

TELEPHONE AND OUTLET CONNECTING BLOCKS

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1. GENERAL

1.01 This section contains description and installation information on the various connecting blocks in use. Listings within each part are arranged according to manufacturer.

1.02 This section is reissued to update information and to incorporate the information in Section 491-500-200, Issue 2. Marginal arrows are used to identify the new material. Remove the previous issue of this section from the binder or microfiche file and replace it with this issue.

2. SURFACE MOUNTED BLOCKS--TWO TO FIVE TERMINALS

WECo Connecting Blocks

2.01 The WECo number 11 connecting block is a two-conductor device with four screw terminals molded in a phenolic base. The Number 12E block (Figure 1) is of similar construction but arranged for three conductors and provided with a molded-in eyelet for the attachment of an S-hook or tie-cord strain relief. Number 11A is a plain block, 11B is equipped with a black metal snap-on cover, and 11C has a cover with an insulated under surface. Number 12E is a plain block, and 12F has a snap-on cover. Blocks from recent production have gray or ivory finished covers. Wiring channels are molded into the under surface of the base. The principal usage of these blocks is for the extension of interior wiring. The R and D Electronics A-3 block is similar to the number 12E block.

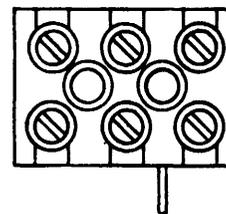


Figure 1. WECo Number 12E Connecting Block.

2.02 The number 42A connecting block (Figure 2) is a four-conductor device primarily intended for the termination of telephone instrument line cords. As originated by WECo, it consists of a molded phenolic block arranged with two teardrop-shaped mounting bosses to support the under surface approximately one-fourth inch above surface on which the block is mounted. A molded entry at the right side provides for retention of wing-band or S-hook strain reliefs, and a hollow post in the center serves to separate the cord conductors. Though not designed to accept a ring-band strain relief, the block will accommodate a line cord with a ring-band if the strain relief is fastened under one of the line conductor terminal screws. Terminals are designated R, G, Y and B, to indicate wire and cord conductor colors, B in this case denoting black. The clearance afforded by the raised mounting, and the fanning slots provided at the top and bottom, permit twisted or jacketed station wire to enter directly beneath the surface of the block, with the individual conductors intertwined around the bosses to secure the wire firmly in place. A pressed-steel cover with a captive mounting screw in the center was originally provided, and arranged with a shallow notch at the left side for entry of station wire, and a deeper, rolled-edge notch at the right side to admit the instrument line cord and protect it from fraying.

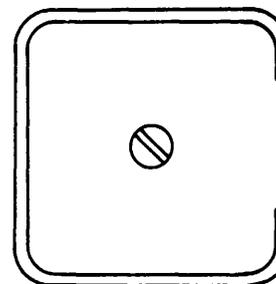
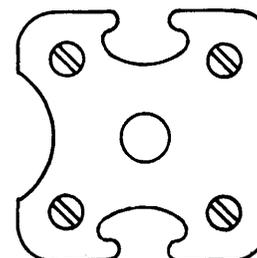


Figure 2. Number 42A Connecting Block.

GTE AE Connecting Blocks

2.03 The GTE AE D-15959-A block is a three-conductor device modified from an earlier two-conductor design which had provided two screws per terminal. In the later version (Figure 3), each of three screws is used to terminate a separate conductor. Terminals are designated L1 and L2. The block is molded of black phenolic and arranged with a tubular metal stud in the center which serves to retain a ring-band strain relief and is tapped to accept the single captive screw used to retain the matching cover. The design is not suitable for any other type of strain relief and has no provision for intertwining the station wire conductors to secure them in place. The cover is slotted at the top and bottom for cord and station wire entry, and a wire entry hole is provided in the base of the block. This block was provided with the GTE AE 40-series telephone sets.

2.04 GTE AE D-150000 and D-150002 blocks are three- and four-conductor devices, respectively, molded of phenolic and arranged with a removable tubular metal stud in the center which serves to retain a ring band strain relief and is tapped to accept the single captive screw used to retain the matching cover (Figure 4). The design is not suitable for any other type of strain relief and has no provision for intertwining the station wire conductors to secure them in place. A cord entry point is molded at the top and an opening partly in the block surface and partly in the bottom edge serves as an entry point for station wiring. The shallow cover is notched at one end for cord entry. Two screws are provided for each terminal, and the latter are designated as L1, L2, 3 and 4G. The D-150002 block is completely equipped; on the D-150000 block, terminal 3 is omitted. Addition of a fourth terminal in the field is not feasible, since the terminals are secured to the block with tubular rivets. Both blocks were manufactured in black (suffix A) and in ivory (suffix B). D-150000-A blocks were furnished with black 80-series telephone sets.

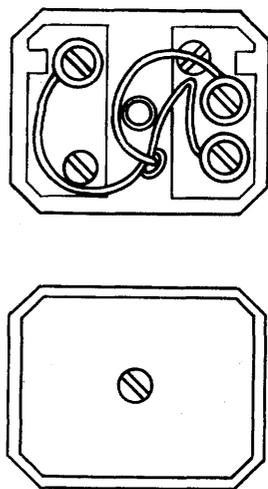


Figure 3. GTE AE D-15959-A Connecting Block.

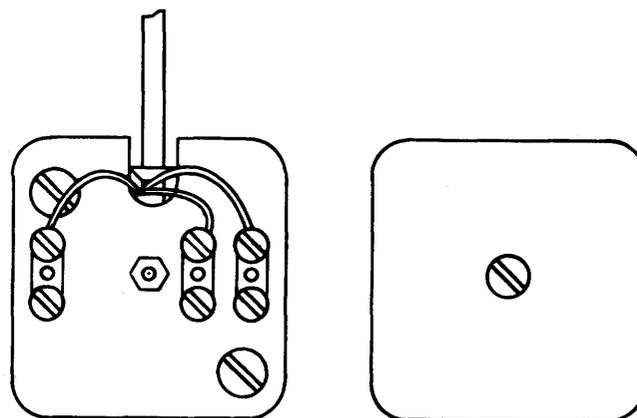


Figure 4. GTE AE D-150000-A Connecting Block.

2.05 GTE AE Type 13 (D-150206), 14 (D-150207) and 15 (D-150290) connecting blocks are three-, four- and five-conductor devices, respectively, arranged with two terminal screws for each of the first four conductors and one terminal for the fifth, on a molded polypropylene block with an integral hinged cover (Figure 5). The double-screw terminals are arranged radially about a short, molded, split center-post and designated L2, L1, 4G and 3 reading clockwise from the lower right corner. Terminal 3 is provided only on the Type 14 and 15 blocks. Single-screw terminal 5, provided only on the Type 15 block, is located adjacent to the top or hinged side of the block between terminals 3 and 4G. Two protruding prongs on each terminal engage slots molded into the block and, together with adjacent depressions and screw clearance holes, permit the terminal to be held in place by a press fit. A Type 13 block may be converted to a Type 14 by pressing a D-150209-A two-screw terminal link into place with one's fingers. A Type 14 block manufactured after May, 1963 (including a Type 13 to which the above link has been added) may be converted to a Type 15 by pressing a D-150289-A single-screw terminal link into place at position 5. The cover is arranged with a molded snap catch which may be released either by rotating a screwdriver blade or coin in one of the slots adjacent to the catch or by pressing down directly in the center of the domed cover, which is thereby deformed enough to free the catch and permit the cover to be bent back with one's thumb (Figure 6). An inclined ramp at each side permits station wire to enter either from the side or from behind the block. Although the base of the block is shellmolded, the web is solid at the point of ramp entry, making it impossible to intertwine the wire conductors around the base stud to secure them in place. The slope of the ramp tends to force jacketed wire away from the mounting surface when side entry is made and, thus, requires use of a staple immediately adjacent to the ramp at the edge of the block. Either ramp may also be used for line-cord entry, with the split center-post serving to retain a ring-band strain relief, and a slit molded on either side to accommodate a wing-band. The block is not suitable for use with cords equipped with S-hooks.

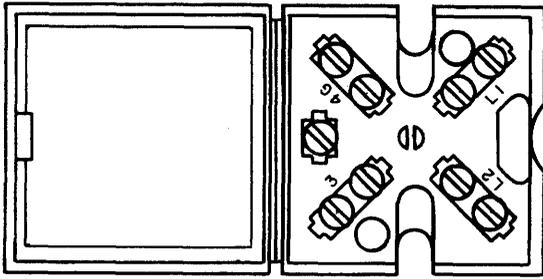


Figure 5. GTE AE Type 15 Connecting Block.

