JACKS

92-, 229-, 292-, 510-, 511-, AND 512-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 92-, 229-, 292-, 510-, 511-, and 512-type jacks. It also covers the approved procedures for replacing these parts.

1.02 This section is reissued to include piece-part data and replacement procedures for 510-, 511-, and 512-type jacks. Since this is a general revision, arrows ordinarily used to indicate changes have been omitted. Detailed reasons for reissue will be found at the end of the section.

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 92-, 229-, 292-, 510-, 511-, and 512-type jacks. No attempt should 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 Fig. 1, 2, and 3 show the various piece parts in their proper relation to other parts. The piece-part numbers are given with the names of the parts, as listed by the Western Electric 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 Information enclosed by parentheses () is not ordering information. This information may be reference 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.

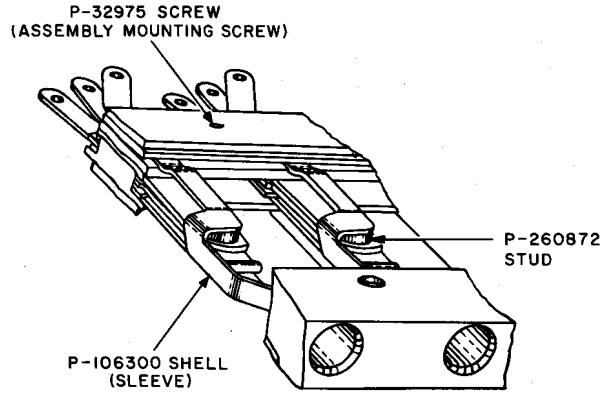

Fig. 1—92- and 292-Type Jacks

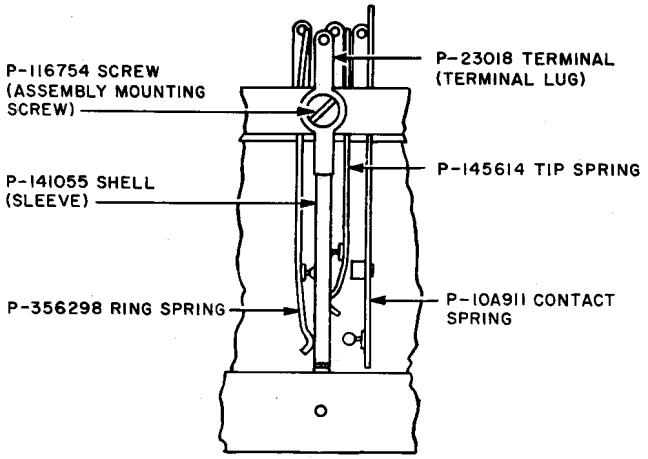

Fig. 2—229-Type Jack

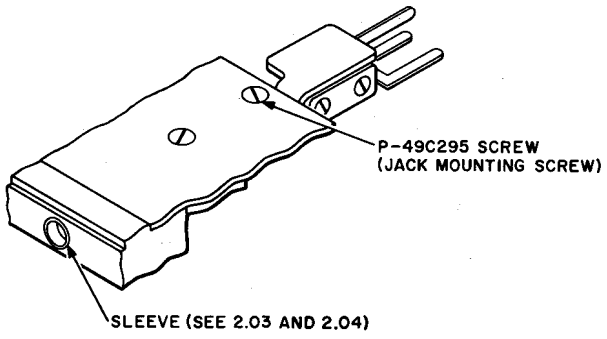

Fig. 3—510-, 511-, and 512-Type Jacks

2.03 When ordering parts for replacement purposes, give the number and the name of the piece part, for example, "P-106300 Shell." Do not refer to the section number or to any information shown in parentheses following the piece-part number.

2.04 When replacing the sleeve of a 510-, 511-, or 512-type jack, order the D-180231 kit as shown in list of tools and materials.

3. REPLACEMENT PROCEDURES

3.001 *List of Tools and Materials*

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
117	Jack Tip and Ring Spring Adjuster
303	Spring Adjuster
345	Jack Sleeve Remover and Replacer
478A	Jack Sleeve Remover
578B	Contact Stripping Pliers
585A	Clamp
KS-2993	Cleaning Brush
KS-6854	3-1/2 Inch Screwdriver
KS-14440	Soldering Copper
KS-16060	Cushion-jaw Cutting Pliers
R-8210	Screwdriver
—	3-Inch C Screwdriver
—	Screw Starter, GA-229, SNAP-ON Tools Corporation
—	P Long-Nose Pliers
—	5-Inch Diagonal Pliers
D-180231	Kit of Parts, consisting of: 1 — P-13B757 Clip 1 — P-13B758 Sleeve 1 — P-49C295 Screw (spare part for use if required)
MATERIALS	
KS-2423	Cloth
—	3/4-Inch Plastic Electrical Tape

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

3.02 In accordance with the approved procedures, remove the jack strip, in which the jack sleeve is to be replaced, from the multiple and after the replacement has been made, remount it in the multiple. Avoid unsoldering leads unless required.

