PROTECTOR FRAMES

DESCRIPTION

1. GENERAL

1.01 This section describes the various types of protector frames commonly used in central office buildings that provide protection ***only.*** The protector frames provide protection wherever needed in the central offices but do not provide cross-connection capabilities.

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

1.03 Included in this section is information pertaining to protector frames, the apparatus that can be mounted on each frame, and the use of each.

1.04 The protector frames are the dividing point between outside plant and central office equipment. Outside plant cable pairs are cabled to the connectors on the protector frame.

1.05 The purpose of central office protection is to ensure the safety of telephone personnel and to reduce the possibility and extent of equipment damage in the event that foreign potentials contact the outside plant.

1.06 The basic types of protector frames are:

- Conventional double-sided protector frame
- Conventional single-sided protector frame
- Low profile conventional double-sided protector frame
- High density modular protector frame (ED-97898-31) for the 308-type connectors ***only***
- Modular protector frame (ED-1A220-31) for the 302-type connectors ***only.***

1.07 Additional information pertaining to frame hardware that is associated with protector frames can be found in the sections that are listed in Part 5, REFERENCES.

2. CONVENTIONAL PROTECTOR FRAMES

A. Conventional Double-Sided Protector Frame

2.01 The conventional doubled-sided protector frames are intended to be equipped with an ED-6C110-10, Group 43 and 44 miniature test/talk panel. The panels are mounted at approximately 10-foot intervals to provide test and talk circuit appearances.

2.02 The conventional double-sided protector frame is used in conjunction with a distributing frame as shown in Fig. 1. The frames are usually set up parallel and make up a distributing frame arrangement providing protection and cross-connect capabilities. The protector frame will mount protectors, connectors, or jacks on both sides of the verticals of the frame.

2.03 The outside plant cable pairs are intended to be terminated on 302-type connectors which are mounted on the verticals of the double-sided protector frame. See Table A for a listing of apparatus and capabilities for the double-sided protector frame. The protector frame is cabled to the terminal blocks representing the outside plant cables on the vertical side of the distributing frame.

2.04 The conventional double-sided protector frame can vary in height and termination capacity. Most of the 14-foot 6-inch frames were originally designed with a mezzanine platform shown in Fig. 1. In some installations, rolling ladders are installed instead of mezzanine platforms to provide access to the upper levels of the frame.

2.05 The vertical uprights of the frame are generally spaced on 8-inch centers, with the

protectors, connectors, or jacks bolted directly to the uprights. The cable pair terminating capacity of a vertical depends on the height of the frame and the type of terminating apparatus installed. Table A lists the number of cable pairs that can be terminated on the verticals of the various frame heights.

2.06 The length of the frame and number of verticals provided vary with the size of the central office building that the frame is designed to serve.

B. Conventional Single-Sided Protector Frame

2.07 The conventional single-sided protector frame (ED-60242-72) provides for protection on one side of the frame only. This frame is the same as the double-sided protector frame except for protection capacity.

C. Low Profile Double-Sided Protector Frame (LPDSPF)

2.08 The low profile double-sided protector frame (Fig. 2) is basically a cut-down version of the taller conventional double-sided frames. The new LPDSPF is 8-feet high by 2-feet 5-inches wide at the guard rails with the verticals spaced on 8-inch centers. Each frame vertical will accommodate five 302-type connectors on each side of the frame which are tie-cabled to ten high-density terminal blocks on verticals of the low profile conventional distributing frame (LPCDF). The protector frame will be supplied in modules of six verticals each.

2.09 The LPDSPF was designed for mounting the 302-type connectors only. The use of the LPDSPF in conjunction with the LPCDF will give a maximum number of cable pairs per foot of frame length.

> ***Note:*** Equivalent termination density can be achieved without the use of a LPDSPF and 302-type connectors by using the 305-type connectors on the LPCDF.

