BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G61.124.1
Issue 1, August, 1958
AT&TCo Standard

TERMINALS

INSTALLATION OF UNPROTECTED INSIDE CROSS-CONNECTING TERMINALS FOR PIC CABLE

Contents **Page**

1. GENERAL

1.01 This section covers the installation of unprotected inside cross-connecting terminals for use with PIC Cable. These new terminals permit the extension of the ready access principle to the selection of feeder pairs in building cross-connecting terminals. This results in greater flexibility and a larger selection of feeder pairs for connection to the house pairs.

1.02 House cable pairs are permanently terminated initially as specified in the detailed plans. The total complement of feeder cable pairs is placed in the ready-access cross-connecting terminal and are not terminated prior to assignment by service order. All feeder pairs are available for use and are terminated as assigned.

1.03 Both feeder and house cable pairs are terminated between insulation crushing washers without cutting or removing the insulation. Electrical connection is made by tightening the nut with a 216B tool to crush the insulation on the conductor.

1.04 Careful handling of the PIC conductors is required to avoid knicking or cutting the insulation.

1.05 The cross-connecting terminal is placed prior to the placing of the cable. Slack is provided in the feeder cable conductors for use in the terminal.

2. EQUIPPING TERMINALS

2.01 The connecting blocks are essentially G type binding post chambers except there is no cable stub and they are not filled with compound. The binding posts are equipped with insulation crushing washers. Fanning strips are provided on both sides of the block. The following sizes of connecting blocks are available:

F 53011	11 pair unit
F 53012	16 " "
F 53005	26 " "
F 52980	51 " "

2.02 When the feeder cable is 400 pairs or less the connecting blocks are mounted on wooden backboards and placed in cable terminal sections as follows.

2.03 Feeder cable in Figs. 1 and 3 is shown coming from the left and distribution cable from the right. If feeder cable comes from the right, reverse pair terminations so that the distribution cable comes from the left. Do not cross cables.

