MISCELLANEOUS FRAMES

DESCRIPTION

NO. 1 AND NO. 1A ELECTRONIC SWITCHING SYSTEMS

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1. GENERAL

1.01 This section describes the miscellaneous frames listed below that are used in the 2-wire No. 1 and No. 1A Electronics Switching System (ESS) and the 4 wire No. 1 ESS.

- Main Distributing Frame
- Protector Frame
- Trunk Distributing Frame
- Intermediate Distributing Frame
- Power Distributing Frame
- Miscellaneous Trunk Frame

1.02 When this section is reissued, the reason for reissue will be listed in this paragraph.

2. PHYSICAL DESCRIPTION

2.01 The miscellaneous frames are used to perform noncontrol functions and are primarily distribution frames used to interconnect two groups of leads in a unique pattern according to office assignments.

A. Main Distributing Frame

2.02 The main distributing frame (MDF) provides for the flexible association of outside plant cable pairs with central office equipment.

2.03 The MDF (Fig. 1) is a single sided frame, 8 feet high and 1 foot wide. A module consists of six MDFs and measures 6 feet 6 inches long (Fig. 1). A module of MDFs provides for 6000 pairs from outside plant flexible access to 6080 inside central office plant pairs.

B. Protector Frame

2.04 A module of single-sided protector frames 6 feet 6 inches long, 8 feet high, and 1 foot deep provides the protectors for 6000 pairs from outside plant. This frame will be used in conjunction with the MDF. With the protector frame, the stub cables may be run either to the cable vault through a slot or sleeves in the floor, overhead to the ceiling, or to a wall mounted cable rack.

2.05 The protector frame (Fig. 2) has 12 vertical sections and each section can accommodate five 302 type connectors. The righ-hand side of each protector frame module mounts test jacks, microphone, test battery supply, etc.

2.06 The protector frame, unlike other No. 1 ESS frames, is connected to building ground by an insulated No. 00 gage grounding wire. The protector frame must be electrically insulated from other No. 1 ESS frames to prevent introducing multiple grounds to the system.

C. Trunk Distributing Frame

2.07 A trunk distributing frame (TDF) is composed of six verticals of 1216 terminals each in a module 7 feet 0 inch high and 4 feet 4 inches wide, with provision for only one connection on each quick-connect terminal. The TDF provides for the cross connection of trunks to trunk link networks to simplify traffic balancing. See Figure 3.

D. Intermediate Distributing Frame

2.08 The intermediate distributing frame can be located at the head end of the main distributing frame, and in line with it, the two frames growing in opposite directions (Fig. 3). At this point, the intermediate distributing frame will be 8 feet high and employ the same distributing frame (DF) module as the main distributing frame. However, the intermediate distributing frame (IDF) may be preferred in a frame lineup. Here, the IDF will be 7 feet high. The intermediate distributing frame provides for cross connection of trunk and trunk auxiliaries to the MDF via tie cables. This allows multipled access of trunks to outside plant pairs and minimizes long jumpers. The IDF employs the same module as the TDF.

E. Power Distributing Frame

2.09 The power distributing frame (Fig. 4) is the fused distributing point for the +24 volts and -48 volts from the power plant to the various frames in the No. 1 and No. 1A ESS central office. The power distributing frame supplies an average of 500 amperes for each +24V and -48V. Three frame bus bars are provided for connection to the power plant. Distribution is made from terminals in fuse blocks and on the frame ground bus bar. The power distributing frame provides fusing for a maximum of ninety-eight +24 volt circuits and one hundred and six -48 volt circuits. A minimum of two frames are required for each central office. The frame is a standard single bay frame measuring 2 feet 2 inches wide and 7 feet high.

2.10 For No. 1A ESS, -48 volt power from the -48 volt power plant is also delivered to the J5A007B-1 1A processor power distributing frame located in the processor area. Converters on the power distributing frame develop +24 volt requirements for the 1A processor frames. The +24 volt converters are used for offices that do not have a +24 volt power plant.

