

INTERMEDIATE DISTRIBUTING FRAMES
TRUNK DISTRIBUTING FRAMES
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 intermediate and trunk distributing frames for common systems. The intermediate frames are of the double sided type and the trunk frames are of both double and single sided types. Equipment included in this specification may be ordered by specifying the code and group numbers covered in part 4. Other distributing frames are covered in separate specifications as follows:

- J97031—Main and Combined Distributing Frames—Common Systems
- J67001—Distributing and Protector Frames—Toll Systems
- J17004—Main Distributing Frame—Wall Type
- J97030—Single Sided Distributing Frame Arranged for Radio Frequency Line Filters
- J97029—Single Sided Distributing Frame—Used as Line Distributing Frame—Crossbar System
- J27053—Double Sided Distributing Frame—Used as District Junctor Grouping Frame—Crossbar System

1.02 The specification is issued to cover the recently standardized reduced width intermediate distributing frames for smaller jumper pileups with lacquered wire, the new double distributing ring, and to cover in more detail than formerly, the requirements for service observing equipment. The specification, in accordance with present practice, combines framework, equipment, and cabling whereas the former specifications, now replaced by this specification, covered these items in separate specifications for each type of frame. The following specifications are replaced.

J27001	J37007
J27003	J97018
J37002	J97019

Description

1.03 All frames are of conventional construction employing vertical angles, channel transverse arms, top and base angles, rectangular tie bars, and angle guard rails.

1.04 The 11'-6" intermediate frame is intended for use in panel and step-by-step switch rooms having the standard 12'-6" height under girders and where there is advantage in having the framing bars over the selector or switch frames extended over the IDF. Where there is no particular advantage in maintaining the framing bars at the same level, the 12'-5" frame with high type framing bars, should be used in the interest of providing added space for maintenance above the top terminal strips.

1.05 General data on the frames are covered in Table A.

Subdivisions of Equipment

1.06 See part 4 for subdivisions of equipment consisting of assembly and end guard drawings for the various frames.

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

FRAME	ASSEMBLY	HEIGHT	WIDTH	WIDTH OVER GUARD RAILS	VERTI- CAL SPACING	SHELF SPAC- ING	NUMBER OF SHELVES	TYPE OF TERM. STRIPS ON H SIDE	CAPACITY PER VERTICAL
Intermediate Distributing Frame	ED-91021-01	11'-6"	3'-0"	3'-8-3/4"	6-1/2"	8"	15	38, 39, etc.	15 No. 35, 36, etc. Term. Strips
		12'-5"							17 No. 35, 36, etc. Term. Strips
Trunk Distributing Frame	ED-90663-01 (Double Sided)	11'-6"	2'-0"	2'-7-3/4"	6-1/2"	8"	15	38, 39, etc.	15 No. 35, 36, etc. Term. Strips
	ED-30126-01 (Single Sided)	11'-6"	—	1'-0"	6-1/2"	*8"	*8	*38, 39, etc.	**8 No. 38, 39, etc. Term. Strips

*Lower or Horizontal Portion of Single Sided Frame

**Upper or Vertical Portion of Single Sided Frame

Table A - Description of Frames and Equipment

J34709—Test and Talking Line Jack Equipment—
Step-by-Step System

Sided
ED-91022-01—Intermediate Distributing Frame

Service Observing Desks

J93803—No. 4
J93808—No. 7
J93810—No. 9
J93811—No. 10
J93812—No. 11

Frame Equipments

ED-20210-01—District, Office, or Trunk Distributing
Frame—Panel System
ED-20286-01—Intermediate Distributing Frame—Panel
System
ED-30127-01—Trunk Distributing Frame—Single
Sided—Step-by-Step System
ED-30156-01—Intermediate Distributing Frame—
Step-by-Step System
ED-30261-01—Trunk Distributing Frame—Double
Sided—Step-by-Step System

Floor Plan Data

Section 7.1, Sheet 28—Intermediate Distributing
Frame
Section 7.1, Sheet 11—Trunk Distributing Frame—
Double Sided
Section 5.3, Sheet 8—Trunk Distributing Frame—
Single Sided

