

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G61.122
Issue 2, November, 1940
AT&T Co Standard

TERMINALS

INSTALLATION OF INSIDE DISTRIBUTION TERMINALS

Contents	Page
General	1
Locating Terminals	2
Mounting Terminals	2
GA, GB and GC Type Cable Terminal Boxes....	2
HS6 Cable Terminal Box	4
Equipping Terminals	5
GA11, GA16 and GA26 Cable Terminal Boxes ...	5
GB11, GB16 and GB26 Cable Terminal Boxes ...	11
GC102 Cable Terminal Box	11
Closures for Cable and Wire Entrance Holes ...	13
HS6 Cable Terminal Box	14
Built-In Terminal Cabinets	15

1. GENERAL

1.01 This section covers locating, mounting and equipping the standard types of distribution terminals which are available for use within buildings. Information is also included with regard to equipping built-in terminal cabinets which may be provided by building owners to house the distribution terminal equipment. The wiring of building cable terminals is covered in the Station Installation and Maintenance Practices.

1.02 Issue 2 of this section has been prepared to bring the information into agreement with the design changes and additions that have been made to improve the inside distribution terminals. The revised section also includes the changes that have been found desirable in the methods of installing and equipping these terminals.

2. LOCATING TERMINALS

2.01 Locate terminals in accordance with the detail plans, complying with the following points in so far as practicable. If the specified terminal location does not seem feasible from an installation standpoint or is considered as offering potential maintenance difficulties, notify your supervisor in order that a more satisfactory location may be selected. Locate terminals:

- (a) Where they will be least conspicuous and will not unnecessarily expose the associated cable and wires to view.
- (b) Where they will not project in such a manner as to be hazardous.
- (c) Where good lighting conditions exist.
- (d) Where they will be accessible without the use of a ladder.
- (e) Where the door can swing through more than 90 degrees and where it will be possible to work in the terminal without blocking a passageway.
- (f) Where they will not be subjected to severe moisture under normal conditions or submersion in the event of a flood.
- (g) Where they will not be subjected to high temperatures such as occur near radiators, uncovered steam pipes, etc.
- (h) So as to avoid electric light and power circuits and electrical equipment.
- (i) Where they will not be damaged by moving machinery, hoists, doors and shutters or by materials handled on loading platforms, etc.
- (j) On a firm mounting surface.

3. MOUNTING TERMINALS

GA, GB and GC Type Cable Terminal Boxes

3.01 The GA, GB and GC Type Cable Terminal Boxes are so designed that they can be attached to the mounting surface before the binding post chambers or the connecting blocks are installed.

3.02 To mount the GA, GB and GC boxes, proceed as follows:

- (1) Locate the box in the desired position and spot the centers of the proper mounting holes. Refer to Paragraph 3.03 for the required anchoring devices and also for the method of mounting the box on rough masonry.

(2) Remove the box and drill the holes for the anchoring devices.

(3) Attach the box, making any necessary adjustment in its position before tightening the anchoring devices.

3.03 The anchoring devices required for attaching the GA, GB and GC Type Cable Terminal Boxes to the mounting surfaces most commonly encountered are listed in the following table. Refer to Section G10.375 for information with regard to the installation of anchoring devices in masonry, hollow tile and similar surfaces.

Surfaces	Anchoring Devices	Mounting Holes in Box
Smooth Masonry.	2-1/4 in. x 1 in. Hammer Drive Anchors with double-headed nails.	Elliptical
	or	
	2-1 in. No. 10 R.H. Blued Wood Screws in 10-14 x 1 in. Wood Screw Anchors.	Round
Hollow Tile, Plaster on Metal Lath and Similar Surfaces.	2-3/16 in. x 3 in. Toggle Bolts. (If a longer bolt is required, use a 3/16 in. x 4 in. Toggle Bolt.)	Round
Plaster on Masonry.	2-1/4 in. x 1-1/2 in. Hammer Drive Anchors with double-headed nails.	Elliptical
	or	
	*2—1-1/2 in. No. 10 R. H. Brass Wood Screws in 10-14 x 1-1/2 in. Wood Screw Anchors.	Round
Plaster on Wood and Similar Backing.	2—1-1/2 in. No. 14 R. H. Galv. Wood Screws.	Elliptical
	or	
	*2—1-1/2 in. No. 10 R. H. Brass Wood Screws. (If the mounting hole is located between wooden laths, use a 3/16 in. x 3 in. Toggle Bolt.)	Round
Finished Woodwork, Such as Furniture.	2-3/4 in. No. 8 R.H. Blued Wood Screws.	Round

*Use blued or galvanized wood screws if available.