F. Miscellaneous Trunk Frame

2.11 The miscellaneous trunk (MT) frame (Fig. 5) is a single bay frame 2 feet 2 inches wide and 7 feet high. The frame has thirty-six 2-inch mounting plate spaces used for mounting trunk and service circuits. The MT frame mounts those trunk and service circuits which do not fit the universal pattern required for mounting on the universal trunk frame (UTF). Those circuits on the MT frame are cabled via unit terminal strips to their associated master scanner, signal distributor and distributing frame terminations.

2.12 The MT frame does not contain a scanner or signal distributor. The MT frame is also used to mount other equipment, such as a supplementary signal distributor, teletypewriter (TTY), and automatic identified outward dialing (AIOD).

3. FUNCTIONAL DESCRIPTION

A. Main Distributing Frame and Protector Frame

3.01 All outside cables from customer and other central offices are terminated at the protectors on the protector frame (Fig. 2) to prevent damage to office equipment from lightning strokes and power crosses on selected special circuits. Cables from the protectors are connected to alternate columns of terminal blocks at the main distributing frame and are distributed vertically. Protector cables are interconnected with cables from line link networks (LLNs) and intermediate distributing frames which are connected to the remaining columns (distributed vertically in the column).

3.02 Each protector frame (Fig. 2) provides 60 protector connectors each having 100 protector plug-in units. Carbon blocks within the protector units will ground the associated lines on lightning strokes and power crosses above 400 volts. The No. 1 ESS circuits are designed to be self protecting below 400 volts thus making heat coils unnecessary. For testing purposes, inside and outside cable pairs can be disconnected by removing the corresponding protector units.

B. Trunk Distributing Frame

3.03 The trunk distributing frame (TDF) interconnects the trunk and service circuits and the trunk link network (TLN) appearances. It is also a preferred point for cross-connections not requiring direct access to an outside cable pair. The TLN appearances are connected to alternate columns of terminal blocks and the trunk circuits and service circuits are connected to the remaining columns.

C. Intermediate Distributing Frame

3.04 The intermediate distributing frame interconnects the main distributing frame and incoming and outgoing trunk circuits. Physically, the intermediate distributing frame is the same as the trunk distributing frame. Cable pairs from the main distributing frame are connected to alternate columns of terminal blocks while cable pairs from the trunk circuits are connected to the remaining columns.

D. Power Distributing Frame

3.05 Power feeders are run from the +24 volt and -48 volt power plant to the two (or more, if required) power distributing frames (PDFs) in the switchroom. These feeders are composed of battery and ground-return leads. At the power distributing frame each battery lead is filtered by a 35,000 uf capacitor shunt to ground and is branched through the banks of fuses that feed the various system units.

3.06 The distribution of power is so arranged that no two duplicate circuits are fed from the same power distributing frame.

3.07 At each functional frame, each battery lead from a power distributing frame terminates on a filter which feeds the fuse panel supply bus. The ground return lead is connected to the terminal provided by the ground return system on the frame. The fuse panel branches the dc power to the circuitry within the functional frame.

E. Miscllaneous Trunk Frame

3.08 The miscellaneous trunk (MT) frames accommodate most of the trunks and other related equipment that cannot be mounted in the combined miscellaneous trunk (CMT), miniaturized universal trunk (MUT), or UTF frames. Low runner trunks and most test circuits are mounted in the MT frames. Also mounted in the MT frame are certain common system units which require connection to the master scanner and/or signal distributor.

