# SWITCHING CABINETS

# IDENTIFICATION AND INSTALLATION

# 701PK PBX

## 1. GENERAL

**1.01** This section provides information for the identification and installation of the switching equipment and power supply unit for the 701PK step-by-step dial private branch exchange.

**1.02** A set of schematic drawings, cabling diagrams, and circuit description sheets are furnished with the switching equipment. Drawings for optional features, such as the 3A code call unit, and recorded telephone dictation trunk must be ordered separately.

**1.03** For a general description of the 701PK PBX, see Section 981-611-100.

## 2. IDENTIFICATION

### SWITCHING EQUIPMENT

**2.01** The 701PK PBX is a 3-digit step-by-step PBX arranged to provide basic PBX service for customers with a maximum of 100 or 200 lines. The PBX is associated with either a maximum of three positions of 552D switchboard or two positions of 608A switchboard on a multiple or nonmultiple basis.

**2.02** The PBX is provided in self-supporting modules of shop-assembled and wired frames to simplify installation and reduce installation time. Frame bases, sound insulating cabinets with end panels and front and rear doors, may be added at the installation location to complete the modular units. (See Figure 1.)

**2.03** The equipment is arranged so that one module provides the basic requirements for a 100-line PBX with medium-heavy traffic. A supplementary module is added to build out the 100-line PBX into a 200-line PBX for medium-heavy traffic. Positions for additional switches are provided for traffic growth.

**2.04** Three additional equipment modules may be added to either the 100-line or 200-line PBX on an in-line basis to provide for heavy traffic capability, incoming selectors and dial repeating tie trunks, and external battery reserve supply. A relay rack framework assembly may also be added to provide space for sixty-five 2- by 23-inch mounting plates if required. Each of these modules may be furnished with separate cabinets, illustrated in Figure 2 as a feature bay.

**2.05** The basic 701PK PBX equipment is shown in Table A and the added feature equipment is shown in Table B.

**2.06** Modular equipment dimensions and weight data are shown in Table C.

### POWER EQUIPMENT

**2.07** A 9-ampere batteryless power supply unit, provided as an integral part of the basic and supplementary modules, converts the commercial 115-volt 60-cycle single phase alternating current to 48 volts dc by rectification and filtering. Each power supply unit also contains a ringing and tone generator circuit. The filter capacitors are of such value to prevent disruption of established connections for approximately 1/2-second duration in case of momentary commercial power failure. Ringing voltage is standard 20 cycles, interrupted to furnish 1-second ringing intervals, separated by 3-second quiet periods. Both the dial and busy tones are supplied by the tone generator circuit which produces 60-cycle current modulated at 120 cycles.

## TABLE A

## BASIC AND SUPPLEMENTARY MODULE EQUIPMENT

| J58842A — BASIC 100-LINE FRAME MODULE | J58842A — SUPPLEMENTARY 100-LINE FRAME MODULE |
|---|---|
| **List 27**<br><br>Framework, assembly, wiring, and equipment for one basic module equipped with 100 lines, 13 line finders, 13 selectors, 8 hunting connectors, common alarm, batteryless power supply unit, trunk and miscellaneous equipment for 3-digit operation, with or without toll diversion and for use with a 552D switchboard. (See note.) | **List 28**<br><br>Framework, assembly, wiring, and equipment for one supplementary module equipped with 100 lines, 10 line finders, 10 selectors, 8 hunting connectors, and a batteryless power supply unit for 3-digit operation, with or without toll diversion and for use with a 552D switchboard. (See note.) |
| **List 29**<br><br>Trunk equipment required in addition to List 27 to provide one-way outgoing dial or 2-way manual selected service for use with a 552D switchboard. (See note.) | **List 31**<br><br>Trunk equipment required in addition to List 28 to provide one-way outgoing dial or 2-way manual selected service for use with a 552D switchboard. (See note.) |
| **List 30**<br><br>Trunk equipment required in addition to List 27 to provide combination 2-way dial or manual selected service for use with a 552D switchboard. (See note.) | **List 32**<br><br>Trunk equipment required in addition to List 28 to provide combination 2-way dial or manual selected service for use with a 552D switchboard. (See note.) |
| ED-66290-70 CABINET ASSEMBLY | ED-66290-70 CABINET ASSEMBLY |
| **Group 1**<br><br>One set of front and rear doors and two end panels for basic module. | **Group 2**<br><br>One set of front and rear doors for supplementary module. |

*Note:* List 27 furnished with List 29 or 30 as required.
List 28 furnished with List 31 or 32 as required.
When 608A switchboard is used, modify wiring to meet local requirements.

