SPECIALLY MODIFIED 555 PBX EQUIPPED FOR AUTOVON AND RADIO CIRCUITS IDENTIFICATION, INSTALLATION, AND CONNECTIONS

1. GENERAL

1.01 This section describes the specially modified 555 PBX equipped for AUTOVON and radio circuits arranged in a package. The package consists of two 555 manual switchboards and associated equipment, modified to provide service for special installation. This equipment is portable and can be moved and set up in any location in the United States or overseas.

1.02 The equipment is wired and cabled in a package that can be readily assembled or repacked (see 3.07). The package consists of eight packing cases containing switchboards, operator chairs, terminal blocks, repeater bays, line relays, and a power pack. All of the connecting cables are plug- and connector-ended in order to expedite assembly.

1.03 There are several of these packages located in various operating company areas. They can be shipped to any location and set up on short notice. Orders for the service to be installed at these locations will be handled by the local commercial department.

1.04 The equipment is packed and stored in cases especially built to specifications. Installation and testing of the equipment is conducted by local telephone company personnel. On completion of installation, the switchboards and equipment are turned over to a special group of government communications personnel.

2. IDENTIFICATION

2.01 There are eight packing cases numbered 1 of 8, 2 of 8, etc, (Fig. 1). Table A is a list of cases and the equipment contained in each.

2.02 Figure 2 shows the equipment uncrated and ready for assembly. The equipment does not have to be arranged in this manner for assembly. The equipment is mounted on castors for mobility. The castors can be locked to hold the equipment in place.

2.03 Each position of 555 PBX is equipped with two attendant telephone and dial circuits. Each attendant circuit has two telephone jacks associated with it. One jack is for the regular operator; the other is for the use of an interpreter, when required (Fig. 3).

2.04 A special splitting feature is provided. When only the operator on the right is at each position, the use of all cords in that position is provided. When the operator on the left plugs into the attendant telephone jack, the cords are automatically split. The left operator has control of cord pairs 2 through 8 and the right operator, cord pairs 9 through 15.

2.05 Each position of PBX is equipped with terminations for two AUTOVON access lines using station line jacks 117 through 120. Until the AUTOVON lines are terminated, the station lamps are lighted and an audible signal is heard. To extinguish the lamps and silence the alarm, it is necessary to momentarily insert a trunk cord into line jacks 117 and 119. Until the position power is turned off, a busy lamp associated with line jacks 118 and 120 will remain lighted.

2.06 When the AUTOVON lines have been terminated, the line lamp and audible signal will be activated only during an incoming call. The line lamp is extinguished, and the busy lamp lighted when the attendant answers. All incoming calls are answered with a station cord, and outgoing calls are placed with a trunk cord.

2.07 A 16-button TOUCH-TONE® dial is provided at each 555 position (Fig. 3) for use in originating precedence calls over AUTOVON. A key on the dial mounting determines which attendant in the position may use the dial.