4. ABBREVIATIONS

4.01 The abbreviations used in this Section are as follows:

AIOD	Automatic Identified Outward Dialing
CMT	Combined Miscellaneous Trunk
DF	Distributing Frame
ESS	Electronic Switching System

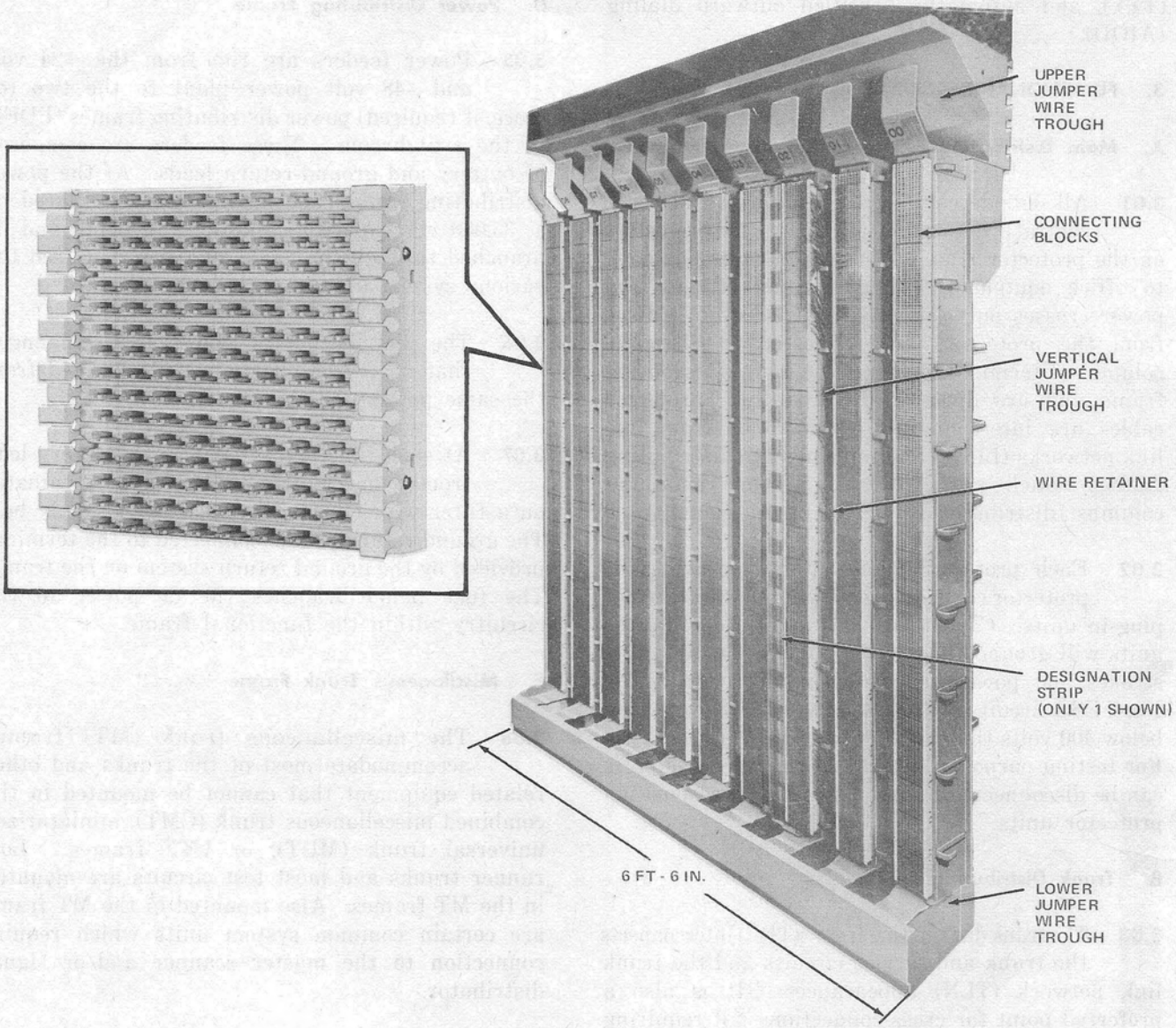

Fig. 1—Main Distributing Frame Module

IDF	Intermediate Distributing Frame	PDF	Power Distributing Frame
LLN	Line Link Network	TDF	Trunk Distributing Frame
MDF	Main Distributing Frame	TLN	Trunk Link Network
MT	Miscellaneous Trunk	TTY	Teletypewriter
MUT	Miniaturized Universal Trunk	UTF	Universal Trunk Frame