Surfaces	Anchoring Devices	Mounting Holes in Box
Other Woodwork.	2-1 in. No. 14 R. H. Galv. Wood Screws. or 2-1 in. No. 10 R.H. Blued Wood Screws.	Elliptical Round
Rough Masonry.	Attach a 1 in. wooden backboard, corresponding in size to the overall dimensions of the terminal box, to the mounting surface by means of 2-5/16 in. x 2-1/4 in. Hammer Drive Anchors with single-headed nails or 2-2 in. No. 14 R.H. Galv. Wood Screws in 10-14 x 1 in. Wood Screw Anchors. Locate the anchors for the backboard in diagonally opposite corners. Drill 3/8 in. clearance holes in the backboard for the hammer drive anchors and 5/16 in. holes for the wood screws. Attach the terminal to the backboard as specified for other woodwork.	

HS6 Cable Terminal Box

3.04 The HS6 Cable Terminal Box is so designed that the anchoring devices serve to secure both the box and the connecting block.

3.05 Mount the HS6 box as follows:

- (1) Locate the box in the desired position and spot the centers of the mounting holes which match the mounting holes of the particular type of connecting block to be used. Refer to Paragraph 3.06 for the required anchoring devices.
- (2) Remove the box and drill the holes for the anchoring devices.
- (3) Attach the connecting block and the box, making any necessary adjustment in the position of the box before tightening the anchoring devices.

3.06 The anchoring devices required for attaching the HS6 Cable Terminal Box to the mounting surfaces most commonly encountered are listed in the following table. Refer to Section G10.375 for information with regard to the installation of anchoring devices in masonry, hollow tile and similar surfaces.

Surfaces	Anchoring Devices
Smooth Masonry.	2—1-1/2 in. No. 8 R.H. Blued Wood Screws in 6-8 x 3/4 in. Wood Screw Anchors.
Hollow Tile, Plaster on Metal Lath and Similar Surfaces.	2-1/8 in. x 3 in. Toggle Bolts. (If a longer bolt is required, use a 1/8 in. x 4 in. Toggle Bolt.)
Plaster on Masonry.	2-2 in. No. 8 R.H. Blued Wood Screws in 6-8 x 1-1/2 in. Wood Screw Anchors.
Plaster on Wood and Similar Backing.	2—1-1/2 in. No. 8 R. H. Blued Wood Screws. (If mounting hole is located between wood laths, use a 1/8 in. x 3 in. Toggle Bolt.)
Woodwork.	2-1 in. No. 8 R.H. Blued Wood Screws.

4. EQUIPPING TERMINALS

GA11, GA16 and GA26 Cable Terminal Boxes

4.01 The GA11, GA16 and GA26 Cable Terminal Boxes can be equipped with either a G Type Binding Post Chamber or a corresponding size connecting block (30 or 31 type) mounted on a 102 Type Adapter. When so equipped, these boxes provide distribution terminals which are suitable for installations where wiring changes will be infrequent.

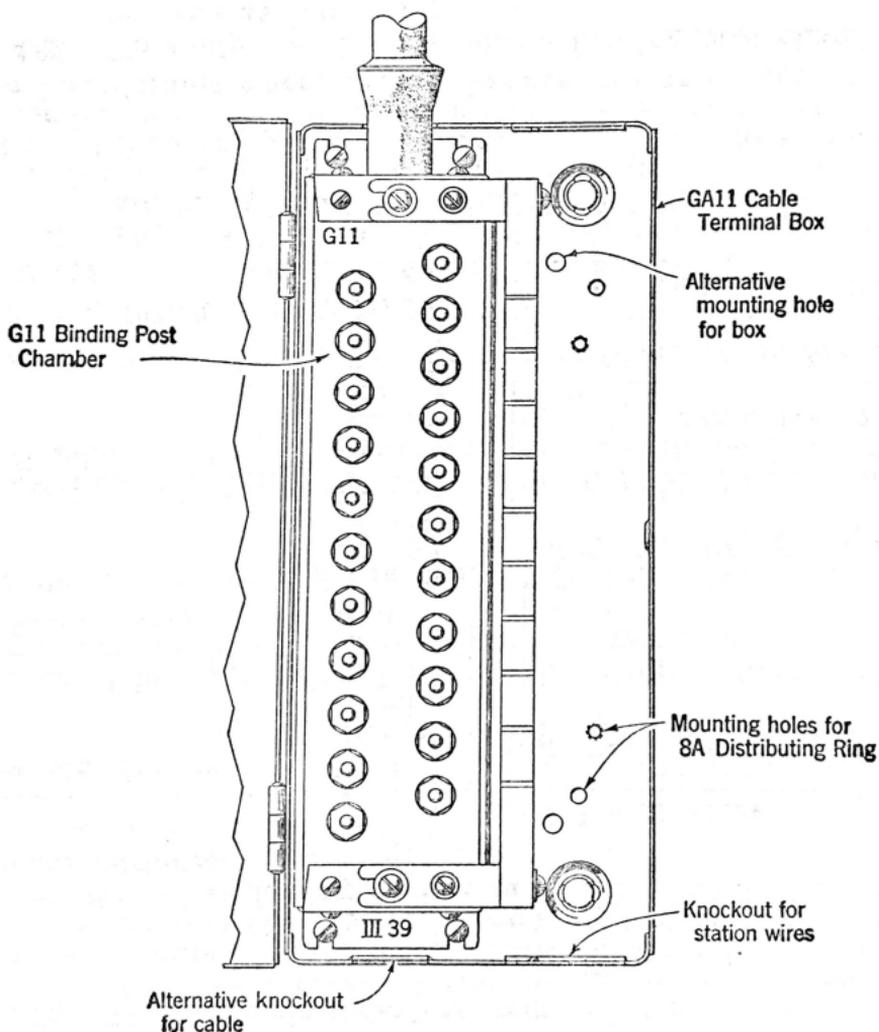
4.02 To equip the GA box with a binding post chamber, proceed as follows:

- (1) Remove the proper U-shaped knockout for the stub cable.
- (2) Insert the two lower mounting screws for the chamber. These screws are furnished with the box.
- (3) Rest the lower mounting slots of the chamber on these screws, with the fanning strip toward the wiring space of the box, and adjust the chamber to its final position.
- (4) Insert and tighten the two upper mounting screws.
- (5) Tighten the two lower mounting screws.
- (6) Support the stub cable temporarily until the splicing has been completed.

(7) If the 8A Distributing Ring furnished with the GA box is to be installed, mount it in the position furthest from the knockout through which the station wires will enter the box. If the ring is not to be used, it should be returned in accordance with local instructions.

4.03 A GA Type Cable Terminal Box equipped with a binding post chamber is shown in the following illustration.

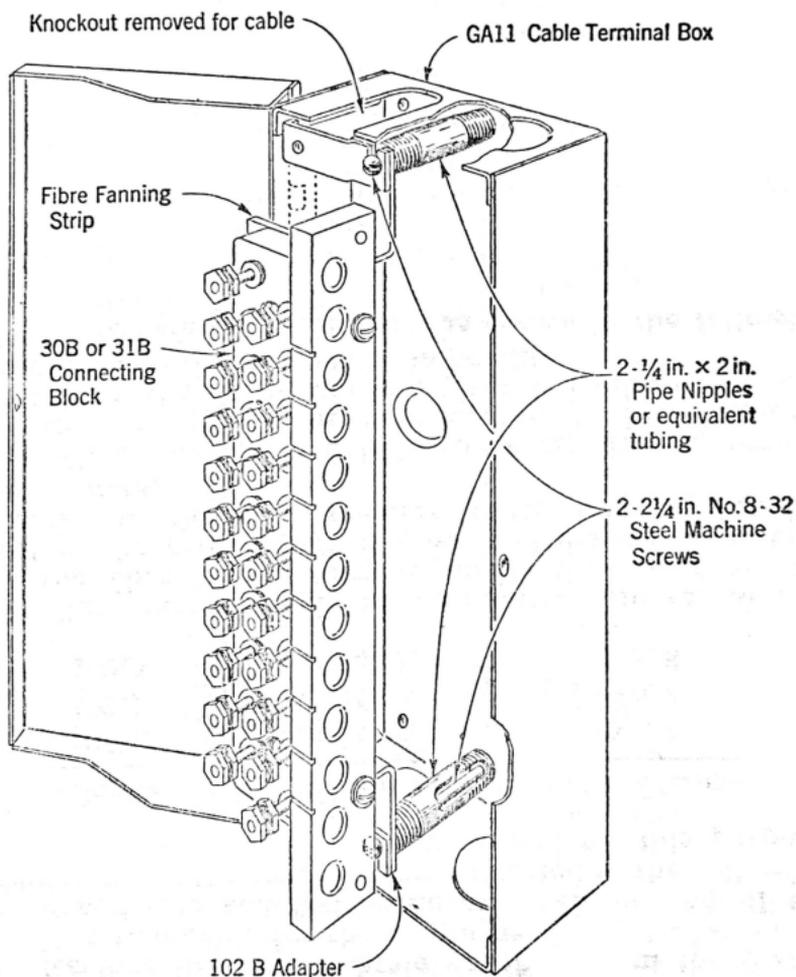
GA 11 CABLE TERMINAL
(Equipped with binding post chamber)



4.04 To equip the GA box with a connecting block and its associated adapter, proceed as follows:

- (1) Remove the proper U-shaped knockout for the entering cable.
- (2) Assemble the fibre fanning strip and the connecting block on the adapter in the order named and secure the assembly by means of the two machine screws and nuts furnished with the adapter.
- (3) Mount the adapter temporarily in the box as shown in the following illustration to facilitate terminating the cable.