Switchboard Cabling

ED-20284-01—District, Office, or Trunk Distributing
Frame—Panel System
ED-20838-01—Intermediate Distributing Frame—Panel
and Step-by-Step Systems (Main to
Intermediate Cables Terminate at
Horizontal Side of IDF)
ED-20838-02—Intermediate Distributing Frame—
Panel and Step-by-Step Systems (Main
to Intermediate Cables Terminate at
Vertical Side of IDF)
ED-30128-01—Trunk Distributing Frame—Single
Sided—Step-by-Step System
ED-30140-01—Trunk Distributing Frame—Double
Sided—Step-by-Step System

3. DRAWINGS

Assemblies

ED-30126-01—Trunk Distributing Frame—Single
Sided, 11'-6" High
ED-90663-01—Trunk Distributing Frame—Double
Sided, 11'-6" High
ED-91021-01—Intermediate Distributing Frame 11'-6",
12'-5" and 14'-5" High

End Guards

ED-30129-01—Trunk Distributing Frame—Single
Sided
ED-90131-01—Trunk Distributing Frame—Double

Jack Boxes and Mountings

- ED-90047-01—Jack Box Assemblies
- ED-90048-01—Jack Box & Mounting Equipment
- ED-91441-01—Jack Box & Mounting Supports
- ED-91319-01—Cord Hooks for Service Observing Equipment

Miscellaneous Test Circuits

- SD-21273-01—Circuits for 33 Type Connecting Blocks and Jacks for Battery Feed, Frame Line, Message Register Test and PBX Line Make Busy—Panel System
- SD-90122-01—33 Type Connecting Block Circuit—Step-by-Step System

Connecting Blocks

- ED-90046-01—Mounting of 33 Type

Miscellaneous

- ED-91152-01)—Common Details for Distributing Frames
- ED-91153-01)—
- ED-91237-01)—

4. EQUIPMENT

ED-30126-01—Assembly—Trunk Distributing Frame—Single Sided, 11'-6" High

- Group 1*—Unit of 1 vertical
- Group 3*—Unit of 3 verticals
- Group 5*—Unit of 5 verticals
- Group 50*—Set of junction details between units

ED-30129-01—End Guards for Trunk Distributing Frame—Single Sided, ED-30126-01

- Group 1*—End guard for left end of frame facing equipment side
- Group 2*—End guard for right end of frame facing equipment side

ED-90131-01—End Guards for Trunk Distributing Frame—Double Sided, ED-90663-01

- Group 5*—End guard for right end of frame
- Group 6*—End guard for left end of frame

ED-90663-01—Trunk Distributing Frame—Double Sided, 11'-6" High

- Group 5*—Unit of 5 verticals including longitudinal details
- Group 6*—Unit of 6 verticals including longitudinal details
- Group 10*—Unit of 10 verticals including longitudinal details
- Group 11*—Unit of 11 verticals including longitudinal details
- Group 20*—Unit of 20 verticals including longitudinal details
- Group 21*—Unit of 21 verticals including longitudinal details
- Group 50*—Set of junction details between units

ED-91021-01—Assembly—Intermediate Distributing Frames

- Group 1*—Unit of 5 verticals
 - Group 2*—Unit of 6 verticals
 - Group 3*—Unit of 10 verticals
 - Group 4*—Unit of 11 verticals
 - Group 5*—Unit of 20 verticals
 - Group 6*—Unit of 21 verticals
- } 11'-6" Frame

- Group 7*—Unit of 5 verticals
 - Group 8*—Unit of 6 verticals
 - Group 9*—Unit of 10 verticals
 - Group 10*—Unit of 11 verticals
 - Group 11*—Unit of 20 verticals
 - Group 12*—Unit of 21 verticals
- } 12'-5" Frame

- Group 13*—Unit of 5 verticals
 - Group 14*—Unit of 6 verticals
 - Group 15*—Unit of 10 verticals
 - Group 16*—Unit of 11 verticals
 - Group 17*—Unit of 20 verticals
 - Group 18*—Unit of 21 verticals
- } 14'-5" Frame