3. MODULAR PROTECTOR FRAMES

A. Modular Protector Frame (ED-1A220-31)

3.01 The modular protector frame shown in Fig. 3 is used to mount only the 302-type connector. The protector frame is used in conjunction with the COSMIC and ESS modular distributing frames. Each protector frame module is 6-feet 6-inches long by 8-feet high and consists of 12 verticals. Each vertical accomodates five 302-type connectors with a capacity of 100 pairs each for a total of 500 pairs per vertical or 6000 pairs per module. Cable pairs are terminated on wire wrap terminals on the rear of the 302-type connectors.

3.02 Each protector frame module is equipped with ED-6C110-10, Group 8 or 9 and 10 miniature test/talk panels designed for modular protector frames which are ordered separately. The frame comes equipped with a KS-20100, L1 protector unit test set.

B. High Density Modular Protector Frame (ED-97898-31)

3.03 The modular protector frame shown in Fig. 4 is used to mount only the 308-type connector. The protector frame is used in conjunction with the COSMIC and ESS modular distributing frames. Each protector frame module is 8-feet high, 6-feet 6-inches long, and 1-foot deep. Each vertical accommodates eight 308-type connectors, with a total capacity of 800 pairs per vertical or 9600 pairs per module. Cable pairs are terminated on wire wrap terminals on the rear of the 308-type connectors.

3.04 Each protector frame is equipped with ED-6C110-10, Group 8 or 9 and 10 miniature test/talk panels designed for modular protector frames which are ordered separately. The frame comes equipped with a KS-20100, L1 protector unit test set.

3.05 A fanning strip is located directly behind the 308-type connectors on the protector frame. The fanning strip organizes the connecting pairs which are cabled to the distributing frame.

4. DESIGNATIONS

A. Conventional Double-Sided Protector Frame

4.01 Designation boards are furnished for both sides of the protector frame. The designation boards are mounted at the top of the frame; when a mezzanine platform is provided, similar designation boards are located under the mezzanine platform (Fig. 1). The number of the vertical and the numbers of the cables appearing in that vertical are stamped on the designation cards. A letter A or B is also added to the vertical numbers for

each side of the protector frame. The letter A is added to the protector frame vertical numbers on the side away from the distributing frame. The letter B is added to the protector frame vertical numbers on the side near the distributing frame.

4.02 On some installations, several protector frame verticals are omitted at selected intervals to provide aisle space. Where these verticals are omitted, the associated vertical numbers are also omitted.

B. Low Profile Double-Sided Protector Frame (LPDSPF)

4.03 Designations for the LPDSPF are essentially the same as conventional double-sided protector frames without the mezzanine.

C. Modular Protector Frame (ED-1A220-31)

4.04 Designation card holders are furnished for both sides of the modular protector frame. The designation card holders are mounted at the top of the frame (both front and rear). Printed cards bearing the proper vertical number are placed in the left-hand portion of the card holder. Another card having five horizontal spaces representing the five 302-type connectors is inserted in the right-hand portion of the holder. This card lists the cable number and the pair number associated with each 302-type connector.

D. High Density Modular Protector Frame (ED-97898-31)

4.05 The designations on the high density modular protector frame for the 308-type connector are essentially the same as the modular protector frame for the 302-type connector except for the printed designation cards. The card inserted into the right-hand side of the card holder has eight horizontal spaces which represent the eight 308-type connectors.