2.08 Government-owned radio equipment can be terminated on station line jacks 113 through

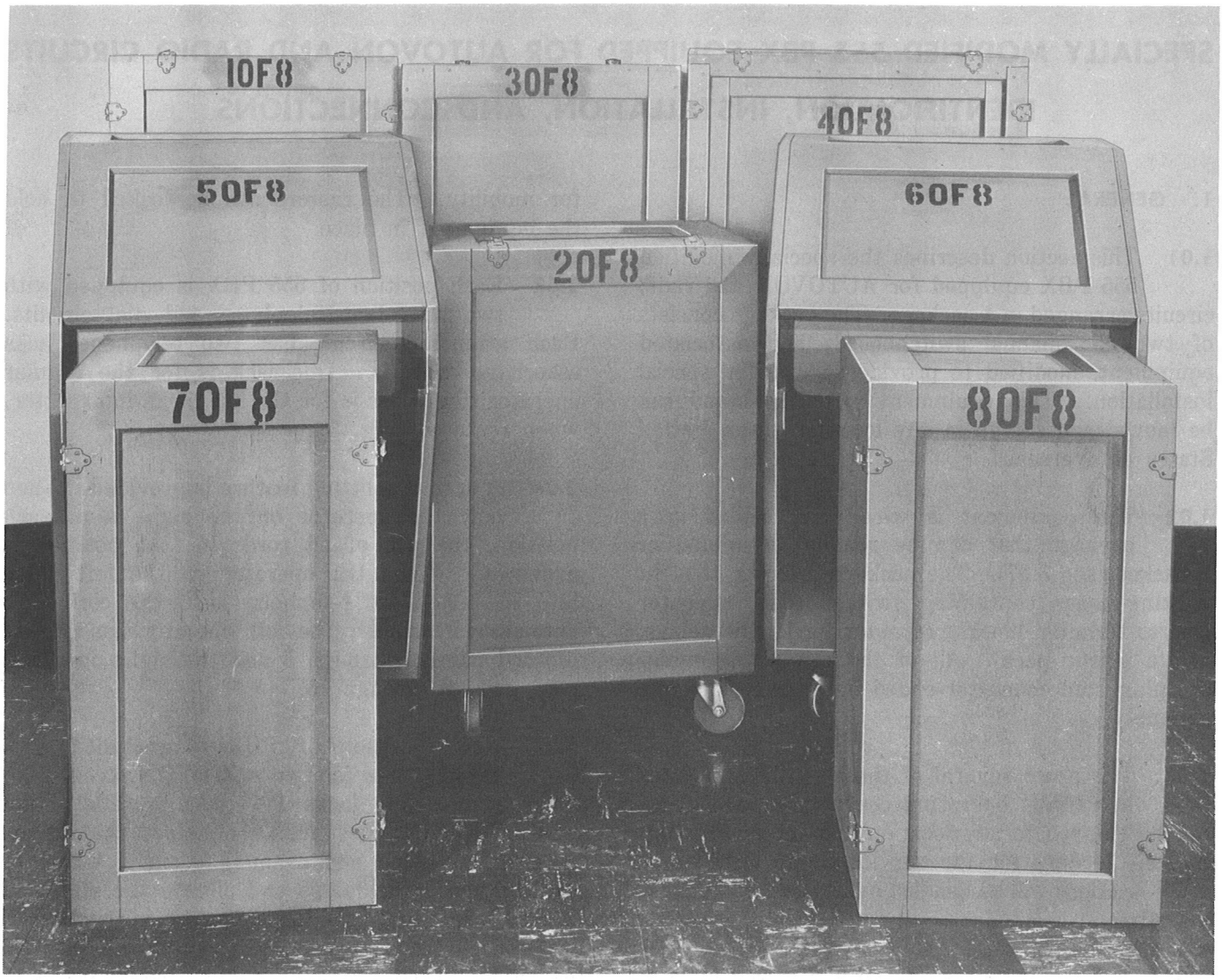

Fig. 1—Specially Modified 555 PBX Equipment in Crates

116. The left position has access to jacks 115 and 116 and the right position, 113 and 114. There are two radio send keys (Fig. 3) located in the writing shelf of each position. Attendant operation of these keys permits two-way transmission between any PBX station and a radio line. When a send key is depressed, it locks into position; and the associated lamp is lighted. When the key is again depressed, the lamp is extinguished; and the key is restored to normal.

2.09 A broadcast line can be terminated on station line jack 111. A 400 Hz tone oscillator is connected whenever the line is not in use. The tone is used to check the continuity of the broadcast line.

2.10 An oscillator control key (Fig. 3) is mounted on the face of each position to the right of the TOUCH-TONE dial. This key is used to turn the oscillator on and off. When the tone is on, the green busy lamp in station jack 111 will light.

3. INSTALLATION

3.01 A suitable location for the switchboards and associated equipment should be selected. This location should be clean and dry. The switchboards are located side by side with the No.

TABLE A

PACKING CASE AND EQUIPMENT

CASE NO.	EQUIPMENT	FIGURE NO.
1	Line Relays with Connecting Cables	2, 7, 11
2	Terminal Cabinet	2, 8, 11
3	(12) 24V4 Repeater Units, (8) Tie Trunk Units and Connecting Cables	2, 9, 11
4	48-Volt Power Plant Manual PBX Access Units, and E3B Signaling Units, — Drawings (B, SD, CD, J and T)	2, 10, 11, 13
5	Position No. 1 (555 PBX) and Two 52 M Headsets	2, 3, 5, 6, 11
6	Position No. 2 (555 PBX) and Two 52 M Headsets	2, 3, 6, 11
7 and 8	Operator Chairs (1 Each)	2

