BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G61.130
Issue 2, August, 1941
AT&T Co Standard

TERMINALS
INSTALLATION OF INSIDE PROTECTED TERMINALS

Contents

1. GENERAL

1.01 This section covers locating, mounting and equipping the standard cross-connecting and non-cross-connecting types of protected cable terminals, except the placing of fuses and protector blocks, which are available for use within buildings at the junction of exposed and unexposed plant. Information is also included with regard to equipping built-in terminal cabinets which may be provided by building owners to house the protected terminal equipment.

1.02 The grounding of protected building cable terminals is covered in Section G53.135. The installation of fuses and protector blocks and the wiring of these terminals are covered in the Station Installation and Maintenance Practices.

1.03 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 protected building cable terminals. The revised section also includes the changes that have been found desirable in the methods of installing and equipping these terminals.

2. LOCATING TERMINAL

2.01 Locate terminal 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 terminal:

(a) Inside of building and as near as practicable to the exposed cable entrance into the building.

(b) So as to avoid inflammable material and also where it will not be in the immediate vicinity of easily ignitible gases and dust.

(c) Where it will be least conspicuous.

(d) Where it will not project in such a manner as to be hazardous.

(e) Where good lighting conditions exist.

(f) Where it will be accessible without the use of a ladder.

(g) Where it will be possible to work in the terminal without blocking a passageway.

(h) Where it will not be subjected to severe moisture under normal conditions or submersion in the event of a flood.

(i) Where it will not be subjected to high temperatures such as occur near radiators, uncovered steam pipes, etc.

(j) So as to avoid electric light and power circuits and electrical equipment.

(k) Where it will not be damaged by moving machinery, hoists, doors and shutters or by materials handled on loading platforms, etc.

(l) On a firm mounting surface.

3. MOUNTING LA TYPE CABLE TERMINAL

3.01 The LA Type Cable Terminal, consisting of an assembly of two intermediate sections, two end sections, one fuse chamber and one backboard, should be attached to the mounting surface as follows:

(1) Locate one of the mounting brackets, supplied as a separate part of the intermediate section, so that its top edge is approximately 4 inches below the desired height of the top of the terminal.

(2) Spot the centers of the two mounting holes, exercising care to keep the bracket level in order that the terminal will be properly aligned when in place.

(3) Remove the bracket and drill the holes (lead holes when on wood) for the anchoring devices. Refer to Paragraph 3.03 for the required anchoring devices.

(4) Place the bracket in position, insert the anchoring devices and complete the attachment.

(5) Attach the second bracket at the same level as the first bracket, with the adjacent ends touching each other in the case of the LA16 terminal and approximately 1-5/8 inches apart in the case of the LA26 and LA51 terminals.

(6) Suspend the terminal on the brackets by engaging the hangers at the rear of the intermediate sections. Make any necessary adjustment to center the terminal on the brackets.

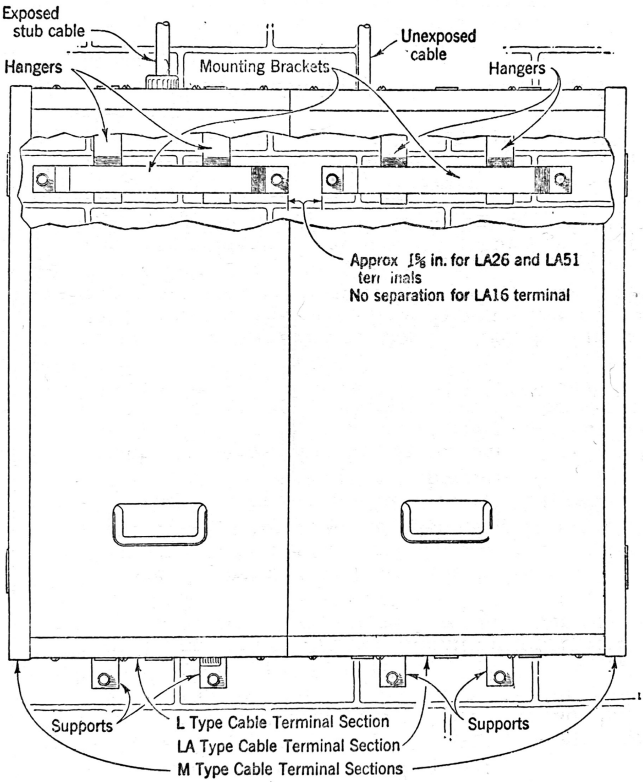
(7) Spot the centers of the mounting holes of the four supports located below the intermediate sections and drill the holes (lead holes when on wood) for the anchoring devices. When the supports are to be attached by means of toggle bolts, it is necessary to locate and drill all of the holes before fastening the supports to the mounting surface.