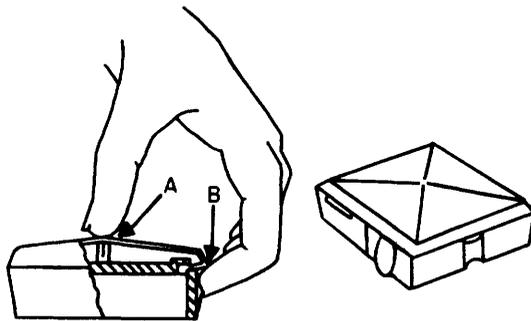


Figure 6. Method of Lifting Cover, GTE AE Type 13, 14, and 15 Connecting Blocks.

#### Murdock Connecting Blocks

2.06 Murdock number 41 and 42 blocks are equivalent to the WECO number 11C and 12F, but have a molded black phenolic cover held in place by two oval-head brass screws (Figure 7). A tongue-and-groove base structure permits alignment of adjacent blocks when several are mounted together. A tie-cord ring for strain relief purposes can be provided optionally on either type.

2.07 The Murdock number 39-M block (Figure 8) is equivalent to the WECO number 42A, but both block and cover are molded of phenolic. The mounting bosses are shaped and located differently to provide more space for wire to pass under the block. Terminal designations are oriented in accordance with the normal mounting position, and the fanning slots are slightly smaller. Since this block was introduced for use with line cords having S-hook strain relief, the area adjacent to the cord-entry point and lower mounting hole has been molded to afford greater clearance for such hooks. This also makes possible the anchoring of a ring-band strain relief at this point. The mounting holes are located in the same position as those on the 42A but are slightly smaller and require the use of number 6 mounting screws, rather than number 8.

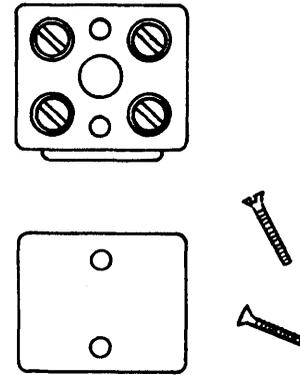


Figure 7. Murdock Number 41 Connecting Block.

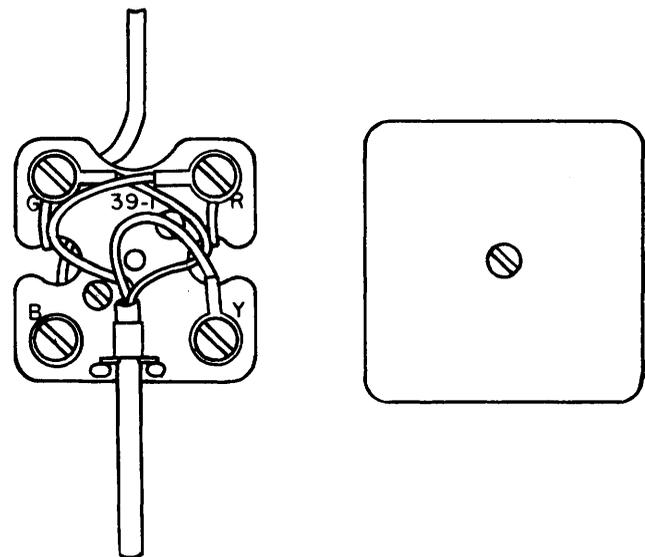


Figure 8. Murdock Number 39-M Connecting Block.

2.08 The Murdock number M-53 connecting block is a three-conductor device with six screw terminals arranged within a shell-type base of molded phenolic and provided with a cover of the same material which is secured by a captive screw in the center (Figure 9). A cord-entry point at one end is arranged for wing-band strain relief, but the design is not suitable for S-hook or ring-band termination. A recessed area within the block accommodates the line cord conductors, and an opening partly in the side and partly in the under surface serves as an entry point for station wiring. No provision is made for intertwining the station wire conductors to secure them in place. The shallow cover is notched at one end for cord entry.

#### 3M Connecting Blocks

2.09 The Scotchflex number 717 terminal is actually a four-conductor connecting block with four screw terminals mounted on a molded styrene body and arranged with

metal elements formed at the end into U-shaped tines. When the body is fastened tightly to the base of the block by means of its captive screw, its tines pierce the section of Scotchflex number 700 flat adhesive station wire which has been laid in a channel in the base, thereby establishing contact with the four conductors of the flat wire (Figure 10). The base of the block has a self-adhesive pad and is intended for installation on surfaces not suited to the driving of fasteners for station wire of the conventional jacketed type. Two holes in the base suitable for a number 6 screw permit the block to be mounted with screw fasteners where the mounting surface permits. A molded entry at the top of the block is arranged for retention of a wing-band strain relief. A line cord with a ring-band strain relief can be accommodated if the retaining screw is first worked free from the body of the block and passed through the ring before being driven back into the base. No provision is made for S-hook termination. The terminals are designated 1, 2, 3 and 4 and are keyed to the position of the conductors in the flat wire for easy identification. The block may be used to terminate conventional jacketed station wire in place of a line cord or in addition thereto; a hole in the base permits rear entry, the line cord channel permits entry from the top, and a knockout area in the snap-on cover permits opening a slot for jacketed station wire entry from the bottom. No provision is made for intertwining the station wire conductors to secure them in place.

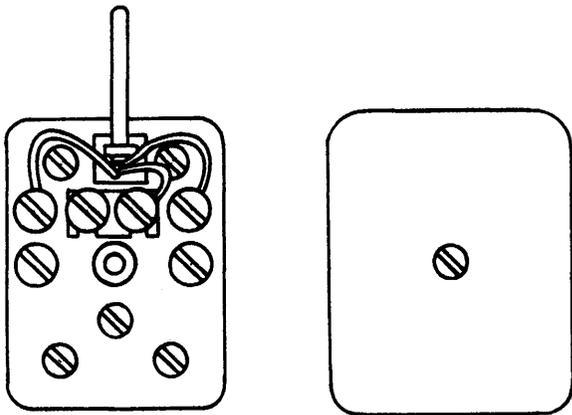


Figure 9. Murdock Number M-53 Connecting Block.

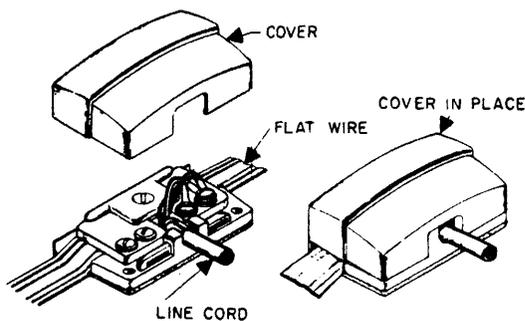


Figure 10. 3M Number 717 Connecting Block.

2.10 The Scotchflex number 4110 (Figure 11) is a five terminal connecting block. The 4110 uses a self-stripping U-contact quick-connect principle and plug-in sockets to join station wire and line cord. The 4110 has a pressure-sensitive adhesive backing for mounting. Optional screw holes are provided.

### 3. SURFACE MOUNTED BLOCKS – SIX TO TEN CONDUCTORS

3.01 The GTE AE D-15922-A block is a six-conductor device modified from an earlier four-conductor design which had provided two screws per terminal. In the later version (Figure 12), each of six screws is used to terminate a separate conductor. Terminals are designated L1, L2, 3 and 4G. The block is molded of black phenolic and arranged with a tubular metal stud in the center which serves to retain a ring-band strain relief and is tapped to accept the single captive screw used to retain the matching cover. The design is not suitable for any other type of strain relief and has no provision for intertwining the station wire conductors to secure them in place. The cover is slotted at the top and bottom for cord and station wire entry, and a wire entry hole is provided in the base of the block.

3.02 The number 44A connecting block (Figure 13) is a ten-conductor device intended for use singly or in groups of from two to four for the termination of line cords for multiline telephone sets. As originated by WECO, it consisted of a molded phenolic block arranged with two circular mounting bosses to support the under surface approximately one-fourth inch above that on which the block is mounted. A shallow indentation in the bottom edge is arranged to mate with the protruding upper edge of the adjacent block when several are mounted together. A further indentation at the center of the bottom edge, beveled on the under side of the block, provides for the entry of the line-cord conductors. These conductors pass beneath the block in two groups, past the outer sides of the two mounting bosses, fan out into two slots molded at the upper corners, and are routed back over the upper surface of the block to their respective terminal screws. A molded groove adjacent to each screw provides clearance for the ferrule portion of the cord conductor spade terminal. An arc-shaped indentation at the center of the top edge provides for entry of inside wiring cable. The wiring cable passes beneath the block between the two mounting bosses, fans out along the bottom edge (or, on intermediate blocks, at the indentation otherwise intended for the line cord) and is connected, conductor by conductor, across the upper surface of the block to the terminal screws.

