

RELAY RACK—ANGLE TYPE
FRAMEWORK AND CABLING
EQUIPMENT DESIGN REQUIREMENTS
COMMON SYSTEMS

1. GENERAL

Scope

1.01 This specification, together with the supplementary information listed herein, covers the equipment design requirements for the framework and cabling of relay racks of the bulb-angle type.

1.02 This specification is reissued to include subsequent framework drawings and associated information.

Description

1.03 The relay racks covered by the specification have uprights made of a special 3-1/2 inch, 4-1/2 pound bulb angle. Each bay has a pair of 1-1/2 inch by 1-1/2 inch by 5/16 inch top angles and an enclosed sheet-metal base either 10 inches or 1 foot 0 inches from front to back.

1.04 *Height:* The relay racks are furnished in heights of 6 feet 10-1/2 inches, 7 feet 0 inches, 9 feet 0 inches, and 11 feet 6 inches.

1.05 *Width:* The relay racks are furnished in bays of one basic width, namely 2 feet 0-5/8 inch measured across the backs of the angle uprights. This width is such that the racks will mount 23-inch mounting plates. Also 1-foot 8-5/8 inch wide bays arranged for 19-inch mounting plates are furnished for certain transmission systems applications. In addition, double bays and bays of various widths for specific applications are available.

1.06 *Application:* These relay racks are arranged to mount equipment units consisting of single mounting plates or groups of mounting plates assembled on mounting bars.

1.07 *Support:* These relay racks are supported by the floor and, in addition, are stabilized by auxiliary framing or, in some cases, cross-aisle cable racks across the top angles.

1.08 *Floor Plan:* Relay racks are junctioned at the uprights to form continuous line-ups and are equipped with end guards at the ends of line-ups. A line-up may grow either to the right or left.

1.09 *Cabling:* In general, the switchboard cabling to the relay rack and the local interunit wiring or the frame local cable are carried down the left-hand upright facing the rear, whereas the power cabling is usually carried down the right-hand upright.

1.10 *Cable Brackets:* L type cable brackets of the shortest practicable length are used to support switchboard cabling which is butted at the top of the bay. The loose switchboard cable conductors, together with interunit wiring or frame local cable, are then secured by the KS-15660 adjustable wiring supports mounted at intervals on the upright. L brackets are also used to support the power cables which are butted at various levels.

1.11 *Frame base filler* are available to provide space for cabling pile-up which extends outside the relay-rack upright at the end of line-up or adjacent to a framework which cannot accommodate the heavy cabling. Fillers may also be used to provide space between frames served by a common cable; the units of one bay are arranged for right-hand cabling facing the rear. Where the end of a line-up is less than 8 inches from a column, no filler is required for heavy cabling since no end guard will be ordered.

1.12 *Grounding* of the relay-rack framework may be obtained by either of two methods. In most cases, a combination of frame and circuit

ground is obtained by means of a ground bus bar (1 by 1/8) mounted on the top front angle. The bus bar is made continuous along the line-up by junction bars between the bays. The ground is extended down the right-hand upright, facing the rear, by a No. 6 ground wire which is clipped to the mounting plates. The ground bus bar is in turn connected to the office ground feeders. For isolated bays or line-ups or for racks which do not have a ground bus bar, a No. 6 ground wire from the office feeder is terminated on a lug located on an upright near the approximate center of the ultimate line-up.

1.13 Specific data on the relay racks is covered in Table A.

2. SUPPLEMENTARY INFORMATION

800-600-000—List of General Equipment Requirement Sections

801-000-000—Equipment Design and General

Equipment Requirements and Engineering Information—Common Systems

800-614-154—Location, Erection, and Assembly of Equipment—Installing

800-614-155—Auxiliary Framing—Low Type

800-614-156—Auxiliary Framing—High Type

Floor Plan Data—

Section 4.4, Sheet 9

Section 9.2, Sheet 7

3. DRAWINGS

For drawings forming a part of this specification, see Table A.