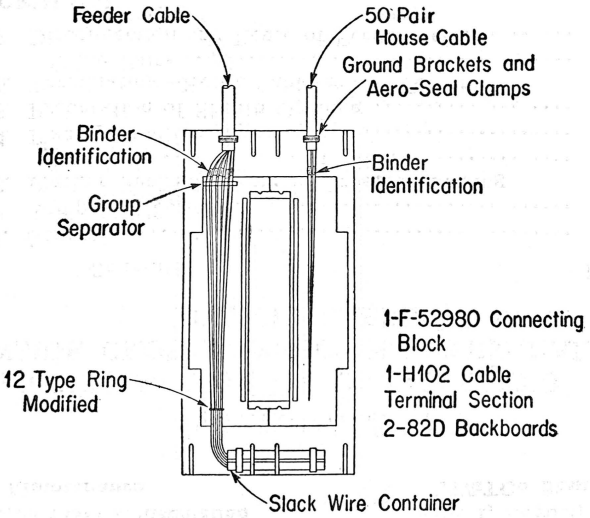


FIG. 1

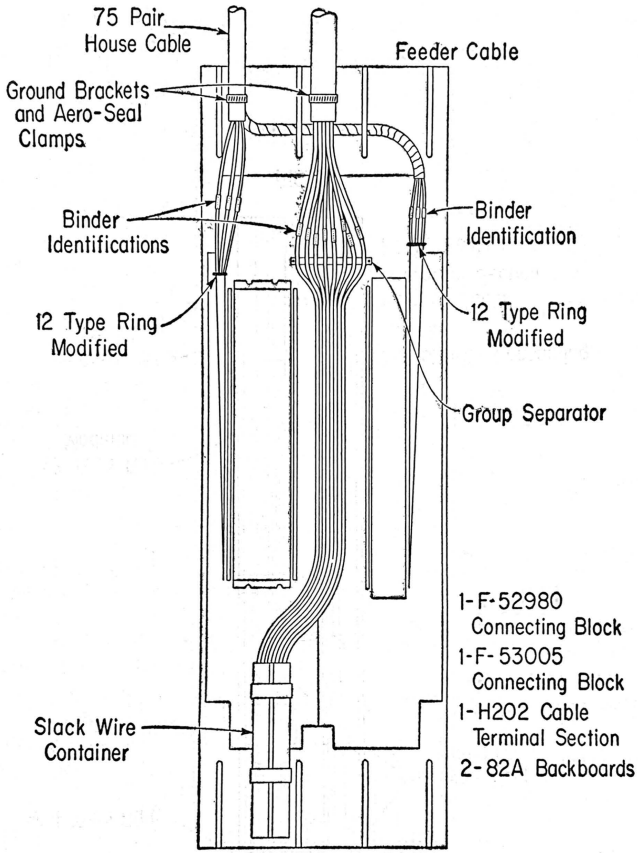

75 Pair
House Cable
Feeder Cable
Ground Brackets
and Aero-Seal
Clamps
Binder
Identifications
Binder
Identification
12 Type Ring
Modified
12 Type Ring
Modified
Group Separator
1-F-52980
Connecting Block
1-F-53005
Connecting Block
1-H202 Cable
Terminal Section
2-82A Backboards
Slack Wire
Container

FIG. 2

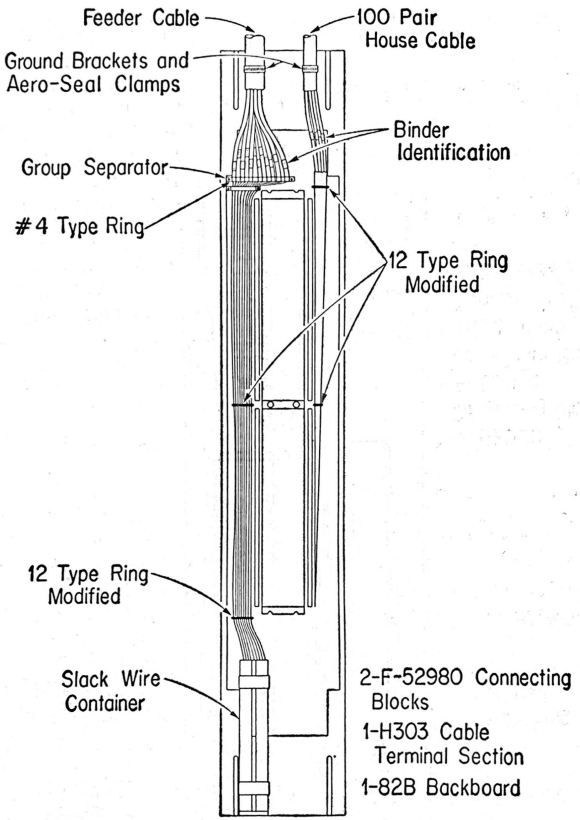

Feeder Cable
100 Pair
House Cable
Ground Brackets and
Aero-Seal Clamps
Binder
Identification
Group Separator
#4 Type Ring
12 Type Ring
Modified
12 Type Ring
Modified
Slack Wire
Container
2-F-52980 Connecting
Blocks
1-H303 Cable
Terminal Section
1-82B Backboard

