BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G61.153.1
Issue 1, June, 1955
AT&TCo Standard

TERMINALS
COAXIAL CABLE

Contents **Page**

1. GENERAL

1.01 This section covers the 41A and 42A cable terminals used for terminating one and two coaxials, respectively, in L3 coaxial systems.

1.02 This section also covers the modification of existing 30, 31, and 35-type terminals used on L1 systems to make them suitable for L3 operation, by the use of the 209A connector or the KS-14318 jack.

2. MATERIALS AND TOOLS

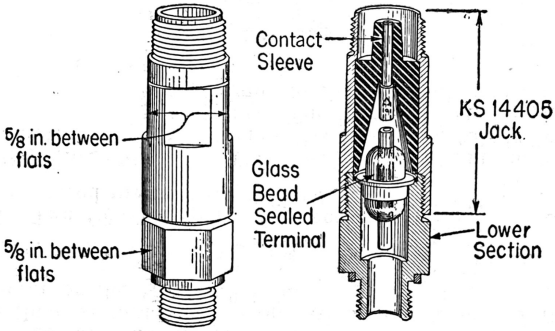
2.01 The following lists the special materials and tools involved in these operations.

Bushing, Threaded, BA-148914 — This device has been installed in some 35A terminals, to correct crosstalk. The bushing may be found in some of the terminals being modified.

BA 148914 THREADED BUSHING

Connector, 209A

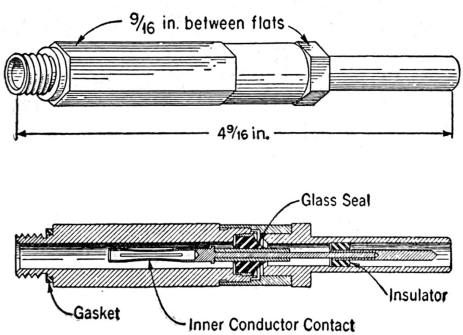
For use in modifying 30A, 30B, 31A, 31B and 35A Cable Terminals.



209A CONNECTOR

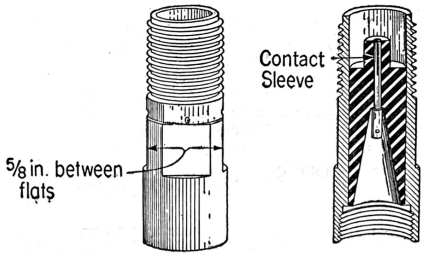
Connector, 214A
(Formerly D-177602)

This device is used for field repair of leaks in the vulcanized rubber gas seals of existing 30A, 30B, 31A, 31B, and 35A terminals. This connector may be found on some of the terminals to be modified.



214-A CONNECTOR
(Formerly D-177602 Connector)

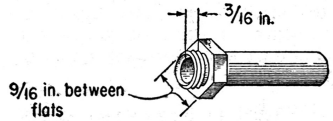
Jack, KS-14318 — For use in modifying 30C, 35B and 35C Cable Terminals.



KS-14318 JACK

Jig Assembly, Terminal, Coaxial — Special jig to facilitate assembly and soldering in modifying coaxial terminals. (Illustrated in text.)

Sleeve, Conductor, Outer Modified, MPS-4285 — This sleeve is used in some 35A terminals equipped with BA-148914 bushings.



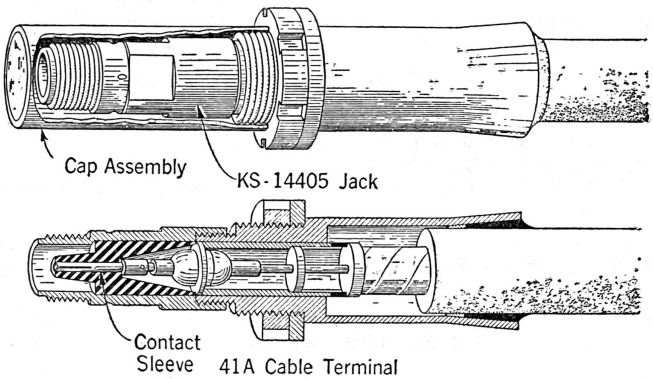
MPS-4285 MODIFIED OUTER CONDUCTOR SLEEVE

Wrench, End, Open, Modified — Modified commercial 5/8-inch—9/16-inch wrench for use in coaxial terminals.