5. REFERENCES

5.01 The following documents contain related information.

SECTION	TITLE
201-208-101	302- and 308-Type Connectors - Description
201-208-105	303- and 305-Type Connectors - Description
201-208-501	3-, 4-, and 5-Type Protector Units - Tests Using KS-20100 and 182A Test Sets
201-216-101	Miniature Test/Talk System - Description
201-220-101	Conventional Distributing Frames - Description
201-221-101	ESS-Type Modular Distributing Frames - Description
201-222-101	Common Systems Main Interconnecting Frame (COSMIC)-Description

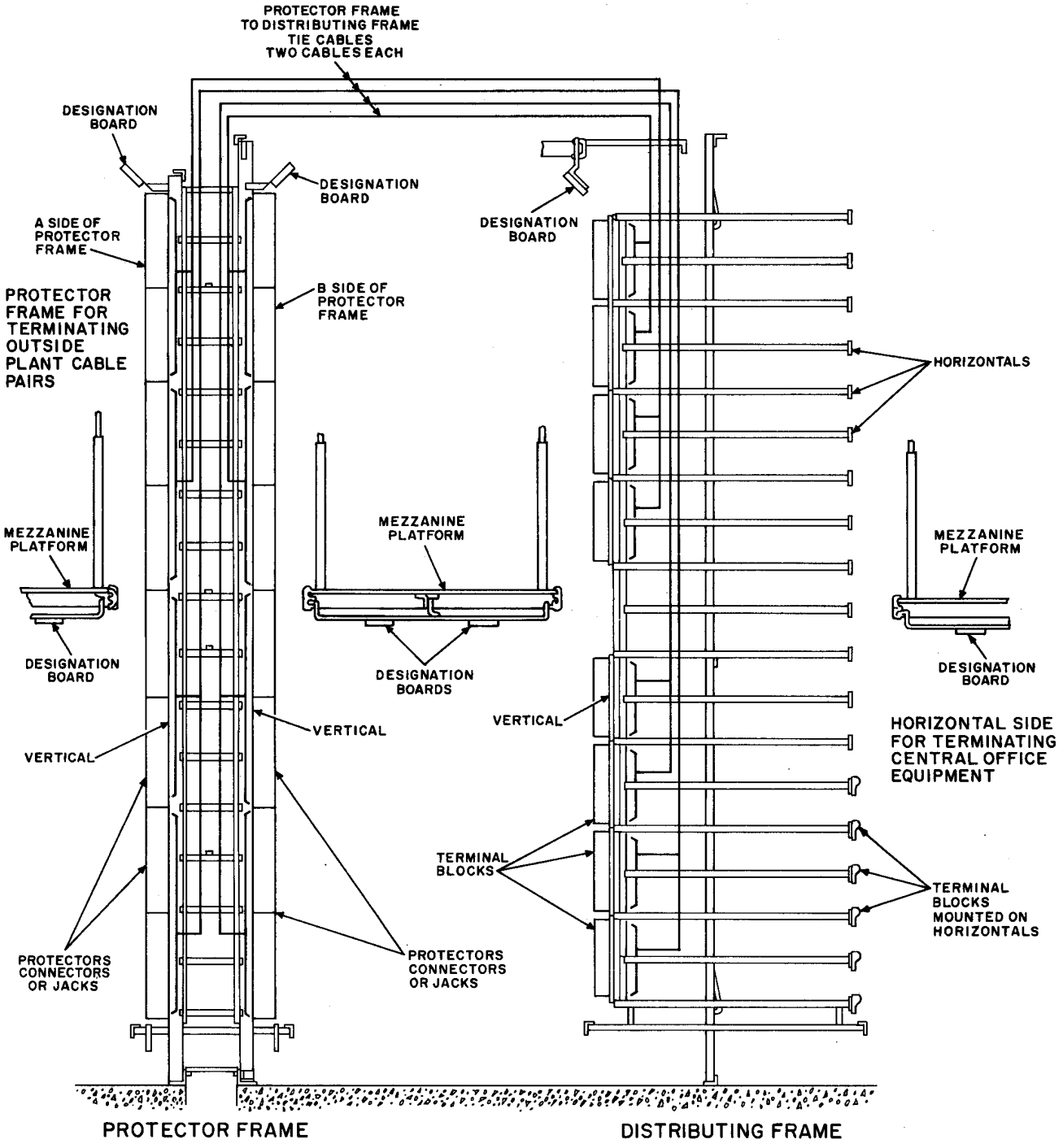

Fig. 1—Conventional Double-Sided Protector Frame with Distributing Frame

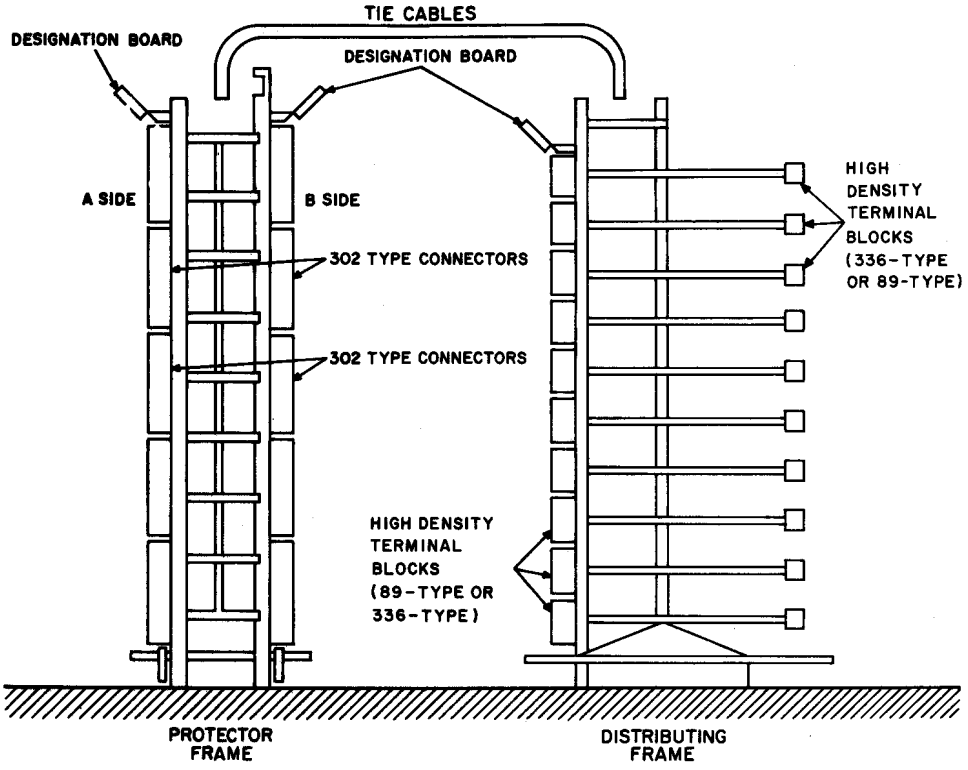

Fig. 2—Low Profile Double-Sided Protector Frame with Low Profile Conventional Distributing Frame

