

WIRING AND CABLING REINFORCEMENT OF CABLE FORMS

1. GENERAL

1.01 This section covers information for reinforcement or bracing of cable forms.

1.02 This section is reissued to revise the information to agree with Section 800-612-156 covering the general equipment requirements for placing, securing, and supporting cable forms.

1.03 In general, the equipment arrangement and design of cable forms make unnecessary the bracing or reinforcement of such forms. In some cases, where forms contain only a few wires or where the skinners are too few or too long to provide good support for the forms, some supplementary support is required. Also, the location of equipment may require reinforcement of the forms if the rear of the equipment is on an aisle having heavy maintenance activity. Except on electronic-type switching equipment, reinforcement or bracing of the forms to provide mechanical strength and to resist movement of the forms should be provided only when specified in the design specifications or drawings, or by the telephone company. Reinforcement or bracing of forms on electronic-type switching equipment shall not be used without the approval of the responsible Bell Laboratories design engineer.

2. TOOLS AND MATERIALS

2.01 A listing of tools and materials is shown in Table A.

3. METHODS

3.01 When supplementary supports are specified for cable forms, use type AP (insulated iron) wire for reinforcing and bracing as indicated in Fig 1, 2, and 3. Locate the reinforcing wire on the side of the forms away from the equipment. Tie the wire to the forms with 4-, 8-, or 8-ply polyester sewing twine, spacing the ties approximately 3 inches apart. Cut ends of twine close to the knot. Where the cable

TABLE A

CODE OR SPECIFICATION NO. TOOLS	DESCRIPTION
—	6-1/2 Inch P-Long Nose Pliers
—	5-Inch Diagonal Cutters
—	6-Inch Screwdriver
MATERIALS	
Type AP (P-368466)	No. 12 BWG Insulated Iron Wire
Type AM-16 Ga (Comcode 803682533) or Type AM-14 Ga (Comcode 803682947) or AT-7088, 12 Ga (Comcode 400292215)	Insulated Copper Wire
—	4-, 8-, or 9-Ply Waxed Polyester Twine Per Material Spec 59092
P-353446 As reqd	0.216—24×3/8-Inch Special Head Machine Screw
P-110258	0.250×9/16×0.049 Washer
KS-20986, L1, L2, L3, L4, or L5	Nylon Cable Ties

forms are parallel to the AP reinforcing wire, KS-20986 nylon cable ties may be used instead of the twine, in accordance with Section 800-612-153.

NOTICE

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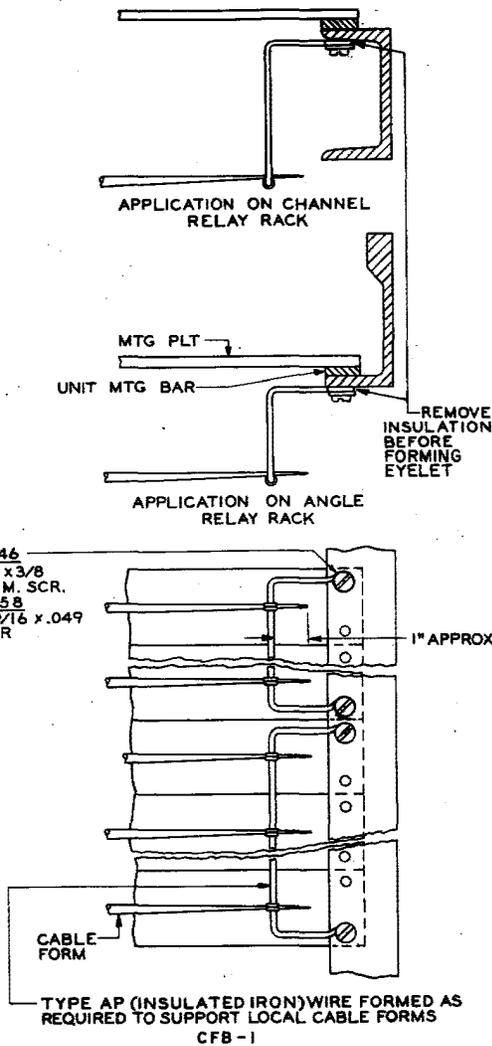


Fig 1—Bracing Horizontal Cable Forms to Frame Uprights (Relay-Rack Unit Shown)

(a) For convenience in specifying cable form braces in the design specifications or drawings, or in job specifications, reference numbers CFB1, CFB2, and CFB3 are assigned to the three types of cable form braces shown in Fig 1, 2, and 3, respectively.

3.02 Brace forms to the framework if the end of the brace wires can be conveniently fastened (as in the case of forms at relay rack units), as shown in Fig 1 and 2. Attach the brace wires to the rear of the relay rack uprights with 0.216-24x3/8 inch special head machine screws in the tapped holes regularly provided in the uprights. The brace wire should not interfere with the screws used to attach the relay rack units to the frame uprights.