## TABLE B

## FEATURE MODULE AND BATTERY RESERVE EQUIPMENT

<table>
<tr><td>J58842B — HEAVY TRAFFIC MODULE</td><td>J58842D — BATTERY RESERVE CABINET</td></tr>
<tr><td>List 1<br><br>Framework, assembly, wiring and equipment for one heavy traffic module equipped with four line finders, four selectors, alarm, and common equipment.</td><td>List 1<br><br>Framework, assembly, wiring, and equipment for one battery reserve cabinet.</td></tr>
<tr><td>J58842C — INCOMING SELECTOR AND DIAL REPEATING TIE LINE MODULE</td><td>KS-19352 — POWER UNIT</td></tr>
<tr><td>List 1<br><br>Framework, assembly, wiring, and equipment for one incoming selector and dial repeating tie line module for use with a 552D switchboard.<br><br>List 2<br><br>Framework, assembly, wiring, and equipment for one incoming selector and dial repeating tie line module for use with a 608A switchboard.</td><td>List 2 or 4<br><br>Battery charging power unit for use with battery reserve power plant.<br><br>Note: Both the basic and supplementary modules are furnished with KS-19352, List 3 or 5 power units for batteryless operation. When battery reserve operation is required, replace the List 3 or 5 power units with List 2 or 4 units.</td></tr>
<tr><td>ED-65987-70 RELAY RACK FRAMEWORK ASSEMBLY</td><td rowspan="4"></td></tr>
<tr><td>Group 1<br><br>One double sided relay rack assembly.<br><br>Group 2<br><br>One base assembly complete with mounting material.</td></tr>
<tr><td>ED-66290-70 CABINET ASSEMBLY</td></tr>
<tr><td>Group 3<br><br>One set of front and rear doors for feature modules.</td></tr>
</table>

## TABLE C

## EQUIPMENT DIMENSIONS AND WEIGHT DATA

| DESCRIPTION | DIMENSIONS (INCHES) | | | APPROXIMATE WEIGHT (POUNDS) | |
|---|---|---|---|---|---|
| | LENGTH | DEPTH | HEIGHT | UNCRATED | CRATED |
| Basic 100-line switching module without cabinet (less base) | 62-1/2 | 22 | 70-1/2 | 1100 | 1250 |
| Supplementary 100-line switching module without cabinet (less base) | 62-1/2 | 22 | 70-1/2 | 900 | 1050 |
| Cabinets for 100-line switching modules without base (each) | 64-1/4 | 26-1/8 | 74 | 300 | 430 |
| Mounting base for switching modules (each) | 64-1/4 | 30 | 6 | 115 | 150 |
| Batteryless power supply unit (each) | 26-1/2 | 7-1/2 | 19 | 155 | 170 |
| Heavy traffic module without cabinet (less base) | 25-1/2 | 22 | 70-1/2 | 335 | 435 |
| Incoming selector and dial repeating tie line module without cabinet (less base) | 25-1/2 | 22 | 70-1/2 | 355 | 455 |
| Cabinet for heavy traffic or incoming selector modules without base (each) | 33-1/4 | 26-1/8 | 74 | 150 | 225 |
| Mounting base for heavy traffic or incoming selector modules (each) | 33-1/4 | 30 | 6 | 65 | 85 |
| Battery charging power supply unit (each) | 26-1/2 | 7-1/2 | 19 | 160 | 175 |
| Battery cabinet with base | 17-15/16 | 26-1/8<br>*30 | 74<br>*6 | 245<br>†515 | 380 |

* Base dimensions.
† With batteries.

