

STATION WIRE AND CABLE ATTACHING AND FASTENING

1. GENERAL

1.01 This section contains general descriptions and instructions for use of various attachment or fastening devices used in running station wire and cable between wiring entrances and subscriber apparatus.

1.02 This section is reissued to:

- Add 1.06
- Include information on the D Stapler and G Staples
- Revise Tables A and B.

1.03 See Section 461-200-200 for detailed instructions governing the selection of route and the placing of inside wire and cable. Detailed descriptive information of the various attachments and fasteners illustrated in this section is covered in the 080 division of the Plant Series.

1.04 In order to obtain secure attachments and to avoid damage to building surfaces, follow the instructions outlined in Section 080-720-105. Of particular importance are the clearance and lead holes for fasteners.

1.05 Table A shows the recommended spacing between attachments when used on horizontal or vertical wire runs. The spacing of attachments from corners or turns is also shown.

TABLE A
SPACING REQUIREMENTS OF ATTACHMENTS

| FASTENERS | | SPACING | | | | |
|-----------------------|-------------------------------|-------------|--------|--------------|--------|---------------|
| | | HORIZONTAL | | VERTICAL RUN | | FROM CORNER |
| | | FEET | INCHES | FEET | INCHES | INCHES |
| Cable | more than 12-pair cable | | 16 | 4 | | 2 |
| Clamps | less than 12-pair cable | | 16 | | 16 | 2 |
| Cable | more than 12-pair cable | | 14 | 3 | | 2 |
| Clasps | less than 12-pair cable | | 14 | | 14 | 2 |
| B Adhesive Clips | | | 12 | | 12 | 2 |
| B Station Wire Clamps | | | 16 | | 16 | 2 |
| B Station Wire Nail | | | 16 | | 16 | 2 |
| Staples | Station Wire | | 7-1/2 | | 7-1/2 | 1 |
| | 25-pair D inside wiring cable | | 12 | | 12 | 2 |
| Bridle Rings | | 4 | | | | 2 thru 8-1/2* |
| Drive Rings | | 4 | | 8 | | 2 thru 8-1/2* |
| Wire Loops | | 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* |
| B Beam Clip | | 4 | | 8 | | 2 thru 8-1/2* |
| B Hanger Clip | | As Required | | | | |

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

1.06 ♦For information on attaching and fastening of B station wire, see Section 461-200-206.♦

2. ATTACHMENTS USED IN FINISHED ROOMS AND OFFICES



Choose colors of attachment to match wire or cable.

STAPLES (Fig. 1 and Table B)

2.01 ♦Staples of various sizes and materials used in hand- or hammer-operated staplers, are used to secure station and ground wire and smaller inside wiring cables to wood surfaces.♦

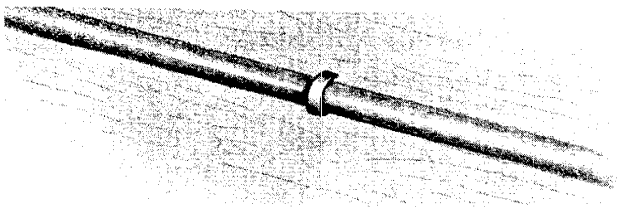


Fig. 1—Staple

2.02 Table B shows the staples recommended for wood surfaces with finishes available and stapler machine used. See Section 080-110-102 for description and operation of stapler.

B STATION WIRE NAIL (Fig. 2)

2.03 This nail is used to fasten JKT (MD) Station Wire to plaster or wood surfaces. It can be used with D Station Wire if care is taken to ensure that the smaller diameter wire is sufficiently secure by the arm of the nail. B Station Wire Nails are available in 1/2-inch and 7/8-inch lengths, in ivory (—50) and light olive gray (—49) finish. The 7/8-inch length is also available in galvanized finish for outdoor use.

B STATION WIRE CLAMP (Fig. 3)

2.04 This clamp is used to support JKT (MD) Station Wire. It is available in ivory (—50), light olive gray (—49), or a galvanized finish.



