

**FRAMES, RACKS, FUSE BAYS, AND FUSE PANELS
INSTALLATION
GENERAL EQUIPMENT REQUIREMENTS**

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1. GENERAL
A. Scope

1.01 This section covers the general equipment requirements for installing frames, racks, fuse bays, and fuse panels, except general requirements for location, erection, and assembly which are covered in Section 800-614-154.

(a) General equipment requirements for grounding in central offices are covered in Section 802-001-180.

1.02 This section is reissued to omit all grounding requirements and add reference to Section 802-001-180 which has been expanded to cover general equipment requirements for grounding in central offices. Since this reissue covers a general revision, the arrows normally used to indicate changes have been omitted.

1.03 The requirements covered in this section shall be followed except as modified by applicable specifications and drawings.

2. DISTRIBUTING FRAMES AND PROTECTOR FRAMES
A. Cable Designation Board

2.01 The cable designation board at the top of the protector frame and distributing frames, except in No. 1 and 2 Electronic Switching Systems, shall be placed at an angle of 45 degrees, unless otherwise specified. The space at joints in cable designation boards shall not exceed 1/8 inch. The cable designation board used below mezzanine platforms is furnished and installed as part of the platform.

2.02 In No. 1 and 2 Electronic Switching Systems, cable designation cards for distributing and protector frames are provided per ED-1A195-50. They shall be inserted in the proper card holder above each vertical. Cards designating horizontal terminals on connecting blocks are provided per ED-1A195-50 and ED-2A015-50. Offices arranged with 4-wire features use ED-2A015-50. The cards shall be inserted in hinged vertical designation card holders that are part of the frame assembly. Typical arrangements are shown on ED-1A221-10, ED-1A223-10, ED-1A223-11, ED-1A225-10, and ED-1A225-11.

B. Connectors or Protectors and 444-Type Jacks

2.03 Connectors or protectors shall be secured so that good electrical contact is made between the connector or protector and the protec-

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tor bar support of the frame. The tapped holes in the protector bar support shall be free of paint or other material. The screws securing the connector or protector to the protector bar supports shall be securely tightened and the screw heads shall seat on a clean surface.

2.04 The framework contact surface of connector mountings shall be clean, but the finish need not be scraped, regardless of whether metallic or nonmetallic finish is used.

2.05 The top horizontal connector ground bar of the common systems MDF shall be securely fastened to the framework or vertical connector supports; all connections shall be treated as current-carrying with the surfaces properly prepared as covered in Section 802-001-180. The contact surfaces between the bottom ground bus bar and framework shall be clean, but need not be treated as current-carrying.

(a) Where a top horizontal connector ground bar is not provided, the mounting surfaces of the bottom ground bus bar shall be treated as current-carrying connections.

2.06 The 444-type jacks shall be securely fastened to the support bar on the frame. Separation between adjacent clamping plates of adjacent jacks shall not be less than 1/16 inch or more than 5/64 inch, measured near the front solid portion of the plate. To align jacks vertically, clamping plate P-466179 shall be used. To mount this plate, the installer shall remove the nut and washer on each of the two clamping screws on the jack, put the plate in position, and return and tighten the nuts. The washers taken off shall not be re-used.

C. Cord Hooks and Cord Number Plates

2.07 Cord hooks shall be securely fastened so as not to loosen under the strain caused by the cords.

2.08 The 145-type number plates used for designating service observing, plugging-up, test line, and miscellaneous cords at distributing frames shall be attached to the cords by passing the stay cord through the ring of the number plate. Where the cord is not provided with a stay cord, the number plate shall be tied to the cord as near the end as practicable with

No. 12 twine. Make a slip loop through the ring of the number plate and tie the twine to the cord with a square knot.

D. Distributing Rings on Distributing Frames

2.09 Distributing rings shall be installed for the right-end vertical facing the vertical side of a frame only where this vertical is equipped.

2.10 The insulation of the ring portion of distributing rings shall be free of breaks against which cross-connecting wire might be drawn.