(8) Insert these anchoring devices and complete the attachment.

3.02 The mounting arrangement for the LA Type Cable Terminal is shown in the following illustrations.

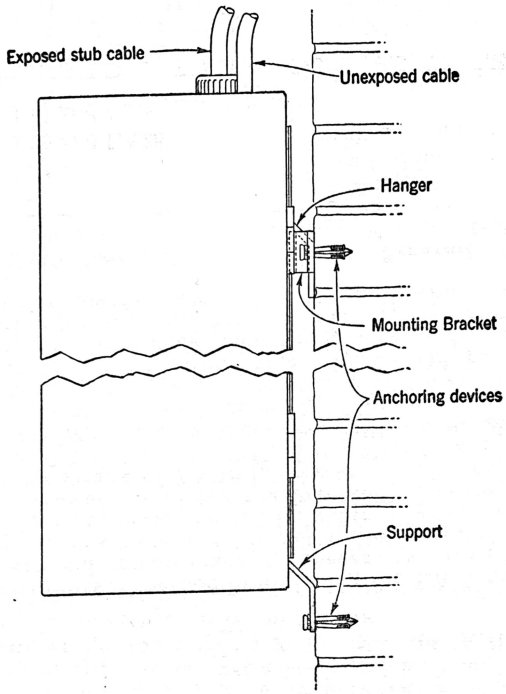
(a) Front view.

LA TYPE CABLE TERMINAL
(Cross-Connecting Type)



(b) End view.

LA TYPE CABLE TERMINAL
(Cross-Connecting Type)



3.03 The anchoring devices required for attaching the LA Type Cable Terminal 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
Masonry	8-1/4 in. x 1-1/4 in. Hammer Drive Anchors with single headed nails.
Hollow Tile, Plaster on Metal Lath and Similar Surfaces	8-1/4 in. x 3 in. Toggle Bolts. (If a longer bolt is required use a 1/4 in. x 4 in. Toggle Bolt.)
Plaster on Masonry	8-1/4 in. x 1-1/2 in. Hammer Drive Anchors with single headed nails.
Plaster on Wood and Similar Backing	8—1-1/2 in. No. 14 R.H. Galv. Wood Screws. (If the attachment is made between wooden laths, use a 1/4 in. x 3 in. Toggle Bolt.)
Woodwork	8—1-1/2 in. No. 14 R.H. Galv. Wood Screws.

3.04 The bracket method of attaching the LA Type Cable Terminal should make it unnecessary to use mounting cleats on masonry except where the surface is very uneven. Where required, install 1 in. x 3 in. wooden mounting cleats at the locations of the brackets and supports. Attach each cleat by means of 2-5/16 in. x 2-1/4 in. Hammer Drive Anchors or 2-2 in. No. 14 R.H. Galv. Wood Screws with 10-14 x 1 in. Wood Screw Anchors. **Drill 3/8 in. clearance** holes in the cleats for the hammer drive anchors and 5/16 in. holes for the wood screws. Attach the brackets and the supports to the cleats by means of 8-1 in. No. 14 R.H. Galv. Wood Screws. The vertical separations between the holes of the mounting brackets and the supports for the various sizes of intermediate sections are given in the following table.

Cable Terminal Sections	Vertical Separations Between Mounting Holes
L11	1 ft. 2 in.
L16	1 ft. 5 in.
L26 and LA26	2 ft. 1/2 in.
L51 and LA51	

4. MOUNTING LB TYPE AND LC TYPE CABLE TERMINALS

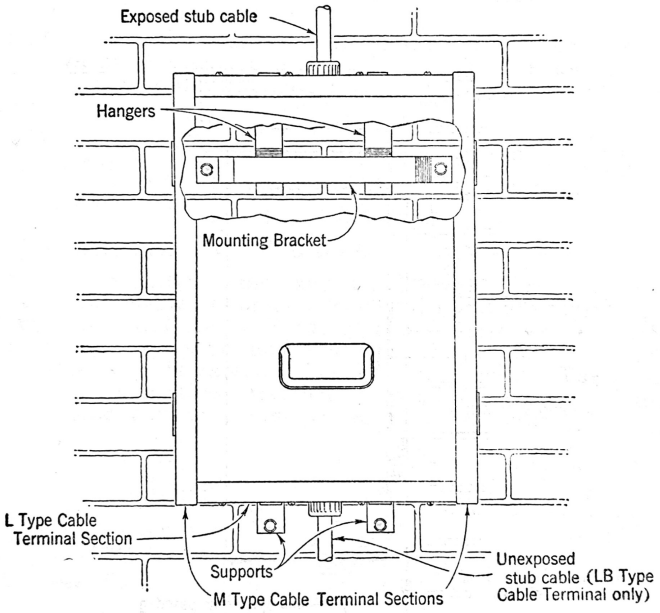
4.01 The LB Type and LC Type Cable Terminals, consisting of an assembly of one intermediate section, two end sections and a fuse chamber, should be attached to the mounting surface in the same manner as the LA Type Cable Terminal. The only difference in the mounting arrange-

ment for these terminals is that the LB and LC types each have one mounting bracket and require four anchoring devices whereas the LA type has two brackets and requires eight anchoring devices.