3.03 A molded barrier to the left and right of a threaded insert at the center of the block serves both to keep the wiring clear of the cover mounting screw and to retain the long S-hook strain relief on the line cord while the cover is being mounted in place. The design is not suitable for ring band, wing band, or short S-hook strain reliefs. The terminals are designated from 1 to 10, with 1 to 5 arranged

counterclockwise in an arc at the right side, and 6 to 10 arranged in clockwise order at the left. A series of pressed-steel covers, notched at the top and bottom for cord and cable entry, was also originated by WECO and coded individually for order separately from the block. The number 101A cover was designed to fit one block; the number 101B cover, two blocks; the number 101C cover, three blocks; and the number 101D cover, four blocks, using two mounting screws (Figure 14). The number 101B cover was later discontinued; if two blocks are used, the larger 101C cover must be mounted off-center on the assembly. In later production, the block material was changed to styrene, and, subsequently, the 101D cover was molded of the same material.

#### 4. FLUSH MOUNTED BLOCKS

##### Number 47 Connecting Blocks

4.01 The number 47 connecting block is manufactured in three current versions which vary with respect to terminal capacity and structural details but are all designed to mount

in any of four arrangements. Each version is molded of styrene with an oval face about one-eighth inch thick and a body protruding at the rear as an approximately square cylinder drilled and tapped to accept terminal screws on each side. A cord entry hole axial with the cylinder terminates at the rear in a grooved section designed to accommodate a wing-band strain relief. To secure the wing band in place, a spade-shaped metal keeper is fastened by a screw so that its tips cover the open ends of the two grooves. An S-hook strain relief can also be retained by engaging the hook in one of the grooves and inserting one tip of the keeper through the closed loop. If the keeper is then screwed in place with its tip just closing the edge of the groove, the hook will remain in place. Although not designed for this purpose, the keeper may be used to retain a ring-band strain relief in much the same way, if the diameter of the ring is not too great.

4.02 A number 47 block may be mounted directly in wooden surfaces by drilling a 1-1/4 inch hole to a depth sufficient to clear the body length, with wire entry made from the rear. For more attractive appearance a number 16 outlet plate may be mounted over the block.

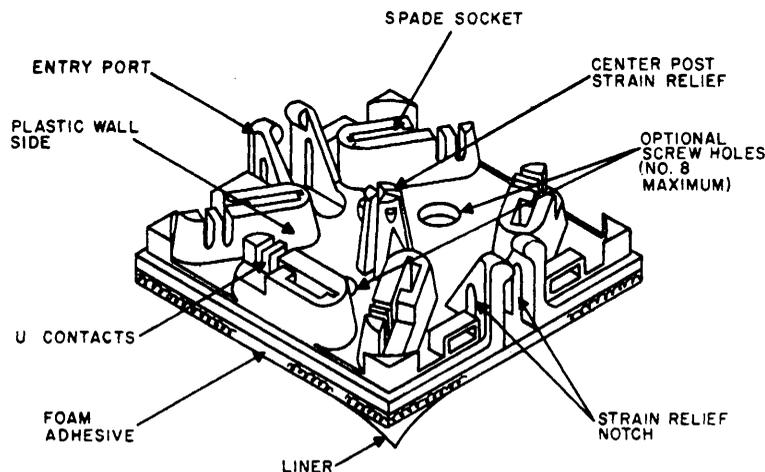


Figure 11. 3M Number 4110 Connecting Block.

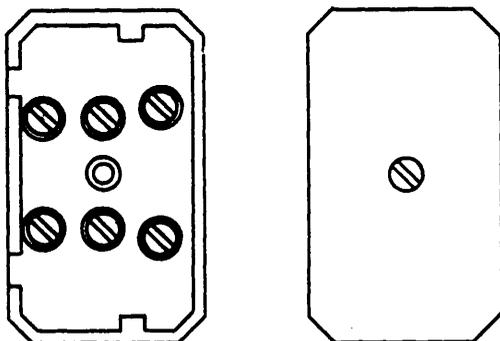


Figure 12. GTE AE D-15922-A Connecting Block.

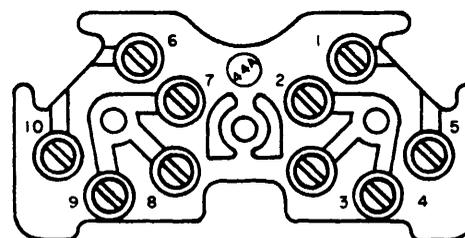


Figure 13. Number 44A Connecting Block.

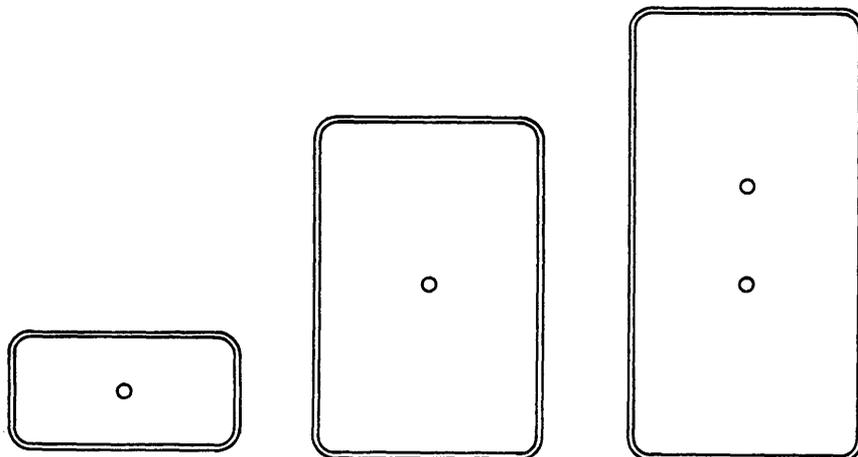


Figure 14. 101-Type Connecting Block Covers.

4.03 On a plasterboard wall, a number 47 block may be mounted by drilling a 1-1/2 inch hole in the plasterboard and installing a number 60 mounting ring around the hole. The block is then mounted to the ring, and a number 16 outlet plate is secured in place over the entire assembly. Plate and ring are shipped in one package, which includes hardware for both.

4.04 If a number 63A junction box has been installed during building construction, a number 47 block may be mounted in the box by attaching a number 60 ring to the box and securing the block to the ring. A number 16 outlet plate is then mounted over the block and fastened to the ring.

4.05 If a conventional electrical conduit box has been provided for telephone wiring, a number 47 block may be installed by means of a number 43A mounting bracket, which is fastened to the ears of the box. The block is then mounted to the bracket, together with a Type 19 outlet plate to cover the box.

4.06 The number 47B connecting block (Figure 15) was manufactured by WECO in ivory, brown, and later in blue-beige. The latter color was then discontinued in favor of olive-gray. An equivalent block is manufactured both by Suttle and by Communication Apparatus in all four colors. This block has an approximately 3/8-inch oval hole for cord entry, four terminals designated R, G, Y and B, and is used with the number 16C and number 19C outlet plates, which have a circular hole of about the same size for cord entry (Figure 16). The plates are manufactured in the same colors as the block.

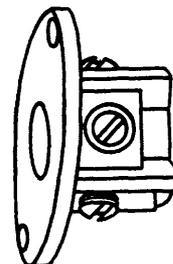


Figure 15. Number 47B Connecting Block.

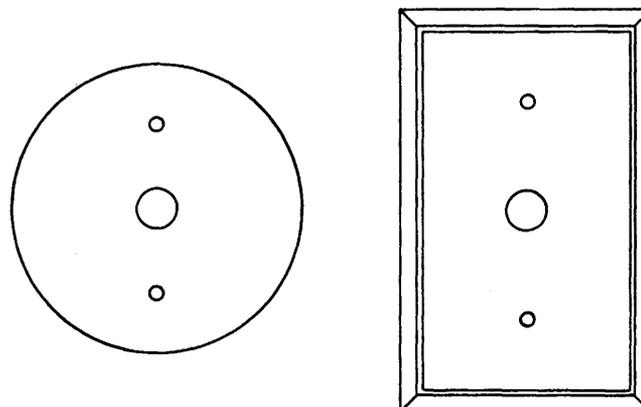


Figure 16. Number 16C and 19C Outlet Plates for Use with Number 47B Connecting Blocks.

4.07 The number 47C connecting block (Figure 17) was manufactured by WECO in the same colors as the number 47B block. An equivalent block is manufactured by Suttle, which has continued the blue-beige version while adding the olive-gray to the original brown and ivory. The longer body of this block accommodates 12 terminals, with the four nearest the face designated 1, 2, 7, 8, and the four nearest the strain-relief keeper designated 5, 6, 11, 12. A 9/16-inch round cord-entry hole is surrounded at the face by a raised circular area nearly 1-1/4 inches in diameter. The raised portion fits into the 1-1/4 inch hole provided on the number 16A and 19A outlet plates (Figure 18). The plates are manufactured both by Suttle and by Communication Apparatus in colors to match the block.

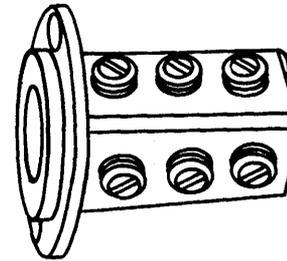


Figure 17. Number 47C Connecting Block.