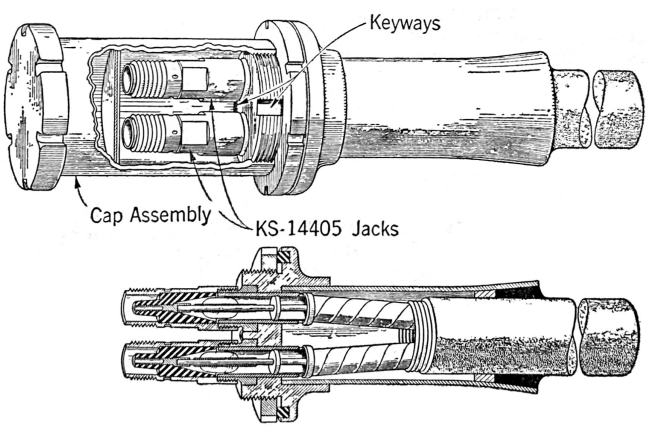
Wrench, Jack, Coaxial — Special socket wrench used to place or remove KS-14318 and KS-14405 jack in coaxial terminals. (Illustrated in text.)

3. 41A AND 42A CABLE TERMINALS

3.01 **The 41A cable terminal** is used for terminating a single coaxial in main repeater stations in a manner similar to the 30C cable terminal.



3.02 **The 42A cable terminal** is a two coaxial, single stub unit for terminating coaxials at auxiliary repeater stations. Except for the body, the terminal is an assembly of parts similar to those used in the 41A terminal. Where a terminal without key ways is placed in a bracket having a key in the stub hole it will be necessary to remove the key from the hole.



42A Cable Terminal

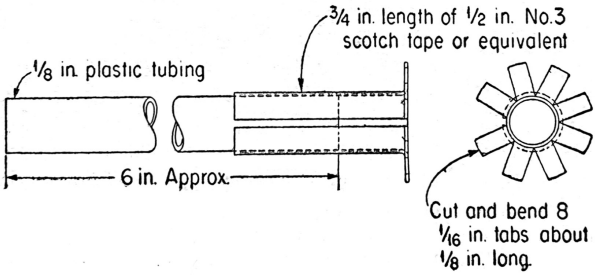
3.03 After the terminals have been installed, clean the glass bead and top of the terminal with alcohol and a lint free cloth. Use an orangewood stick to work the alcohol moistened cloth around the recessed areas. Then dry the terminal with dry nitrogen gas.

4. MODIFICATION OF 30A, 30B, 31A, 31B, AND 35A CABLE TERMINALS FOR L3 SYSTEMS

4.01 **Modification of 30A, 30B, 31A, 31B and 35A** (vulcanized rubber seal) terminals for L3 system operation is accomplished by the use of a 209A connector, as outlined below.

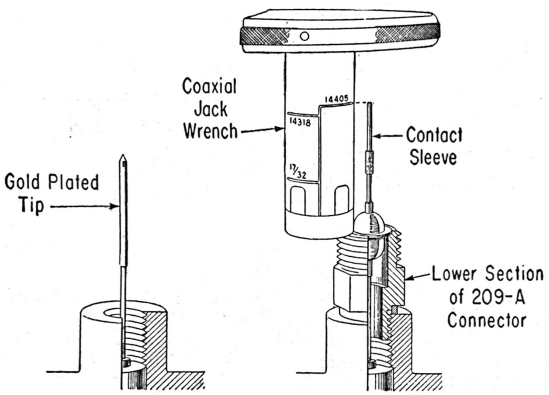
(1) Remove the gold-plated outer sleeve. If the terminal is equipped with a 214A or D-177602 connector, the entire connector should be removed.