- Group 50*—Set of junction details between units of 11'-6" and 12'-5" frames
 - Group 51*—Set of junction details between units of 14'-5" frames
- } Junction Details

ED-91022-01—End Guards for Intermediate Distributing Frame ED-91021-01

- Group 1*—End guard for right end of 11'-6" and 12'-5" frames
- Group 2*—End guard for left end of 11'-6" and 12'-5" frames
- Group 3*—End guard for right end of 14'-5" frame
- Group 4*—End guard for left end of 14'-5" frame

5. GENERAL NOTES

End Guards

5.01 An end guard should be furnished at each end of frames unless otherwise specified.

Frame Support

5.02 The 11'-6" frames are adapted to the low and the 12'-5" and 14'-5" frames to the high type of auxiliary framing.

Frame Growth

5.03 The frames are arranged to grow in either direction, lengthwise.

Distributing Rings

5.04 10B (double) distributing rings, designed for verticals on 6-1/2" centers, are used throughout, except that on initial frames with an even and on additions with an odd number of verticals, a set of 9A (single) rings will be required for one of the verticals. Rings are not included in the framework groups but are ordered separately. Rings are ordered for the right end vertical only when specified.

Terminal Strips

5.05 The vertical side of the intermediate and double sided trunk distributing frames is arranged for terminal strips 8" long such as Nos. 35, 36, etc. The horizontal side of both of these frames is arranged for terminal strips 6-1/2" long such as 38, 39, etc. On the single sided trunk frame term. strips 6-1/2" long are used throughout. All terminal strips are lug mounted. Code numbers used for subscriber, trunk and other equipment are covered on the frame equipment drawings listed in part 3. The extension of the guard rail beyond the ear of the terminal strips and the maximum number of rows of terminals on terminal strips that should be used are as follows:

	V SIDE		H SIDE	
	GUARD RAIL EXTENSION	MAX. NO. OF ROWS OF TERMS ON TS	GUARD RAIL EXTENSION	MAX. NO. OF ROWS OF TERMS ON TS
Intermediate Frame	4-3/8"	8	4-3/8"	8
Trunk Frame (Double Sided)	4-3/8"	8	3-3/8"	6
Trunk Frame (Single Sided)	3-7/8"	7	3-7/8"	7

Where terminal strips having a larger number of rows of terminals than above indicated are required the ladder fender should be blocked out 1" to provide adequate clearance between ladder and terminal strips.

Equipment Arrangement

5.06 *Intermediate Distributing Frames:* In general the top three to five shelves on the horizontal side and the top three to five terminal strips on the vertical side shall be reserved for miscellaneous equipment, the subscriber equipment occupying the remainder of the frame. Where additional terminal strips are required for miscellaneous equipment they should be reserved at one end of the frame. Where the amount of miscellaneous equipment, however, does not justify reserving from three to five shelves at the top of the frame, this equipment may be located at the end of the frame and the subscriber equipment arranged the full height of the frame.

5.07 Where separate terminal strips are required on the horizontal side for line message register equipment, these terminal strips shall where the ultimate frame is installed initially, be grouped at one end of the subscriber equipment. Where the ultimate frame is not installed initially these terminal strips shall be arranged on the basis of one terminal strip at the end of each five associated subscriber multiple terminal strips. On the vertical side the message register terminal strips shall be located at the end of the frame directly opposite the message register terminal strips on the horizontal side. When these terminal strips on the horizontal side, however, are arranged

on the basis of one terminal strip at the end of each five associated subscribers multiple terminal strips, the message register equipment on the vertical side shall be considered as miscellaneous and arranged accordingly.

5.08 District, Office or Trunk Distributing Frame—Panel System:

The equipment on the horizontal side shall, in general, be arranged in groups running lengthwise with the frame, each group occupying as many shelves as will be required by the ultimate number of circuits involved. The larger groups of equipment shall preferably be placed on the lower shelves with the miscellaneous at the top.