4.08 The number 47D connecting block (Figure 19) was originated by WECO to supersede the number 47B block and permit the use of the same outlet plates as on the number 47C block. Although manufactured by WECO only in brown, ivory and olive gray, its equivalent is supplied by Communication Apparatus not only in those colors but in blue-beige as well. It is identical to the number 47B block except for minor tooling changes and for the raised circular area at the face which fits the opening in the number 16A and 19A outlet plates.

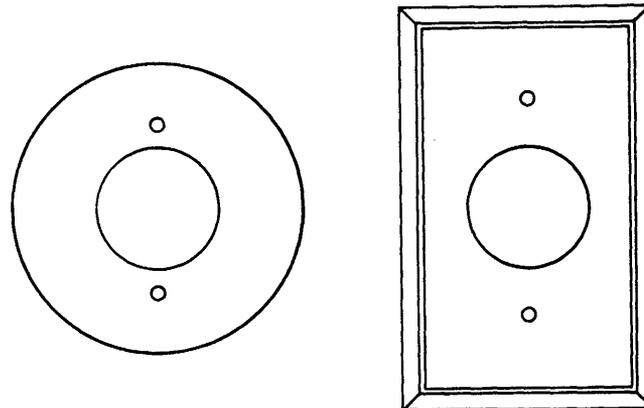


Figure 18. Number 16A and 19A Outlet Plates for Use with Number 47C and 47D Connecting Blocks and Other Devices.

#### Dracon Model 1105 Connecting Block

4.09 The Dracon Industries Model 1105 connecting block (Figure 20) is for terminating station wire and line cord within walls or electrical conduit boxes when prewiring. The block has five screw terminals and provisions for wing-band or ring-band strain relief. The number 19C or split outlet plate may be used with the 1105 block.

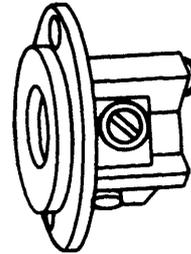


Figure 19. Number 47D Connecting Block.

4.10 The EMCO Facilities Engineering split outlet plate (Figure 21) consists of two high impact polystyrene identical mating plates (Figure 22), which when joined form a cover for a standard rectangular electrical conduit box. The cover comes with a 1/2-inch hole in the center for the line cord to pass through. A break-away section permits the hole to be enlarged to 13/16-inch diameter to accommodate 25- to 100-pair cables.

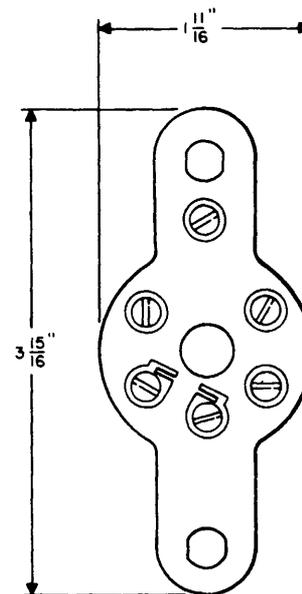


Figure 20. Model 1105 Connecting Block.

## 5. INSTALLATION GENERAL

5.01 Parts 6, 7, and 8 give location and fastener, mounting, and wiring, and sequence of termination information for the various connecting blocks listed in parts 2, 3, and 4.

## 6. LOCATION AND FASTENERS

6.01 When selecting a location in which to mount a connecting block, keep the following conditions in mind:

- (a) If possible, mount the block on permanent woodwork, such as baseboards, beams, window or door frames. Where it is necessary to mount on a desk, make use of concealed mounting details, wiring channels and pedestal knockouts whenever provided by the manufacturer.
- (b) Avoid locations in which installer/maintenance personnel would be liable to injury when making later tests or inspections at the block terminals.
- (c) Locate the block so that is readily accessible for maintenance purposes, avoiding confined areas such as closets whenever possible.
- (d) Mount the block in such a way as to conceal the wire-entry hole, if any, drilled through the baseboard, wall, or molding.
- (e) Avoid locations in which the block, particularly a large-capacity unit or a multiple-block grouping, would be conspicuous, or its appearance undesirable.
- (f) When mounting line-cord connecting blocks, orient the cord-entry hole to suit the circumstances of the location, regardless of the orientation of the terminal designations. When a block is mounted low in a baseboard to conceal the wire-entry hole, cord entry should be made from the top, to avoid routing the cord in contact with the floor. When a block is mounted higher on the wall and some slack is expected in the line cord, cord entry should be made from the bottom, to avoid the sharp bend adjacent to the entry hole which the weight of the slack cord would otherwise produce.

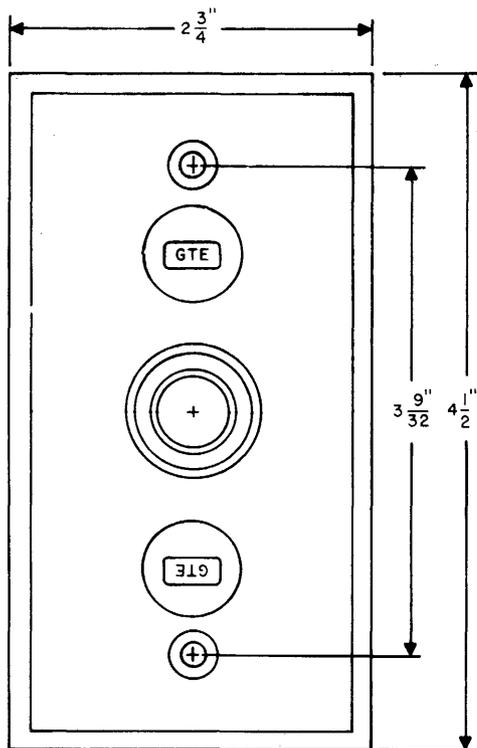


Figure 21. Split Outlet Plate.

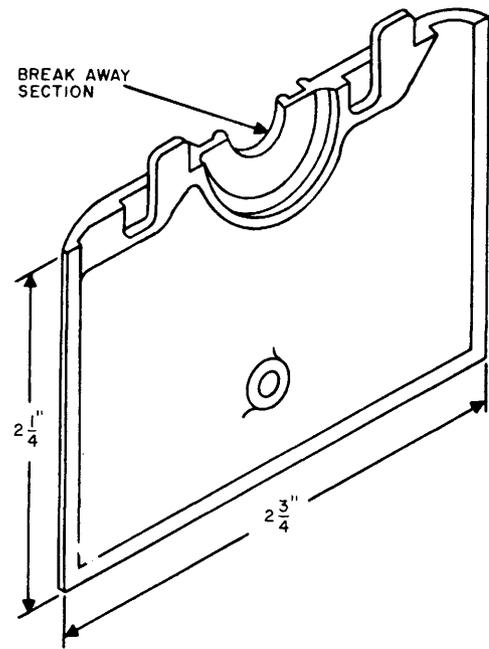


Figure 22. Mating Plate.

6.02 Mount connecting blocks on a suitable backboard if direct wall mounting is undesirable because of an uneven surface, the possibility of the surface becoming damp, or the need to mount several adjacent blocks. Use of a backboard in multiple-block installations reduces the number of holes required in the customer's wall or panel.

6.03 Select fasteners appropriate to the type of mounting surface as indicated in Table 1. The screw size required for a given block is noted in part 7; the length and style as indicated in the table may require variation depending on local stocks.

6.04 Flush-mounted connecting blocks are furnished with the proper style, size and length of fasteners, as noted in each case in part 7. When installing connecting blocks on plaster or masonry surfaces, the use of masonry anchors or hollow wall anchors may be required.

## 7. MOUNTING AND WIRING

7.01 WECO number 11 and 12 connecting blocks are used primarily to extend two-conductor and three-conductor station wiring, respectively, at locations in which no instrument is to be installed. Figure 23 shows a typical application and Figure 24 illustrates more closely the connections at a number 11A connecting block showing the manner in which the wires are passed through channels under the block and terminated on the far side to provide a means of holding them in place. Although the number 12 blocks have an eyelet molded in to provide for attachment of an S-hook or tie-cord strain relief, their use with line cords is not recommended because the spade terminals protrude beyond the block. The mounting holes are large enough to accommodate a number 10 screw.

Table 1. Connecting Block Fasteners.

