

DISTRIBUTING FRAME
SINGLE SIDED—ARRANGED FOR PROTECTORS
AND ASSOCIATED RADIO FREQUENCY LINE FILTERS
7'-0" & 9'-0" HIGH
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 a single sided distributing frame 7'-0" and 9'-0" high, with verticals arranged for protectors and associated filters for reducing radio frequency induction due to switching equipment. Separate verticals arranged for terminal strips only are also furnished as a part of the frame. Each protector and filter vertical is arranged to mount a cable terminal intended to provide a moisture proof seal for lead covered cables entering the frame, which terminal will be furnished when specified. The frame is made available primarily for use in small dial offices, such as the 355A, where filters are required initially or ultimately. In such offices the number of incoming cable pairs will usually not exceed 404. Equipment included in this specification may be ordered by specifying the code and group numbers covered in part 4.

1.02 The specification is reissued to cover the following additions on the 9'-0" frame:

- (a) Ladder guard rails.
- (b) A unit consisting of one terminal strip vertical arranged for 2, 16" tie line terminal strips at the top for occasional use in offices where

the number of tie lines will be considerably in excess of the number of working lines.

- (c) A unit consisting of one terminal strip vertical arranged for 1, 16" tie line terminal strip at the top to permit maximum flexibility in the making up of a frame.

Description

1.03 The protector and filter verticals and also the terminal strip verticals are of conventional design using short channel transverse arms welded to a vertical angle. Floor and top angles are also used. Filters are mounted in pairs on vertical mounting plates fastened to the vertical angle and appear at the right and rear of the protectors. The cable terminal, equipment with a cable stub, is fastened to the left side of the transverse arms of the protector and filter vertical. Distributing rings are provided at the terminal strip verticals. All verticals are placed in a single line with the protector and filter verticals grouped at the left or right. The frame will usually consist of not over 3 protector and filter verticals and about 6 terminal strip verticals. Ladder guard rails and guard rail ends are provided for the 9'-0" frame. Guard rails are not provided for the 7'-0" frame since a ladder will not ordinarily be used at this frame.

1.04 General data on the frame are as follows:

Height	7'-0" and 9'-0"
Width, rear of floor angle to front of protector mounting	1'-1"
Direction of growth of protector and filter verts.	Right to Left or Left to Right
Direction of growth of Term. Strip Verts.	Left to Right or Right to Left
Space Bet. 1st Prot. and Filter Vert. and 1st TS Vert.	1'-0-1/2"
Space Bet. Adjacent Prot. and Filter Verts.	1'-0-1/2"
Space Bet. Adjacent Terminal Strip Verts.	6-1/2
Capacity of Prot. and Filter Vert. 7'-0" Frame	152 Cable Pairs
Capacity of Prot. and Filter Vert. 9'-0" Frame	202 Cable Pairs
Capacity of Term. Strip Vertical 7'-0" Frame	7, 6-1/2" & 1, 16" TS (Tie Lines)
Capacity of Term. Strip Vertical 9'-0" Frame	10, 6-1/2" & 1, 16" TS (Tie Lines) and 7, 6-1/2" & 2, 16" TS (Tie Lines)
Protectors	C50A and C52A
Filters	126A
Cable Terminal 7'-0" Frame	D-159982 (for 152 Cable Pairs)
Cable Terminal 9'-0" Frame	D-159983 (for 202 Cable Pairs)
Terminal Strips	38, 39, etc. for Equipment and 198A for Tie Lines
Distributing Rings	9A - 3 Rings per TS Vertical on 7'-0" Frame and 5 Rings per TS Vertical on 9'-0" Frame

Subdivisions of Equipment

ED-91662-01—Assembly, 7'-0" Frame
 ED-91663-01—Assembly, 9'-0" Frame

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

Floor Plan Data—Section 7.1, Sheet 34

3. DRAWINGS

ED-30730-01—Equipment
 ED-30731-01—Cable and Wiring Plan
 ED-91662-01—Assembly, 7'-0" Frame
 ED-91663-01—Assembly, 9'-0" Frame
 ED-90048-01—Equipment
 ED-90584-01—Switchboard Cabling) Test Jack Mountings
 ED-91441-01—Supports