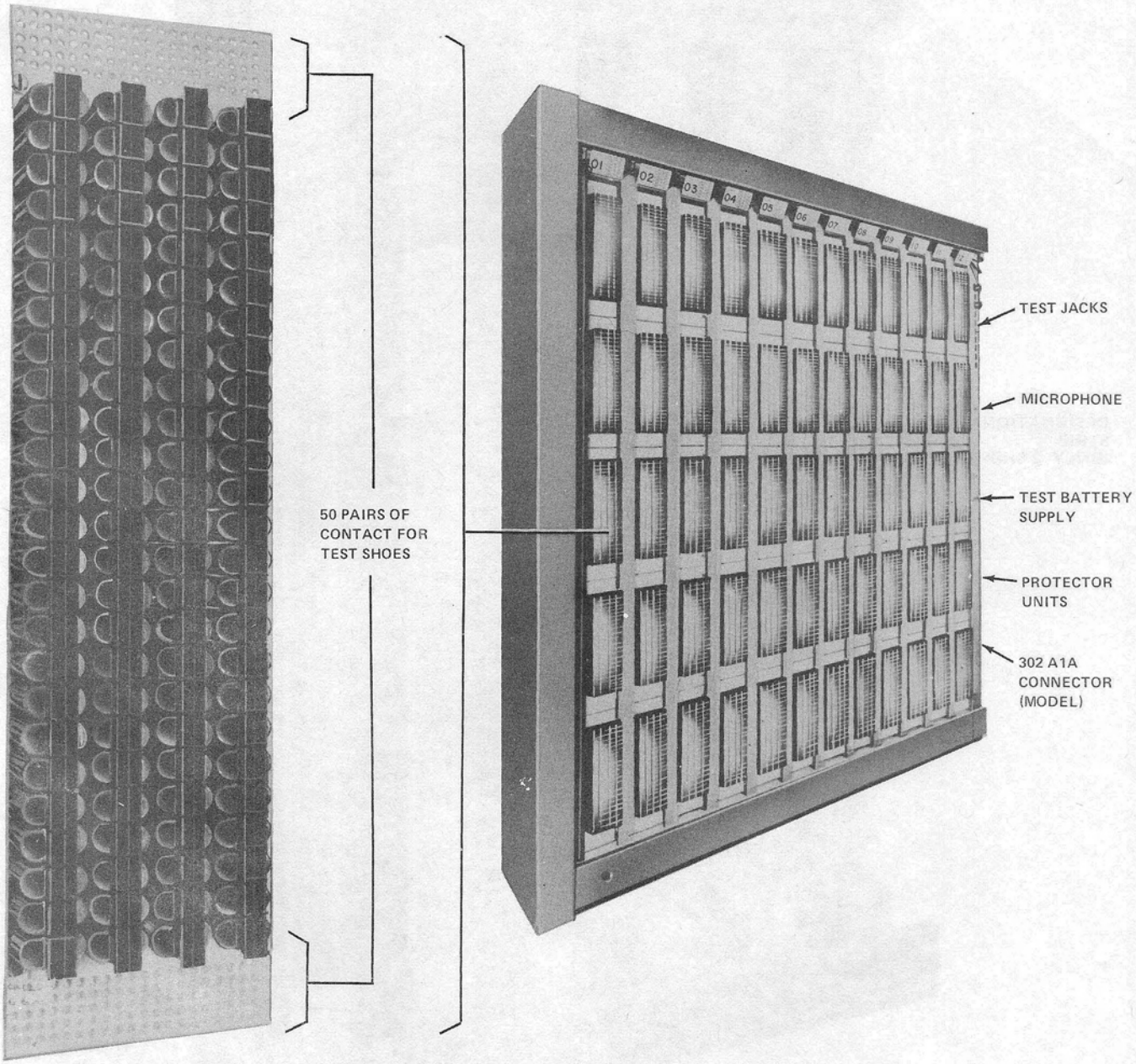

Fig. 2—Protector Frame, Front View

