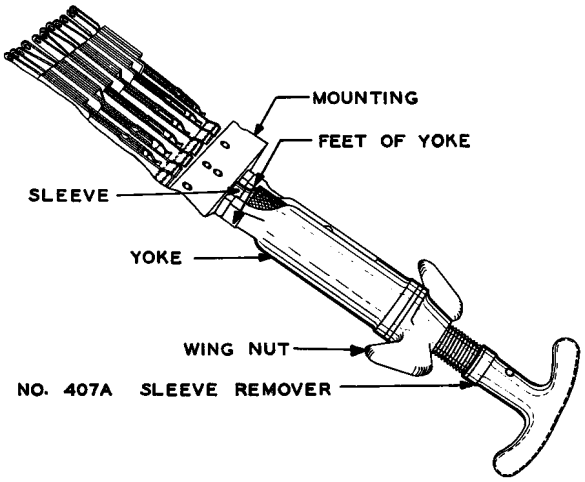

Fig. 4 – Method of Extracting Sleeve With 407A Sleeve Remover

3.08 On the 49-type jack, draw the terminal out of the mounting from the back with the long-nose pliers.

3.09 If necessary, remove the pin from the mounting with the long-nose pliers. If the pin has become imbedded in the mounting, there may be sufficient clearance without removing the pin to allow entrance of the new sleeve.

3.10 On the 141 and similar jacks, counterbore the face of the rubber mounting with the 408A jack mounting counterbore. Before using the counterbore, check its adjustment to make sure that it will counterbore just the depth of the shoulder on the new sleeve. If, with the knurled barrel forced against the handwheel, the teeth do not extend beyond the barrel a distance equal to the depth of the shoulder of the sleeve, loosen the locknut on the shaft by turning it in a clockwise direction with the 245 wrench. Then while holding the barrel at the feet and the cutter back of the teeth firmly with one hand, turn the handwheel with the other hand until the barrel, when pressed against the handwheel, is in the required position. Tighten the locknut by turning it in a counterclockwise direction.

3.11 Insert the guide of the counterbore into the jack aperture and position the feet of the knurled barrel against the face of the mounting as shown in Fig. 5. Counterbore by turning the handwheel slowly in a clockwise direction until the wheel bears against the knurled barrel. Carefully remove any shavings that may be lying in the jack aperture.

Caution: Do not blow the rubber shavings as they may enter the jack and lodge between the jack springs.

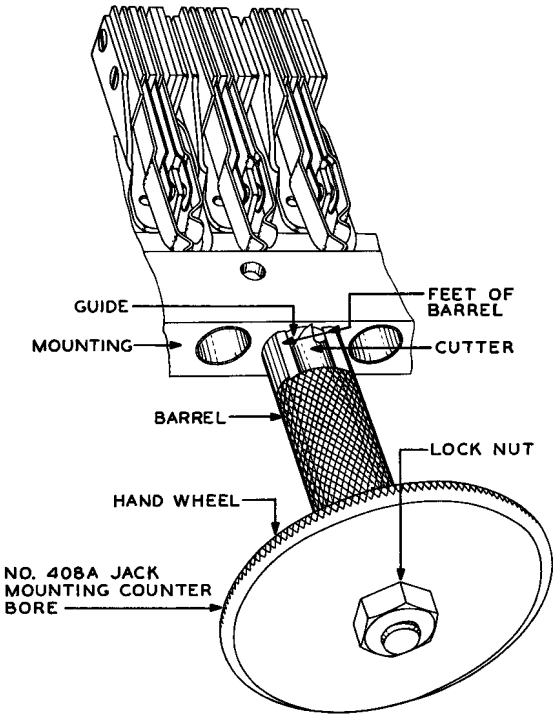

Fig. 5 – Method of Counterboring Mounting With 408A Jack Mounting Counterbore

3.12 Before inserting the new sleeve on the 141 and similar jacks, bend the sleeve terminal toward the center line of the sleeve so that the vertical section back of all bends forms an arc, and the extreme end of the terminal is offset about 1/4 inch from its natural position as shown in Fig. 7. On the 49-type jack, it will not be necessary to bend the sleeve terminal.

