BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

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CABLE SPLICING—GENERAL
TRANSFERS

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1. GENERAL

1.01 This section describes the splicing operations necessary in making typical cable transfers.

1.02 The transfer of a working line from one cable pair to another requires a change of the cross-connection at the main frame. It may also require rearrangement of the drop wire at the distribution terminal.

1.03 The details of the splicing work to be done in making a transfer are generally covered by work prints. The changes in cross-connections at the office and drop wire at the terminal are covered by cable transfer sheets.

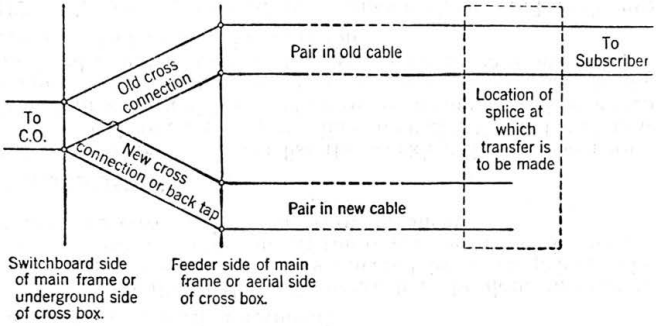
2. PROCEDURE

2.01 The transfer sheets list the working lines to be transferred and indicate the line numbers, the old and new pair assignments, and the location of the terminals out of which the lines work. Information as to the type of service on the pairs is also given so that the necessary precautions can be taken to avoid service interruption.

2.02 The preparation of the transfer sheets and their use by the splicing forces will depend on local routine. However, the splicer or helper should have the sheets before transferring working lines.

2.03 The new cross-connections are usually placed in advance of making the transfer at the splice. A back tap is an additional cross-connection from the new conductors on the

feeder side of the main frame to the lug on the switchboard side of the circuit which is to be transferred. When the transfer is completed, the back tap becomes the permanent cross-connection for the circuit in the new cable. The back taps will be placed and tested before the cable transfer is made.



2.04 If only a small number of working lines are to be transferred, it may be possible to use the existing cross-connections by shifting them to the new pairs as each line is transferred.

2.05 Two methods of making transfers are commonly used:

(1) **The test splicing method,** in which the pairs in the new cable are boarded in advance of making the transfer.

(2) **The test board method,** in which the pairs in both the new and old cable are boarded in advance.

2.06 **Test Splicing Method:** When only the pairs in the new cable have been boarded in advance, the transfer can be made as outlined below. (In the transfer described it is assumed that lines are being transferred from one cable to another. The same method would be used in transferring lines from one count to another in the same cable.)

(1) Establish a talking circuit to the office over a spare pair in the old count.

(2) At the splice, select a color group or unit in the new cable to be transferred and make sure that the ends are clear.

(3) At the office, place heat coils in the selected group to which working lines will be transferred. These pairs should be inspected at the frame to make sure that the

cross-connections have been made. Do not place heat coils in more than one color group or unit, as shorts, crosses or grounds may develop at the end of the new cable.

(4) The splicer selects a pair in the old cable, makes a listening test and sends tone on the ring side if the pair is spare or idle. The helper locates the pair at the frame and tells the splicer the pair number.

(5) The splicer then takes the corresponding pair out of the test board on the new cable and makes the transfer.

(6) If there is a working line on the pair in the old cable and it is being transferred to the new cable, the helper should remove the heat coils from the old cable pair. In doing this, make sure that heat coils are removed only from lines listed on the transfer sheet. The possibility of opening other lines can be avoided by sending tone from the splice on the ring side of the **new** pair immediately after the old pair is identified. If the line is to be transferred the helper should hear tone on the **old** pair through the new and old cross-connections.

(7) Party lines that work on separate cable pairs from the frame or from a cross-connecting terminal, should be checked to make sure that the transfer operations or the removal of the heat coils from the pair in the old cable will not disconnect a subscriber.

2.07 **Test Board Method:** When the pairs in both the old and new cable have been boarded in advance, the transfer can be made as outlined below:

(1) Establish a talking circuit to the office over a spare pair.

(2) Select the pairs to be transferred so as to give an orderly layup to the finished splice.

(3) To determine whether the cross-connections have been placed correctly, send tone on the ring side of each pair in the old cable listed on the transfer sheet and listen for tone on the ring side of the corresponding boarded pair in the new cable. Tone will be heard if the cross-connections are correct.