Surface	Fastener
Backboard or Hard Wood	3/4 Inch Round Head Wood Screw
All Other Wood	1 Inch Round Head Wood Screw
Lath and Plaster	2 Inch Round Head Wood Screw
Metal	5/8 Inch Pan Head Sheet Metal Screw

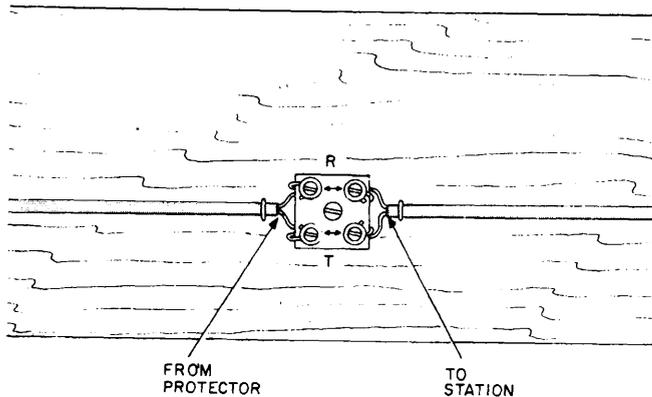


Figure 23. WECo Number 11A Connecting Block Used to Extend Station Wiring.

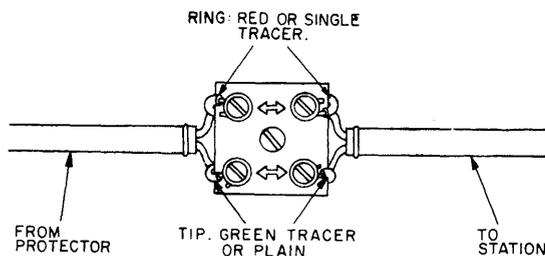


Figure 24. Detail of Wiring at WECo Number 11A Connecting Block.

7.02 The number 42A connecting blocks are suitable for line cords equipped with either wing-band or S-hook strain relief, but not for the ring-band type line cords. The similar Murdock number 39-M block, because of the greater clearance it affords in the area adjacent to the cord entry point and lower mounting hole, is better suited to S-hook retention and can also accommodate ring-band-equipped cords. In such cases, the lower mounting screw is used to retain the strain relief (Figure 25). The mounting holes of the number 42A block will accommodate a number 8 screw, but those on most number 39-M blocks are large enough only for a number 6 screw.

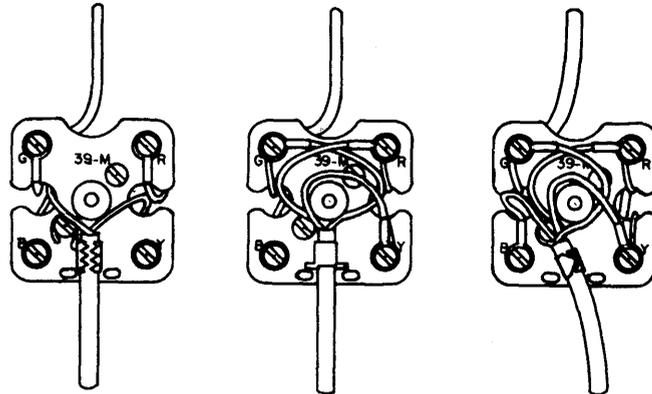


Figure 25. Strain Relief Retention on Murdock Number 39-M Connecting Block.

7.03 Station wire may be routed to a number 39-M or 42A block from the top, bottom, either side, or from a hole located under the block. In the case of jacketed wire, approximately 7 inches of free conductors should be left beyond the end of the jacket. If the wire approaches from the direction opposite to the point of line cord entry, the jacketed or twisted portion should pass between the mounting bosses. The jacket should extend only to the lower end of the channel thus formed. On number 39-M blocks, the channel has a more pronounced slope from upper left to lower right, so the wire must enter slightly off center. Fan the green and yellow conductors to the right at the bottom of the block, and the red and black conductors (if present) to the left. Bring the green conductor (Figure 26) up the right hand side and under the edge of the fanning slot, out the slot to the surface of the block, and up to terminal G. Route the red conductor up the left hand side, across the top, down the right hand side, out the fanning slot, and up to terminal R. Run the yellow conductor completely around the block in a counter clockwise direction, then up the right hand side, out the fanning slot and down to terminal Y. If a black conductor is present, make one complete turn around the block in a clockwise direction, then pass up the left hand side, out the fanning slot and down to terminal B (which in this case stands for black, rather than blue). With the wires thus securely anchored to the block no staple or other fastener is required to stabilize the wiring at this point.

7.04 If the station wire approaches a number 39-M or 42A block from the same direction as that to be taken by the line cord, the jacketed or twisted portion should extend through the channel formed between the mounting bosses, with about seven inches of free conductor length emerging from beneath the block at the top. Fan the green and yellow conductors to the left, and the red and black (if present) conductors to the right. As shown in Figure 27, route the yellow conductor down the left hand side and under the edge of the block, across the bottom, passing over the jacketed portion, up the right hand side, out the fanning slot, and down over the surface of the block to terminal Y. Lead the black conductor, if present, down the right hand

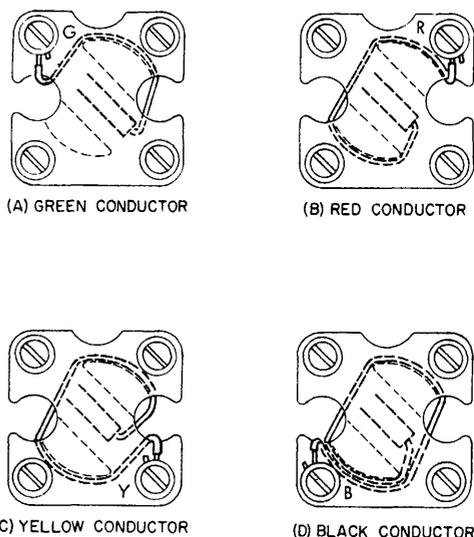


Figure 26. Terminating Station Wire on Number 39-M or 42A Connecting Block (Wire Entry from Side Opposite to Cord Entry.)

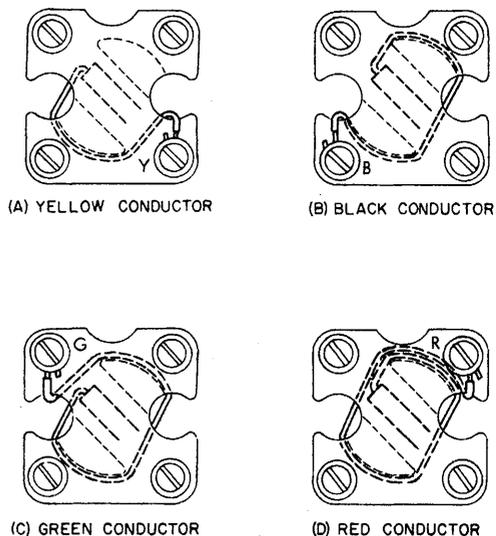


Figure 27. Terminating Station Wire on Number 39-M or 42A Connecting Block (Wire Entry from Same Side as Cord Entry.)

side, across the bottom, up the left hand side, out the fanning slot and down to terminal B. Run the green conductor completely around the block in a counter clockwise direction, then down the left hand side, out the fanning slot and up to terminal G. Make one complete turn clockwise around the block with the red conductor, then pass down the right hand side, out the fanning slot, and up to terminal R.

7.05 The number 44A connecting blocks are suitable only for line cords equipped with a long S-hook strain relief, and may be used singly or in groups of from two to four. 101-type covers and 168-type backboards are available for single blocks and for groups of three and four. As shown in Figure 28, the inside wiring cable conductors pass under the group of blocks from top to bottom through the channel

formed between the mounting bosses, with those to be terminated on the upper four screws of a given block brought to the surface through the arc-shaped indentation in the upper edge of that block, and those to be terminated on the lower six screws brought up to the surface through the rectangular indentation in the lower edge (except in the case of the first and fourth blocks in the group, where they are brought over the lower edge at points close to their respective terminal screws). The line cord conductors pass under the group of blocks from bottom to top, divided into two groups which are routed outside the mounting bosses. Those leads that are to be terminated on a given block are brought to the surface through fanning slots in the upper corners, with the space terminals connected to their respective block screws and oriented to lie in the grooves provided in the block surface. The mounting holes will accommodate a number 6 screw in those cases where the block is direct mounted; where a styrene backboard is used, it is provided with thread-cutting screws of appropriate size.

7.06 The number 47 (or other) connecting blocks are intended for flush mounting, are suitable for line cords with wing-band or S-hook strain relief, and can be used with ring-head reliefs. Two self-tapping screws for mounting are supplied with each block. Number 47B and number 47D blocks are provided with terminal designations R, G, Y and B, similar to those on the number 42A blocks. Terminals on the number 47C block are numbered in pairs on adjacent surfaces, with terminals 1, 3, 5 on one surface, 2, 4, 6 on the next, and so forth as shown in Figure 29.

7.07 To mount a number 47 block directly in a wooden surface, bore a 1-1/4 inch hole to a depth sufficient to clear the body length and drill a wire entry hole the rest of the way through the wood if required. After bringing the station wire out through the hole and terminating it and the cord on the block, insert the body of the block in the bored hole and fasten the flange to the mounting surface by using the self-tapping screws provided. If a neater appearance is desired, thread the line cord through the hole in a number 16 outlet plate before terminating the conductors, mount the outlet plate over the block, and fasten it to the mounting surface with two number 6 oval head screws.