4. EQUIPMENT

ED-91662-01—Assembly, 7'-0" Frame

- Group 1**—Unit of one protector and filter vertical
Group 2—Unit of two protector and filter verticals
Group 3—Unit of two terminal strip verticals
Group 4—Unit of three terminal strip verticals
Group 5—Fanning strip for 152 protectors for use when cable terminal is required
Group 6—Fanning strip for 152 protectors for use when cable terminal is not required
Group 7—One filter mounting plate with mounting details for lower mounting plate of 101 filters. Includes fanning strips and wiring shield on rear
Group 8—One filter mounting plate with mounting details for upper mounting plate of 51 filters. Includes fanning strips and wiring shield on rear
Group 9—Frame ground bar with equipment and protector ground lug
Group 10—Protector ground bar for initial two protector verticals
Group 11—Protector ground bar for an additional protector vertical

ED-91663-01—Assembly, 9'-0" Frame

- Group 1**—Unit of one protector and filter vertical
Group 2—Unit of two protector and filter verticals
Group 3—Unit of two terminal strip verticals with 1, 198A terminal strip at top of each vertical
Group 4—Unit of three terminal strip verticals with 1, 198A terminal strip at top of each vertical
Group 5—Fanning strip for 202 protectors for use where cable terminal is required

- Group 6**—Fanning strip for 202 protectors for use where cable terminal is not required. Includes formed fibre insulators
- Group 7**—One filter mounting plate assembly with mounting details for lower mounting plate of 101 filters. Includes fanning strips and wiring shield on rear
- Group 8**—One filter mounting plate assembly with mounting details for upper mounting plate of 101 filters. Includes fanning strips and wiring shield on rear
- Group 9**—Frame ground bar with equipment and protector ground lug
- Group 10**—Protector ground bar for initial two protector and filter verticals
- Group 11**—Protector ground bar for additional protector vertical
- Group 12**—Unit of one terminal strip vertical with 1, 198A terminal strip at top of vertical
- Group 13**—Unit of one terminal strip vertical with 2, 198A terminal strips at top of vertical
- Group 14**—Top angle and guard rail filler between protector and filter vertical, No. 1 and terminal strip vertical No. 1
- Group 15**—Guard rail ends—left and right ends of frame

5. GENERAL NOTES

Framework Units

- 5.01** Framework units are designed for shop assembly to reduce installing effort.
- 5.02** Protector and filter verticals are furnished in 1 and 2 vertical units. In general from 1 to 3 verticals of this type will be required per frame. Roughly from 2 to 3 terminal strip verticals per protector and filter vertical will usually be required. Terminal strip verticals are furnished in units of 1, 2, and 3 verticals. There are two units of one vertical each, one of which is arranged for 1, 198A terminal strip at the top of the vertical and the other for 2, 198A terminal strips. The 2 and 3 vertical units are each arranged for a single 198A terminal strip at the top of each vertical. The unit of 1 vertical arranged for 2, 198A terminal strips is intended for use where the ratio of tie lines to working lines is high. In such cases the length of the terminal strip end of the frame may be kept to a minimum by the occasional use of this vertical. The unit of 1 vertical arranged for 1, 198A terminal strip will provide flexibility in the making up of the terminal strip end of the

frame, particularly where one or more of the units arranged for 2, 198A terminal strips are employed.

Cable Terminal

- 5.03** The cable terminal, equipped with terminals for soldering, serves the entire vertical of protectors, and will be furnished only when specified. It may be mounted with the cable stub approaching from above or below, but to facilitate handling the stub it is desirable to mount the terminal with the stub approaching from above. Where the terminal is furnished the conventional left hand section of protector fanning strip is replaced by a wider section which facilitates wiring between the terminal and the protectors.

Filters

- 5.04** The frame is arranged to permit the installation of filters initially or at a future time. A fibre fanning strip, fastened to the right hand section of the protector fanning strip, is provided for the wires between the office terminals of the protector mountings, and the filters. The fanning holes in this fibre strip are on 7/8 inch centers to conform to the vertical spacing of the pairs of filters. A fibre fanning strip is also furnished at the rear of the filters. This strip serves as a support as well as a means of fanning the leads of the switchboard tie cable from the terminal strip vertical, to the filter terminals. A sheet metal shield is provided for attaching to the rear of the filter mounting plate to enclose the cable form, shielding it electrically from the adjacent wiring to the protectors.