Fig. 2—B Station Wire Nail

TABLE B
SELECTION OF STAPLES

| TYPE | FINISH | SIZE (INCHES) | | SHAPE OF CROWN | USE | STAPLER |
|---------------|----------------|---------------|-------|----------------|---|-----------------------|
| | | LENGTH | WIDTH | | | |
| E* | Zinc and Ivory | 3/8 | 3/16 | Rounded | With D or JKT (MD) station wire, and No. 10 or smaller ground wire in all type wood | Heller TM or Heller M |
| F† | Copper Coated | | | | | |
| G* | Zinc Coated | 5/8 | 1/2 | Flat | With 25-pair inside wiring cable in all type wood | D |
| T-18* (Arrow) | Zinc Coated | 3/8 | 3/16 | Rounded | With D station wire and No. 10 or smaller ground wire in hard wood | Heller TM |

*For indoor use.

†For outdoor use or where appearance is unimportant.

Note: Staples are not recommended for use in plaster.

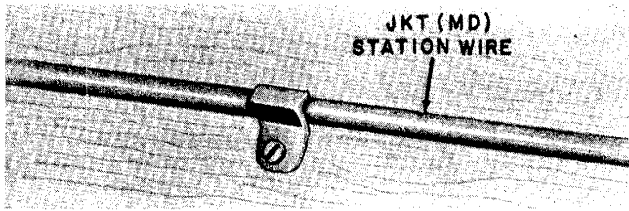


Fig. 3—B Station Wire Clamp

2.05 Table C contains the recommended fastener to be used to attach these clamps to various surfaces.

TABLE C
FASTENERS FOR B STATION WIRE CLAMP

| SURFACE | FASTENER |
|---------------------------------|---|
| Metal or Asbestos Siding | 5/8-in. No. 6 self-tapping screw |
| | 5/8-in. No. 6 RH galvanized wood screw. C Plastic Anchor, 3/16 x 1 in. |
| Wood, Indoors | 5/8-in. No. 6 RH blued wood screw |
| Wood, Outdoors | 5/8-in. No. 6 RH galvanized wood screw |
| Stucco (Wire and Paper Backing) | 1-in. No. 6 self-tapping screw (cadmium plated) or wall screw anchor (correct size) |
| Masonry | No. 2 B Masonry Fastener |

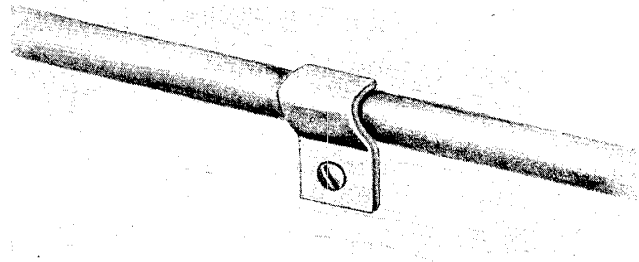


Fig. 4—Cable or Inside Wiring Clamp

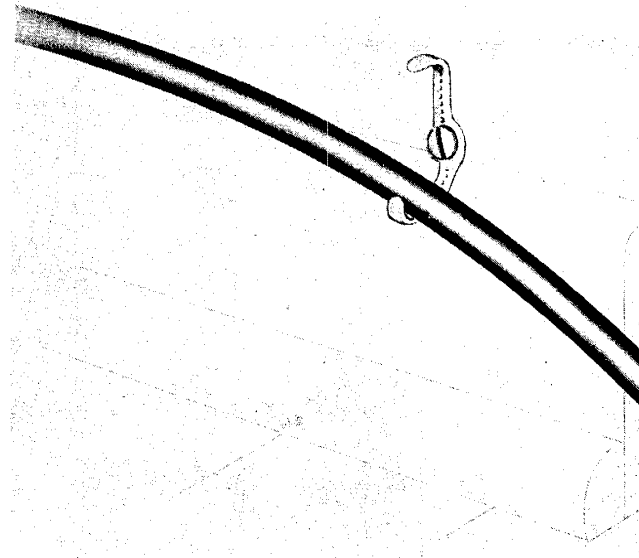


Fig. 5—Cable Clasp

CABLE CLAMPS AND CABLE CLASPS (Fig. 4 and 5)

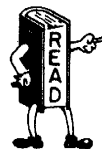
2.06 These attachments are used to support inside wiring cable or more than one station wire.