Replacement of Sleeve

3.13 In the case of the 49-type jack, hold the sleeve so that the terminal is at the right and insert it into the mounting so that the terminal will enter the slot as shown in Fig. 6.

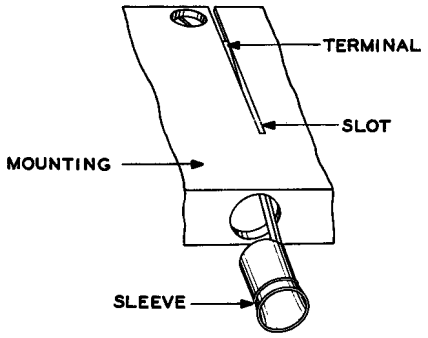

Fig. 6 – Method of Inserting Sleeve Into the 49-Type Jack

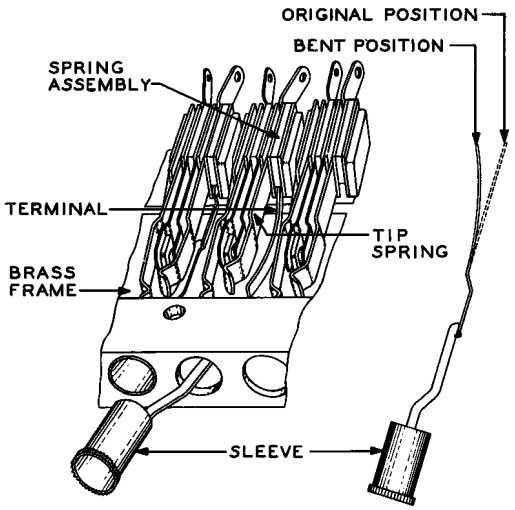

Fig. 7 – Method of Inserting Sleeve Into the 141 Jack

3.14 On the 141 and similar jacks, hold the sleeve so that the terminal is at the bottom for 1/2-inch thick mountings as shown in Fig. 7 and at the top for 11/16-inch thick mountings. Carefully locate the opening in the spring assembly at the rear of the mounting with the end of the terminal. This opening can best be located by holding the terminal against the side of the tip spring as shown in Fig. 7 and allowing it to follow this spring back and toward the brass frame of the mountings until the opening is reached. In the case of 1/2-inch thick mountings, the tip spring is to the right and the brass frame is at the bottom. In the case of 11/16-inch thick mountings, the tip spring is to the left and the brass frame is at the top. Observe from the rear of the switchboard whether or not the terminal is properly located.

3.15 Place the 414B automatic hammer in the sleeve and carefully guide the sleeve into the opening in the face of the mounting as shown in Fig. 8. Do not turn or twist the sleeve in doing this. Push on the hammer until the automatic release operates. Repeat this operation until the sleeve is flush with the face of the mounting.

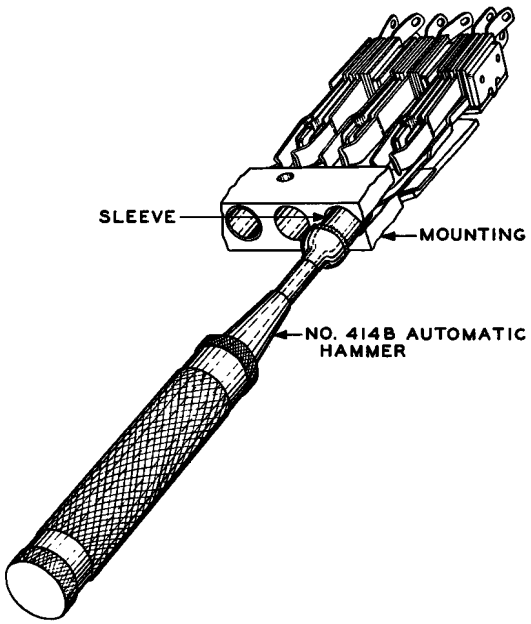

Fig. 8 – Method of Driving Sleeve Into Mounting With 414B Automatic Hammer

3.16 On the 49-type jack, twist that portion of the sleeve terminal extending in back of the mounting by applying the 124 sleeve terminal locking tool over the terminal as far as possible and holding the terminal down in the slot in the rubber mounting as shown in Fig. 9. Turn the locking tool 90 degrees in a counterclockwise direction.