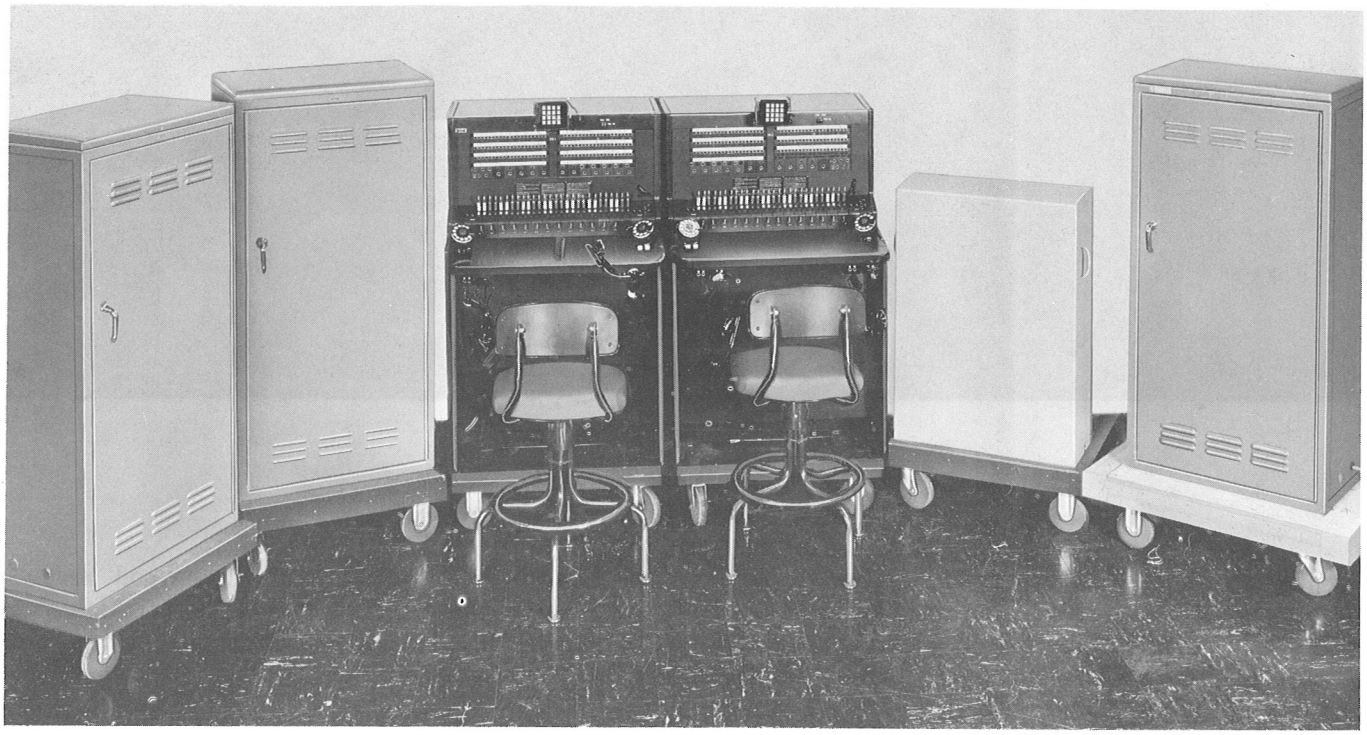

Fig. 2—Specially Modified 555 PBX Equipment

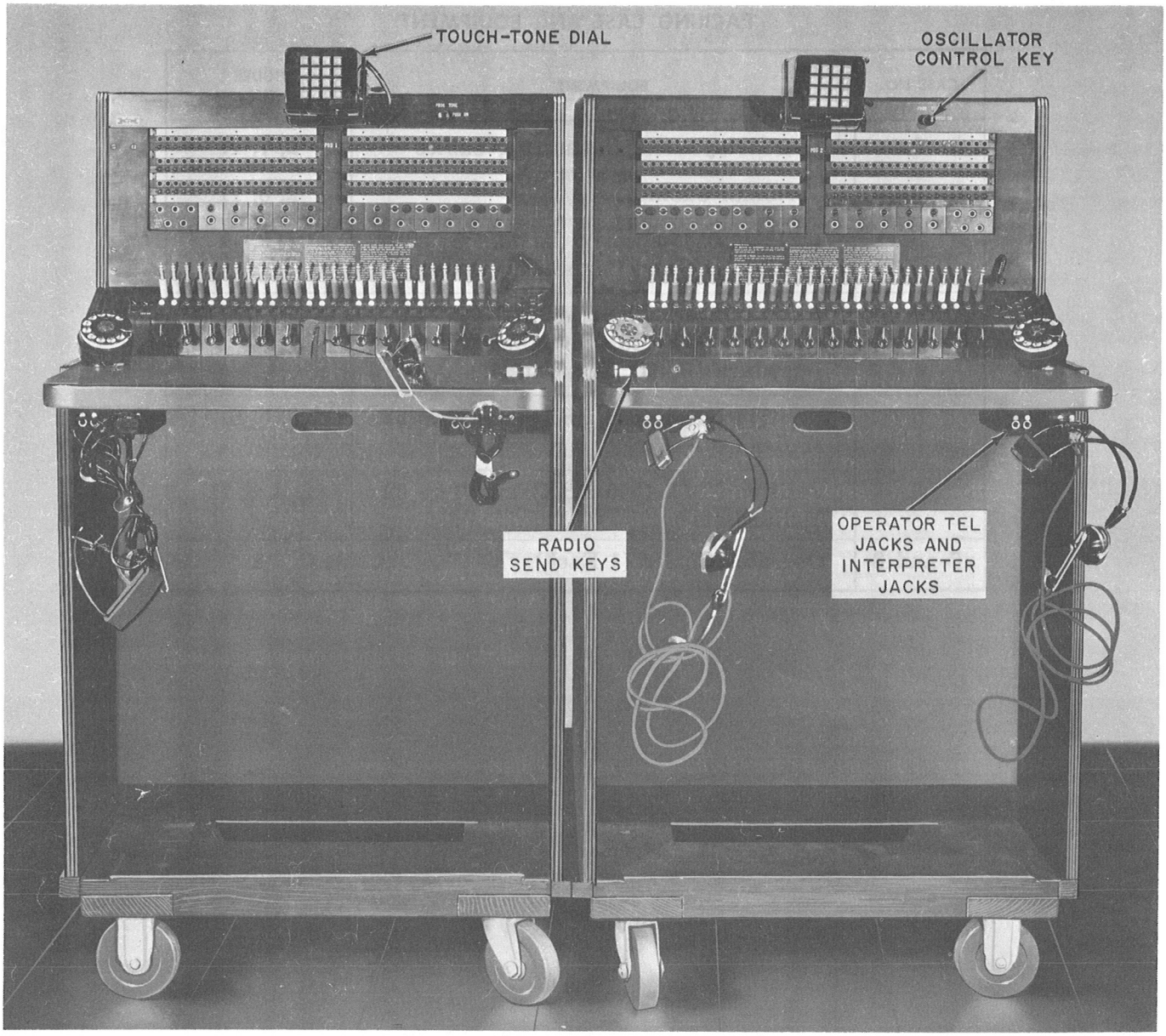

Fig. 3—555 Switchboard Positions 1 and 2

1 position on the left (Fig. 3). The associated equipment is located near the switchboards or at some other location limited to the length of the connector cables which are approximately 70 feet long. For maintenance reasons, the equipment should be grouped as close together as possible.

3.02 After the equipment is located, the covers should be removed. The front of the equipment crates, except for the switchboards, are fastened with trunk latches. The rest of the crate is fastened to the bottom with wood screws. Removal of these screws allows the complete case to be removed, leaving the equipment mounted on a base with castors.

3.03 The two PBX crates are completely assembled with wood screws. Removal of the screws around the bottom allows the cover to be removed. This cover must be lifted to an adequate height to be removed (Fig. 4).