(4) In this method of testing, the heat coils are usually removed as each group of five to ten pairs is turned over to the test board for test after transfer.

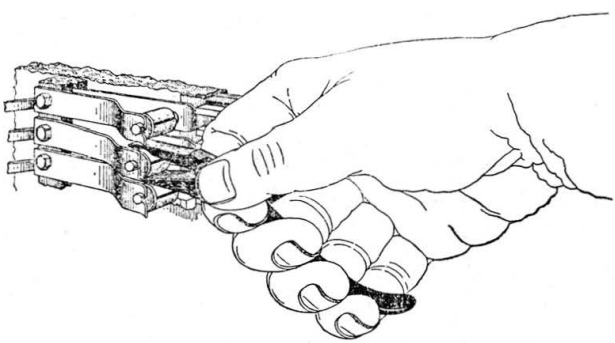
2.08 The pairs on which special circuits operate should preferably be transferred before the other pairs, to avoid possible service interruption.

2.09 **Errors in Pair Assignment** may occasionally occur which would put two unassociated lines on the same pair. This condition is usually detected when the transfer sheets are

prepared. If it is detected during a cable transfer, it is necessary to arrange for reassignment of one of the lines and to make the line change before completing the cable transfer.

2.10 **Defective Pairs:** The defective pairs should be checked before starting a cable transfer. In no case should a working pair be spliced to a known defective pair. Do not reverse a cable pair to correct a reversed line unless so directed by the supervisor. Report in accordance with local routine any pairs that become clear after transfer as well as the defective pairs.

2.11 **Heat Coils, Pins and Blocks:** If there is any doubt as to the proper type of heat coil, pin or block that should be used for a transferred line, consult the local frameman, wire chief or proceed as directed by local routine. The proper method of placing and removing a heat coil is shown in the following illustration.



In placing, first insert the fiber end of heat coil into slot in outer spring and press outwards until the pin of heat coil will go into slot in inner spring.
In removing, first pull fiber end of heat coil from slot in outer spring and then remove from slot in inner spring.

2.12 **Testing Transferred Lines:** After the first five working lines have been transferred, the splicer or his helper should inform the wire chief or test deskman, of the transferred line numbers and request that they be tested. The transfer operations may be continued until five more working lines have been transferred but must then be stopped unless an O.K. test has been received for the first five lines. After the O.K. is received, transferring should be resumed and the request for

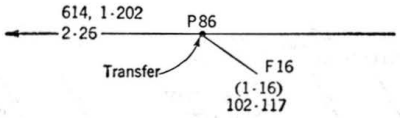
testing should be made after every ten working lines have been transferred. The transfer operations need not be stopped for the O.K. of the ten-line groups but the splice should not be closed until the final O.K. has been received.

2.13 **Marking and Tagging:** After a transfer has been completed, it is usually necessary to change the tags on cables and the marking at terminals to indicate the new cable number and pair counts.

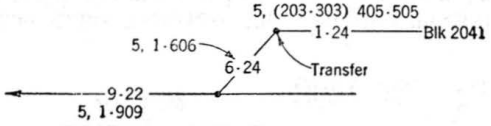
3. TYPICAL TRANSFERS

3.01 A number of typical transfers are illustrated and described in the following paragraphs.

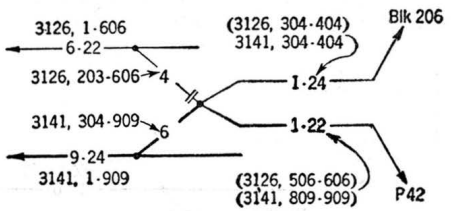
3.02 **Terminal Transfer:** The following diagram illustrates the transfer of a distribution terminal. The splicing would usually be done by cutting the terminal stub pairs off the old pairs, piecing them out and bridging them to the new pairs.



3.03 **Transfer of Branch at End of Stub:** The following illustrates a job in which the branch remains in the same cable but is transferred to a different count. In this case the new pairs can be boarded directly in the linen test boards.



3.04 **Transfer of Branch to Different Cable:** The following illustrates a job in which a branch is transferred from one cable to another.



3.05 **Main Cable Transfer:** The following illustrates a job in which the outer end of a feeder cable is transferred to another feeder cable.