SECTION 080-720-101CA
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Bell Canada
Standard

ATTACHMENTS, FASTENERS, AND METHODS FOR RUNNING INSIDE WIRE AND CABLE

1. INTRODUCTION

1.01 This section identifies fasteners and methods generally employed in the installation of station wire, ground wire and inside wiring cable in or on buildings.

1.02 This section is reissued to revise para. 3.03, Table B, and to incorporate supplement.

"Do not place Anchors or drill holes in Precast or Prestressed Concrete without obtaining permission from the Building Owner or the Architect". Anchors or Holes in unauthorized locations could seriously weaken the Building Structure.

2. GENERAL

2.01 Additional detailed information on methods for running station wire may be found in section entitled, "Selection of Route for Station Wire and Cable".

3. FASTENERS FOR STATION WIRE AND CABLE

3.01 When selecting station wire and cable fasteners:

- Use galvanized fasteners outdoors or where appearance is unimportant.

3.02 **A cable clamp and a cable clasp** are shown in Fig. 1. Table A indicates the fasteners to be used to attach cable clamps and cable clasps to various surfaces.

- Cable clamps and cable clasps are used for fastening cable or more than one station wire.

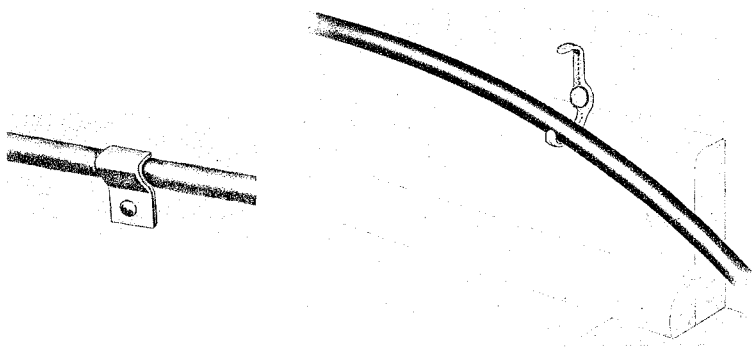


Fig. 1 — Cable Clamp and Cable Clasp

TABLE A

FASTENERS FOR CABLE CLAMPS AND CABLE CLASPS

Surface	Clamp No. / Colour: Grey Galvanized	Clasp No. / Colour: Grey	Fastener	Remarks
Woodwork	3 and 5	7	1-1/2 in. No. 6 RH wood screw or 1/2-in. inside wiring nail in hardwood or 7/8-in. inside wiring nail in softwood	No. 8 RH wood screws cannot be used without reaming the screw hole.
Woodwork Plaster on Wood Lath Plasterboard	6, 8, 10, 12 30 and 38	9 and 14	1-1/2 in. No. 8 RH wood screw	Inside wiring nail may be used to attach No. 9 clasp to wood.
Plaster on Wood Metal Lath, Plasterboard, Metal Sheathing	3 and 5	7	7/8-in. inside wiring nail or 3/8- or 5/8-in. No. 6 self-tapping screw in metal	Place fasteners at stud locations or in solid wood backing. No. 8 RH wood screws cannot be used without reaming the screw hole. No. 6-D slating nail may be used to attach No. 9 and 14 clasps to studding if baseboard is not wood.
Metal Sheathing	6, 8, 10, 12 30 and 38	9 and 14	3/8- or 5/8-in. No. 8 self-tapping screw in metal or 1-in. roofing nail	
Plaster on Masonry Plaster Block	3 and 5	7	1-1/2 in. No. 6 RH wood screw in 1-1/2 in. No. 6-8 screw anchor.	
	6, 8, 10, 12 30 and 38	9 and 14	2-in. No. 8 RH wood screw in 1-1/2 in. No. 6-8 screw anchor.	
Masonry	3 and 5	7	1-in. No. 6 RH wood screw in 3/4-in. No. 6-8 screw anchor	No. 8 RH wood screws cannot be used without reaming the screw hole.
	6, 8, 10, 12 30 and 38	9 and 14	1-in. No. 8 RH wood screw in 3/4-in. No. 6-8 screw anchor	A 3/16- by 7/8-in. hammer drive anchor may be used with No. 6, and 8 cable clamps.