7.08 To mount a number 47 block directly in a plasterboard wall, bore a 1-1/2 inch hole in the plasterboard and bring the station wire out through the hole. A larger mounting hole is more acceptable in the case than in the wooden-surface arrangement because a mounting ring is required for adequate rigidity, and the outlet plate conceals the portion of the hole which extends beyond the sides of the block flange. Install a number 60 mounting ring around the hole by fastening it to the plasterboard with the self-tapping screws provided with the connecting block. Thread the line cord through the hole in a number 16 outlet plate and terminate its conductors and the station wire on the block. Mount the block on the ring by using the flat head machine screws provided with the ring. Then mount the outlet plate over the block by fastening it to the ring with the oval head machine screws provided with the plate.

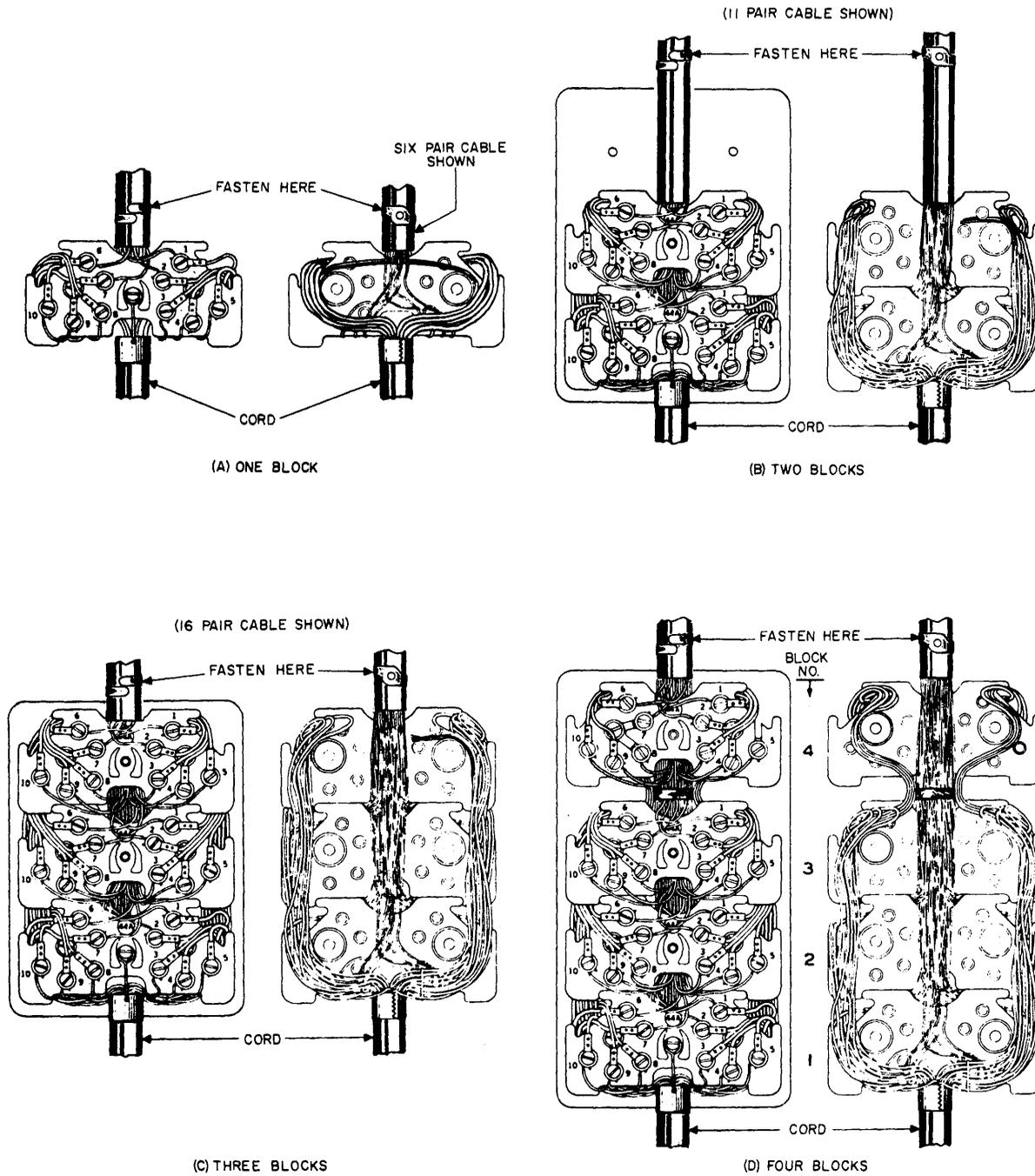


Figure 28. Terminating Inside Wiring Cable on Number 44A Connecting Blocks.

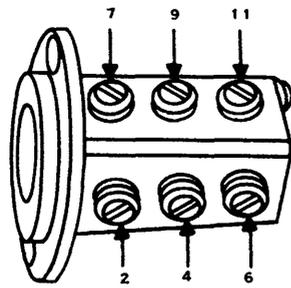


Figure 29. Number 47C Connecting Block.

7.09 If a number 63A junction box and number 60 ring have already been installed during building construction, remove the number 16D blank outlet from the ring and the rewiring tag from the station wire coiled inside. Thread the telephone set line cord through the hole in a number 16 outlet plate and terminate its conductors and the station wire on a number 47 block. Mount the block on the ring with the flat head machine screws left in the ring by the rewiring installer. Then mount the new outlet plate over the block by fastening it to the ring with the oval head machine screws originally used to retain the number 16D plate.

7.10 If a conventional electrical conduit box has been provided for telephone wiring, remove the number 19D blank outlet plate from the conduit box and the rewiring tag from the station wire coiled inside. If the box has not been prewired, fish the station wire through the conduit and into the box, and fasten a number 43A mounting bracket to the ears of the box with the long flat head machine screws supplied with the bracket. Thread the telephone set line cord through the hole in a number 19 outlet plate, and terminate its conductors and the station wire on a number 47 block. Mount the block on the bracket with the flat head machine screws left in the bracket by the rewiring installer, or supplied with the newly installed bracket. Then mount the outlet plate over the block by fastening it to the bracket with the oval head machine screws originally used to retain the number 19D blank plate or with those provided (in the case of a previously open box) with the new outlet plate.

7.11 The GTE AE D-15959-A and D-15922-A blocks are suitable only for GTE AE telephone set line cords, which have a ring-band strain relief. The station wire should be stapled to the mounting surface near the point of wire entry into the block. If the wire emerges from a hole in the wall or baseboard, locate the block with its molded center hole over the wire hole and pass the wire through the block (Figure 30). The mounting holes will accommodate a number 8 screw.

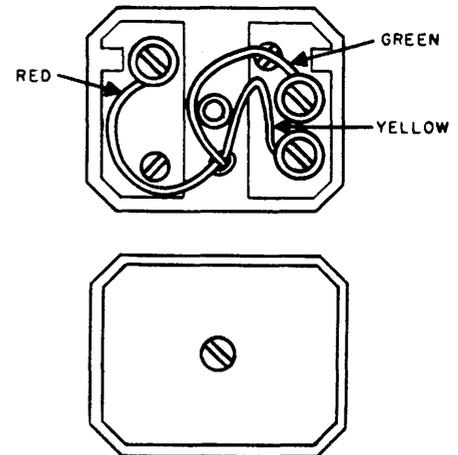


Figure 30. GTE AE D-15959-A Connecting Block Wired from Rear.

7.12 The GTE AE D-150000 and D-150002 blocks are also suitable only for GTE AE ring-band-equipped line cords, and require stapling of the station wire at the point of entry. In this case, the wire may be stapled before the block is mounted and the block positioned so that the entry slot covers the staple (Figure 31). Where the station wire emerges from a hole, position the block so that the entry slot is directly over the hole. The mounting holes will accommodate a number 8 screw.

7.13 The GTE AE Type 13, 14 and 15 blocks are suitable for line cords equipped either with wing-band or ring-band strain relief. In the case of the wing-band type, the wings are secured in slits molded at either side of the cord entry points (Figure 32). When a ring-band strain relief is used, it is first turned so that the jacketed end of the cord is passing over the hinged side of the block (between terminals 3 and 4G), secured to the split center post in the three steps illustrated in Figure 33 and then turned back to lie in its exit channel. Either channel may be used for wire entry or for cord exit, thus permitting the block to be mounted with its hinged cover opening either to the left or to the right. Because the inclined ramp of the channel tends to force the wire away from the mounting surface, the wire should be stapled near the point of entry. If the station wire emerges from a hole in the baseboard, locate the block with the entry channel positioned over the wire hole. The mounting holes will accommodate a number 8 screw, but, because of the depth of the counterbore, a cabinet screwdriver is required for installation. The screw nearer the center on each terminal should be used for the station wire and the outer screw for the line cord conductor. Since the T&R terminals lie on the same side of the entry channel, particular care should be taken to insure that the line wires are separated as far as possible. If it is necessary to convert a Type 13 block to a Type 14, fit the legs of a D-150209-A terminal link into the vacant openings in the block at the terminal 3 position, and push down equally on the two screw heads to press the link into place. To convert a recent Type 14 block to a Type 15, perform the same operation with a single-screw D-150289-A terminal link at the terminal 5 position.