5.09 District and office outgoing trunk equipment which constitute the major equipment groups for the vertical side, shall in general be arranged on the basis of assigning each successive group of 3 terminal strips on a vertical for a bank of the district or office frames. The miscellaneous equipment may be placed on the verticals immediately preceding or on those succeeding the groups of major equipment. On certain layouts however, particularly on the larger ones, the major circuits may be arranged on the basis of using one or more complete verticals for each bank thereby resulting in economy of ultimate framework or in equipment and maintenance advantages. The miscellaneous equipment in such cases will be arranged on the verticals immediately preceding or succeeding those occupied by the major groups.

5.10 Trunk Distributing Frame—Double Sided—Step-by-Step System:

On the horizontal side, where a considerable amount of miscellaneous equipment is to be provided for, such equipment shall, in general, be distributed on the upper shelves of the frame, with the major circuits arranged in groups running lengthwise with the frame, each group occupying as many shelves as will be required by the ultimate number of circuits involved. With such an arrangement the larger groups of equipment shall preferably be placed on the lower shelves of the frame. In many cases, however, the amount of miscellaneous will be small and the major circuits shall in such cases be arranged in vertical groups extending over all or over as many shelves of the frame as practicable. The miscellaneous equipment shall in such cases occupy a few bays on the upper shelves of the frame, above a major group of equipment that does not extend to the top of the frame.

5.11 On the vertical side the major groups of equipment consisting of 1st selector, out trunk switch and repeater, shall be arranged in the same general manner and as nearly as possible opposite the equipment on the horizontal side to which it cross connects, in order to obtain the shortest possible lengths of jumpers.

5.12 Trunk Distributing Frame—Single Sided—Step-by-Step System:

With this type of frame all of the equipment may be placed on a single frame or, where desirable, separate frames may be used for the line finder—1st selector equipment, and selector level-out trunk switch—repeater equipment. In either case the groups of equipment on the horizontal and vertical portions, between which cross-connections are to be run, shall be located as nearly as possible in line vertically thereby obtaining the shortest possible jumper lengths.

Equipment Numbering

5.13 Horizontal Side—Equipment Divided in Groups:

Where the equipment of either a major or minor circuit is divided in groups with designations such as 0, 1, etc., T0, T1, etc., each group consisting of one or more terminal strips, these groups shall be numbered as follows:

Where more than one shelf is required for the equipment the successive groups shall be numbered in general from bottom up and in the direction of the growth of the frame. In cases where the telephone company so desires or where it may be advantageous from a cabling or other standpoint the successive groups however, may be numbered horizontally along each successive shelf. Individual circuits of each group shall in all cases be numbered consecutively from left to right regardless of the direction of the frame growth.

5.14 Horizontal Side—Equipment Not Divided in Groups:

Where the equipment of a circuit is not divided in groups the individual circuits shall be numbered consecutively from left to right regardless of the direction of the frame growth. Such equipment will not necessarily be located on a single shelf but may, when desirable, be split over 2 or more shelves. Equipment additions on the shelf of a frame growing from right to left facing the horizontal side, may be made at the left or growing end where the shelf is completely filled on the initial framework. In all cases, however,

the individual circuits shall be numbered from left to right.

5.15 Vertical Side: Except on the panel system trunk distributing frame the individual circuits of each terminal strip shall be numbered from top down in all cases. The direction of growth of consecutively numbered terminal strips shall be from bottom up. Groups of equipment shall also be numbered from bottom up. On the panel system trunk distributing frame the individual circuits of each terminal strip for district and office OGT and permanent signal holding trunk equipment shall be numbered from bottom up. For all other equipment on the vertical side of this frame the numbering shall be from top down. The direction of growth of consecutively numbered terminal strips shall be from bottom up.

5.16 Single Sided Trunk Distributing Frame:

The requirements for numbering of terminal strip equipment on the horizontal and vertical portions of this frame will be the same as for the horizontal and vertical sides, respectively, of the double sided frames covered in the preceding paragraphs, except that the direction of numbering on both horizontal and vertical portions shall be from top down instead of from bottom up.