3.03 After making any replacement of parts, check the jack, and where necessary readjust it to meet the requirements specified in Section 032-351-701.

3.04 Cover the apparatus below the jack strip with a cloth to catch dirt and jack parts. Clean the jack strip with the KS-2993 cleaning brush. The use of a vacuum cleaner is desirable in order to collect the dirt and prevent it from spreading to other apparatus.

3.05 To gain access to the parts of 234A or 235A jack mountings, first remove the four machine screws, which hold the two jack strips and jack spacer together, and then remove the jack spacer. Use the KS-6854 screwdriver.

SLEEVE

Removing Sleeve

92-, 229-, and 292-Type Jacks

3.06 Hold the jack strip in a horizontal position with the sleeve terminal uppermost. On 92-

and 292-type jacks, cut the sleeve terminal just in back of the rubber mounting and also just in front of the assembly mounting with the diagonal pliers, as indicated in Fig. 4. Remove the free portion of the terminal and the stud with the P long-nose pliers. On 229-type jacks, the sleeve terminal should be cut just in back of the rubber mounting and the joint unsoldered between the sleeve terminal and the terminal lug as indicated in Fig. 5. When cutting, hold the pliers at right angles to the flat portion of the spring and hold the thumb or finger over the part being removed, to prevent its flying.

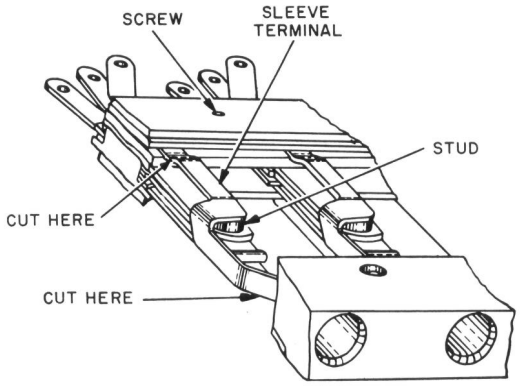

Fig. 4—Points at Which to Cut Sleeve Terminals in 92- and 292-Type Jacks

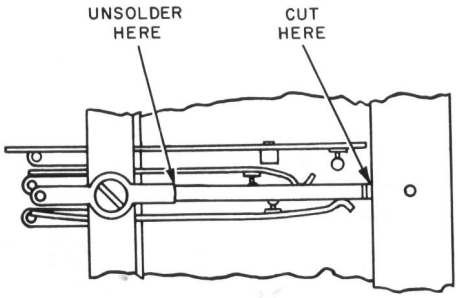

Fig. 5—Points at Which to Cut and Unsolder Sleeve Terminals in 229-Type Jacks

3.07 To remove the sleeve of a jack equipped with a pin for holding the sleeve in position in the rubber mounting, punch out the pin, using fixture A of the 345 jack sleeve remover and replacer, with fixture F applied under the rubber mounting, as shown in Fig. 6. Remove the pin with the P long-nose pliers.

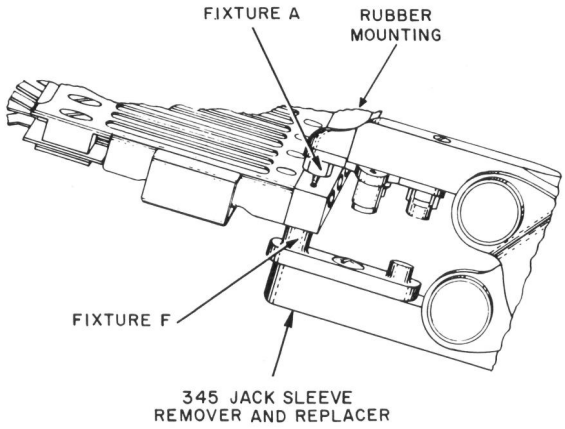

Fig. 6—Method of Removing Sleeve Pin on 92-, 229-, and 292-Type Jacks

3.08 ***On 92- and 292-Type Jacks:*** Hold the jack strip in a horizontal position and place it into the 585A clamp so the bars at both ends of the clamp are flush with the face of the strip and the beveled surfaces of the clamp are toward the front of the strip as illustrated in Fig. 7. The 585A clamp cannot be used on jack mountings associated with 229-type jacks. In this case, the