Notes 1: Washers are required under head of screw when No. 30 and 38 cable clamps are used.

2: Use galvanized screws for galvanized clamps. For No. 30 and 38 clamps use No. 10 RH galvanized wood screws and No. 10-14 screw anchors.

3.03 Staples used for fastening inside wire and cable have a galvanized finish which provides resistance to rust and corrosion. (See Fig. 2 and Table B.)

Fig. 2 — Staple

TABLE B

SELECTION OF STAPLES

Staple	Colour	Stapler	Remarks
3/8 in.	Galvanized Finish	Stapler Z	Used in soft and hard wood.
3/8 in.	Galvanized Finish	Arrow T-25	Used in hard wood.
7/16 in.			Used in soft wood.
9/16 in.	Galvanized Finish	Stapler Y	Used in soft and hard wood.
7/8 in.			Used in very soft wood.

Note: Staples are not recommended for use in plaster.

3.04 ***B Insulator Support*** (Fig. 3)

- This support is used to fasten station wire and cable on metal structures.
- It may be equipped with M Bridle Rings.

3.05 ***The B Support Clip (Fig. 4):*** provides a means of attaching Drive Rings to hanger rods and wires used in false ceiling construction or to the flanges of structural steel framework. It replaces the B Beam Clip.

3.06 This notched spring steel clip has two loops which will retain Drive Rings. In addition there are thread impressions for No. ¼"-20 or No. 10-24 screw.

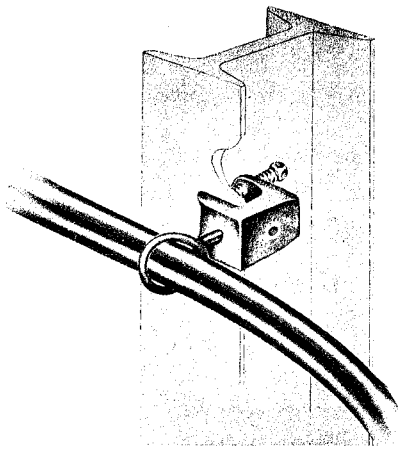


Fig. 3 — B Insulator Support

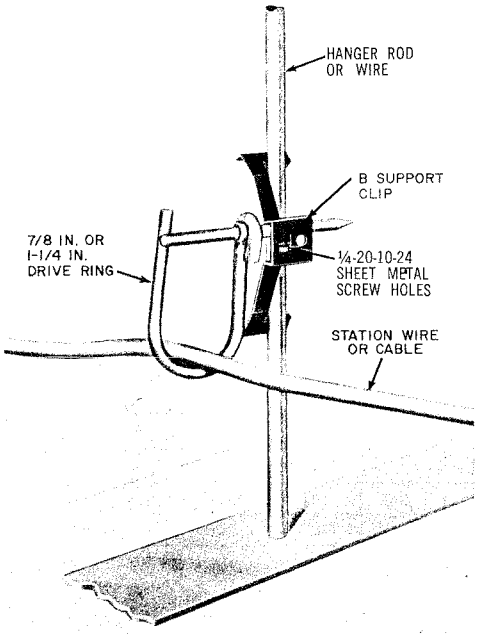


Fig. 4 — B Support Clip

3.07 This clip can be installed on the following:

- Beam Flanges from ⅛" to ⅜".
- Wire from No. 12 to No. 8.
- Rod 3/16" to ⅜" in diameter.

The B Support Clips are intended for Inside use only.

3.08 *Drive Rings* (Fig. 6)

- Install rings on brick or masonry surfaces with hammer drive anchor as indicated in Fig. 6A.

- Install drive rings in wood surfaces as indicated in Fig. 6B.