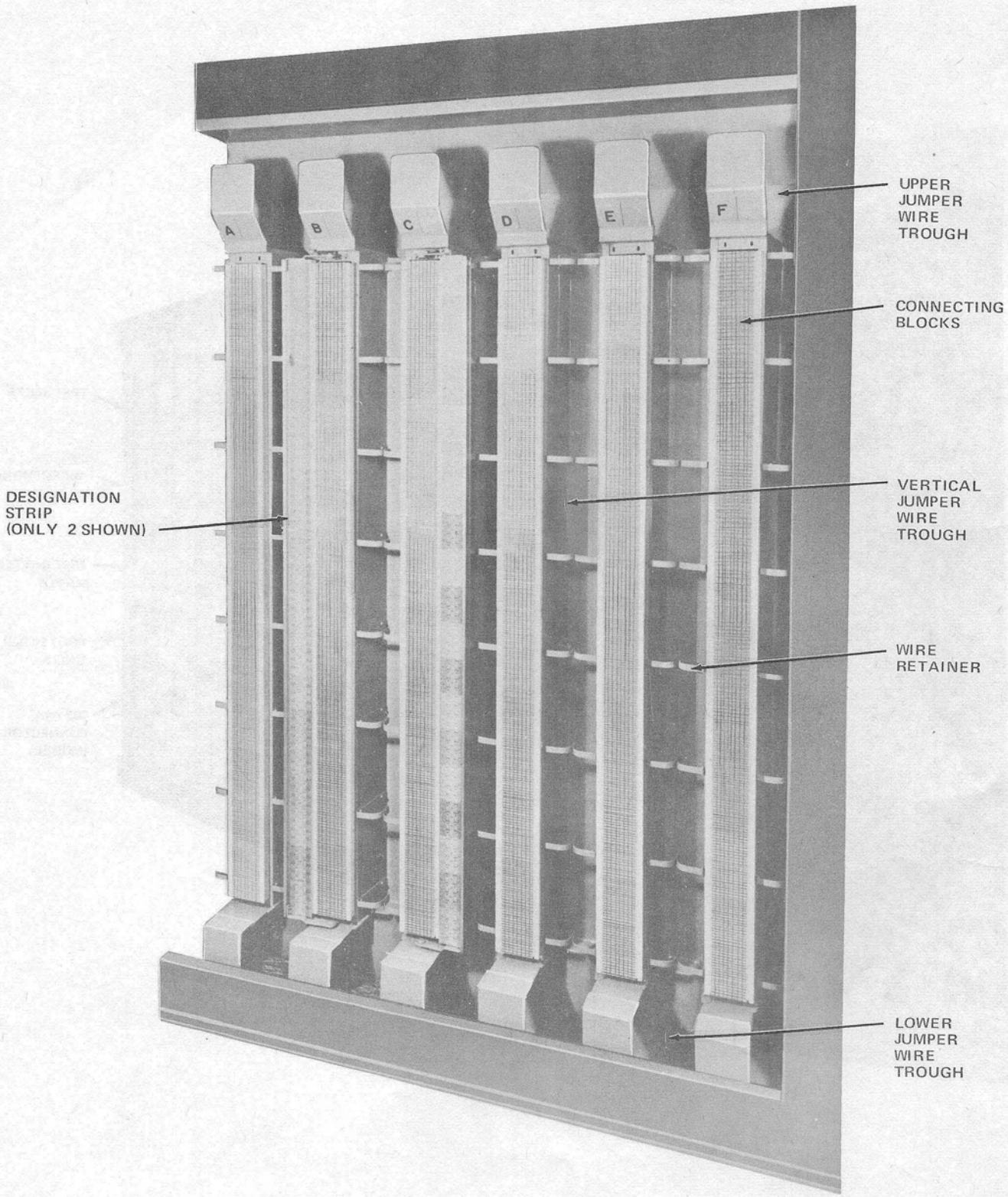

Fig. 3—Trunk Distributing Frame (or Intermediate Distributing Frame)