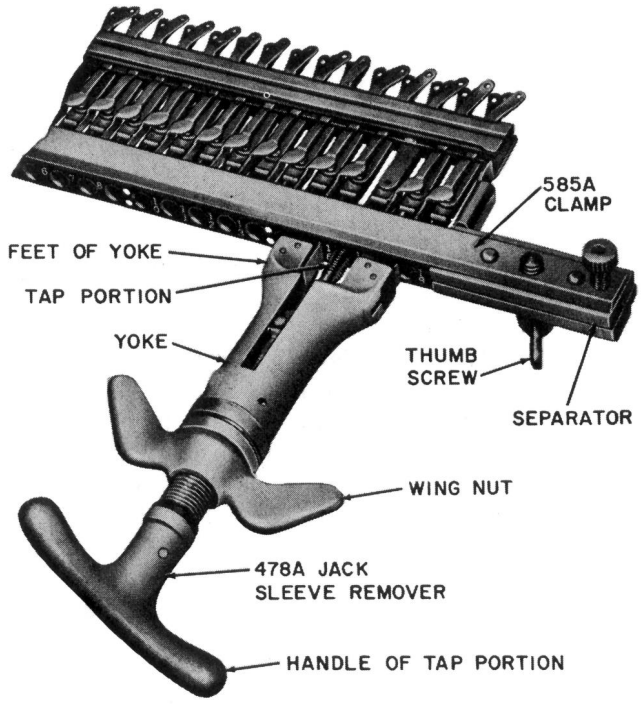

Fig. 7—Method of Extracting Sleeve With 478A Jack Sleeve Remover (92-Type Jack Shown)

sleeve must be removed without the use of the clamp. Where a holly strip is used, force the adjustable separators in and then turn them so they will be in the grooves which are at right angles to the length of the clamp. Where holly strips are not provided, position the adjustable separators, as outlined above in the deeper grooves which are in line with the length of the clamp. Then tighten the thumb screws at each end of the clamp.

3.09 Turn the wing nut on the 478A jack sleeve remover until at least half the length of the tap extends beyond the feet of the yoke of the sleeve remover.

3.10 Slowly and steadily turn the tap portion of the 478A tool about 2-1/2 full turns into the sleeve until there is considerable resistance to the turning. Avoid excess turning of the tool to prevent damage to the face strip. Hold the jack strip and yoke portion of the 478A tool with one hand so the feet of the yoke are in line with the jack strip and turn the wing nut of the 478A tool in a clockwise direction until the feet of the yoke come in contact with the face of the jack strip. Continue turning the wing nut until the sleeve is drawn forward and can be pulled out of the mounting. See Fig. 7.

3.11 ***On 92- and 292-Type Jacks:*** Unsolder the wires from the sleeve terminal, keeping the multiple wires soldered together. Loosen the assembly mounting screws adjacent to the sleeve terminal, using the KS-6854 screwdriver. Grasp the sleeve terminal at the soldering end with the P long-nose pliers and pull the terminal through the assembly mounting.

3.12 ***On 229-Type Jacks:*** Before attempting to replace a sleeve, remove all the springs from the jack as follows: Remove the assembly mounting screw from the jack being worked on, as well as the screws from the two jacks on each side, with the 3-inch C screwdriver. Insert the screwdriver under the clamping strip and raise the clamping strip just enough so the jack springs can be removed, one at a time. Lift each spring out of its slot and pull it straight out, using the fingers or the P long-nose pliers.

510-, 511-, and 512- Type Jacks

3.13 The 585A clamp cannot be used on the jack mountings associated with these jacks. Therefore, the sleeve must be removed without the use of the clamp.

3.14 If the contacts of the sleeve and sleeve terminal are soldered together, unsolder the contacts with the KS-14440 soldering copper. If the contacts of the sleeve and sleeve terminal are welded together, position the KS-16060 cutting pliers on the terminal of the worn sleeve with the cutting edges adjacent to the rear surface of the face strip. Cut the sleeve at this point. See Fig. 8. Then, break the connection between the contacts using the 578B contact stripping pliers. To do this, span the two contacts with the stripping pliers so the jaw having the hole is against the sleeve terminal contact and the other jaw is against the sleeve contact. Position the contacts within the stripping edges of the jaws and operate the pliers to shear the contacts. See Fig. 9.