FIG. 3

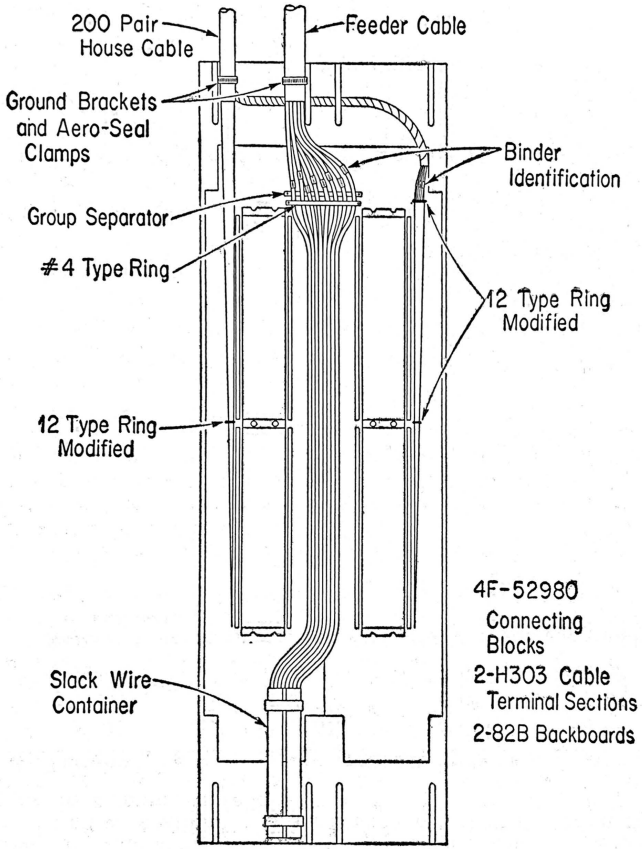

200 Pair House Cable
Feeder Cable
Ground Brackets and Aero-Seal Clamps
Binder Identification
Group Separator
#4 Type Ring
12 Type Ring Modified
12 Type Ring Modified
4F-52980 Connecting Blocks
2-H303 Cable Terminal Sections
2-82B Backboards
Slack Wire Container

FIG. 4

3. PLACING FEEDER CABLE AND CROSS-CONNECTING TERMINAL

3.01 Locate the feeder cable run and terminal in accordance with the detailed plans.

3.02 Place the cable terminal sections as shown in G61.126.

3.03 Fasten feeder cable to wall within two feet of the top of the terminal.

3.04 Provide sufficient slack in the feeder cable at the terminal location. This slack shall be measured from the top of the terminal as follows:

Cable Terminal Section	1 Section	2 Sections	3 Sections
H102	3′ 6″	4′ 6″	5′ 6″
H202	5′ 0″	6′ 0″	7′ 0″
H303	6′ 6″	7′ 6″	8′ 6″

Note: For more than 3 sections, add 1 ft. for each additional section.

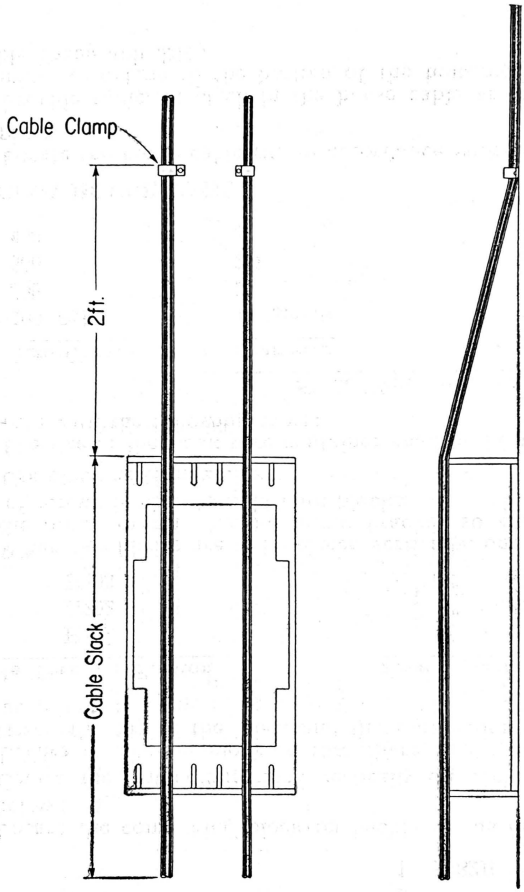


FIG. 5

3.05 Place the following wooden backboards in the H Cable Terminal Sections:

Cable Terminal Section	Backboard No.	Backboard Type
H102	2	82D
H202	2	82A
H303	1	82B

3.06 Locate the connecting block on backboard as outlined below:

(a) Center the connecting block vertically on backboard.

(b) Locate connecting block so that there is a space between the top of the block and the top section of the box as follows:

Cable Terminal Section	Free Space
H102	5″
H202	13″
H303	13″

(c) When two blocks are to be placed vertically, one above the other, overlap the mounting bracket so that one pair of screws is used to hold both blocks.

(d) Use block as template.

3.07 The size of the slack wire container shall be in accordance with the following table:

Size Cable	Slack Wire Container Diameter	Slack Wire Container Length
100 Pairs	1½ inches	16
200	2	16
300	2½	16
400	3	16

4. PLACING HOUSE CABLE

4.01 Locate the house cable run in accordance with detailed plans.

4.02 Provide sufficient slack in the house cable at the terminal to extend to the bottom of the housing. (Same as in table Paragraph 3.04.)