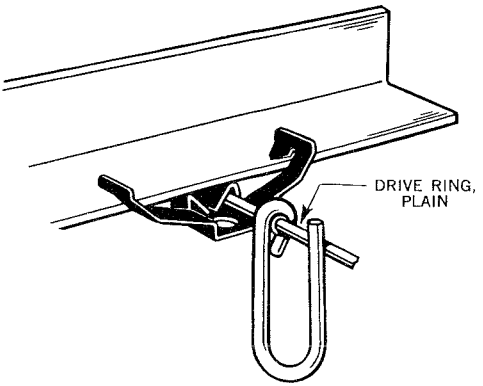


Fig. 5

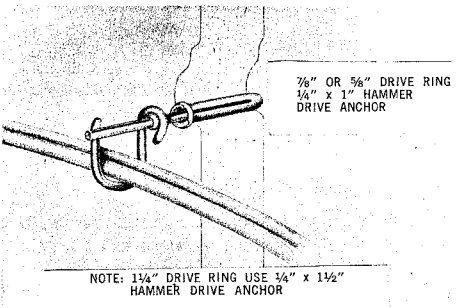


Fig. 6A — Drive Rings

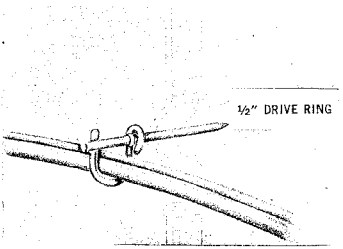


Fig. 6B — Drive Rings

TABLE C

CAPACITY OF FASTENERS FOR CABLE

Size of Cable Pair	Clamp No.		Clasp No.
	Galvanized Cable Clamps For Cable	Grey	Grey
6	14	5	7
11	17		
12		6	7
16	18	8	9
21	24	8	9
25	24	8	9
31	24		
50	30	12	14
75	30	12	14
100	38		

Capacity of fasteners for cable and station wire is indicated in Tables C and D.

3.09 ***The wall screw anchor*** (Fig. 7) is used for attaching various items of station apparatus, inside wire, and cable to interior wall surfaces of hollow construction. They can be used in plywood, wallboard, masonite, and hollow plaster wall.

- To obtain maximum holding power, the wall thickness should first be determined and then the correct size anchor should be selected. (See Table E for selection.)

Fig. 7 — Wall Screw Anchor

3.10 **To install a wall screw anchor** after the proper anchor has been selected, proceed as follows:

(a) Mark spot where anchor is desired.

(b) Drill hole in wall corresponding to diameter of anchor body (see Table E).

TABLE D

CAPACITY OF FASTENERS FOR STATION WIRE

Type of Wire		Capacity								
		Clamp No.						Clasp No.		1/2-in. Drive Rings
		3	5	6	8	17	10	7	9	
Z Station	Quad *	2	3	5	8	5	10	10	17	15
Z Block	Paired				5	4				4
	Triple				4	3				3

* The Z Station Wire Clamp is used to clamp a single Z Station Wire.

TABLE E

SELECTION OF WALL SCREW ANCHORS

Code of Anchor	Wall Thickness	Anchor Lengths	Drill Diameter
Dimensions in Inches			
1	Up to 5/8	1 1/2	5/16
2	5/8 to 1 1/4	1 7/8	5/16
3	1 1/4 to 1 3/4	2 1/2	5/16
4	Up to 5/8	2 1/4	7/16
5	5/8 to 1 1/4	2 3/4	7/16
6	1 1/4 to 1 3/4	3 1/2	7/16

The 1, 2, 3 type wall screw anchors are for light loads and the 4, 5, 6 type for heavy loads.

(c) Insert anchor, and tap anchor gently until cap prongs are imbedded and cap is firmly set against wall surface.

(d) Tighten screw while pressing firmly in order to prevent anchor from rotating.

(e) In soft-textured walls it will be necessary to hold the anchor body from rotating while turning the screw until the anchor is in its fully expanded position.

(f) When anchor is fully expanded, remove screw and attach hardware. (There is some resistance to turning the screw when the anchor is fully expanded.)

(g) Hold equipment in position; replace screw and tighten.