GA11 CABLE TERMINAL
(Connecting block in position for terminating cable)



(4) Remove the lead or braid covering from the textile insulated cable for the length necessary to terminate the conductors and fasten the cable at the end of the adapter, using the size of clamp indicated in the following table and the machine screw furnished for this purpose.

<u>Adapters</u>	<u>Cables</u>	<u>Cable Clamps</u>
102B	11 pr.	No. 6
102C	16 pr.	No. 7
102D	26 pr.	No. 8

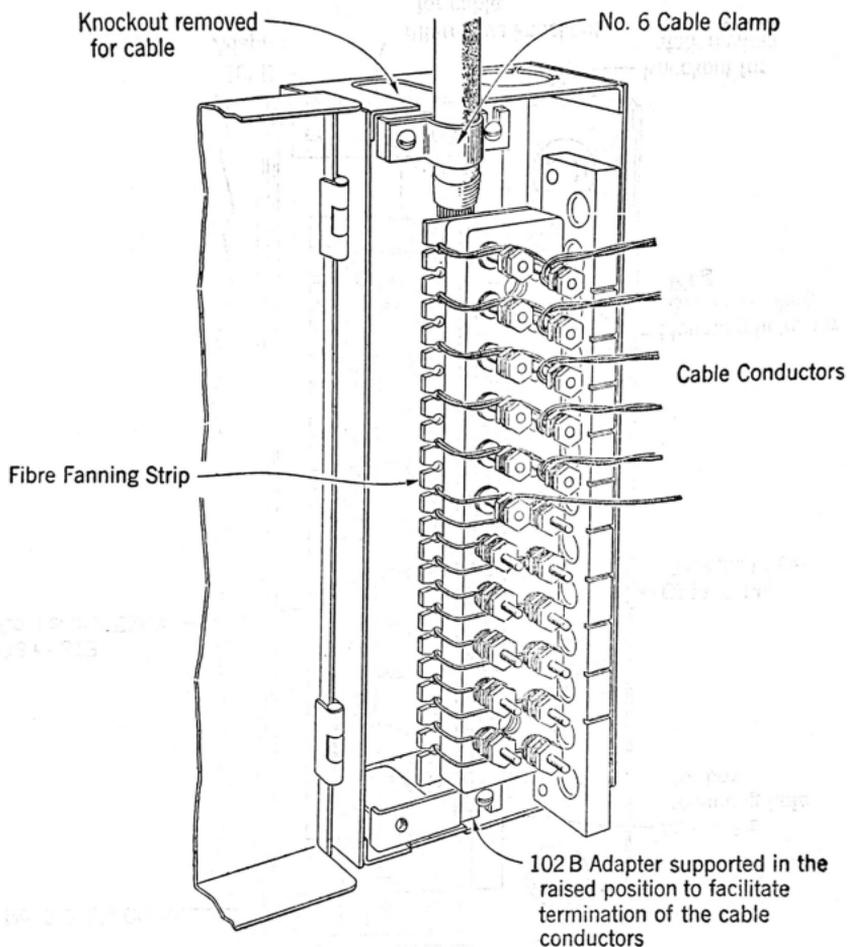
(5) Place each pair of cable conductors in the slot of the fibre fanning strip opposite the upper binding post of the proper pair of posts and dispose of it temporarily as shown in the next illustration for the five upper pairs.

(6) When each cable pair is to be terminated, remove the conductor to be connected to the lower binding post from the upper slot and place it in the lower slot, holding the other conductor in position.

(7) Terminate the conductors as shown in the following illustration.

GA11 CABLE TERMINAL

(Method of terminating cable on connecting block)