3.15 Turn the wing nut on the 478A jack sleeve remover until at least half the length of

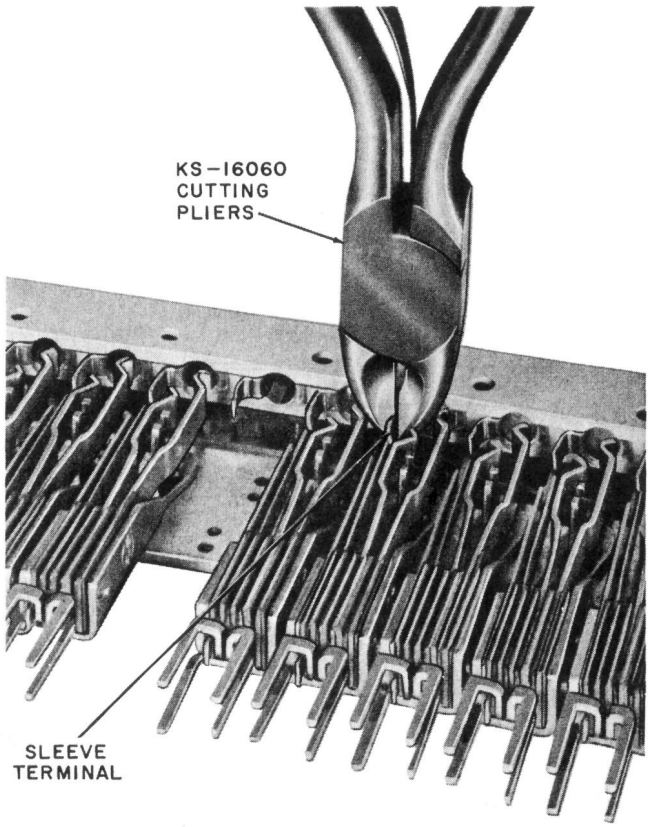

Fig. 8—Method of Cutting Welded Sleeve Terminals on 510-, 511-, and 512-Type Jacks

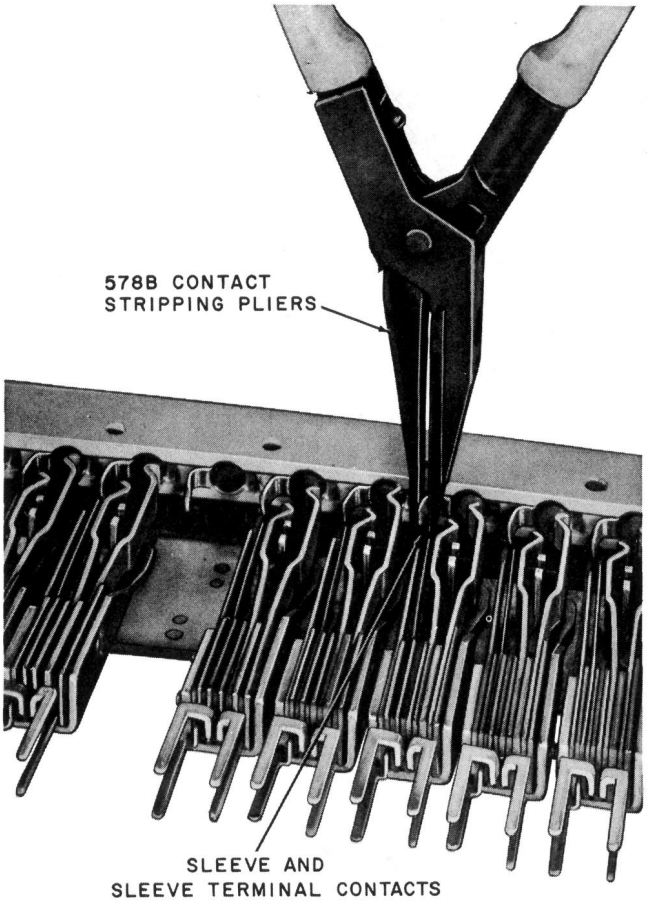

Fig. 9—Method of Shearing Contacts of Sleeve and Sleeve Terminal on 510-, 511-, and 512-Type Jacks Using 578B Contact Stripping Pliers

the tap extends beyond the feet of the yoke of the sleeve remover.

3.16 Slowly and steadily turn the tap portion of the 478A tool about 2-1/2 full turns into the sleeve until there is considerable resistance to the turning. Avoid excess turning of the tool to prevent damage to the face strip. Hold the jack strip and yoke portion of the 478A tool with one hand so the feet of the yoke are in line with the jack strip and turn the wing nut of the 478A tool in a clockwise direction until the feet of the yoke come in contact with the face of the jack strip. Continue turning the wing nut until the sleeve is drawn forward and can be pulled out of the mounting. See Fig. 7.