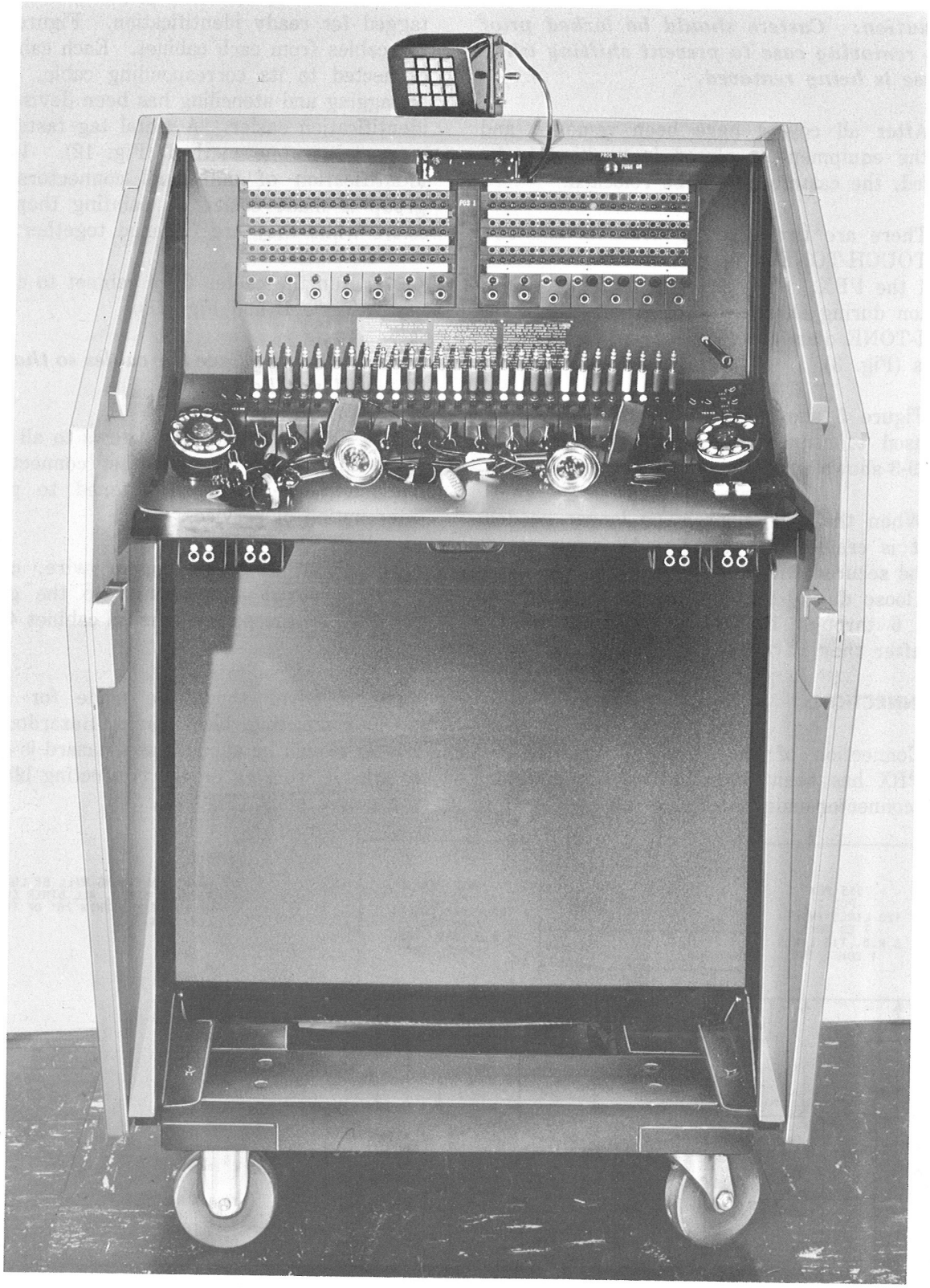

Fig. 4—Position 1 in Case with Cover Removed

Caution: Casters should be locked prior to removing case to prevent shifting while case is being removed.

3.04 After all covers have been removed and the equipment is placed in position to be connected, the castors should be relocked.

3.05 There are two operator headsets and two TOUCH-TONE dials stored on the writing shelf of the PBX. They are packed in a box for protection during shipment. After uncrating, the TOUCH-TONE dials are mounted on the provided brackets (Fig. 3).

3.06 Figure 5 shows the interconnecting cables used to connect the equipment. Drawing B-659529-3 shows a more complete cabling diagram.

3.07 When the equipment is no longer needed, it is crated and stored. All relay covers should be secured with tape to prevent them from coming loose during transportation. (See Fig. 6.) Figures 6 through 10 show the storage of the cables after they have been coiled and tied.

4. CONNECTIONS

4.01 Connection of the specially modified 555 PBX has been simplified by the extensive use of connector-ended cables. These cables are tagged for ready identification. Figure 11 shows the cables from each cabinet. Each cable must be connected to its corresponding cable. A system of tagging and stenciling has been devised to make identification easier. A metal tag fastened to the connector is one method (Fig. 12). In addition, identification of individual connectors within a group is made easier by painting them different colors while they are fastened together.

4.02 Run the cables from cabinet to cabinet (see Table B and Fig. 11).

Caution: Place the cables so that a hazard will not be created.

4.03 Tighten the locking screws to all connectors and check that all other connectors in the equipment are securely fastened to prevent an interruption of service.

4.04 Using 10-gauge copper wire, connect an approved local ground to the ground lug provided on the power panel in cabinet 4 (Fig. 13).

4.05 A cover should be made for the power connecting block or a Hazardous Voltage sticker should be applied, as a hazard is constituted to anyone working on the connecting block side of the power plant (Fig. 13).