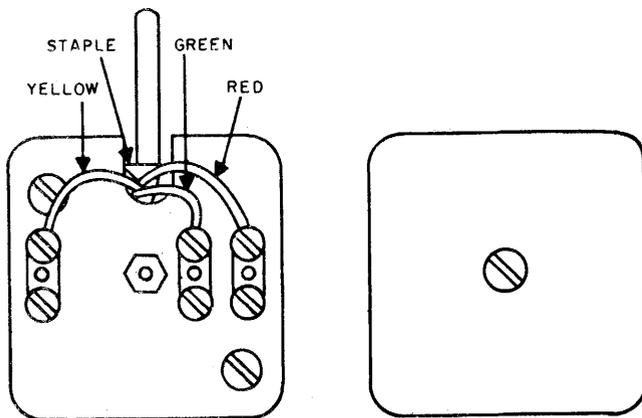


Figure 31. GTE AE D-150000-A Connecting Block Wired.

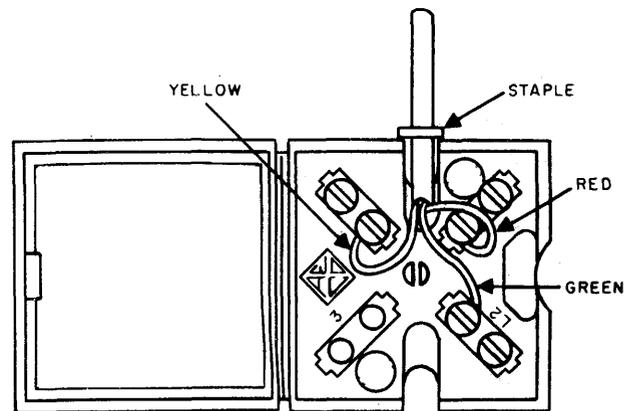


Figure 32. GTE AE Type 13 Connecting Block.

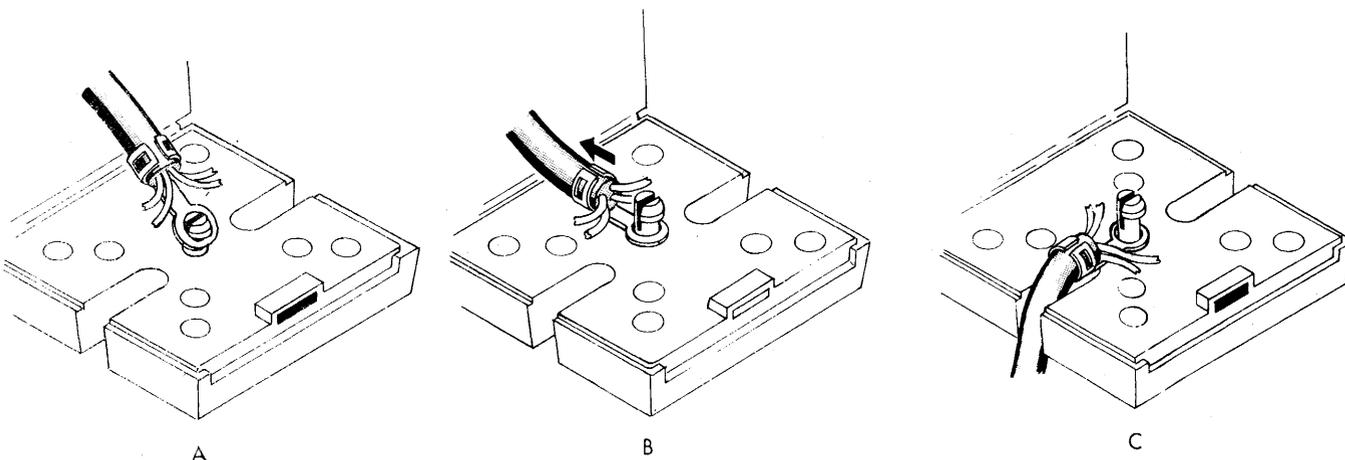


Figure 33. Method of Attaching Ring-band Strain Relief to Split Center-post on GTE AE Type 13, 14, or 15 Connecting Blocks.

7.14 Murdock number 41 and 42 blocks serve the same purposes as WECO number 11- and 12 blocks, respectively. Since no provision is made to pass the wires under the block before terminating, it will be necessary to drive a fastener over the wire at a point close to the block on each side. To provide sufficient slack for retermination in case of wire breakage at the terminal screw, twist each wire around a screwdriver blade or similar instrument to form a two- or three-turn coil before terminating it. The mounting holes are large enough to accommodate a number 8 screw.

7.15 The Murdock number M-53 block is suitable only for line cords equipped with wing-band strain relief and also requires stapling of the station wire at the point of entry. Since this point is open on both the side and base of the block, the latter may be positioned so that the opening covers the staple (Figure 34). The opening should be located directly over the wire exit hole in the wall or baseboard, if possible. For four-terminal use, the strap between the two center terminals may be removed, and the terminals used individually. This block is unusual in having five mounting holes, which will accommodate a screw no larger than number 6.

7.16 To install a Scotchflex number 4110 connecting block proceed as follows:

- (a) Remove the cover-plate snips between the cover and entry port posts and snap-up base.
- (b) Remove the liner from the adhesive. Locate and press the 4110 firmly in place. The surface must be clean, dry, and free of dust, dirt, and oil. The optional holes for screw mounting can be used.
- (c) Prepare the station wire as in Figure 35.
- (d) Push the station wire down into the entry port and place all conductors in the strain-relief slots of the center post. Place all conductors in the U-contact slots of the appropriate terminal by entering from the plastic wall side.
- (e) Using a No. 714 Tool (Figure 36) or equivalent, push the wire straight down until the wire is cut off. The connection to the U-contact is made. (A screwdriver can be used and the wires trimmed with wire snips.) Repeat until all the wires are connected.
- (f) For extension telephone set additions, insert a second station wire into the entry port. Place all conductors in the center post strain relief. Match the colored conductors, place in a second U-contact (provided), make the connections in step (e).

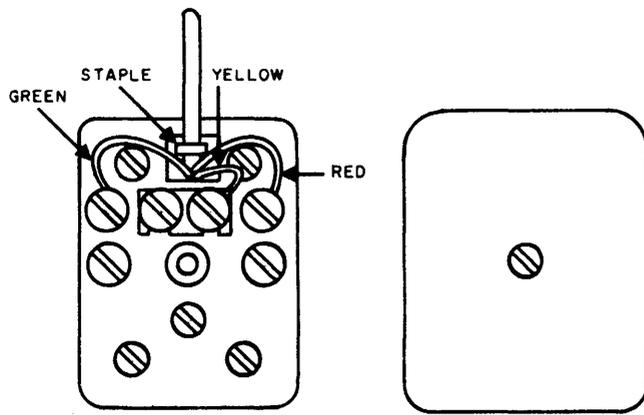


Figure 34. Murdock Number M-53 Connecting Block.

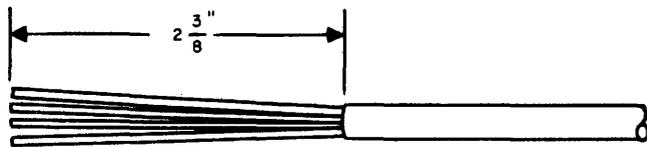


Figure 35. Preparation of Station Wire.

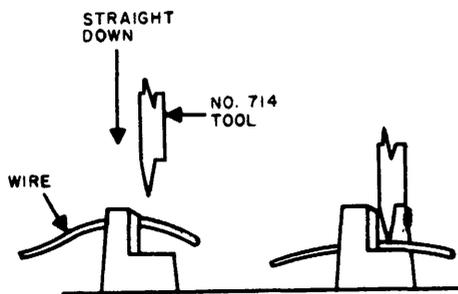


Figure 36. No. 714 Tool Used with Station Wire.

7.17 To install a line cord into the number 4110 connecting block, snap the ring-strain relief over the center post, or ear-strain relief into the entry port, and twist into the notches. Insert the spade terminals to the appropriate spade sockets (Figure 37). (Two telephone sets may be installed at the same connecting block by inserting the spade terminals back to back.)

7.18 The Dracon Model 1105 connecting block may be used when a rectangular electrical conduit box is provided for telephone wiring. The line cord is installed as shown in Figure 38, and the block is installed in the conduit box as shown in Figure 39.