4.02 The mounting arrangement for the LB Type and LC Type Cable Terminals is shown in the following illustrations.

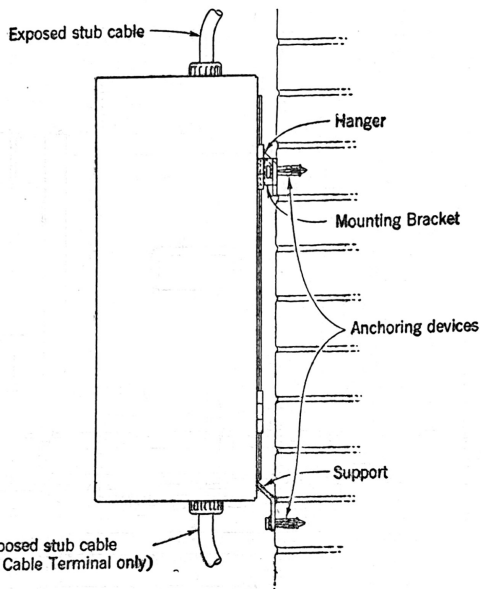
(a) Front view.

LB OR LC TYPE CABLE TERMINAL
(Non-Cross-Connecting Type)



(b) End view.

LB OR LC TYPE CABLE TERMINAL
(Non-Cross-Connecting Type)



5. MOUNTING L TYPE AND LA TYPE CABLE TERMINAL SECTIONS

5.01 When the L Type and LA Type Cable Terminal Sections (intermediate sections) are to be installed in the enlargement of an existing terminal or in the initial installation of a terminal larger than a 51-pair size, suspend the individual sections on their respective mounting brackets as outlined in Part 3 and then join the sections by means of the machine screws and nuts provided for this purpose. Following the complete assembly of the intermediate sections, place the anchoring devices in the supports located below each section.

Attaching M Type Cable Terminal Section

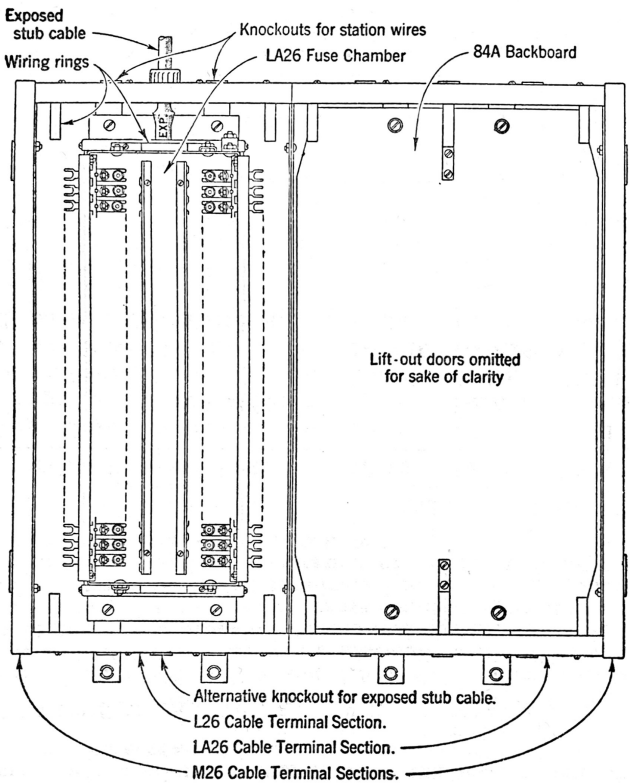
5.02 Attach an M Type Cable Terminal Section (end section) to each end of one or a group of intermediate sections of corresponding height by means of the machine screws and nuts provided for this purpose. The M section is hinged and must be fully opened when making the attachment. When closing the M section, make sure that the pins enter the holes in the web of the L or LA section before the clips are turned to lock the M section in position. If necessary, loosen the screws in the top and bottom parts of the intermediate section in order to align the sections and then retighten the screws.