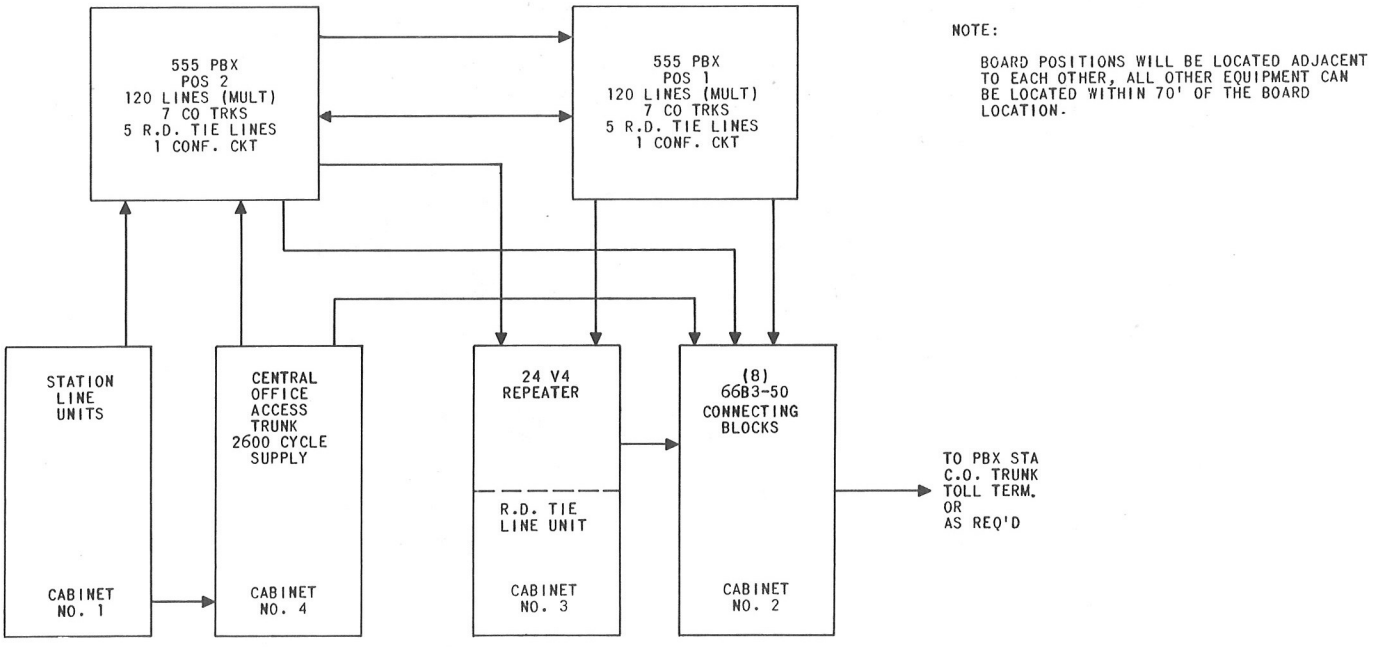

Fig. 5—Block Diagram for Specially Modified 555 PBX

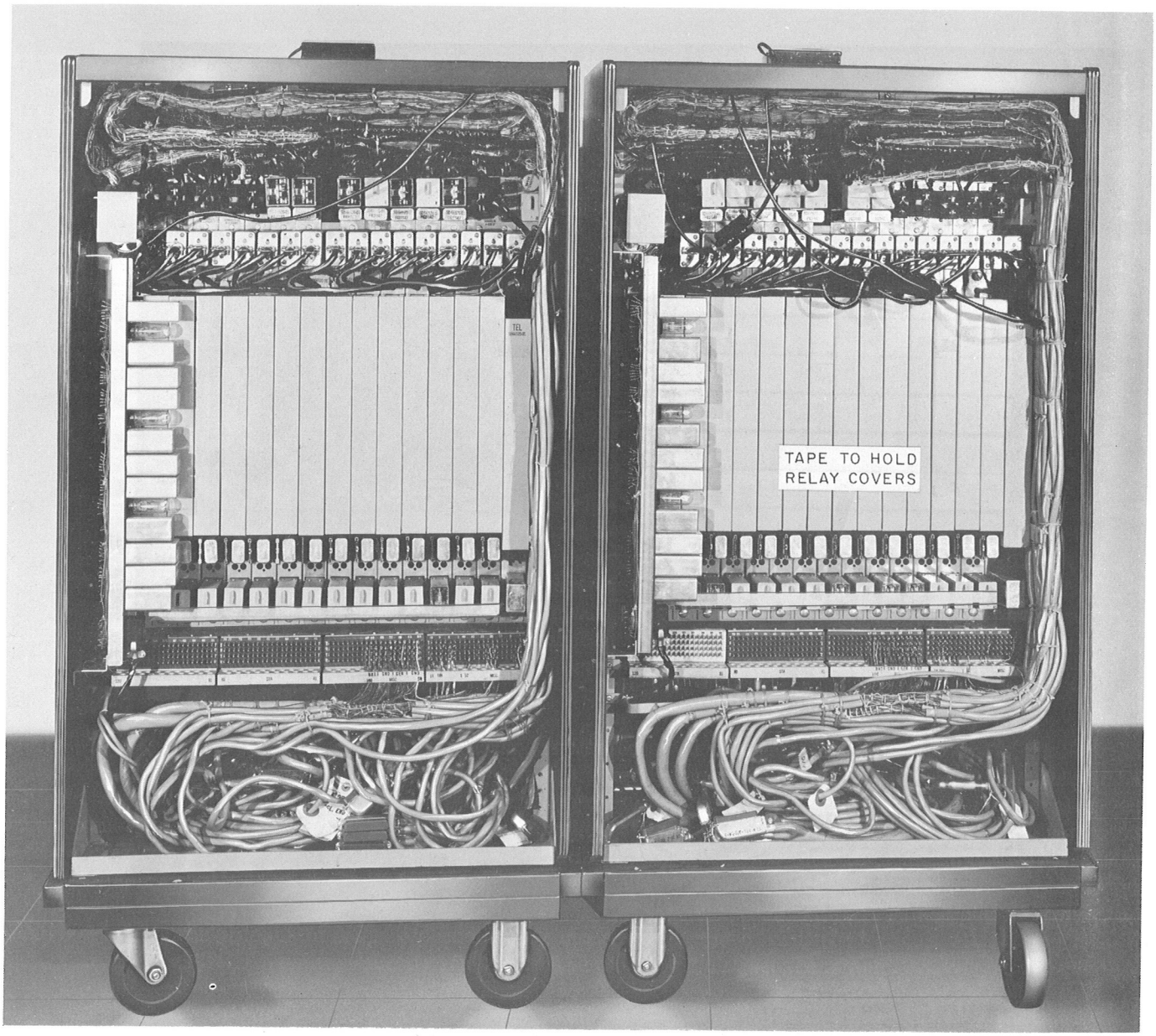

Fig. 6—555 PBX Positions, Rear View

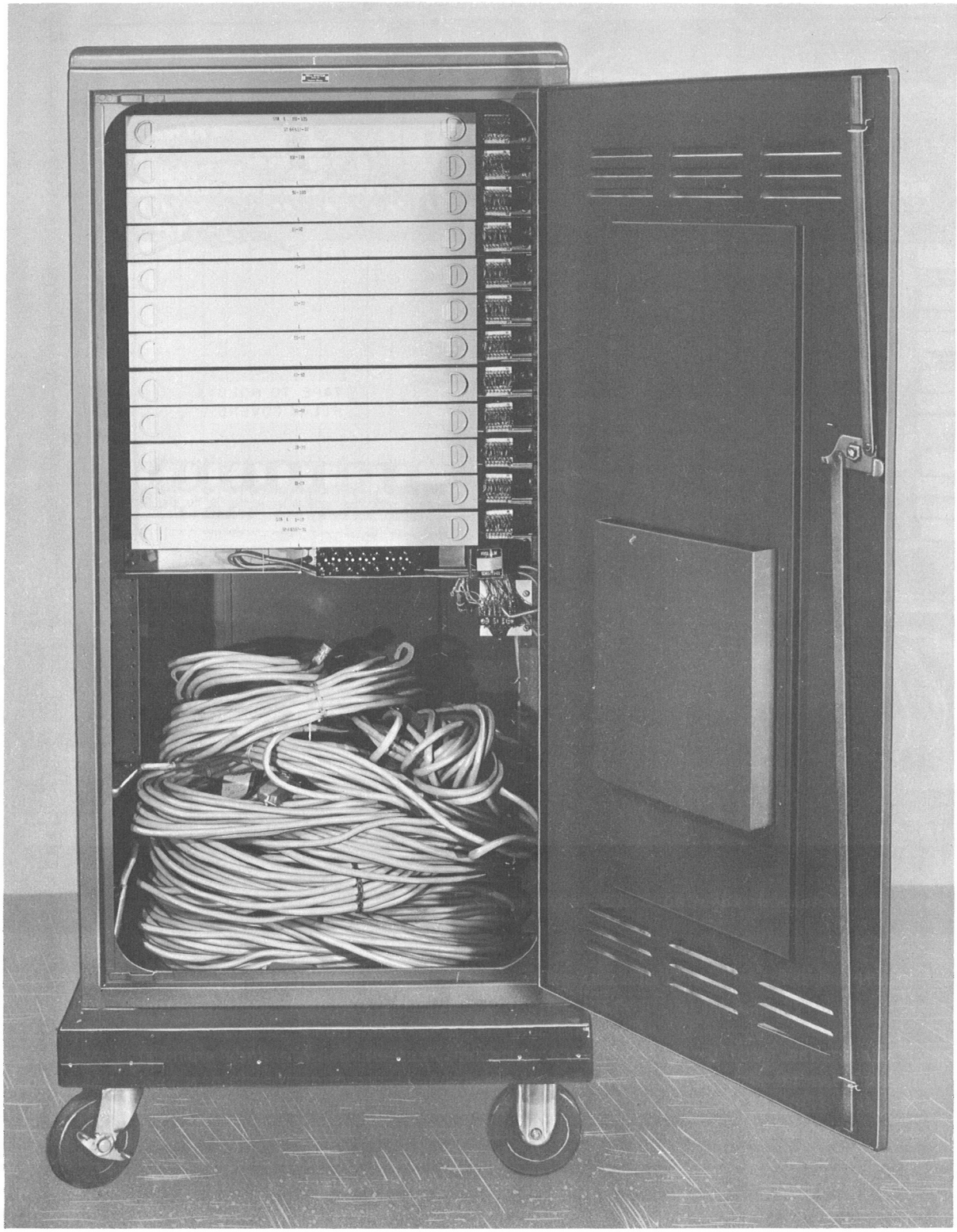

Fig. 7—Cabinet No. 1 Showing Cable Storage

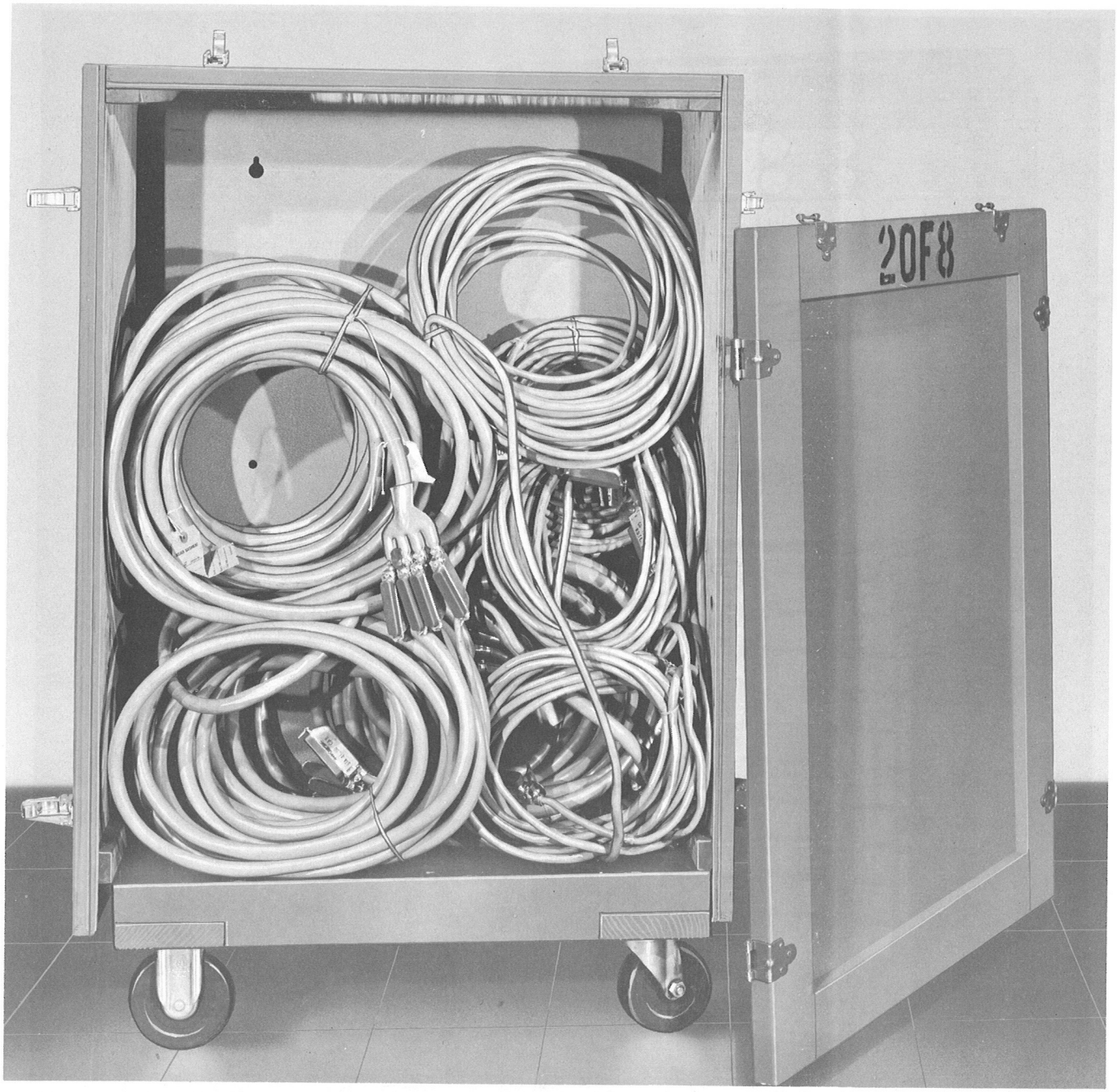

Fig. 8—Cabinet No. 2 Showing Cable Storage