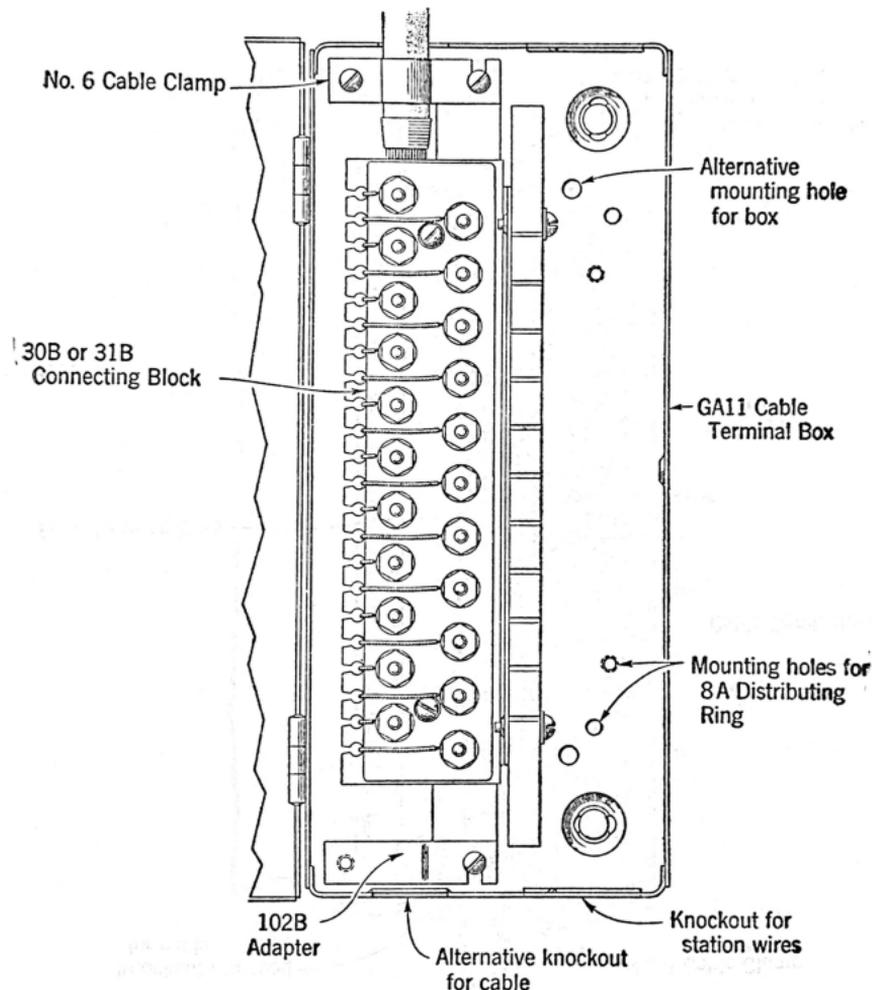


- (8) Detach the adapter from the box and remove the materials used to block out the adapter.
- (9) Insert the lower permanent mounting screw for the adapter. The screws for mounting the adapter are furnished with the box.
- (10) Rest the lower U-shaped slot of the adapter on this screw and adjust the adapter to its final position.
- (11) Insert and tighten the upper mounting screw.
- (12) Tighten the lower mounting screw.

(13) If the 8A Distributing Ring furnished with the GA box is to be installed, mount it in the position furthest from the knockout through which the station wires will enter the box. If the ring is not to be used, it should be returned in accordance with local instructions.

4.05 A GA Type Cable Terminal Box equipped with a connecting block is shown in the following illustration.

GA 11 CABLE TERMINAL
(Equipped with connecting block)

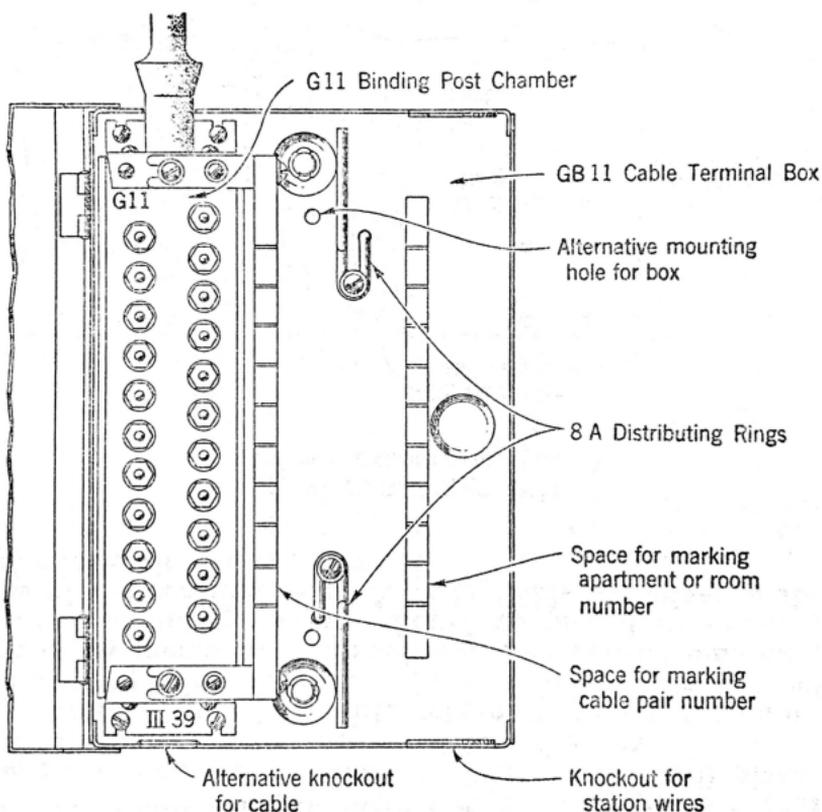


GB11, GB16 and GB26 Cable Terminal Boxes

4.06 The GB11, GB16 and GB26 Cable Terminal Boxes can be equipped with either a G Type Binding Post Chamber or a corresponding size connecting block (30 or 31 type) mounted on a 102 Type Adapter. The chamber or connecting block and adapter is installed in the GB box in the same manner as in the GA box. When so equipped, the GB boxes provide distribution terminals which are suitable for installations where there will be frequent wiring changes.