- 5.05** Where filters are not furnished initially switchboard cables from terminal strip verticals are run to the rear of the right hand section of the protector fanning strips and the leads fanned directly to the terminals of the protectors. On installation of the filters and fibre fanning strips at a later date, the leads between the protector terminals and the tie cables will be disconnected and replaced by new wiring between protector terminals and front filter terminals, and new cables between rear filter terminals and the tie cable terminal strips, one pair at a time. Filter mounting plates with fibre fanning strips and shield are covered in separate groups to permit the omitting of this equipment initially if desired.

Equipment Arrangements

5.06 Tie Line Terminal Strips: One 198A terminal strip, to which the tie cable from filters or protectors is connected, is located at the top of each terminal strip vertical. In the case of group 13 of 9'-0" frame ED-91663-01, 2, 198A terminal strips are located at the top of the vertical. Cross-connections are run between the tie cable terminal strips and the connector multiple or line relay terminal strips located between the tie line terminal strip. Each 198A terminal strip accommodates 101 cable pairs. Thus in the case of the 7'-0" frame, one and one-half 198A strips on adjacent verticals are required per protector and filter vertical having a capacity of 152 cable pairs. Two 198A strips on adjacent verticals are required per protector and filter vertical having a capacity of 202 cable pairs, in the case of the 9'-0" frame, except in group 13 where a single vertical accommodates 202 cable pairs.

5.07 Connector Multiple, Line Relay and Miscellaneous Terminal Strips: On the 9'-0" frame 10, 6-1/2" terminal strips per vertical are available for connector multiple and line relay circuits, on the basis of five terminal strips for 100 circuits of each of connector multiple and line relay equipment. This arrangement is advantageous from the viewpoint that cross-connections between these two groups of equipment may, so far as practicable, be confined to a single vertical. The miscellaneous equipment will be accommodated on end vertical or verticals of the frame. On verticals having 2 tie cable terminal strips at the top, 7, 6-1/2" terminal strips are available. These terminal strips will ordinarily be used for miscellaneous equipment. On the 7'-0" frame with 7 terminal strips available below the 198A terminal strip, one group of 5 connector multiple or line relay circuits can be accommodated leaving the two lower terminal strips for miscellaneous equipment. Cross-connections between connector multiple and line relay groups in this case are required to be run between verticals.

Numbering of Cable Pairs, Terminal Strips and Verticals

5.08 Protector and filter cable pairs should be numbered consecutively from top down in accordance with usual practice at protector frames, MDF's and CDF's. The numbering on tie line terminal strips as well as the numbering on each

group of five connector multiple and line relay terminal strips, should also be from top down. On the filters the cable pair number will be placed on the first, last and each intermediate filter whose number is a multiple of 5. A designation board is not provided. Vertical numbers will be placed on the angle upright of the frame and cable numbers as well as cable pair numbers will be placed on the protector springs in accordance with views on the equipment drawing.

Cabling, Wiring and Cross-Connections

5.09 The arrangement of cable rack and cables over the frame and the method of running, placing, butting and fanning of cables within the frame, together with the wiring arrangement between protectors and cable terminal and filters, is covered on the cabling and wiring plan. Typical cross-connections are also shown on the cabling and wiring plan. Vertical cross-connections between points in a single vertical, as well as horizontal cross-connections between verticals will be run at the rear of the distributing rings. Distributing frame wire will be furnished only when specified.

Frame and Protector Ground Bars

5.10 A frame ground bar equipped with terminal lugs together with protector ground bar, is fastened to the first two protector and filter verticals at the top of the frame. The protector ground bar is furnished in two lengths, one for the initial two verticals and the other for an additional vertical.

Test Jack Mountings

5.11 201A jack mountings will be furnished where test jacks are required. These mountings will be mounted on the first terminal strip vertical of the frame in accordance with the assembly drawing.

Support of Frame

5.12 The frame is intended to be supported, by a cable rack running lengthwise and fastened by "J" bolts to bars welded flatwise to the top angle. One bar per unit is provided. A cross-aisle cable rack will connect at right angles to the cable rack over the frame. For additional rigidity, if required, a brace to the wall or adjacent row of

frames, may be employed. Holes in the top angle are provided for attaching this brace.

near a wall it is desirable that a space of approximately 1'-6" should be provided at the rear of the frame to facilitate installing and maintenance work.

Location of Frame

5.13 The frame may or may not be placed in line with other frames or equipment. If placed

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