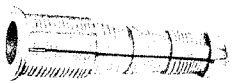
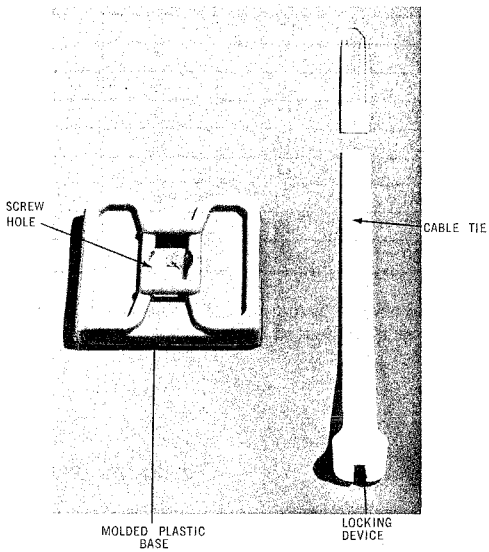


Fig. 8 — Typical Plastic Anchor

3.11 ***The Plastic Anchor*** is intended for use with wood screws when making attachments to masonry, brick or concrete, (see Fig. 8.) See shipping carton for size of anchor, hole and screw.

3.12 The ***Adhesive Cable Tie*** (Fig. 9) is intended for use in customer telephone installations to group wires, cords, and inside wiring cables in an orderly harness.

3.13 The adhesive cable tie is a molded plastic base available in grey only. The cable tie is used to secure the wires or cables to the base.



3.14 **INSTALLATION PROCEDURES**

(a) The adhesive cable tie is intended to be used to fasten wires, inside wiring cables and cable connectors on metal partitions, metal furniture, terrazo and marble.

(b) The adhesive base should be applied to a surface that is free of grease, loose paint, wax and moisture.

(c) Space the adhesive cable tie as required and mount the adhesive base by using the self adhesive backing. If a more secure mounting is required a self tapping screw or a wood screw may be used in the hole provided in the base.

(d) To mount adhesive base remove paper coating from adhesive and apply firmly to surface.

(e) Place the cable tie with the rough surface outward in the two slots provided from the bottom to the top of the base. (See Fig. 10).

(f) Place cable tie over wires or cables and thread end of tie into locking device. (See Fig. 10).

(g) Pull cable tie tightly around cable and cut off the excess cable tie as close as possible to the locking device.

(h) Position cable tie as shown in Fig. 11.