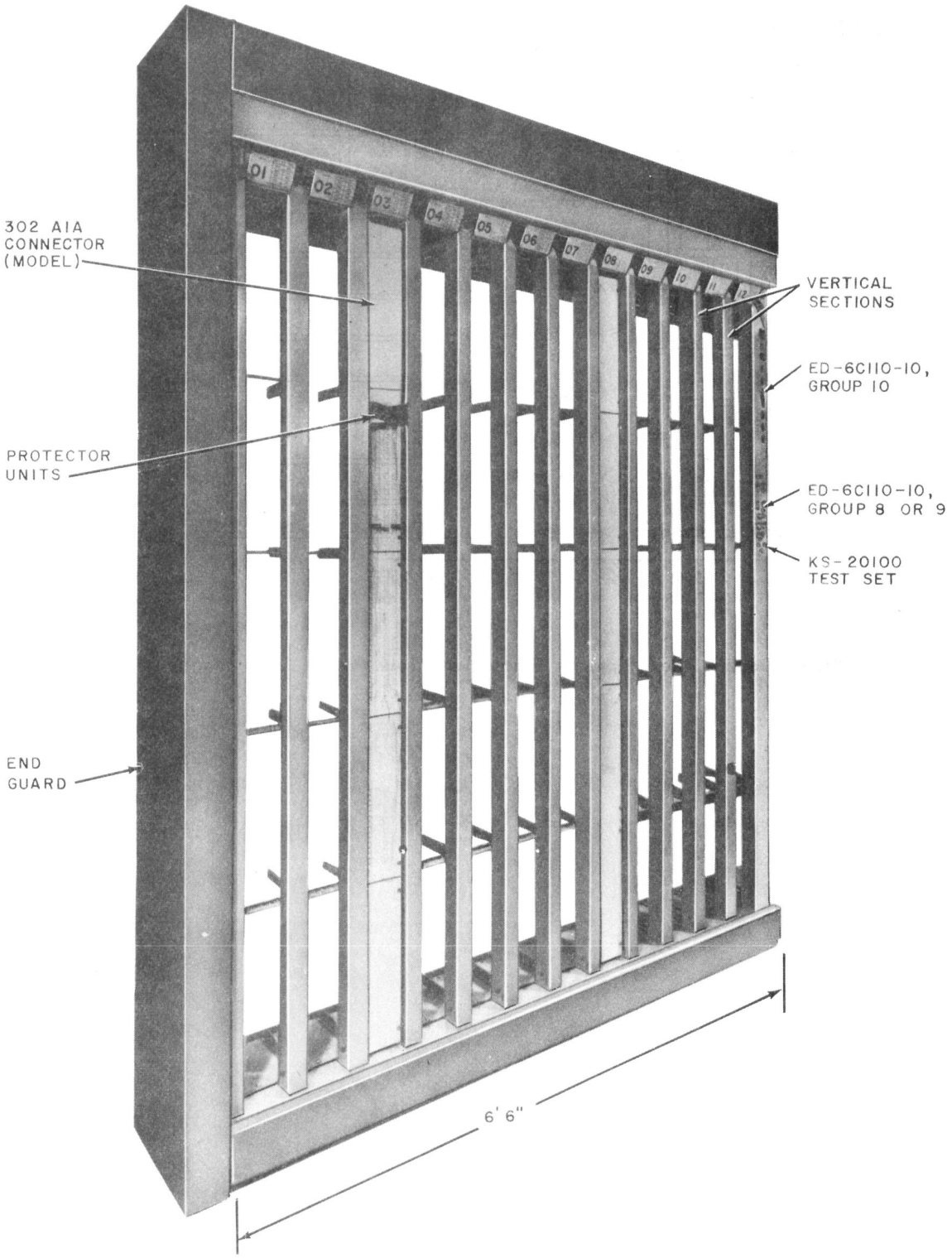

Fig. 3—Modular Protector Frame (ED-1A220-31)