2.07 Clamps and clasps of various sizes are available as shown in Table D. See Sections 080-720-146 and 080-270-147 for description, sizes, and capacity of clamps and clasps.

2.08 Table D contains the fastener to be used to attach cable clamps and cable clasps to various surfaces.

B ADHESIVE CLIP (Fig. 6)

2.09 This clip is used to fasten D Station Wire and JKT (MD) Station Wire where it is undesirable to penetrate surfaces with screws or nails. It is available in ivory (—50) or light olive gray (—49) finishes.



High temperatures may deteriorate B Adhesive Clips during storage; therefore, those not used before date on container should be tested for tackiness.

TABLE D

FASTENERS FOR CABLE CLAMPS AND CABLE CLASPS

| SURFACE | CLAMP NO. | CLASP NO. | FASTENER | REMARKS |
|----------------------|---|----------------------------|--|--|
| | COLOR | | | |
| | LIGHT OLIVE GRAY, IVORY, GALVANIZED | LIGHT OLIVE GRAY, IVORY | | |
| Woodwork | No. 3 and 5* | No. 7 | 1/2 in. No. 6 RH blue wood screw | |
| | No. 6, 7, 8, 10, and 12* | No. 9 and 14 | 5/8 in. No. 8 RH blue wood screw | |
| | No. 13 and 17 | | 1 in. No. 10 gal- vanized wood screw | |
| Plywood, Masonite | No. 3 and 5* | No. 7 | 1/2 in. No. 6 RH blue wood screw B Wall Screw Anchor 1/8 in. x 3 in. toggle bolt | Make wood screw attachments at stud locations. Use No. 1 B Wall Screw Anchor on wall thickness 1/16 in. to 1/4 in. Use No. 2 B Wall Screw Anchor on wall thickness 1/4 in. to 3/8 in. Use No. 3 B Wall Screw Anchor on wall thickness 3/8 in. to 3/4 in. |
| | No. 6, 7, 8, 10, and 12* | No. 9 and 14 | 5/8 in. No. 8 RH blue wood screw 3/16 in. x 1 in. C Plastic Anchor B Wall Screw Anchor 1/8 in. x 3 in. toggle bolt | |
| | No. 13 and 17 | | 1 in. No. 10 galvanized wood screw 1/4 in. x 1 in. C Plastic Anchor B Wall Screw Anchor 3/16 in. x 3 in. toggle bolt | |

* Inside wiring clamp only.

TABLE D (CONT)

FASTENERS FOR CABLE CLAMPS AND CABLE CLASPS

| SURFACE | CLAMP NO. | CLASP NO. | FASTENER | REMARKS |
|---|-------------------------------------|-------------------------|---|--|
| | COLOR | | | |
| | LIGHT OLIVE GRAY, IVORY, GALVANIZED | LIGHT OLIVE GRAY, IVORY | | |
| Plasterboard, Plaster on Wood Lath, and Plaster on Metal Lath | No. 3 and 5* | No. 7 | 1 in. No. 8 RH blue wood screw B Wall Screw Anchor 1/2 in. No. 8 self-tapping screw | Make wood screw attachment at stud locations. |
| | No. 6, 7, 8, 10, and 12* | No. 9 and 14 | 1 in. No. 8 RH wood screw 3/16 x 1 in. C Plastic Anchor B Wall Screw Anchor 1 in. No. 8 self-tapping screw | Use No. 1 B Wall Screw Anchor on wall thickness 1/16 in. to 1/4 in. Use No. 2 B Wall Screw Anchor on wall thickness 1/16 in. to 3/8 in. |
| | No. 13 and 17 | | 1 in. No. 10 RH galvanized wood screw 1/4 in. x 1 in. C Plastic Anchor B Wall Screw Anchor 7/8 in. No. 14 self-tapping screw | Use No. 3 B Wall Screw Anchor on wall thickness 3/8 in. to 3/4 in. |

* Inside wiring clamp only.