6. EQUIPPING LA TYPE CABLE TERMINAL

6.01 The LA16, LA26 and LA51 Cable Terminals are obtainable as complete assemblies, with the exception of the fuses, protector blocks and the unexposed cable terminations, for use where cross-connecting facilities are required at the protected terminal. The component parts of these terminals and an illustration of the LA26 Cable Terminal, equipped as supplied, follow:

Cable Terminal Parts	Cable Terminals		
	LA16	LA26	LA51
L Type Cable Terminal Section	2-L16	1-L26	1-L51
LA Type Cable Terminal Section	—	1-LA26	1-LA51
M Type Cable Terminal Section	2-M16	2-M26	2-M51
LA Type Fuse Chamber	1-LA16	1-LA26	1-LA51
83 Type or 84 Type Backboard	1-83A	1-84A	1-84B

LA26 CABLE TERMINAL
(Cross-Connecting Type)



6.02 The maximum number of binding post chambers and also the maximum number of 102 Type Adapters, equipped with connecting blocks, that can be mounted on the 83 Type and 84 Type Backboards are given in the following table.

Sections	Backboards	Binding Post Chambers	Adapters	Connecting Blocks
L16	83A	2-G16	3-102C	3-30C
L26	83B	2-G51	3-102D	3-30D
L51	83C	1-H101 and 1-G26	6-102D	6-30D
LA26	84A	2-G (or H) 51	4-102D	4-30D
LA51	84B	2-H101	8-102D	8-30D

6.03 To equip the section intended for the unexposed cable terminations, proceed as follows:

(1) Remove the top or bottom part of the section, depending upon whether the unexposed cable is to enter at the top or at the bottom. Where it is practicable, the cable may be passed through the opening in the top or bottom part of the section without detaching this part.

(2) Remove the U-shaped knockout for the unexposed cable, selecting the knockout nearest to the fuse chamber for the initial cable.

(3) Locate the binding post chamber or adapter on the backboard with the cable as nearly in line with the opening in the top or bottom of the section as practicable and so as not to obstruct the wiring space at the top and at the bottom of the section. The initial chamber or adapter should be installed in the position nearest the fuse chamber. Refer to the illustrations in Paragraphs 6.04 to 6.07.

(4) Refer to Section G61.122 or G61.126 for the methods of attaching a connecting block to an adapter and terminating the textile insulated cable.

(5) Attach the binding post chamber or adapter to the backboard, protecting the unexposed cable at the point where it will pass through the top or bottom of the section with wrappings of 3/4 in. Black Friction Tape or by means of lead sleeving. The following screws are required for attaching the chambers and adapters to the backboard. These screws are not supplied with the terminal equipment.

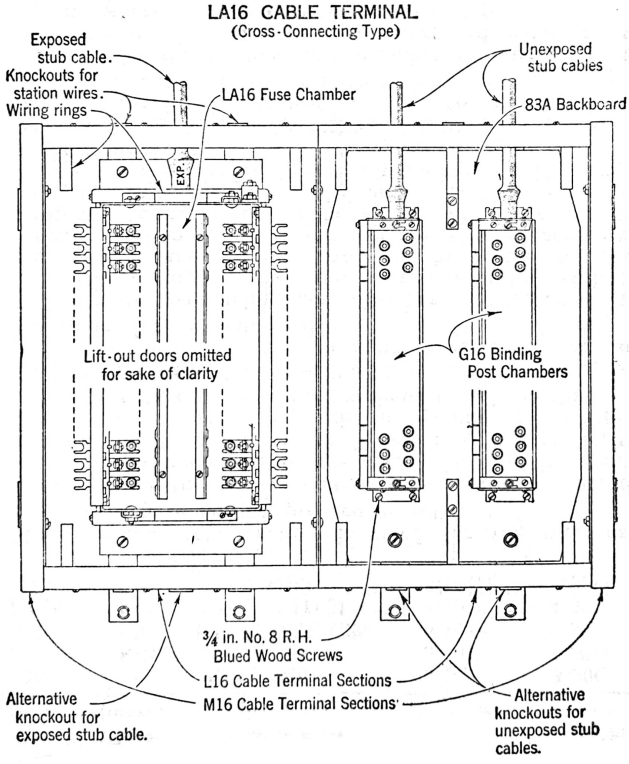
Equipment	Wood Screws
G Type Binding Post Chamber	4-3/4 in. No. 8 R.H. Blued
H Type Binding Post Chamber	4-1 in. No. 10 R.H. Blued
102 Type Adapter	2-3/4 in. No. 8 R.H. Blued

(6) Support the unexposed cable temporarily until the splicing has been completed.