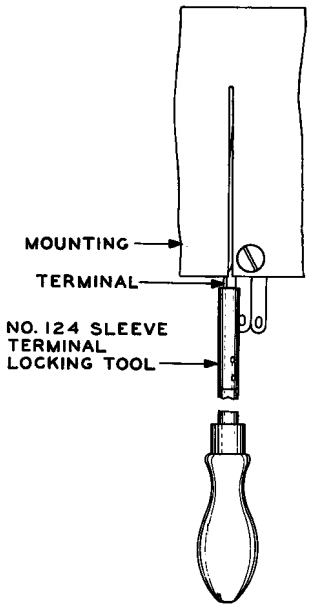

Fig. 9 – Method of Locking Sleeve Terminal With 124 Sleeve Terminal Locking Tool

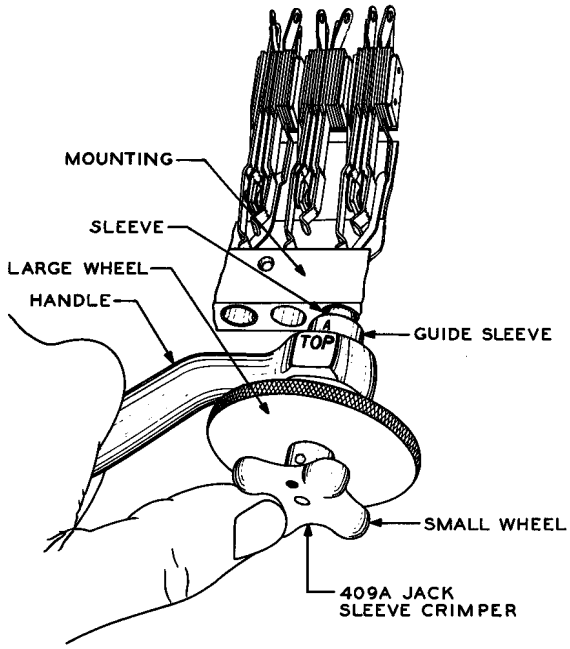

Fig. 10 – Method of Crimping Sleeve Terminal With 409A Jack Sleeve Crimper

Crimping the Sleeve

3.17 Hold the 409A jack sleeve crimper by the handle in the left hand so that the marking TOP is up. If the sleeve to be crimped is of the 141 or similar jack in a 1/2-inch thick mounting, set the guide sleeve of the 409A jack sleeve crimper in the position so that the letter A is on top as shown in Fig. 10. If the sleeve to be crimped is of the 141 or similar jack in an 11/16-inch thick mounting, set the guide sleeve in the position so that the letter C is on top. If the sleeve to be crimped is of the 49-type jack, set the guide sleeve in the position so that the letter B is on top. The adjustment of the crimper is controlled by loosening the clamping screw on the handle, sliding the guiding sleeve forward, turning it to the desired position, sliding it backward, and tightening the clamping screw.

3.18 While still holding the crimper in the left hand turn the small wheel in a clockwise direction until it is screwed against the large wheel with the knurled edge. Turn both wheels together until the black dot on the small wheel is at the top if the guiding sleeve is in position A, at the bottom if the guiding sleeve in in position C, or at the left side if the guiding sleeve is in position B. Hold the small wheel from turning out of this position with the thumb of the left hand as shown in Fig. 10.