(2) Inspect the inside of the terminal before placing the lower section of the 209A connector as described in the following paragraphs, to determine if any metallic particles or dirt are present. If any are found they shall be removed with a tool made up locally of approximately 1/8-inch diameter plastic sleeve and 3/4-inch length 1/2-inch No. 3 scotch tape. The adhesive side of the scotch tape should be against the sleeve. After cleaning with the tape, a few drops of alcohol should be placed in the terminal and blown out with nitrogen gas. This should be done even though metallic particles are not evident.



(3) Remove the KS-14405 jack from the 209A connector.

(4) Place the lower section of the 209A connector in the tapped hole of the terminal, as shown below. Be sure that the copper gasket is properly centered. Tighten the lower section with a 5/8-inch open end wrench sufficiently to insure a gas-tight seal between the connector and the shoulder of the terminal.

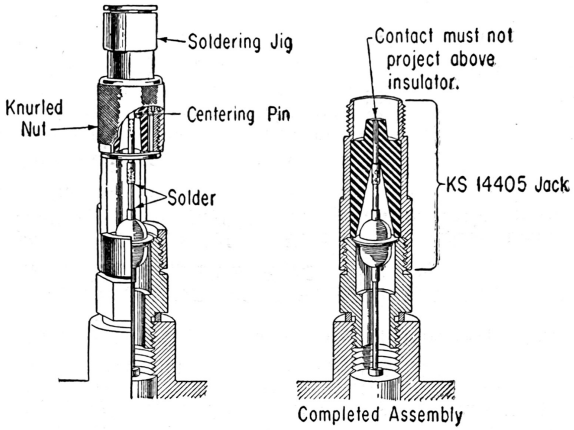


(5) Place the contact sleeve of the KS-14405 jack on the gold-plated tip of the inner conductor. The distance from the lower section of the 209A connector to the top of the contact pin (1-1/4-inch) should be checked with the 14405 mark on the coaxial jack wrench as shown above. If this distance exceeds 1-1/4 inches, remove the contact sleeve and cut off the gold-plated tip the required amount. Remove any burrs that remain after making the final cut.

(6) With the contact sleeve in position, place the KS-14405 jack on the lower section and turn it down finger tight. The contact sleeve should be flush with the top of the insulator. If not, remove the jack and trim the gold-plated tip the required amount.

(7) Then slip the contact sleeve on the center pin of the jig assembly as shown below and back off the knurled nut several turns.

(8) Screw the jig to the lower section of the 209A connector finger tight.



(9) Turn down the knurled nut to lower the contact into position for soldering to the center conductor, keeping the hole in the contact toward the opening, as illustrated.

(10) Solder the contact to the gold-plated tip, and the tip to the sleeve in the glass bead seal, using C rosin core solder. In soldering, care should be exercised to see that excess heat is not applied; this is to prevent loosening other connections in the assembly.

(11) Replace the KS-14405 jack as illustrated above and turn it up tightly with the coaxial jack wrench, using one hand. Do not force with pliers or otherwise. Before tightening the jack, hold the lower section of the 209A connector (which has already been tightened firmly) with a 5/8-inch open end wrench to prevent damaging the solder connection to the center conductor. This should also be done if it is necessary to remove the KS-14405 jack.

4.02 **In modifying 35A terminals** equipped with 214A or D-177602 connector, or the BA-148914 threaded bushing and MPS-4285 modified outer conductor sleeve, proceed as follows:

(1) If the terminal is equipped with a 214A or D-177602 connector, the entire connector should be removed. Otherwise, remove the modified outer conductor sleeve.

(2) After the outer conductor sleeve, and the D-177602 connector (if present), has been removed the inside of the terminal shall be inspected and any particles of dirt removed as described in Paragraph 4.01 (2).

(3) Remove the KS-14405 jack from the 209A connector.

(4) Measure the distance between the top of the BA-148914 bushing and the top of the tapped hole in the terminal. If this is less than the length of the corresponding threads of the 209A connector, file or grind off enough of the threads to assure an adequate gas seal when the connector is screwed into place. The threaded end of the 209A connector should not make contact with the top of the threaded bushing. The 209A connector should have at least two full threads engaged in the tapped hole of the terminal. After tightening the lower portion of the 209A connector to ensure a gas-tight seal between the connector and the shoulder of the terminal, proceed as outlined in Paragraph 4.01, Subparagraphs (4) to (10).