2.10 Install B Adhesive Clip as follows.

- (1) Thoroughly moisten adhesive surface with trichloroethylene.
- (2) Allow adhesive to become tacky.
- (3) Press clip to bonding surface for about 5 seconds.
- (4) Allow clip to set for 15 minutes.
- (5) Place station wire in clip and form tabs over wire.

3. CELLARS, FACTORIES, OR WHERE APPEARANCE IS UNIMPORTANT

In general, the same types of attachments used in finished rooms apply for cellars, factories, or where appearance is unimportant. However, they should be of an appropriate finish. In addition to these attachments, drive rings, B Wire Loops, and toggle bridle rings are also available for use at these locations.

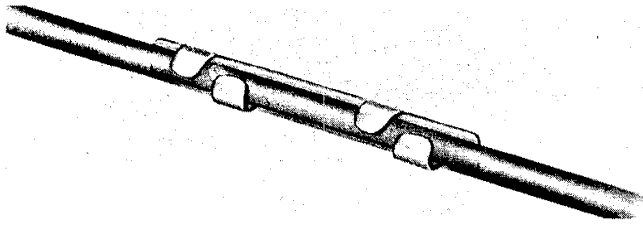


Fig. 6—B Adhesive Clip

DRIVE RINGS (Fig. 7 and 8)

3.01 Drive rings are formed steel loops having a pointed shaft suitable for hammer-driven attachment to wood or masonry surfaces. They are available in seven sizes for use with station wire or cables. On wood surfaces, attach drive rings to beams or studding. On masonry surfaces, use with D Drive Anchors (Fig. 8).

Note: For masonry surfaces, B Wire Loops with D Masonry Fasteners (3.08) are preferred.

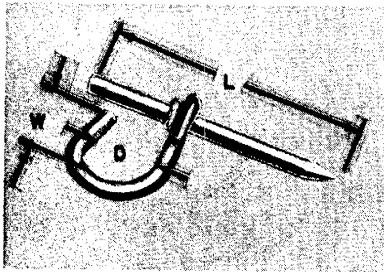
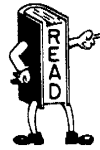


Fig. 7—Drive Ring

3.02 Table E shows the various drive rings with dimensions and D Drive Anchor used on masonry surfaces. Refer to Section 080-720-112 for information on installing anchors.

B WIRE LOOP (Fig. 9)

3.03 B Wire Loops are formed sections of wire used with D Masonry Fasteners as an intermediate support for station wires and inside wiring cables attached to masonry surfaces. They are available in four sizes as shown in Table F.



Wire loops with the D Masonry Fastener are preferred over drive rings in masonry surfaces because the fasteners are driven directly into the masonry surface without a predrilled hole.