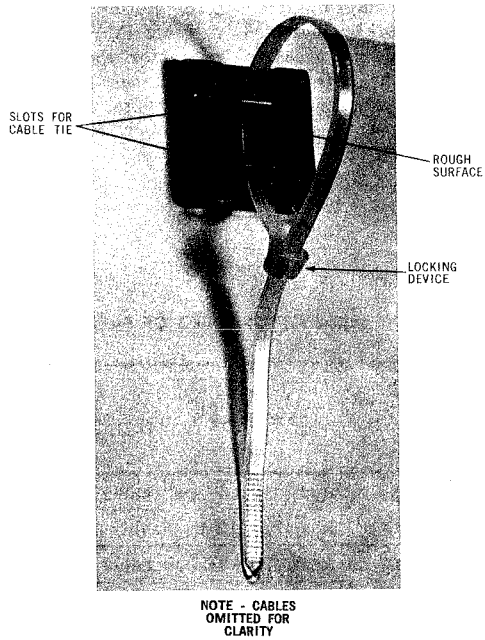


Fig. 10
Adhesive Cable Tie Equipped with Cable Tie

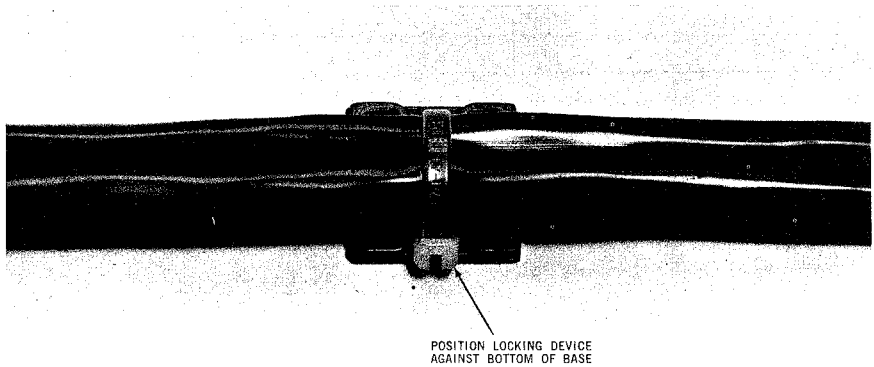


Fig. 11 — Adhesive Cable Tie and Cable Tie with Cables Attached

3.15 Spacing of fasteners for station wire and *cable* is indicated in Table F. Where appearance is not a controlling factor, the spacing between the fasteners may be increased. If wire must be run across joists in cellars, fasten to each joist with staples or to every other joist when using drive rings.

4. SIZES OF HOLES FOR STATION WIRE AND CABLE

4.01 Tables G and H indicate the sizes of holes needed to accommodate various types and numbers of station wires and cables.

TABLE F

SPACING OF FASTENERS FOR STATION WIRING AND CABLE

Fasteners		Spacing				
		Horizontal Run		Vertical Run		From Corner
		inches	feet	inches	feet	inches
Cable Clamps	more than 12-pair cable	16			4	2
	less than 12-pair cable	16		16		2
Cable Clasps	more than 12-pair cable	14			3	2
	less than 12-pair cable	14		14		2
Inside Wiring Nails		16		16		2
Staples		7-1/2		7-1/2		1
Bridle Rings			4		8	2 thru 8-1/2*
Drive Rings			4		8	2 thru 8-1/2*
Toggle Bridle Rings			4		8	2 thru 8-1/2*
Insulator Supports			4		8	2 thru 8-1/2*
Clip Support B			4		8	2 thru 8-1/2*

* When changing direction of wire or cable runs where bridle rings, drive rings, and insulator supports are used, the fasteners should be spaced to hold the wire or cable at approximately a 45-degree angle.

TABLE G

SIZES OF HOLES FOR STATION WIRE

Type of Wire		Wire Hole Sizes, Inch							
		Number of Jackets							
		1		2		3		4	
		Not Taped	Taped*	Not Taped	Taped*	Not Taped	Taped*	Not Taped	Taped*
Z Station	Quad	1/4	3/8	1/4	1/2	3/8	3/4	1/2	3/4
Z (Block)	Paired	3/8	3/8	1/2	1/2	3/4	3/4	3/4	3/4
	Triple	3/8	1/2	3/4	3/4	3/4	3/4	3/4	3/4

* Two layers of friction tape.

TABLE H

SIZES OF HOLES

FOR STATION CABLE

No. of Pairs	Cable Hole Sizes, Inch	
	D Inside Wiring Cable	
	Not Taped	Taped*
6	3/8	1/2
11	3/8	3/4
12	3/8	3/4
16	3/8	3/4
21	3/4	3/4
25/26	3/4	3/4
50/51	3/4	7/8
75/76	7/8	1
100/101	1	1-1/8

* Two layers of friction tape.

5. FASTENERS FOR GROUND WIRE

5.01 Fasteners for ground wire and their use are shown in Fig. 12.

5.02 Ground wire fasteners should be spaced and placed as follows:

- Space 24 inches apart on ordinary ground wire runs.
- Space 16 inches apart when wire is subject to displacement.
- Place on every beam when spanning beams.
- Place within 3 inches of wall when run parallel to wall on beams.

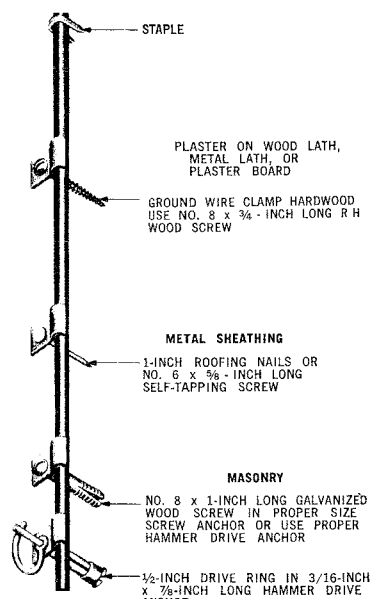


Fig. 12 — Fasteners For Ground Wire