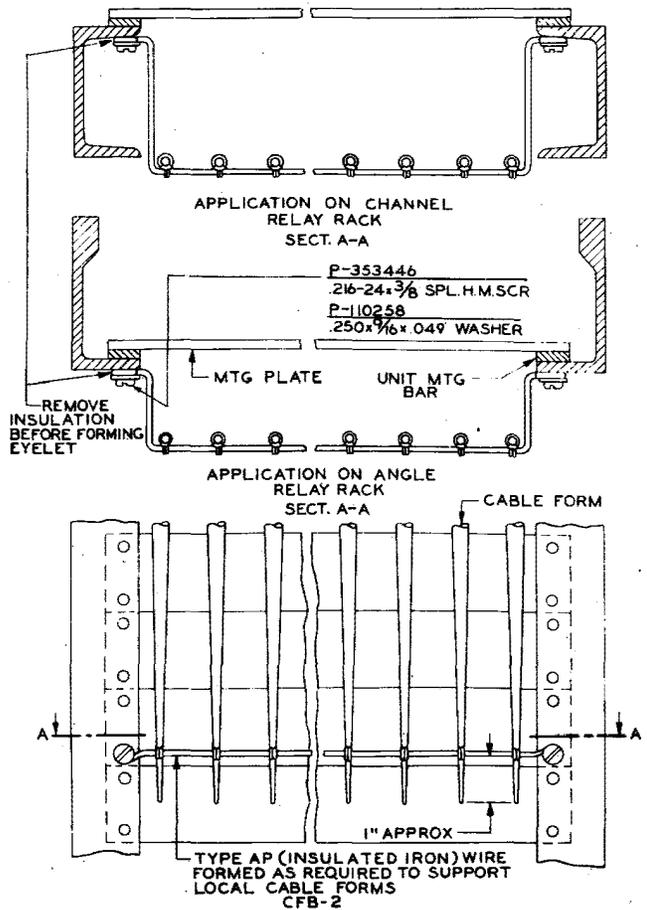


Fig 2—Bracing Vertical Cable Forms to Frame Uprights (Relay-Rack Unit Shown)

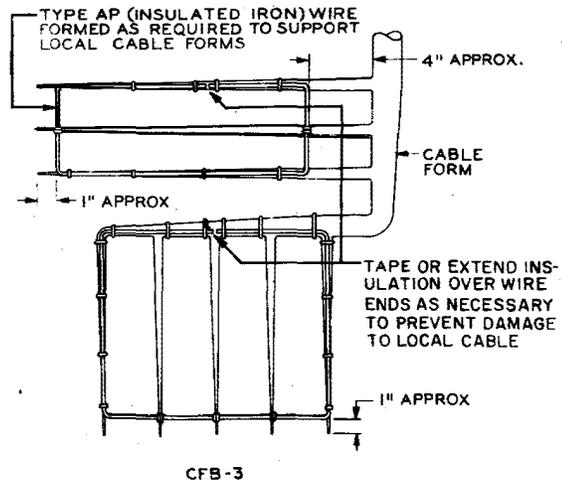


Fig 3—Reinforcement of Cable Forms

(a) Where the mounting plates are fastened directly to the relay rack uprights (without

the use of unit mounting bars), the regular mounting plate screws at the points of fastening of the cable form brace wires should be replaced by screws long enough to permit attachment of the brace wire to the end of the screw with a nut and washer at the rear of the upright.

3.03 *Where conditions are not suitable for attaching the form braces to the framework,* reinforcement should be provided in a manner similar to the example shown in Fig 3. While a closed loop arrangement of reinforcement is shown, the shape of the reinforcement may be varied to suit conditions. The U- and L-shaped reinforcement will also be commonly used for supporting small or weak forms from adjacent rugged forms. In general, this type of cable form brace would be used only for the support of occasional individual weak forms from adjacent rigid forms, although it may sometimes be found more convenient to use this type of reinforcement for reconditioning wiring, instead of braces as described in paragraph 3.02.

(a) Where the form is located so that the closed loop arrangement cannot be used to support the form, heavier gauge dummy wires may be included as part of the cable form to provide the necessary stiffness. The stiffener (dummy) wires shall consist of two or three 16-gauge type AM wires (Comcode 803682533), one or two 14-gauge type AM wires (Comcode 803682947), or one or two 12-gauge type AT-7088 wires (Comcode 400292215).

3.04 *Cable-Duct Framework:* When forms extend outside of the frame uprights, attach the form brace wires in a manner similar to that shown in Fig 1 and 2 for the application on angle relay racks. The brace wire should be mounted under the heads of the mounting plate screws with a P-110258 washer on each side of the brace wire eyelet. Replace the regular mounting screws with longer screws of the same type. Forms between the uprights requiring reinforcement shall be treated per Fig 3.

3.05 *Box-Type Framework:* When forms extend outside of the frame uprights, attach the form brace wires in a manner similar to that shown in Fig 1 and 2 for the application on angle relay racks. Forms between the uprights requiring reinforcement shall be treated per Fig 3.

(a) Where the self-tapping mounting plate screws are inserted from the front (apparatus side), the screw at the points of fastening of the cable form brace wire should be replaced by a screw of sufficient length to permit attachment of the brace wire to the end of the screw by means of a nut and washer at the rear of the upright. The screw should be long enough that the nut can fully engage beyond the tapered portion of the self-tapping screw.

(b) Where the mounting plate screws are inserted from the rear (wiring side), the cable form brace wire should be mounted under the heads of the screws in the same manner as specified for cable-duct framework in paragraph 3.04.