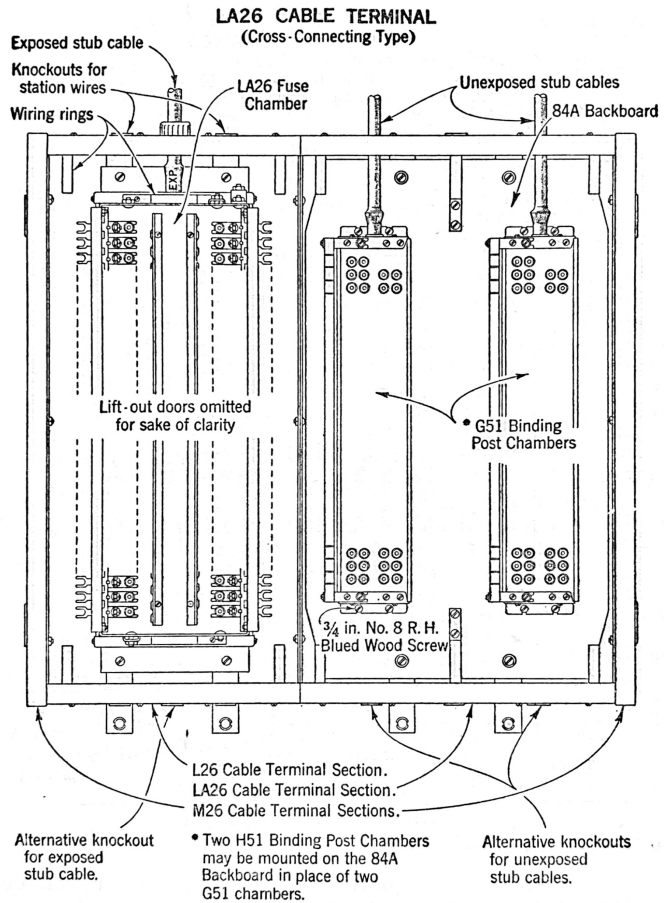
(7) If the top or bottom part of the section has been removed, replace this part and tighten the screws. Close and fasten the end section by engaging the clips with the web of the intermediate section, exercising care to see that the pins enter the holes in the web.

(8) Install the lift-out door.

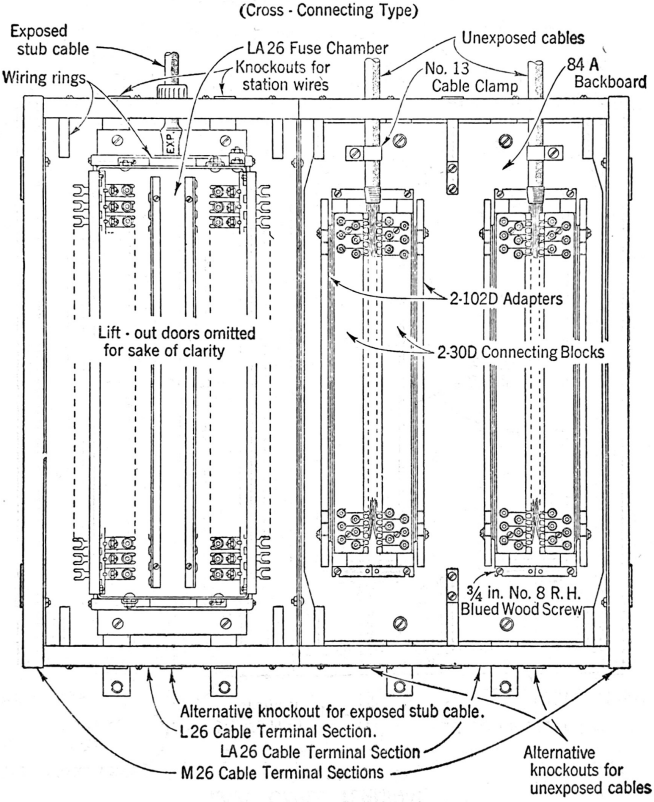
6.04 An LA16 Cable Terminal equipped with the maximum number of binding post chambers is shown in the following illustration.