Service Observing Equipment

5.17 Jack boxes, mounted horizontally at the top of the frame, as shown on the various frame equipment drawings, shall in general be used for service observing equipment. The 126 terminal strip, however, having a capacity of 20 circuits may be used on small frames of not over 25 verticals. When used, the 126 terminal strip should be placed in the approximate center of the frame. Jack boxes shall be placed in multiple unless otherwise specified and shall be placed 25 or 26 bays apart beginning with the 12th or 13th bay. Should the frame terminate at a vertical more than 12 verticals from the last appearance another box or set of boxes should be placed at the end of the frame, sufficient slack being left in the cable to permit relocating the box or boxes at succeeding 25th vertical when growth has extended to this point.

5.18 Typical designations and numbering for jack boxes and 126 terminal strip are shown on the jack box equipment drawing. The jacks are numbered and designated to agree with the service

observing circuit. Numbering should be continued in numerical sequence even though more than one jack box is required. For codes of cord and plug assemblies refer to the circuit drawings. A cord and plug assembly with 2, 145B number plates engraved with the circuit designation shall be furnished for each equipped service observing circuit unless otherwise specified by the telephone company. Circuit numbers as specified by the telephone company will be stamped on the plates by the installer. In the case of the cord and plug assembly used with the 126 terminal strip one number plate, attached to the cord at the plug end, will be used.

5.19 Cords of fixed length (19'-6") which will reach any terminal strip on the frame 13 verticals or bays on either side of a jack box or 126 terminal strip, are used. A cord hook shall be furnished at each transverse arm except at those under boxes where space will not permit the hooks to be mounted.

Battery, Switchman's, Message Rate Test, PBX Make Busy, Etc. Jacks

5.20 201A jack mountings, located at the vertical or horizontal sides or at both sides, as shown on frame equipment drawings, shall be furnished as required. Typical equipment for these jack mountings is shown on the jack box and jack mounting equipment drawing. The jack mountings should be located every 30 verticals or every 30 bays, at the 15th, 45th, etc. vertical or bay, and at a point between the 6th & 7th and 7th and 8th shelves or transverse arms from the bottom of the frame. Cords 12'-0" long should be used. For codes of the cord and plug assemblies refer to the circuit drawings.

Connecting Blocks

5.21 33 type connecting blocks for testing purposes, arranged to clamp on the edge of terminal strip fanning strips in accordance with the drawing covering the mounting of connecting blocks, shall be mounted on the horizontal terminal strip at the 5th and 10th shelves from the bottom in bays 5, 15, 25, etc., and at the 5th and 10th vertical terminal strip from the bottom at verticals 5, 15, 25 etc. Where a space is not equipped with a terminal strip the connecting block shall be mounted on a wood block as shown on the connecting block mounting drawing. The connecting block will be

transferred to the terminal strip when the latter is furnished.

5.22 Battery and ground supply shall be obtained at the fuse board. Signaling battery shall be used and one fuse provided for each frame. No. 16 Type F wire shall be used in all cases.

Distributing Frame Wire

5.23 Furnish distributing frame wire only when specified.

Cabling

5.24 The arrangements of cable runs entering the frame, the minimum clearances for cable runs above the frame, and the arrangements governing the running, placing, butting and fanning of cables within the frame shall be in accordance with the switchboard cabling plan for the particular frame. Cable codes for the major cable runs shall be in accordance with the switchboard cabling plan. The minimum dimensions shown on the cabling plan

for cable run clearances shall not be used unless the ceiling height will not permit a greater dimension.

Joining of Present to Old Type Framework

5.25 In joining framework of the present type to that of a former type, such tie bars of the former type framework as are located at shelves at which no ring straps are furnished on the present type framework, shall be cut off flush with the end angle upright. Where the uprights of the two types of framework are of different heights the end of the highest top angle shall in general be cut off flush with the end angle upright and a short length of angle or bar used to connect the end of the lower top angle with the end upright of the higher framework. A rectangular bar junction detail, bent to suit conditions shall in general be used to connect the ladder guard rail of the former type framework with the angle ladder guard rail of the present type framework, which type of guard rail shall be used unless otherwise specified by the telephone company.

Bell Telephone Laboratories, Inc.