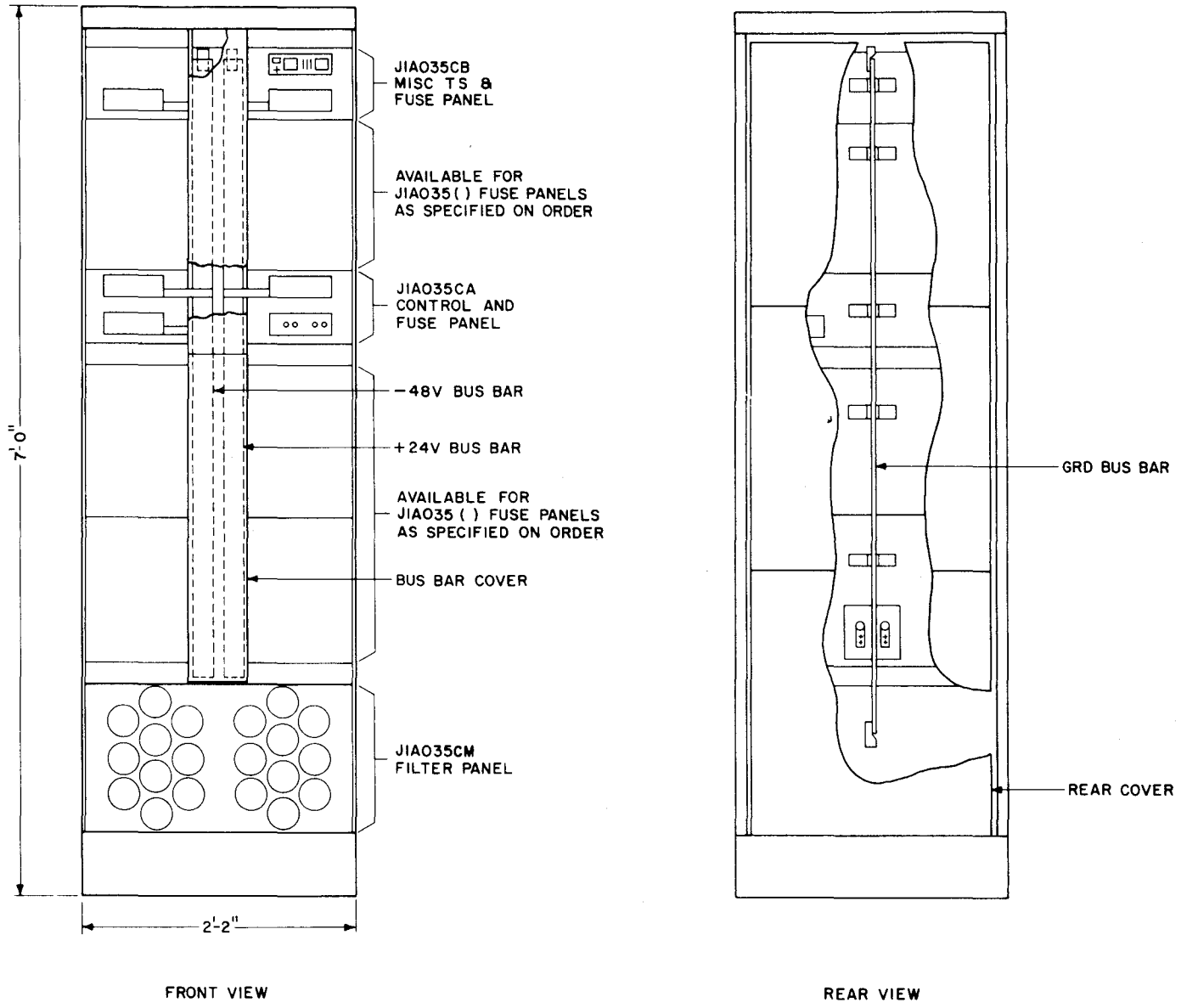

Fig. 4—Power Distributing Frame