4.07 A GB Type Cable Terminal Box equipped with a binding post chamber is shown in the following illustration.

GB 11 CABLE TERMINAL
(Equipped with binding post chamber)

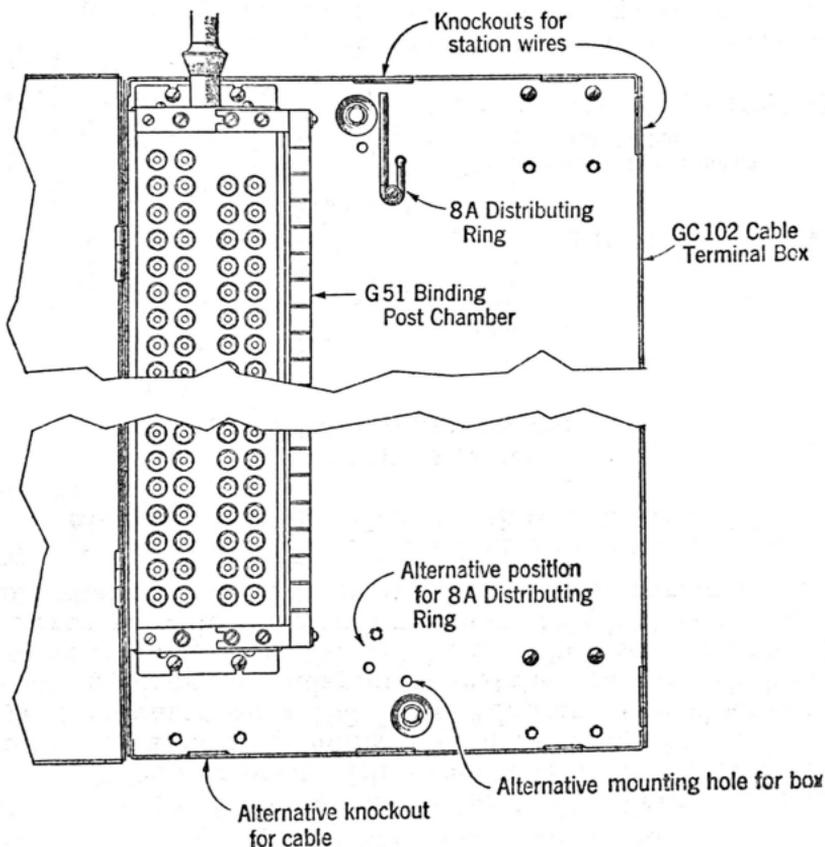


GC102 Cable Terminal Box

4.08 While the GC Type Cable Terminal Box is designed primarily to house cross-connecting facilities, the GC102 box equipped with a G51 Binding Post Chamber pro-

vides a distribution terminal which is suitable for installations where larger than a 26-pair terminal is required. When the G51 chamber is equipped with a pulp insulated stub cable, it should be mounted in the box with the nipple extending through the U-shaped opening. If, however, the chamber is equipped with a textile insulated stub cable, it is necessary to use the other set of mounting holes which will place the larger diameter nipple entirely within the box. In the latter case, protect the stub cable where it passes through the U-shaped opening with wrappings of 3/4 in. Black Friction Tape or by means of lead sleeving. The unused binding post chamber mounting screws should be placed in unoccupied holes of the terminal box. A GC51 Cable Terminal is shown in the following illustration.

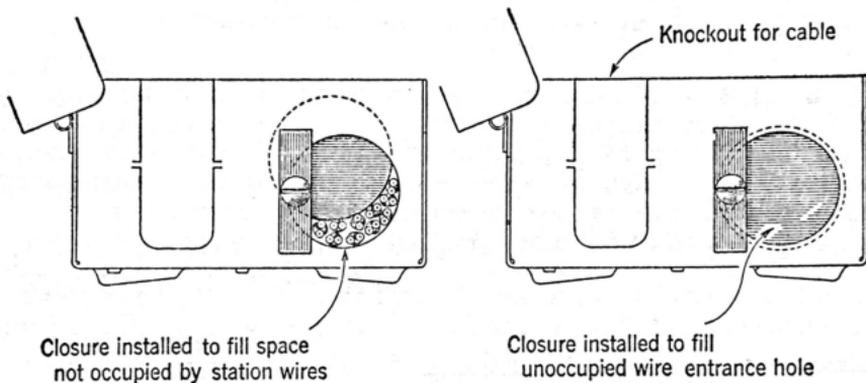
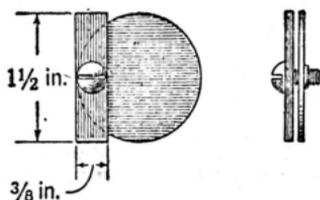
GC 51 CABLE TERMINAL
(Equipped with binding post chamber)