Mounting Sleeve

92- 229- and 292-Type Jacks

3.17 ***On 92- and 292-Type Jacks:*** Force the sleeve terminal into the assembly mounting from the front with the P long-nose pliers as shown in Fig. 10 until the front end of the sleeve just clears the back of the rubber mounting. Exercise care not to crack the insulators. If the sleeve terminal has been forced through the assembly mounting as far as possible, and if in this position the front end of the sleeve does not clear the back of the rubber mounting, increase the offset in the sleeve terminal just in back of the sleeve, using the P long-nose pliers. Force the sleeve forward in the rubber mounting by grasping the sleeve terminal with the P long-nose pliers at the offset as shown in Fig. 11 until the portion of the sleeve terminal that holds the stud (high hat bushing) in place is just to the rear of the hole in the stop spring. Insert the stud in the hole in the stop spring, using the P long-nose pliers; then, while depressing the stud with the thumb, continue to force the sleeve into the rubber mounting, making sure the stud slips under the sleeve terminal.

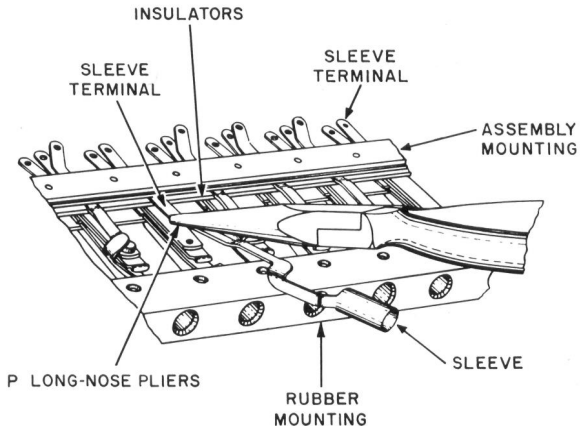

Fig. 10—Method of Forcing Sleeve Terminal into Assembly Mounting in 92- and 292-Type Jacks

3.18 ***On 229-Type Jacks:*** Force the sleeve forward in the rubber mounting, as for the 92- and 292-type jacks, by grasping the sleeve terminal with the P long-nose pliers just behind the sleeve, similar to Fig. 11. Continue forcing the sleeve forward until the sleeve is flush with the front of the rubber mounting.

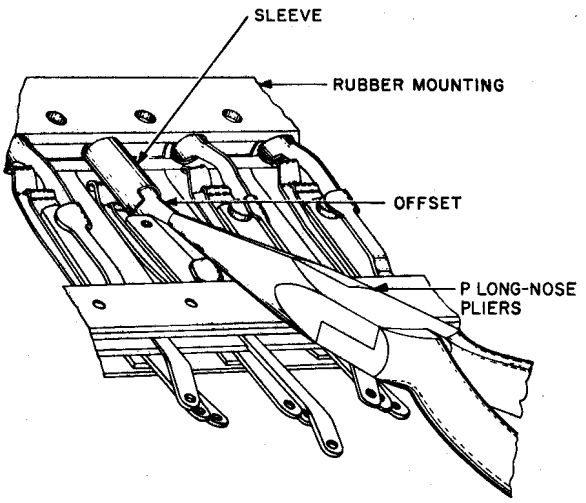

Fig. 11—Method of Forcing Sleeve Forward into Rubber Mounting on 92-, 229-, and 292-Type Jacks

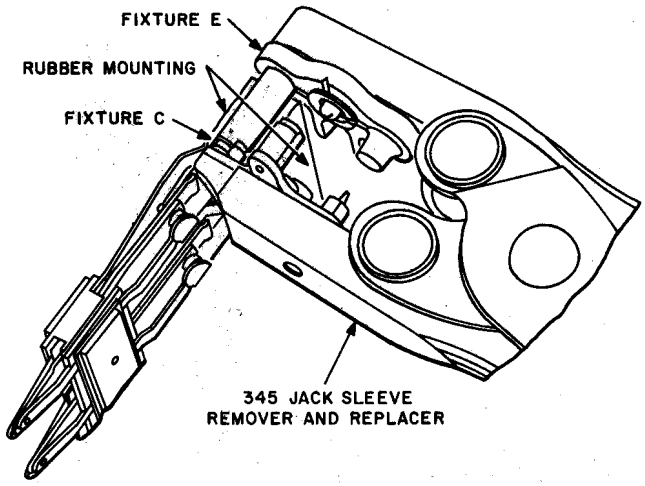

Fig. 12— Method of Forcing Sleeve Forward, Flush with Face of Rubber Mounting on 92-, 229-, and 292-Type Jacks

3.19 ***On 229-Type Jacks:*** In order to use the 345 jack sleeve remover and replacer, for forcing, locking, and flaring the sleeve, remove the washer on the E, F, G fixture side of the tool by removing the screw with the 3-inch C screwdriver; then replace the screw. The sleeve terminal must also be bent up at the back of the rubber mounting at a right angle to its normal position, so this tool can be used.