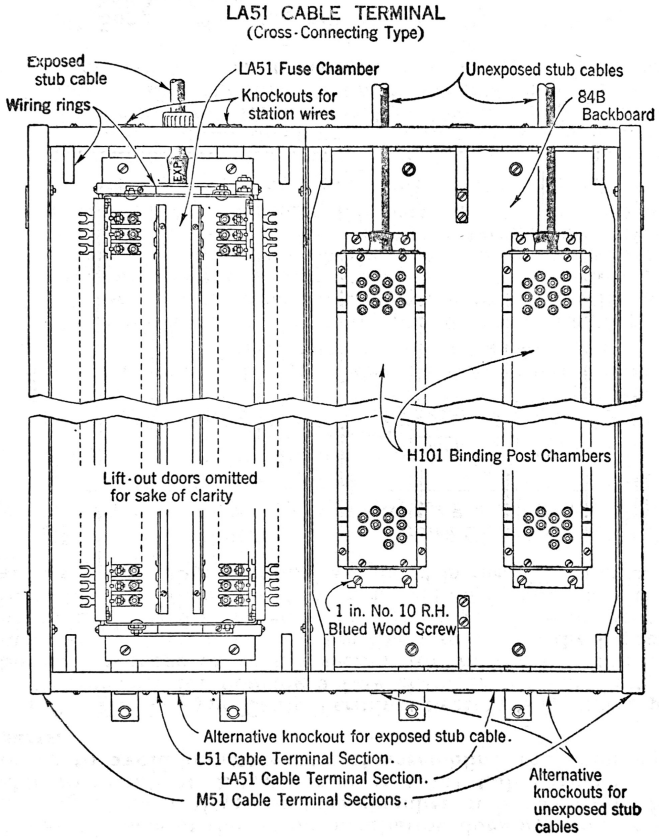
6.05 An LA26 Cable Terminal equipped with the maximum number of binding post chambers is shown in the following illustration.



6.06 An LA26 Cable Terminal equipped with the maximum number of adapters and connecting blocks is shown in the following illustration.



6.07 An LA51 Cable Terminal equipped with the maximum number of binding post chambers mounted on the backboard is shown in the following illustration.



L Type and LA Type Cable Terminal Sections

6.08 The L Type and LA Type Cable Terminal Sections may be obtained as separate parts for use in connection with the initial installation of a cross-connecting type of protected terminal or the enlargement of an existing terminal. When the size of the initial installation does not require the placing of more than one fuse chamber, it is usually preferable to install an LA16, LA26 or LA51 Cable Terminal in order to avoid the necessity of assembling the component parts.

6.09 The L Type Cable Terminal Section is intended primarily for housing a fuse chamber, although it may be used in place of an LA section for unexposed cable terminations if their number is not likely to exceed the capacity of the backboard as given in Paragraph 6.02. The fuse chambers that can be mounted in an L section forming a part of an LA Type Cable Terminal are listed in the following table.

Sections	Fuse Chambers (One Per Section)
L16	LA16
L26	LA16 or LA26
L51	LA26 or LA51

6.10 To equip an L Type Cable Terminal Section with an LA Type Fuse Chamber, proceed as follows:

(1) Remove the top or bottom part of the section, depending upon whether the chamber is to be installed with the stub cable at the top or at the bottom. Where it is practicable, the stub of the chamber may be passed through the opening in the top or bottom part of the section without detaching this part.

(2) Remove the center knockout for the stub cable.

(3) Attach the fuse chamber to the back of the section by means of the four machine screws supplied with the section for this purpose. The two parts of the porcelain bushing supplied on the stub cable should be separated and the bushing reassembled in the cable entrance hole.

(4) Support the stub cable temporarily until the splicing has been completed.

(5) If the top or bottom part of the section has been removed, replace this part and tighten the screws.

If the L section is adjacent to an M section, close and

fasten the end section by engaging the clips with the web of the intermediate section, exercising care to see that the pins enter the holes in the web.

(6) Install the lift-out door.

6.11 To equip the L or LA section with a backboard, proceed as follows:

(1) Remove the top or bottom part of the section, selecting the part through which the unexposed cable will enter the section.

(2) Attach the backboard to the back of the section by means of the four machine screws supplied with the section for this purpose.

6.12 Equip the sections with binding post chambers or adapters and connecting blocks for the unexposed cable terminations as outlined in Paragraphs 6.02 to 6.07, inclusive.

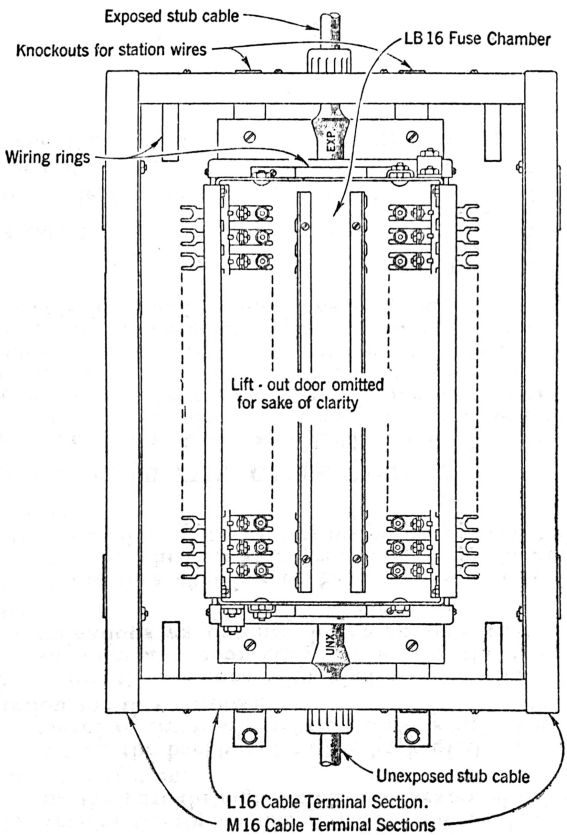
6.13 If the fuse chamber or backboard is not to be installed at the time an intermediate section is mounted, place the unused machine screws in the unoccupied holes of the section.