Fig. 9—Cabinet No. 3 Showing Cable Storage

Fig. 10—Cabinet No. 4 Showing Cable and Drawing Storage

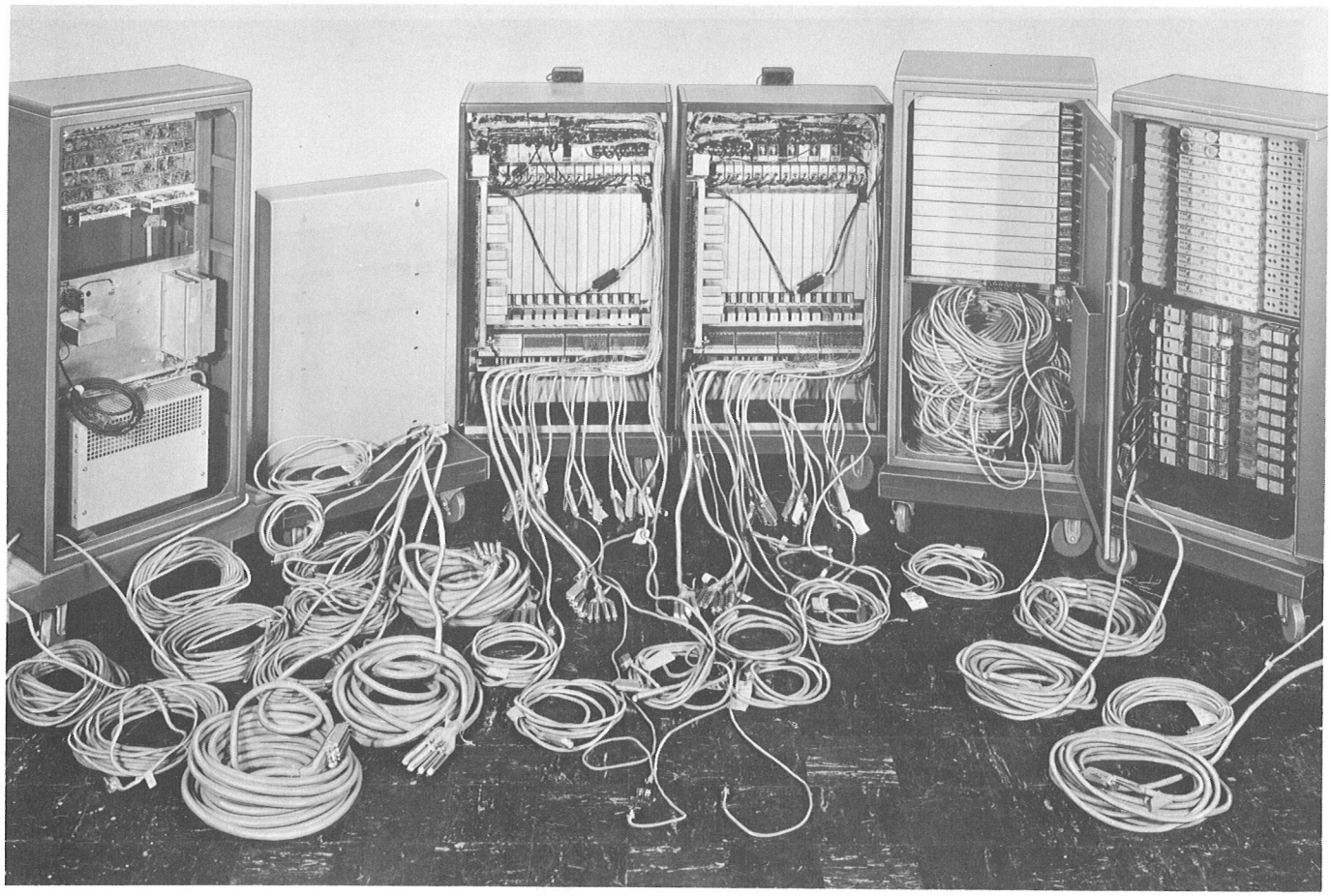

Fig. 11—Complete Equipment Assembly Showing Cables

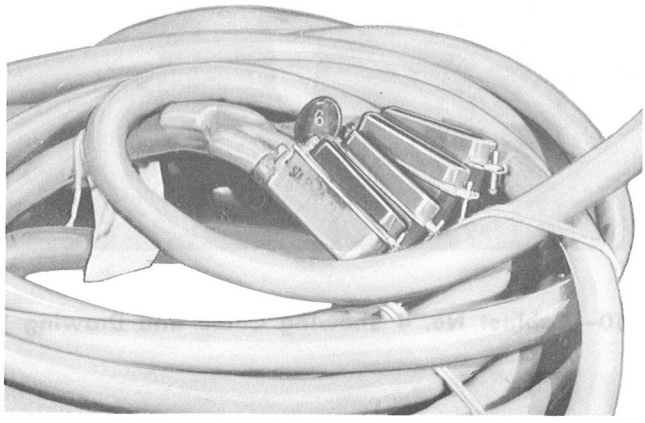

Fig. 12—Cable Connector Showing Identification Tag

TABLE B

CABLING ARRANGEMENT