4.03 Prepare sheath at the terminal entrance in the same manner as outlined in Part 5.

4.04 Install ground clamp in terminal box in the same manner as outlined in Part 5.

5. PREPARATION OF SHEATH OPENING

House Cable

5.01 Mark the house cable where it enters the terminal with two B paper tape markers 3″ apart. The top marker to be even with the top of the box (inside).

5.02 Remove the cable sheath and aluminum wrapper of the house cable only to the core wrapper from the lower marker to the end of the cable. Remove the lower markers.

5.03 Aero-Seal Clamps together with inner clamps are used to maintain continuity of the aluminum wrapper of the feeder and house cables through the housing of the terminal.

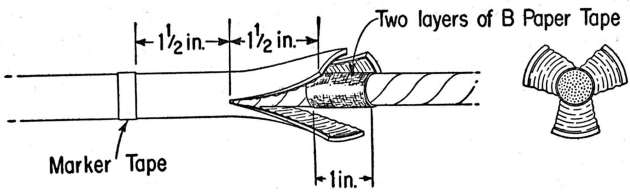
5.04 Ground the house cable to the metal of the box as follows:

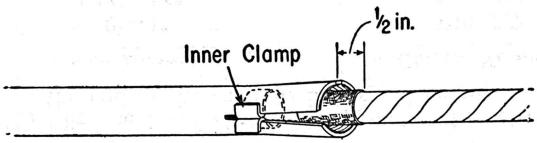
(a) Prepare tabs of approximately equal width by making longitudinal cuts through the polyethylene and metal layers to within 1½″ of the tape marker.

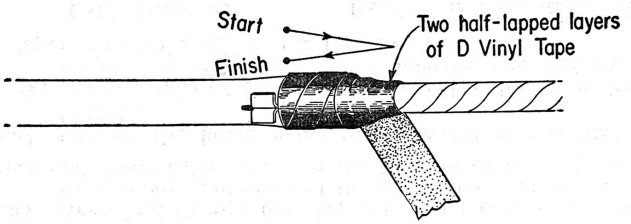
Cable Diameter	Number of Tabs Required
0 — 1″	3
1″ — 1.6″	4
over 1.6″	8

(b) Slip the inner sheath clamp under the tabs and tape the end of the cable as illustrated below.

Cable Diameter	Clamp Number
0 — 1″	P18A727
1″ — 1.6″	P46A911
over 1.6″	P10C093







(c) Install the F53088 H-type Ground Clamp Bracket in the terminal housing and fasten with 2 screws.

(d) Place the aero-seal clamp around cable and projecting end of bracket and position these two parts so the inner clamp over the cable core is directly under the aero-seal clamp. Tighten the clamp.

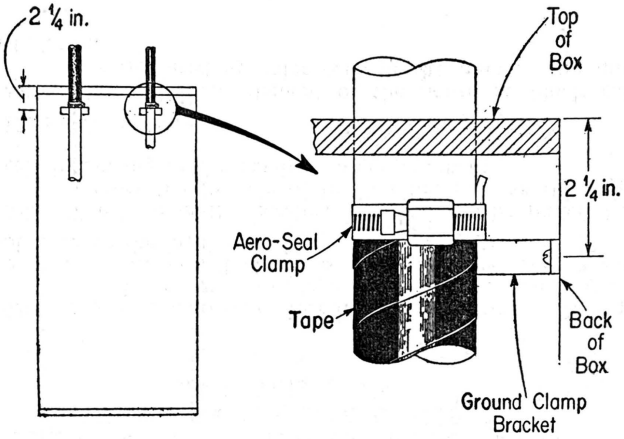


FIG.7

5.05 Remove inner core wrapper of the house cable and terminate as outlined in Part 6.

5.06 Binder groups should be individually marked with either colored identification rings or insulated wire as outlined in G50.699.1. The rings or wire should match the color of the binder groups and for multicolor binders combinations of rings or wire should be used.

Feeder Cable

5.07 Similarly prepare feeder cable sheath and ground as outlined in previous paragraphs.

5.08 Place group separator 1″ above connecting block on feeder cable side. Center bracket in path of the feeder cable.

5.09 Where the spread of the binder groups is longer than the distance between adjacent fanning strips, install a 4 type ring of the appropriate size to bring them together.