7. EQUIPPING LB TYPE CABLE TERMINAL

7.01 The LB16, LB26 and LB51 Cable Terminals are obtainable as complete assemblies, with the exception of the fuses and the protector blocks, for use where cross-connecting facilities are not required at the protected terminal and cable is to be extended beyond this terminal. The component parts of these terminals and an illustration of the LB16 Cable Terminal, equipped as supplied, follow:

	Cable Terminals		
Cable Terminal Parts	LB16	LB26	LB51
L Type Cable Terminal Section	1-L16	1-L26	1-L51
M Type Cable Terminal Section	2-M16	2-M26	2-M51
LB Type Fuse Chamber	1-LB16	1-LB26	1-LB51

LB16 CABLE TERMINAL
(Non · Cross · Connecting Type)



L Type Cable Terminal Section

7.02 The L Type Cable Terminal Section may be obtained as a separate part for use in connection with the initial installation of a non-cross-connecting type of protected

terminal or the enlargement of an existing terminal. When the size of the initial installation does not require the placing of more than one fuse chamber, it is usually preferable to install an LB16, LB26 or LB51 Cable Terminal in order to avoid the necessity of assembling the component parts.

7.03 The fuse chambers that can be mounted in an L section forming a part of an LB Type Cable Terminal are listed in the following table.

Sections	Fuse Chambers (One Per Section)
L16	LB16
L26	LB16 or LB26
L51	LB26 or LB51

7.04 To equip an L Type Cable Terminal Section with an LB Type Fuse Chamber, proceed as follows:

(1) Remove the top and bottom parts of the section. Where it is practicable, one of the stub cables may be passed through the opening in either the top or the bottom part of the section without detaching that part.

(2) Remove the center knockouts for the stub cables.

(3) Attach the fuse chamber to the back of the section by means of the four machine screws supplied with the section for this purpose. The two parts of the porcelain bushing supplied on each stub cable should be separated and the bushings reassembled in the cable entrance holes.

(4) Support the stub cables temporarily until the splicing has been completed.

(5) Replace the top and bottom parts of the section and tighten the screws. If the L section is adjacent to an M section, close and fasten the end section by engaging the clips with the web of the intermediate section, exercising care to see that the pins enter the holes in the web.

(6) Install the lift-out door.

7.05 If the fuse chamber is not to be installed at the time an intermediate section is mounted, place the unused machine screws in the unoccupied holes of the section.

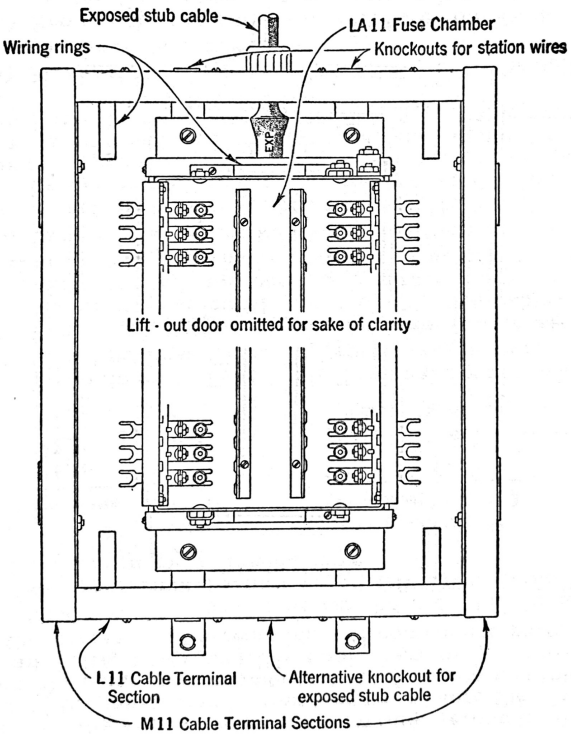
8. EQUIPPING LC TYPE CABLE TERMINAL

8.01 The LC11, LC16, LC26 and LC51 Cable Terminals are obtainable as complete assemblies, with the exception of the fuses and the protector blocks, for use where cross-connecting facilities are not required at the protected

terminal and the circuits are to be extended beyond the terminal by means of wires instead of cable. The component parts of these terminals and an illustration of the LC11 Cable Terminal, equipped as supplied, follow:

Cable Terminal Parts	Cable Terminals LC11	LC16	LC26	LC51
L Type Cable Terminal Section	1-L11	1-L16	1-L26	1-L51
M Type Cable Terminal Section	2-M11	2-M16	2-M26	2-M51
LA Type Fuse Chamber	1-LA11	1-LA16	1-LA26	1-LA51

LC11 CABLE TERMINAL
(Non - Cross - Connecting Type)



8.02 Where cable is not to be extended beyond the protected terminal and conditions make it desirable to terminate the station wires on connecting blocks and run cross-connections to the fuse chamber, the following terminal assemblies should be installed. In the 16-pair size, the assembly may be ordered as the LA16 Cable Terminal but in the 26 and 51-pair sizes it is necessary to order the component parts.

Cable Terminal Parts	Sizes of Terminals 16-Pair	26-Pair	51-Pair
L Type Cable Terminal Section	2-L16	2-L26	2-L51
M Type Cable Terminal Section	2-M16	2-M26	2-M51
LA Type Fuse Chamber	1-LA16	1-LA26	1-LA51
83 Type Backboard	1-83A	1-83B	1-83C

8.03 The maximum number of adapters and connecting blocks that can be mounted on the 83 Type Backboard is given in Paragraph 6.02 and the method of installing the adapters and connecting blocks is given in Paragraphs 6.03 and 6.06.

9. CLOSURE FOR CABLE AND WIRE ENTRANCE HOLES

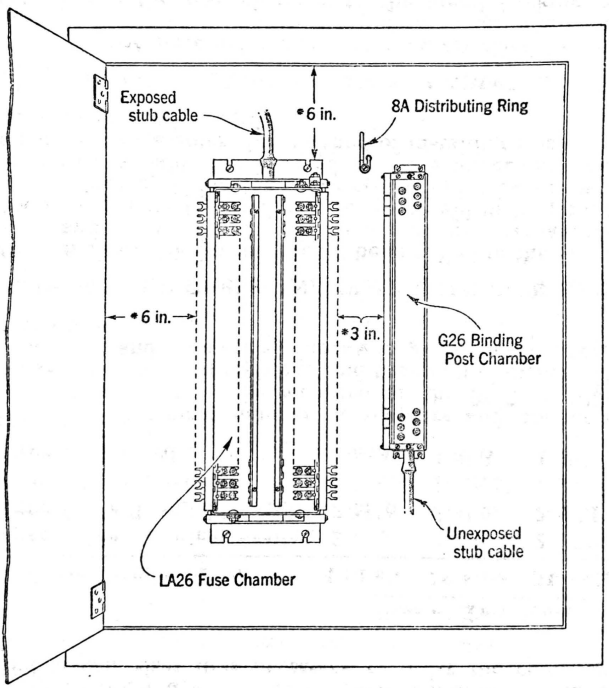
9.01 A P-375610 Closure should be installed in the L Type and LA Type Cable Terminal Sections when a knockout is removed for the station wires as an aid in keeping the terminal clean by filling the space not occupied by the wires. The closure should also be used to close unoccupied cable and wire entrance holes. The method of installing this closure is covered in Section G61.126.

10. EQUIPPING BUILT-IN TERMINAL CABINETS

10.01 Built-in terminal cabinets may be provided by building owners to house the protected terminal equipment. Attach the fuse chamber to the metal backing of a built-in cabinet by means of 4—7/8 in. No. 14 R.H. Parker-Kalon Type Z Self-Tapping Screws or approved equivalent and 4—5/16 in. x 3/4 in. Round Washers. Drill the holes for the self-tapping screws with a No. 6 or 13/64 in. Twist Drill. Where it is difficult to turn the self-tapping screw, use a larger drill. Where a wooden backboard is provided in the cabinet, attach the fuse chamber by means of 4—1-1/2 in. No. 14 R.H. Galv. Wood Screws, placing a 5/16 in. x 3/4 in. Round Washer under the head of each screw.

10.02 The anchoring devices required for attaching the binding post chambers, adapters, distributing rings and cable clamps to a wooden backboard, if this is provided, and to the metal backing of built-in terminal cabinets are given in Section G61.126. The sizes of cable clamps and distributing rings required for use in these cabinets are also given in Section G61.126.

10.03 A typical installation of a fuse chamber and a binding post chamber in a built-in terminal cabinet is shown in the following illustration.



* Minimum dimensions