3.20 With fixture E of the 345 jack sleeve remover and replacer inserted in the face of the jack, and fixture C inserted in back of the sleeve, as shown in Fig. 12, force the sleeve forward by bringing the jaws together until the front of the sleeve is flush with the face of the rubber mounting.

3.21 Lock the sleeve in place by inserting fixture E of the 345 jack sleeve remover and replacer in the face of the sleeve and fixture D in the rear of the mounting, and bring the jaws firmly together.

3.22 Flare the front of the sleeve by inserting fixture F of the 345 jack sleeve remover and replacer in the face of the sleeve and fixture D in the rear of the mounting as shown in Fig. 13, and bring the jaws firmly together.

3.23 ***On 229-Type Jacks:*** To remount the springs, raise the clamping strip with the 3-inch C screwdriver and insert the springs in their slots, one at a time. Then remove the screwdriver and remount the assembly mounting screws in the two jacks on each side of the jack being worked on.

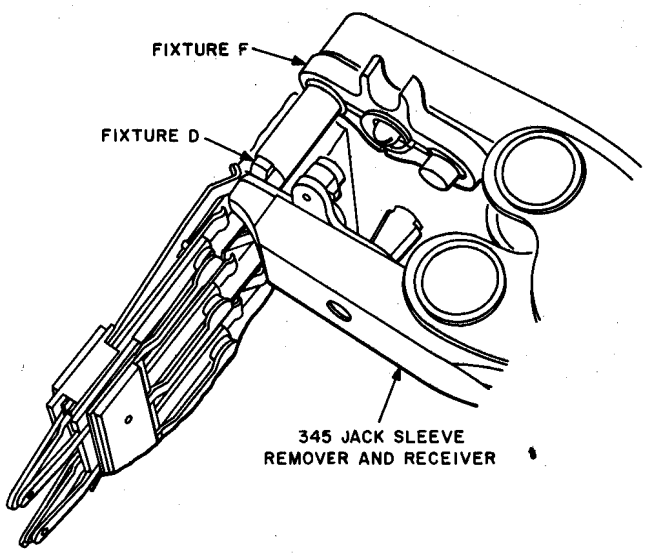

Fig. 13—Method of Locking Sleeve in Place and Flaring Front of Sleeve on 92-, 229-, and 292-Type Jacks

Bend the sleeve terminal down into position with the P long-nose pliers, at the same time making the bend resemble that in Fig. 14. When the sleeve terminal is in position line up the terminal lug with the screw hole, making the inside tip rest on top of the sleeve terminal. Remount the screw and solder the terminal lug to the new sleeve terminal, making sure there are no drops of solder left in the jack.

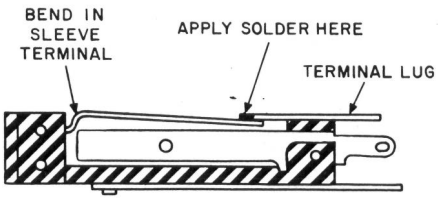

Fig. 14—Side View of the 229-Type Jack

3.24 Before remounting the jack strip in the multiple, inspect the studs to determine whether they are broken or missing. If the stud does not require replacement, proceed as in 3.32 and 3.33.

510-, 511-, and 512- Type Jacks

3.25 Tilt the jack mounting upward, and using the R-8210 screwdriver, remove the two jack mounting screws in the jack associated with the sleeve being replaced. To avoid losing dropped screws, place a piece of KS-2423 cloth directly under the jack.

3.26 Carefully move the jack from its mounted position sufficiently to permit insertion of the replacement sleeve, ***taking care to avoid electrical damage to terminal connections and adjacent apparatus.*** Insert the replacement sleeve from the rear of the face strip, align the sleeve contact with the sleeve terminal contact, and push the sleeve in place with the fingers. If the sleeve cannot be fully inserted, wrap approximately three turns of plastic electrical tape around each jaw of the P long-nose pliers, span the face strip and sleeve with the pliers, and press the sleeve into position. See Fig. 15.