7.19 The split outlet plate (Figure 21) consists of two identical mating plates (Figure 22), which are fitted together to make the cover. The plate fits a standard electrical conduit box. The standard hole will accommodate line cords of up to 16 conductors (Type 187 telephone set). The break-away section may be removed to accommodate the

line cords or running cables of up to 100 pairs. With the split outlet plate, the connection of the line cord and running cable may be concealed in the conduit box without having to back feed the line cord through the cover plate.

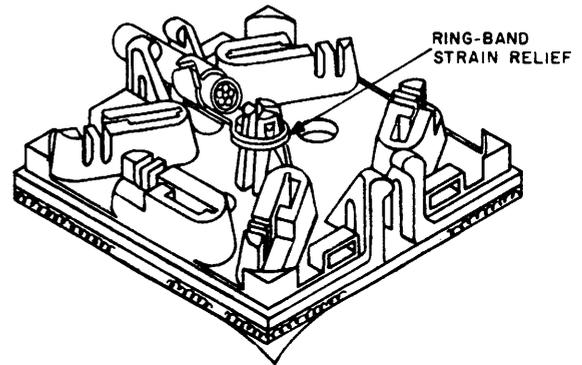


Figure 37. No. 4110 Connector Showing Strain Relief.

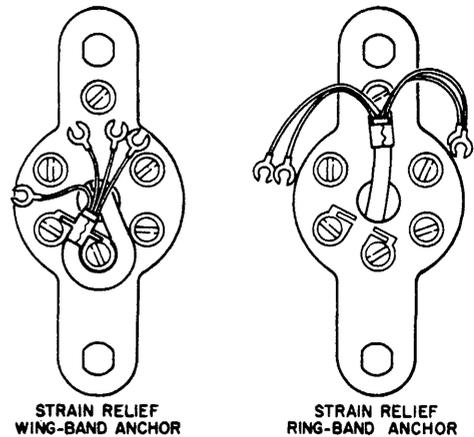


Figure 38. Installing Line Cord to Model 1105 Connecting Block.

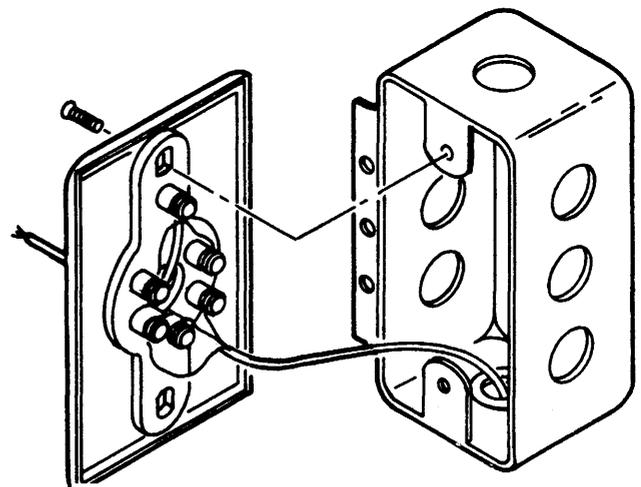


Figure 39. Installing Model 1105 Connecting Block in a Conduit Box.

## 8. SEQUENCE OF TERMINATION

8.01 For two-, three-, and four-conductor connecting blocks, terminate station wire on the terminals as follows:

- (a) Red conductor on terminal R, or L1, which is the right-hand terminal (ring or negative side of the line).
- (b) Green conductor on terminal G, or L2, or the left-hand terminal (tip or positive side of the line).
- (c) Yellow conductor on terminal Y, or 4G (ground or A1 lead).
- (d) Black conductor on terminal B, or 3 (spare or A lead).

8.02 For number 44 connecting blocks, follow the terminating sequence and color code shown in Table 2. Refer to Figure 28 for terminal locations.

8.03 Terminate three-pair station wire on 47C connecting blocks as follows:

- (a) Blue conductor on terminal 1 (first ring).
- (b) White-blue conductor on terminal 2 (first tip).
- (c) Orange conductor on terminal 3 (ground, or second ring).
- (d) White-orange conductor on terminal 4 (A lead, or second tip).
- (e) Green conductor on terminal 5 (signal, or third ring).
- (f) White-green conductor on terminal 6 (signal, or third tip).

8.04 Terminate six-pair inside wiring cable on number 47C connecting blocks according to the sequence and color code shown in Table 3.

Table 2. Terminating Sequence on Number 44 Connecting Blocks.

CONNECTING BLOCK NO.	STRIPED COLOR CODE GT-17 INSIDE WIRING CABLE PAIRS	SOLID COLOR GT-17 IW CABLE PAIRS	*TYPE C INSIDE WIRING CABLE PAIRS	CONNECTING BLOCK TERMINALS	LINE CORD CONDUCTORS	TELEPHONE SET LEADS
1	P1 Blue – White	P1 Blue	P1 Blue	1	Red	R T A1 or B A, H, or S } L1
	White – Blue	White	White	2	Green	
	P2 Orange – White	P2 Orange	P2 Orange	4	Yellow	
	White – Orange	White	White	5	Black	R T A1 or B A, H, or S } L2
	P3 Green – White	P3 Green	P3 Green	6	Blue	
	White – Green	White	White	7	White	
	P4 Brown – White	P4 Brown	P4 Brown	9	Brown – Red	R T A1 or B A, H, or S } L3
	White – Brown	White	White	10	Brown – Green	
	P5 Slate – White	P5 Slate	P5 Slate	3	Brown – Yellow	
White – Slate	White	White	8	Brown – Black	A1 or B A, H, or S } L4	
P6 Blue – Red	P6 Blue	P6 Blue – White	1	Brown – Blue		
Red – Blue	Red	White	2	Brown – White		
P7 Orange – Red	P7 Orange	P7 Blue + Orange	4	Red – Green		R T A1 or B A, H, or S } L5
Red – Orange	Red	White	5	Red – Yellow		
P8 Green – Red	P8 Green	P8 Blue – Green	6	Red – Black		
Red – Green	Red	White	7	Red – Blue		R T A1 or B A, H, or S } L5
P9 Brown – Red	P9 Brown	P9 Blue – Brown	9	Red – White		
Red – Brown	Red	White	10	Green – Yellow		
P10 Slate – Red	P10 Slate	P10 Blue – Slate	3	Green – Black	A1 or B A, H, or S } L5	
Red – Slate	Red	White	8	Green – Blue		
P11 Blue – Black	P11 Blue	P11 Orange – White	1	Green – White		SG-GND SPARE R2 } Common R1 } Audible Signals T } Exclusive Stations A or H } R } Cutoff Stations T } L } LG } L1 L } LG } L2 L } LG } L3 L } LG } L4 L } LG } L5
Black – Blue	Black	White	2	Yellow – Black		
P12 Orange – Black	P12 Orange	P12 Orange – Green	4	Yellow – Blue		
Black – Orange	Black	White	5	Yellow – White		
P13 Green – Black	P13 Green	P13 Orange – Brown	6	Black – Blue		
Black – Green	Black	White	7	Black – White		
P14 Brown – Black	P14 Brown	P14 Orange – Slate	9	Blue – White		
Black – Brown	Black	White	10	Slate		
P15 Slate – Black	P15 Slate	P15 Green – White	3	Slate – Red #		
Black – Slate	Black	White	8	Slate – Green #		
4	P16 Blue – Yellow	P16 Blue	P16 Green – Brown	1	Slate – Yellow	L } LG } L1 L } LG } L2 L } LG } L3 L } LG } L4 L } LG } L5
	Yellow – Blue	Yellow	White	2	Slate – Black	
	P17 Orange – Yellow	P17 Orange	P17 Green – Slate	4	Slate – Blue	
	Yellow – Orange	Yellow	White	5	None	
	P18 Green – Yellow	P18 Green	P18 Brown – White	6	Slate – White	
	Yellow – Green	Yellow	White	7	None	
	P19 Brown – Yellow	P19 Brown	P19 Brown – Slate	9	Slate – Brown	
	Yellow – Brown	Yellow	White	10	None	
P20 Slate – Yellow	P20 Slate	P20 Slate – White	3	Brown	L } LG } L5	
Yellow – Slate	Yellow	White	8	None		

\*Superseded as System Standard by GT-17.

#On WECO 65E sets only; colors not used on Type 86 sets.

Table 3. Terminating Sequence on Number 47C-Connecting Block.

STRIPED COLOR CODE GT-17 INSIDE WIRE CABLE PAIRS	SOLID COLOR GT-17 IW CABLE PAIRS	CONNECTING BLOCK TERMINALS
P1 Blue – White White – Blue	P1 Blue White	1 2
P2 Orange – White White – Orange	P2 Orange White	3 4
P3 Green – White White – Green	P3 Green White	5 6
P4 Brown – White White – Brown	P4 Brown White	7 8
P5 Slate – White White – Slate	P5 Slate White	9 10
P6 Blue – Red Red – Blue	P6 Blue Red	11 12