3.19 Insert the crimper in the replaced sleeve pressing it firmly against the face of the mounting as shown in Fig. 10. Turn the small wheel 180 degrees bringing the dot opposite its former position. While holding the small wheel firmly with the thumb of the left hand to prevent its turning, turn the large knurled edge wheel with the right hand in a clockwise direction as far as possible without excessive forcing. This crimps the sleeve terminal at its junction with the sleeve. After this crimping operation, turn the large wheel 1 or 2 turns in a counterclockwise direction and then turn the small wheel through 180 degrees bringing it back to its former position. Withdraw the crimper from the mounting.

3.20 Resolder the connection to the sleeve terminal.

3.21 To remove the sleeve from the tap portion of the 407A sleeve remover, back off the locknut and remove the sleeve by grasping it firmly with the diagonal pliers as shown in Fig. 11. Turn the tap in a counterclockwise direction until the sleeve has been removed.

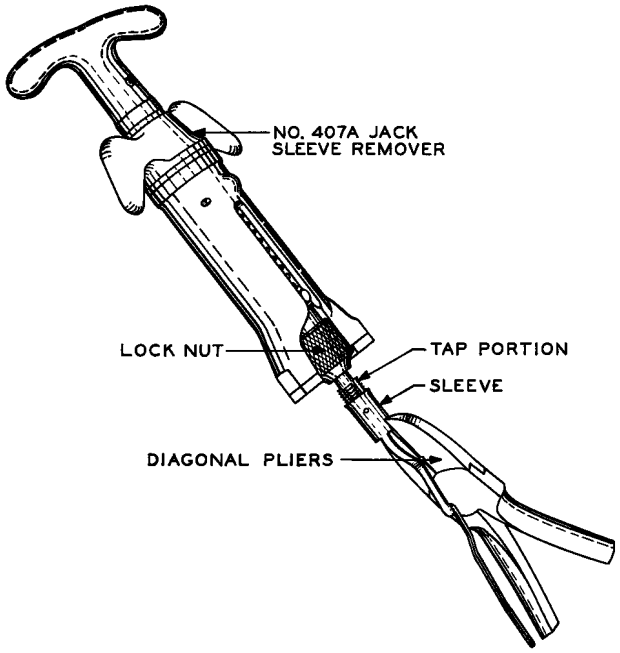

Fig. 11 – Method of Removing Sleeve From 407A Sleeve Remover

OTHER PARTS

Ring and Tip Springs and Associated Parts

3.22 Remove the jack strip in which the replacement is to be made from the multiple in the approved manner.

49-Type Jacks

3.23 Hold the jack strip in a horizontal position with the head of spring assembly screw on top. While supporting the spring assembly with one hand, remove the spring assembly screw with the 3-inch C screwdriver. Turn the jack strip over so that the ring spring is uppermost and remove the springs, insulator, and bushing and make the necessary replacement of parts.

3.24 Reassemble the parts as follows. Insert the spring assembly screw into the mounting from underside and support it with one hand. Place the bushing over the screw and then place the tip spring in the mounting so that the hole farther from the terminal end encircles the rubber stud and the hole nearer the terminal end encircles the bushing. Remount the insulator and the ring spring. Place the nut over the end of the screw and lower the screw sufficiently to permit the shoulder of the nut to rest on the ring spring. Then while holding the nut with one hand, turn the jack strip over and tighten the screw securely with the 3-inch C screwdriver.

Jack Unit for 141 and Similar Jacks

3.25 Unsolder the connections to the spring terminals of the jack unit to be replaced. If the unit to be replaced is of the 275 jack, the soldered connection between the contact spring and the sleeve terminal must also be unsoldered. Remove the jack unit mounting screws using the KS-6854 screwdriver. Remove the jack unit by pulling it out from the rear.

3.26 Insert the new jack unit from the rear, being careful to engage the sleeve terminal in its proper opening in the spring pile-up. Replace damaged or lost jack unit mounting screws by the screws which were used to fasten the replacement jack unit. Tighten the mounting screws securely with the KS-6854 screwdriver. Resolder all connections to the spring terminals previously unsoldered.