5.10 Install groups in group separator bracket.

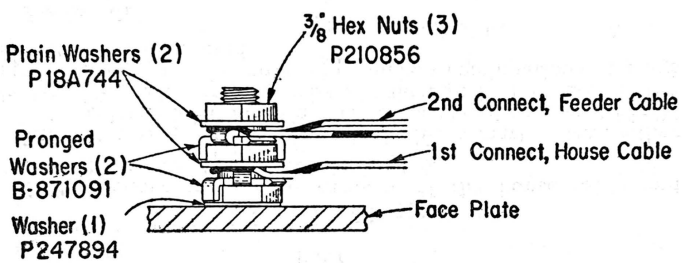
5.11 Place excess length of feeder pairs in slack container after it has been prepared as outlined in Part 6.

5.12 Place colored identification rings or insulated wire on the binder groups near the sheath opening of the feeder cable.

6. TERMINATING—HOUSE CABLE PAIRS—FEEDER CABLE PAIRS

General

6.01 The following illustration indicates how the nuts, washers, and PIC conductors are arranged on the binding post of the connecting blocks. The first connection is the house cable conductor and the second connection the feeder cable conductor.



CONDUCTOR TERMINATIONS ON BINDING POST OF F-53011, F-53012, F-53005, & F-52980 CONNECTING BLOCKS

6.02 The conductors are terminated by forming a hair pin loop in the wire and laying this loop on the ridges of the pronged washer. The nut is then tightened with a 216B tool to crush the insulation on the PIC conductor.

6.03 The loop in the conductor should not be pulled tight against the threads of the binding post as this might result in cutting of the smaller gauge conductors.

House Cable Pairs

6.04 The entire complement of the house or block cable is terminated by color code at the time of the initial installation.

6.05 Where it is necessary to split the house cable pairs as shown in Fig. 4, tape the horizontal run with one layer of D vinyl tape.

6.06 These pairs are terminated between the two bottom compression washers. Do not skin the conductor.

6.07 After the conductor is terminated, the excess length of the hair pin loop should be cut off as close to the binding post as feasible.

Feeder Cable Pairs

6.08 After house cable pairs are terminated add one pronged and plain washer and a nut to each binding post for terminating feeder pairs. These nuts and washers are furnished with the connecting blocks. Feeder pairs are terminated only when they are required.

6.09 Feeder cable pairs are run alongside of the chamber, in Figs. 2, 3, and 4 and cut within ½ inch of the bottom of the housing for clearance purposes. In Fig. 1 they are cut ½ inch from the side of the housing. Insulate the conductor ends with a thorough coating of Permo Seal Spray. Apply two coats at a 15 minute interval. After the second coating has dried, place the excess length of the cable pairs in the slack wire container.

6.10 When a feeder cable pair is assigned pull the slack in the conductor through the fanning strip adjacent to the binding post on which the pair is to be terminated. Do not skin the conductors.

6.11 Place the hair pin loop formed in each conductor between the compression washers and terminate per Paragraph 6.02. Do not cut conductors.

6.12 After pair has been terminated, move extra wire towards the free end, apply two twists between conductors and place the pair in the slack wire container.

6.13 When party line service is established, loop the feeder pair to the binding post of the second assigned house pair if the length extending beyond the first termination is sufficient. If this length is not sufficient, piece out with B cross-connecting wire using H splice sleeves and insulate with B plastic sleeves. **Skin B cross-connecting wire** when terminating and break off excess.

6.14 Wires broken below the binder identification rings shall be repaired by piecing out with B cross-connecting wire and joined to the feeder pair by using H splice sleeve and insulated with B plastic sleeve. Pairs broken near butt of cable shall be pieced out with same colored pair as the broken pair.

7. DISCONNECTION AND REUSE OF FEEDER PAIRS

7.01 Termination of the conductor was accomplished by crushing the insulation between the compression washers which forced the conductor to break through the insulation and make electrical contact.

7.02 To disconnect a feeder pair, loosen outer nuts, remove conductors from around the binding post and repair ruptured insulation with D vinyl tape or spray with Permo Seal Spray.

7.03 Reterminate and reuse pair as covered above.

7.04 When pair is not reused, repair ruptured insulation and place with other conductors in slack wire container.