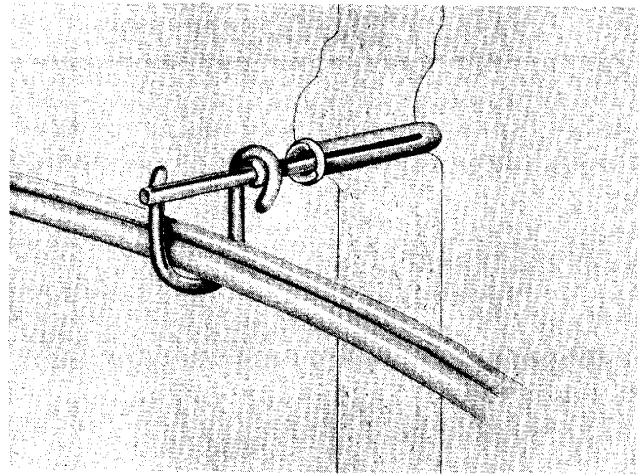


Fig. 8—Drive Ring Attached to Masonry

3.04 Table F also contains the recommended D Masonry Fastener used to attach the B Wire Loop to various surfaces.

TABLE E**DRIVE RINGS**

| DIMENSIONS IN INCHES | | | | ANCHOR SIZE (IN.) | |
|----------------------|-------|-------|---------|-------------------|-------|
| SIZE | D | W | L | DIA. | L |
| 1/2 | 1/2 | 1/2 | 2-1/16 | 3/16 | 7/8 |
| 5/8 | 5/8 | 3/4 | 2-1/4 | 1/4 | 1 |
| 5/8L | 5/8 | 3/4 | 2-3/4 | | |
| 7/8 | 7/8 | 1-1/2 | 2-9/16 | 1/4 | 1 |
| 7/8L | 7/8 | 1-1/2 | 3-1/16 | | |
| 1-1/4 | 1-1/4 | 2-3/8 | 2-15/16 | 5/16 | 1-1/4 |
| 1-1/4L | 1-1/4 | 2-3/8 | 3-7/16 | | |

L sizes have extra long shafts and cannot be used with B Drive Anchors.

TABLE F
B WIRE LOOP

| B WIRE LOOP SIZE NO. | WIDTH OF OPENING | LENGTH OF LOOP (INSIDE) | D MASONRY FASTENER FOR | | |
|-------------------------|---------------------|----------------------------|------------------------|--------|--------|
| | | | CONCRETE | MORTAR | BLOCK* |
| 1/2 | 1/4-in. | 3/4-in. | 3 | 4 | 5 |
| 5/8 | 1/2-in. | 1-1/8-in. | | | |
| 7/8 | 5/8-in. | 2-1/16-in. | | | |
| 1-1/4 | 5/8-in. | 2-3/4-in. | | | |

*Cement or cinder blocks.

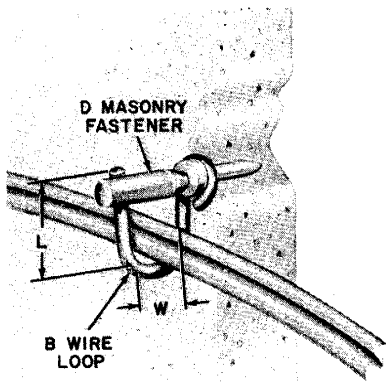


Fig. 9 — B Wire Loop with
D Masonry Fastener

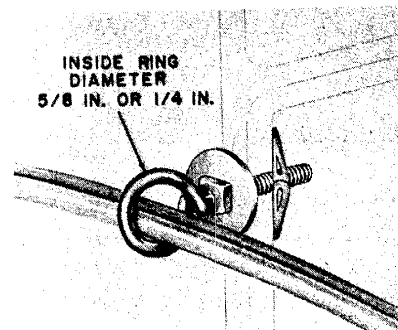


Fig. 10 — Toggle Bridle Ring

TOGGLE BRIDLE RING (Fig. 10)

3.05 This attachment, available in two sizes, 5/8-inch and 1-1/4 inch, is used to attach station wire and cable to hollow surfaces. A predrilled 3/4-inch clearance hole is required.

Note: For best results and a secure installation, clearance holes should be restricted to 3/4-inch diameter.

4. ATTACHING TO STEEL STRUCTURES

B BEAM CLIP (Fig. 11)

4.01 The B Beam Clip, equipped with either a drive ring or the B or M Bridle Ring, is used to support wire runs on I beams, angle irons, etc, on beam thickness of 1/8-inch to 1/2-inch.