CABLE NUMBER*	CABINET NUMBER					
	1	2	3	4	5 555 SWBD POS 1	6 555 SWBD POS 2
1.1, 1.2, 1.3, and 1.4	•					•
2.1, 2.2, 2.3, and 2.4	•					•
3.1, 3.2, 3.3, and 3.4	•					•
4.1, 4.2, 4.3, and 4.4					•	•
5.1, 5.2, 5.3, and 5.4					•	•
6.1, 6.2, 6.3, and 6.4					•	•
7.1, 7.2, 7.3, and 7.4		•			•	
8.1, 8.2, 8.3, and 8.4		•			•	
9.1, 9.2, 9.3, and 9.4		•			•	
10		•			•	
11	•					•
12		•	•			
13			•		•	
14			•			•
15				•		•
16					•	•
17		•		•		
18	•			•		
19		•			•	
20		•	•			
Position grouping cables two each					•	•

* Cables 1 through 9 have four 25-pair connectors each.

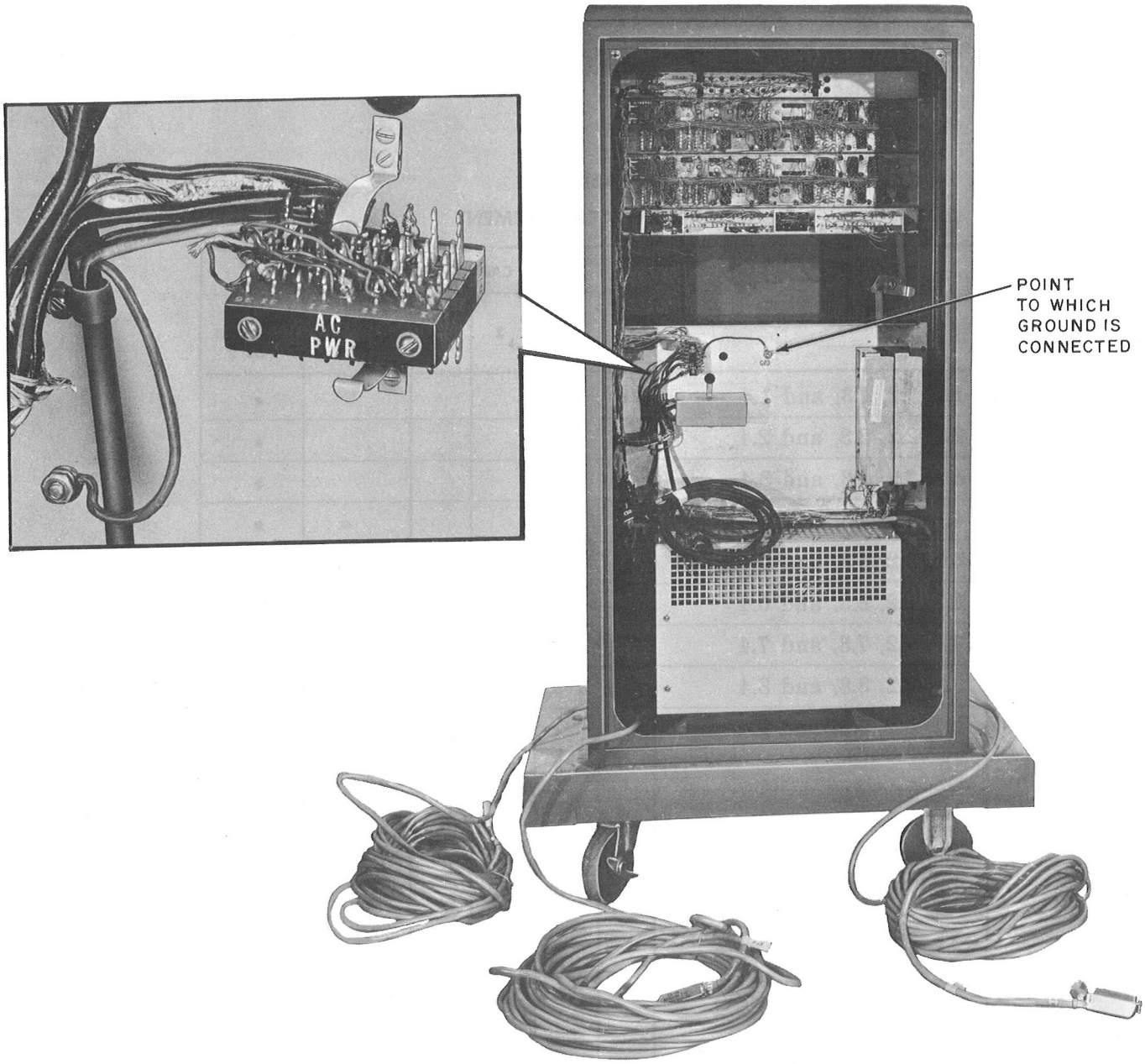

Fig. 13—Cabinet No. 4 Showing Power and Ground Connections