4. EQUIPMENT (FRAMEWORKS)

Miscellaneous Equipment

Framework

Table A - Bulb-Angle Relay Rack Frameworks

Framework	Height	Width	Sheet Metal Guardrail	Maximum Number of 2-Inch Mounting Plates*	Remarks
ED-91183-30**	11' 6"	2' 0-5/8"	10"	61	Frame base fillers for 2" and 3-1/2" spaces are provided.
ED-91710-()	9' 0" 11' 6"	(see remarks)	10" or 1' 0" 10" or 1' 0"	46 61	These racks are furnished in various widths and are designed for specific applications.
ED-91837-71**	7' 0" 9' 0" 11' 6"	2' 0-5/8" 2' 0-5/8" 2' 0-5/8"	1' 0" 1' 0" 1' 0"	34 46 61	Frame base fillers for 2" and 3-1/2" spaces are provided. The 9' 0" and 11' 6" racks are provided with and without a section of 5" cable rack attached to the rear top angle. The 7' 0" rack is provided only with 5" cable rack attached to the rear top angle.
ED-92465-70	6' 10-1/2"	2' 0-5/8"	(see remarks)	34	This rack is floor supported only and is arranged to mount on floor angles in the front and rear of the uprights.

*In order to allow space at the top of the frame for cabling, this maximum number of mounting plates, counting bottom up, should be observed.

**Relay racks 11 feet 6 inches high, 1 foot 8-5/8 inches wide for 1-3/4 and 2-inch mounting plates and relay racks 9 feet 0 inches, 2 feet 0-5/8 inch for 1-3/4 inch mounting plates are also available.

ED-92744-01—Bulb-Angle Frame Assembly—Welding
and Limits

Cabling

ED-92224-10) Cabling Plan Using Plastic Wiring

ED-92224-11) Supports and Adjustable Loops

Grounding

ED-91210-51—Grounding Connecting Block and
Miscellaneous Mounting Details, Copper
Bus Bars

Cable Brackets and Fanning Rings

ED-90945-01—Fanning Ring Assembly and Details

ED-91205-50—Cable Brackets and Adjustable Plastic
Wiring Supports

ED-91220-50—Fanning Details

ED-91220-51—Fanning Details, Adapters, and Cable
Brackets

Unit Mounting Bars and Adapters

ED-25082-70—Mounting Bars and Adapters for
Mounting 19-Inch Mounting Plates on
23-Inch Relay Racks

ED-25082-71—Mounting Details for Mounting
Equipment 2-1/4 Inches Toward the
Front—Arranged for 23-Inch Relay
Rack

ED-90273-70—Adapter Details

ED-91457-70—Adapter Details

ED-92242-01—Application of 2-Inch Plates to 1-3/4
Inch Relay Rack and 1-3/4 Inch Plates

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to 2-Inch Relay Rack
ED-92243-70—Relay Rack Unit Framework
ED-99077-90—Panels, Front Covers, and Adapter

Mounting Panels

ED-25260-10) Steel Panels for 23-Inch Mounting

ED-25260-11) Plates

ED-90929-01—Standard Steel Panels

ED-92525-10—Channel-Type Steel Panels

Guardrail Accessories

ED-25529-70—Guardrail Junction Details

ED-62628-70—Supplementary Guardrails

ED-92210-70—Guardrail Junction Details

ED-92476-70—Guardrail Junction Details

Miscellaneous

ED-25278-30) —Jack, Key, and Lamp Panels
ED-25278-31)

ED-31434-01—Jack, Key, and Lamp Mountings

ED-60613-01—Jack Mountings for use at Coil Rack
and Relay Rack

ED-64524-50—Pigeonholes and Writing Shelf

ED-81770-10—Appliance Outlets for Relay Rack

ED-90283-70—Shield Assemblies for Resistance and
Resistance Lamps

ED-90507-70—Portable Writing Shelf

ED-91423-71—Cabinet-Type End Guards

ED-91561-50—Record Book Holder

ED-91839-01—Junction Details for Joining Angle
Uprights to Different Frames

ED-92646-70—Key Mounting Assembly