2.11 The insulation of distributing rings shall not be painted.

E. Floor Angles at Cable Slots

2.12 Where the floor angles of distributing frames or protector frames are to be located on top of the cable-slot fascia angles and the holes in the frame floor angle do not coincide with the tapped holes in the fascia angle, the frame floor angle shall be redrilled to match. In cases where the frame floor angle is too short to engage with the tapped holes in the fascia angle, as for example, the floor angle of a one, two, or three vertical framework unit, the fascia angle shall be drilled and tapped to match the holes in the frame floor angle.

F. Jack Boxes

2.13 Jack boxes shall be securely fastened in place and shall not project into the cross-connection or cabling space more than the specified dimension. Jack boxes shall be mounted so as to be readily accessible for maintenance purposes.

3. MESSAGE AND TRAFFIC REGISTER CABINETS AND RELAY RACKS

A. Cable Holes in Casings

3.01 The installer shall cut out the casing at the point of entrance of the cables to fit as closely as practicable around the cables or cable forms where wooden casings are involved. The fiber escutcheons which are furnished at the cable openings in metal casings shall also be cut by the installer to fit the incoming cables.

4. PROTECTION OF BUS BARS, FRAMES, RACKS, AND FUSE BAYS

A. Taping, General

4.01 When taping is required, use friction tape applied with approximately half overlap. When terminals are taped, extend the tape at least 1/2 inch along the lead by winding around the lead tightly and evenly. The last two turns shall be put on at right angles to the lead so that the end of the tape will adhere to the taped portion of the lead. Apply one coat of shellac over the outer layer of friction tape. When shellac is not available, one of the authorized substitutes may be used. Plastic tape, KS-14090 without shellac, shall be substituted for friction tape except where the taping will be subject to pressure or heat.

- (a) Where plastic tape is used, apply in the manner described above for friction tape, except that only an overlap of approximately 3/16 inch is required. Also, due to the tendency of the plastic tape to recede, the last two turns shall be put on without tension.

B. Taping Exposed Live Bus Bars, Studs, and Terminals Except in Power Areas and Power Rooms

Note: The following requirements apply to asbestos-type fuse panels and are now rated A&M Only.

4.02 *Battery bus bars operating at 150 volts or less to ground* shall be treated as follows:

- (a) Vertical bus bar risers and interbay bus bars, including bus bar details and terminals, shall be protected with one layer of tape. The sections of vertical bus bar risers enclosed by insulating supports at unequipped panels do not require taping.

- (b) Bus bar extensions for connecting to the bus bar riser or power lead terminal, including the terminal, shall be taped to within 1/2 inch of the panel.

- (c) Battery studs including the terminal lugs shall be taped to within 1/2 inch of the panel.

- (d) Bus bars mounted against individual fuse panels and fuse posts for mounting alarm-type fuses do not require taping.

- (e) Bus bars normally furnished with a covering of varnished saturated sleeving, such as bus bars bridging vacant shelf spaces on some step-by-step frames, do not require additional taping.

- (f) Adjacent terminals in a row on a bus bar or adjacent terminals on a stud may be taped collectively up to three lugs in a group.

- (g) Unprotected terminals of resistors, lamp sockets, and similar types of apparatus located at the rear of fuse panels do not require taping.

C. Taping Battery Supply Filters

4.03 Terminals and studs on choke coils and capacitors mounted on filter panels located at fuse bays, relay racks, switchboards, or cable racks shall be given one layer of tape if operating at 150 volts, or less, and two layers if operating above 150 volts.

- (a) Where filter panels are located in power rooms, power areas, or equipped with protective barriers, the taping described above will not be required.

D. Taping Ground Bus Bars

4.04 Ground bus bars and associated terminals require no tape except where they are in close proximity to fuse posts or other live equipment which must be worked on with maintenance tools. In such cases apply one layer of tape to that part of the ground bar or terminal necessary to eliminate the probability of short circuits.