B INSULATOR SUPPORT (Fig. 12)

4.02 The B Insulator Support, equipped with a B or M Bridle Ring, is used to support wire runs on I beams, angle irons, etc, on beam thickness up to 3/4-inch.

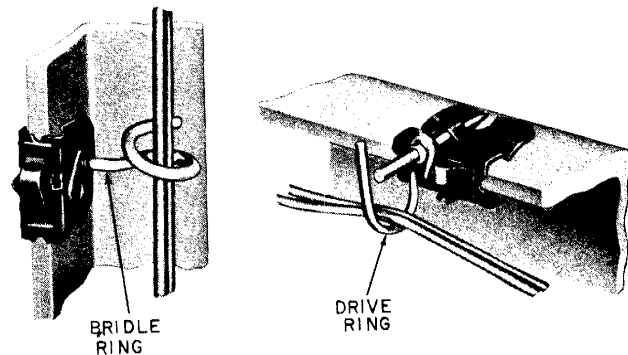


Fig. 11 — B Beam Clamp

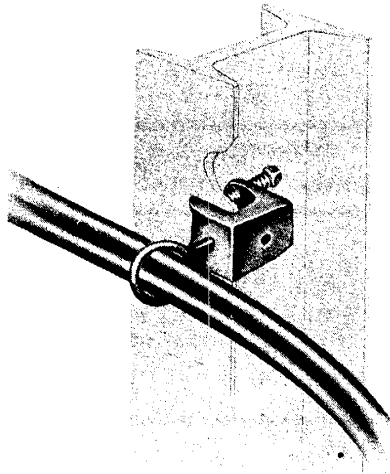


Fig. 12—B Insulator Support

B HANGER CLIP (Fig. 13)

4.03 The B Hanger Clip, equipped with a drive ring and attached to a 1/4-inch ceiling hanger rod or No. 8, 10, or 12 gauge steel wire, is used to support wire runs above suspended false ceiling.

4.04 Although the clip is particularly useful on hanger rods or wire, it may be used wherever other types of wire or rods are conveniently located.

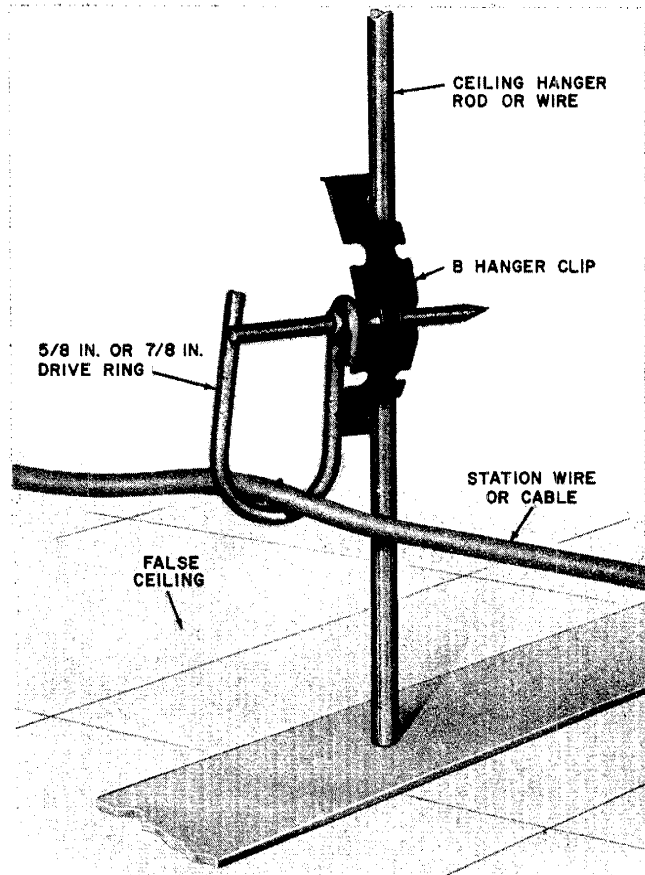


Fig. 13—B Hanger Clip, Installed