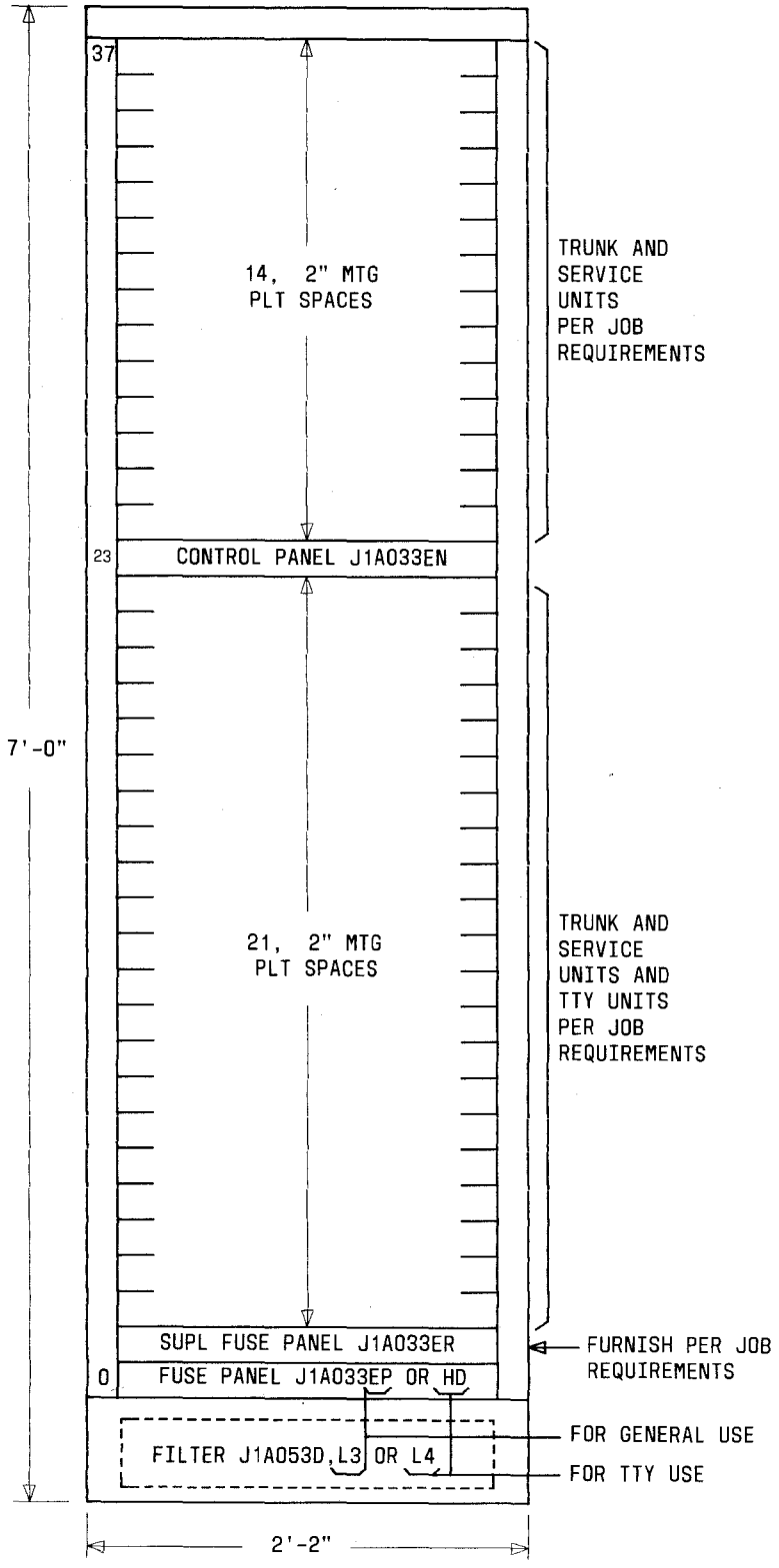

Fig. 5—Miscellaneous Trunk Frame