3.27 Lock the sleeve in place by inserting fixture C of the 345 tool in the rear of the sleeve and fixture F in the face of the sleeve. Bring the jaws of the 345 tool firmly together to flare the front end of the sleeve. See Fig. 16.

3.28 Remount the jack in the jack mounting. Then, position the two jack mounting screws in place using the SNAP-ON screw starter as follows: Twist the bayonet-type end of the screw starter to spring load the tool. Position the slot of the screw on the two prongs of the screw starter and pull back and release the front end of the tool. The screw will be gripped on the prongs of the screw starter. After inserting the screws in the jack mounting holes, securely tighten the screws with the R-8210 screwdriver.

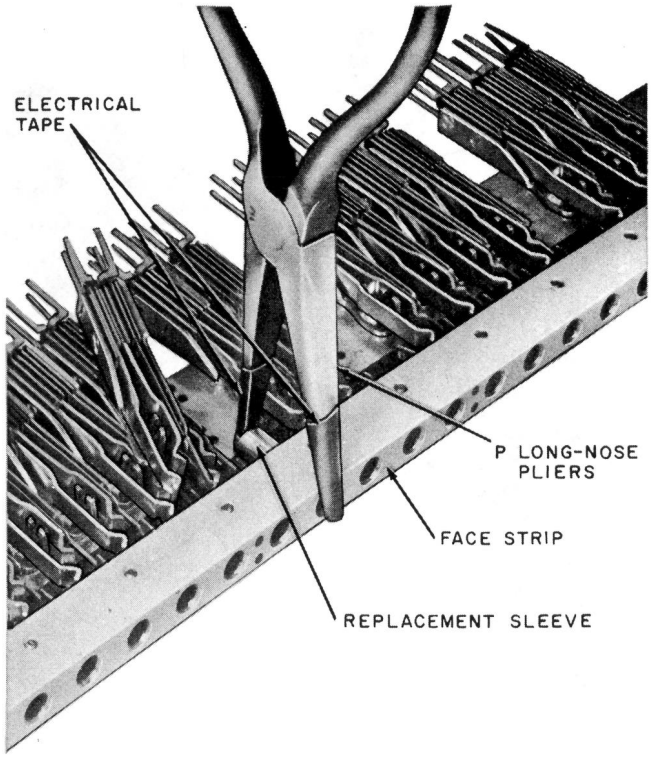

Fig. 15— Method of Forcing Sleeve Terminal Forward into Jack Strip on 510-, 511-, and 512-Type Jacks

3.29 Position the P-13B757 clip on the contacts of the sleeve and sleeve terminal, using the P long-nose pliers, and fasten the clip in place by compressing it with the pliers. See Fig. 17. Then solder the contacts together using the KS-14440 soldering copper. Remount the jack mounting and mounting screws in reverse order of removal. If necessary, remount the cable pins and secure the cable with lacing twine.

STUD

3.30 ***On 92- and 292-Type Jacks:*** To replace the stud, force the sleeve terminal up as far as possible with the 303 spring adjuster. Then while depressing the stop spring with the 117 jack tip and ring spring adjuster, insert the stud in the hole in the stop spring, using the P long-nose pliers as shown in Fig. 18. Force the sleeve terminal down to its original position with the 303 spring adjuster and the fingers.

3.31 ***On 229-Type Jacks:*** If necessary to replace the stud, remove the entire contact spring as covered in 3.12 and install a new contact spring as covered in 3.23.