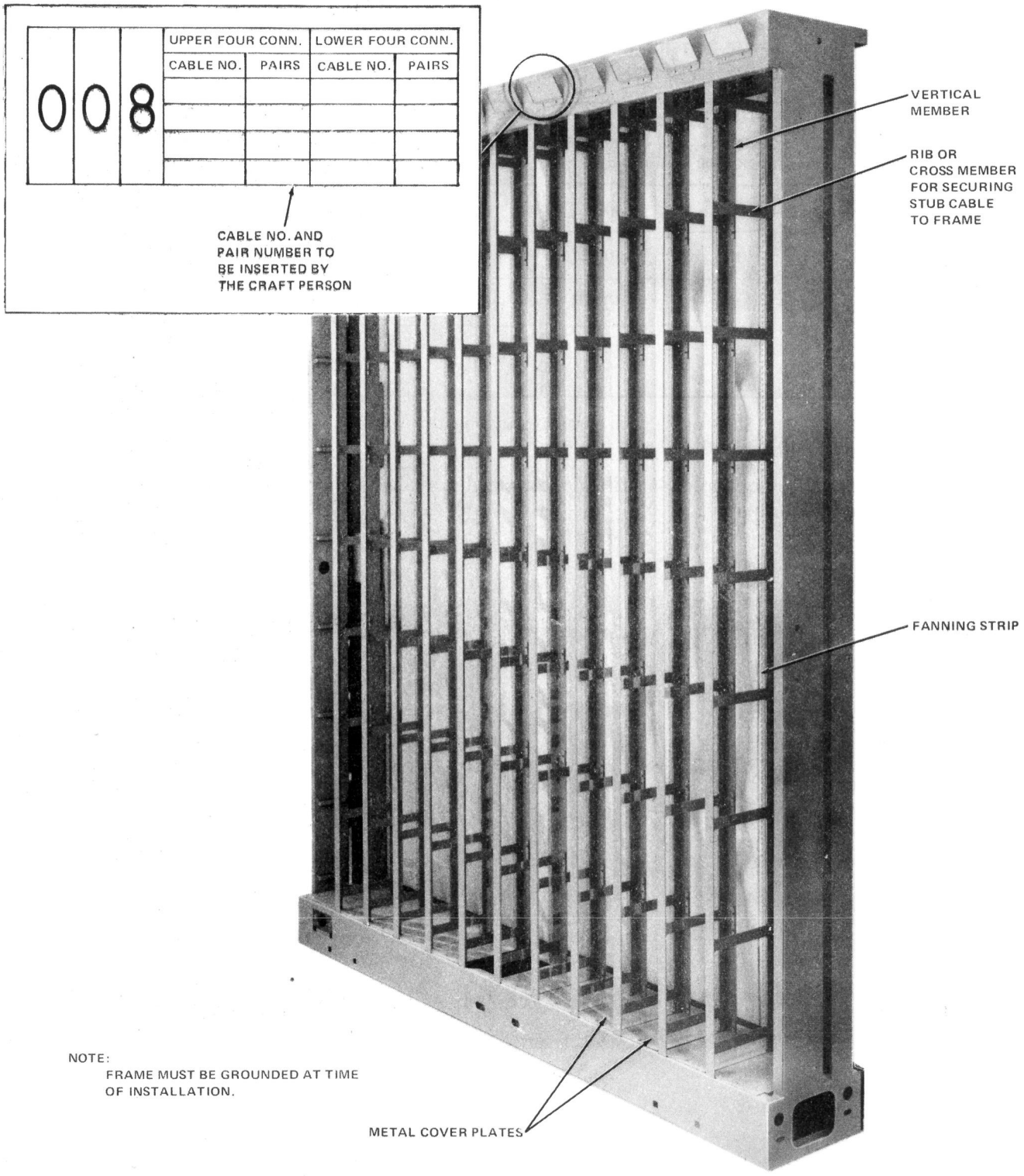

Fig. 4—High Density Modular Protector Frame (ED-97898-31)

TABLE A

NUMBER OF OUTSIDE PLANT CABLE PAIRS TERMINATED PER VERTICAL ON CONVENTIONAL DOUBLE-SIDED PROTECTOR FRAME

FRAME HEIGHT (FEET)	C-50 OR E-50 PROTECTOR	300-TYPE CONNECTOR	444-C TYPE JACK	301 TYPE CONNECTOR	302-TYPE CONNECTOR	303-TYPE CONNECTOR	305-TYPE CONNECTOR (NOTE 1)
14½	400	400	800	800	800	800	1200
12½	300	300	600	600	600	600	1200
11½	300	300	600	600	600	600	1200
8 Note 2	—	—	—	—	500	—	—

Note 1: A maximum of 1200 pairs per vertical may be terminated. Any number greater will cause congestion problems in the vertical bays.

Note 2: The 8-foot frame is a low-profile, double-sided protector frame (LPDSPF). The LPDSPF will mount 302-type connectors only.