Closures for Cable and Wire Entrance Holes

4.09 The P-375610 Closure, one of which is furnished as a separate part with each GA, GB and GC box, should be installed as shown in the following illustration when a knockout is removed for the station wires. In addition to being used as an aid in keeping the terminal box clean by filling the space not occupied by the station wires, this closure may also be used to completely close the opening if the wires are removed from the box.

P-375610 Closure

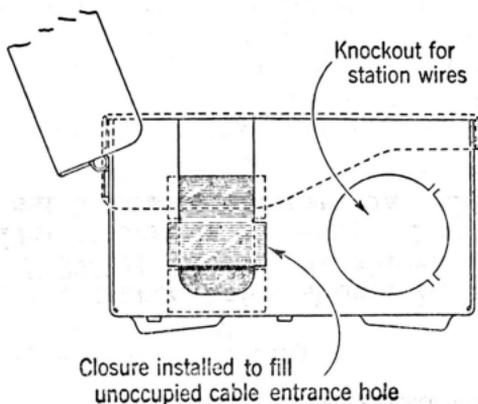
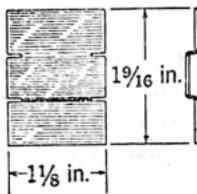


Closure installed to fill space not occupied by station wires

Closure installed to fill unoccupied wire entrance hole

4.10 Unoccupied cable entrance holes should be closed by means of a P-290231 Closure as shown in the following illustration. This closure is not supplied with the GA, GB and GC boxes but it can be obtained on order.

P-290231
Closure

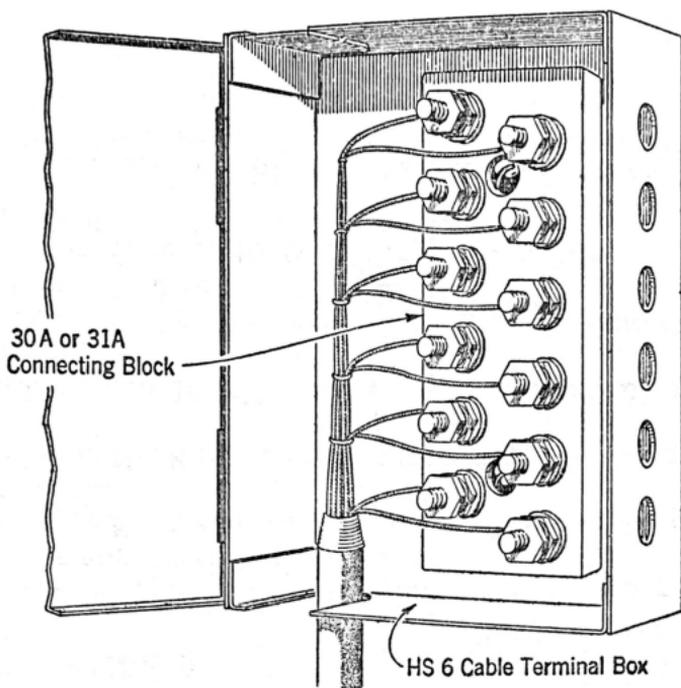


HS6 Cable Terminal Box

4.11 The HS6 Cable Terminal Box, equipped with either a 30A or 31A Connecting Block, provides a 6-pair distribution terminal which is suitable for use in dry locations. Where this terminal would be subjected to dampness, notify your supervisor in order that consideration may be given to the installation of a GA11 box equipped with a G11 chamber.

4.12 The connecting block is mounted in the HS6 box by means of the anchoring devices used for attaching the box to the mounting surface as outlined in Paragraph 3.05. The proper knockout should be removed and the cable installed as shown in the following illustration.

HS 6 CABLE TERMINAL



Built-In Terminal Cabinets

4.13 Built-in terminal cabinets may be provided by building owners to house the distribution terminal equipment. The anchoring devices required for attaching the terminal equipment to a wooden backboard, if this is provided, and to the metal backing of the cabinet are given in the following table. Where connecting blocks are to be installed in built-in cabinets, it is preferable to mount them on 102 Type Adapters. This arrangement requires fewer anchoring devices, avoids the need for sewing textile cable forms and requires somewhat less space than would be necessary if the blocks were mounted directly on a backboard or on the metal backing of the cabinet.