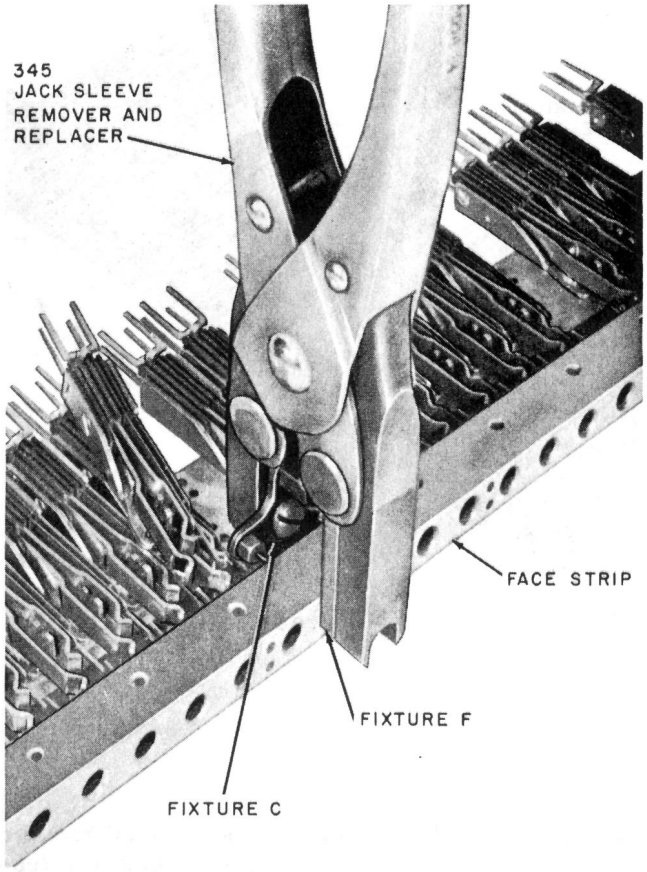

Fig. 16—Method of Flaring Front of Sleeve on 510-, 511-, and 512-Type Jacks

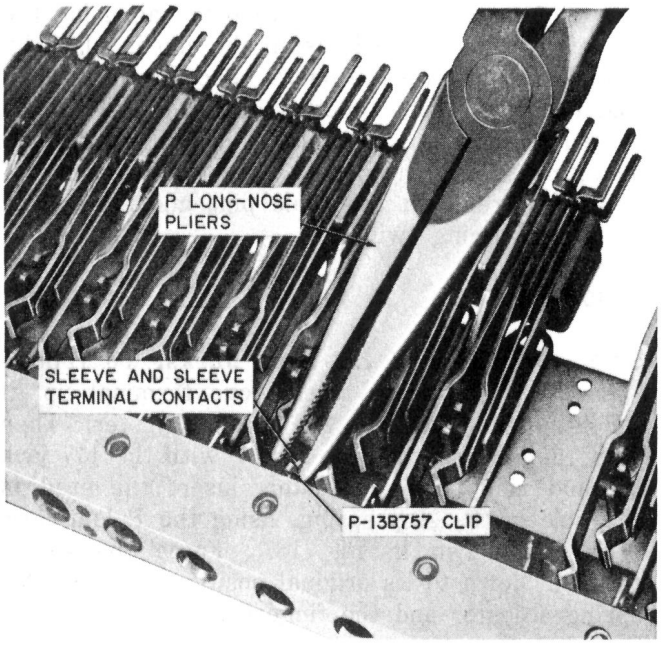

Fig. 17—Method of Fastening P-13B757 Clip to the Contacts of the Sleeve and Sleeve Terminal on 510-, 511-, and 512-Type Jacks

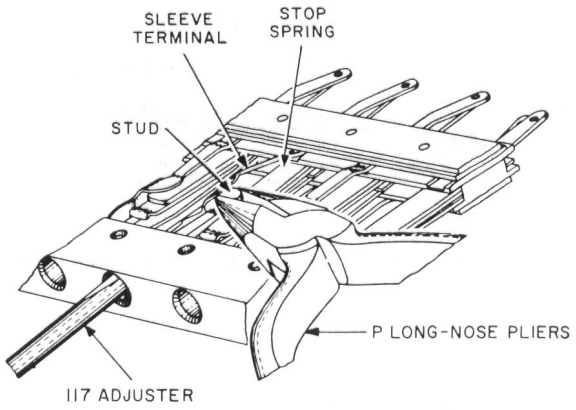

Fig. 18—Method of Replacing Stud in 92- and 292-Type Jacks

3.32 ***For 92- and 292-Type Jacks:*** On a 234A or 235A jack mounting, place the jack spacer between the two jack strips. Place the screws in their proper holes and tighten them securely, using the KS-6854 screwdriver. The two longest machine screws fit in the holes at the front of the mounting.

3.33 ***ON 92-, 229-, and 292-Type Jacks:*** Replace any wires that have been removed and retighten the assembly mounting screws, using the KS-6854 screwdriver for 92- and 292-type jacks, and the 3-inch C screwdriver for 229-type jacks.

REASONS FOR REISSUE

1. To add paragraph defining use of parentheses (2.02).
2. To revise the list of tools and materials (3.001).
3. To revise Fig. 1.
4. To add Fig. 3, 8, 9, 15, 16, and 17.
5. To add procedure for removing sleeve of 510-, 511-, and 512-type jacks (3.13, 3.14, 3.15, and 3.16).
6. To add procedures for remounting sleeve of 510-, 511-, and 512-type jacks (3.25 through 3.29).
7. To add heading on procedure for replacing stud of 92-, 2.29-, and 292-type jacks (3.33).