4.03 After the contact sleeve of the KS-14405 jack has been soldered to the gold-plated tip and before finally placing the jack, clean the glass bead and top of the connector with denatured alcohol and a lint free cloth. Use an orangewood stick to work the alcohol moistened cloth around any recessed holes. Dry the terminal using nitrogen gas.

4.04 Then replace the jack as covered in Paragraph 4.01 (11).

5. MODIFICATION OF 30C, 35B, AND 35C CABLE TERMINALS FOR L3 SYSTEMS

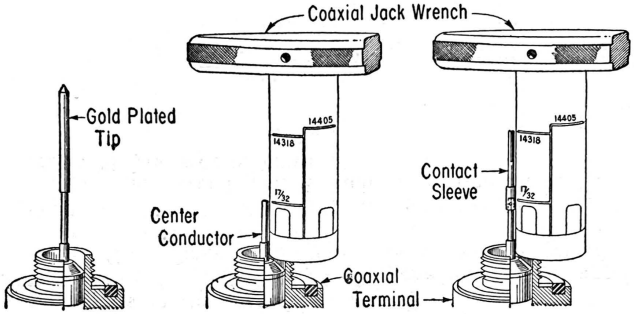
5.01 **Modification of 30C, 35B, and 35C** (glass bead type seal) cable terminals for L3 system operation is accomplished by the use of the KS-14318 jack.

5.02 The modification procedure is as follows:

(1) Remove the gold-plated outer sleeve. Cover the opening between the center conductor and the end of the outer conductor with a piece of paper or other material to keep solder from dropping into the cavity just above the glass bead seals.

(2) Heat the gold-plated tip on the inner conductor with a hot soldering copper and remove the tip with a pair of long nose pliers. Then remove the solder drip shield.

(3) Using the 17/32-inch scale on the jack wrench as a guide, mark the inner conductor as shown below, and cut to 17/32-inch length.



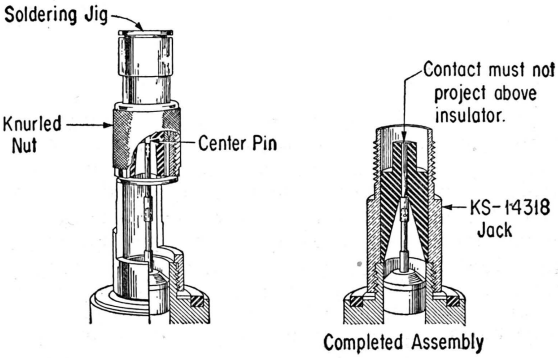
(4) Remove the contact sleeve from the KS-14318 jack and place it on the inner conductor. Then check the overall length as illustrated above, using the 14318 scale mark on the socket wrench. Trim the center conductor if necessary to ensure that the pin does not project above the mark.

(5) With the contact sleeve in position, place the KS-14318 jack and screw it down finger tight. The contact sleeve should be flush with the top of the insulator. If not, remove the jack and trim the center conductor the required amount.

(6) Then slip the contact sleeve on the center pin of the soldering jig and back off the knurled nut several turns.

(7) Pack a piece of clean muslin in the cup surrounding the center conductor to keep out solder drippings.

(8) Screw the lower section of the jig flush with the shoulder of the terminal, finger tight.



(9) Turn down the knurled nut to lower the contact sleeve into position for soldering to the center conductor, keeping the hole in the base of the contact sleeve toward the opening as illustrated. Solder the contact sleeve to the inner conductor with C rosin core solder. In soldering be careful to avoid excess heat which might loosen other connections in the assembly.

(10) Remove the soldering jig, also the dry muslin applied in (7). Clean the glass bead as described in Paragraph 4.03.

(11) Then place the KS-14318 jack and turn it up tightly with the coaxial jack wrench, using one hand. Do not force with pliers or otherwise.