Equipment	Wooden Backboard (Wood Screws)	Metal Backing (*Self-Tapping Screws)
G11, G16 and G26 Binding Post Chambers	4-3/4 in. No. 8 R.H. Blued	2-3/8 in. No. 8 R.H.
G51 Binding Post Chamber	4-3/4 in. No. 8 R.H. Blued	4-3/8 in. No. 8 R.H.
102 Type Adapter	2-3/4 in. No. 8 R.H. Blued	2-3/8 in. No. 8 R.H.
8A Distributing Ring	1-3/4 in. No. 8 R.H. Blued (Washer supplied with ring)	1-3/8 in. No. 8 R.H. (Washer supplied with ring)
Cable Clamps (Nos. 6, 7 and 8)	1-3/4 in. No. 8 R.H. Blued	1-3/8 in. No. 8 R.H.
Cable Clamp (No. 13)	1-1 in. No. 10 R.H. Blued	1-3/8 in. No. 10 R.H.
Cable Clasp (No. 7)	1-3/4 in. No. 6 R.H. Blued	1-3/8 in. No. 6 R.H.
Cable Clasps (Nos. 9 and 14)	1-3/4 in. No. 8 R.H. Blued	1-3/8 in. No. 8 R.H.

*Parker-Kalon Type Z Self-Tapping Screws with plain steel finish or approved equivalent.

Drill hole for No. 6 self-tapping screw with No. 31 or 1/8 in. Twist Drill.

Drill hole for No. 8 self-tapping screw with No. 28 or 9/64 in. Twist Drill.

Drill hole for No. 10 self-tapping screw with No. 22 or 5/32 in. Twist Drill.

Drill hole for unthreaded end of 8A Distributing Ring with No. 12 or 3/16 in. Twist Drill.

Where it is difficult to turn the self-tapping screw, use a larger drill.

4.14 The sizes of cable clamps and cable clasps required for the various sizes of cables are given in the following table:

Cable Clamps

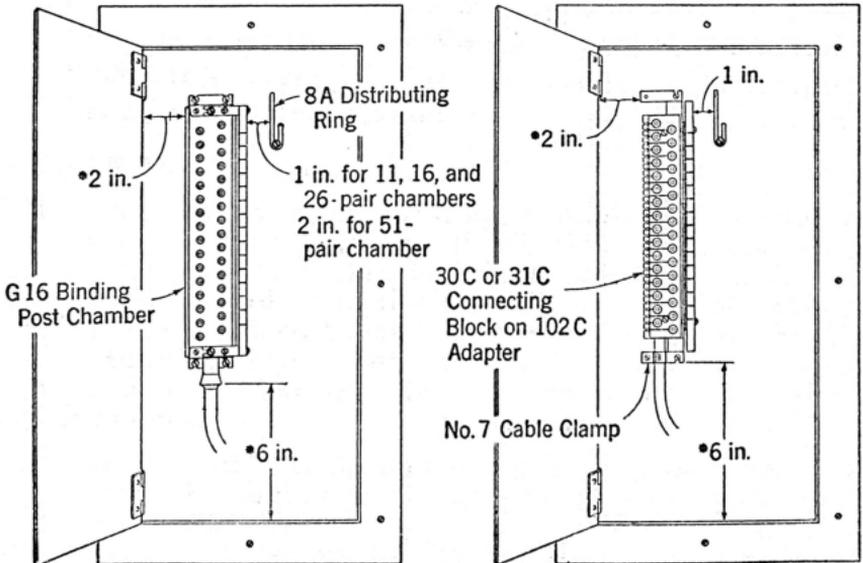
Cable Clasps

Cables (Pairs)	Chambers and Connecting Blocks (Textile)		
	Chambers (Pulp Insulated Cables)	Insulated and Inside Wiring Cables)	Connecting Blocks (Inside Wiring Cables)
11	No. 6	No. 6	*No. 7
16	No. 6	No. 7	*No. 9
26	No. 7	No. 8	*No. 9
51	No. 8	No. 13	No. 14

*Use a clamp for fastening cable to 102 Type Adapter.

4.15 When the conduit for the station wires enters the lower half of the cabinet, place an 8A Distributing Ring as shown in the next illustration. Where this conduit enters the upper half of the cabinet, place the ring adjacent to the opposite end of the chamber or connecting block. Any additional rings that are required should be placed at the time the station wires are installed.

4.16 Typical installations of a binding post chamber and a connecting block in a built-in terminal cabinet are shown in the following illustration.



* Minimum dimension