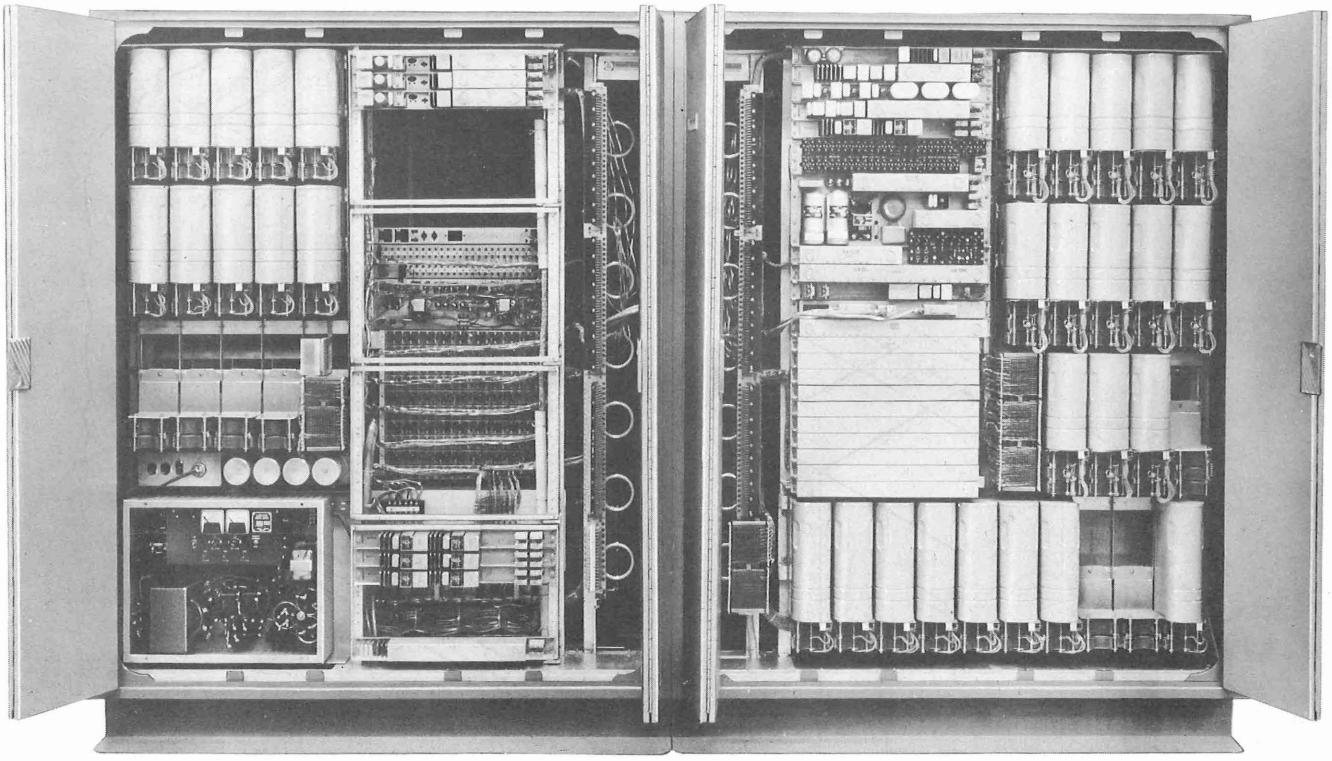


**Fig. 1 — 200-Line 701PK PBX System**

**2.08** For a 200-line installation, a transfer unit in the supplementary module transfers the ringing and tone load from the power supply unit of the basic module to the power supply unit of the supplementary module if the ringing and tone load fails in the basic module.

**2.09** If commercial power fails, an emergency arrangement is provided whereby ten station lines per module are connected to selected central office trunks through a power failure line transfer circuit.

**2.10** For locations where PBX service must be maintained during commercial power failures, a separate cabinet with batteries may be provided. When the battery reserve cabinet is used, the power supply units on the basic and supplementary modules are replaced with a battery charging power supply unit on each module. (See Figure 3.)

## 3. INSTALLATION

### TOOLS AND MATERIALS

**3.01** In addition to standard PBX installation tools, the following tools or their equivalent are required.

(a) An R-1257 adjustable bench level.

(b) Two R-2384 pinch bars (30-inch).

(c) Two hydraulic lift trucks similar to the type shown in Figure 4 may be used if necessary. These trucks are available on a loan basis from the local Western Electric Distributing House.

(d) Two roll bars or pipe 1 inch in diameter and 18 inches long.

### PLANNING

**3.02** The floor space requirements for the PBX modules, the option battery reserve cabinet, and the required maintenance space are shown in Figure 2.

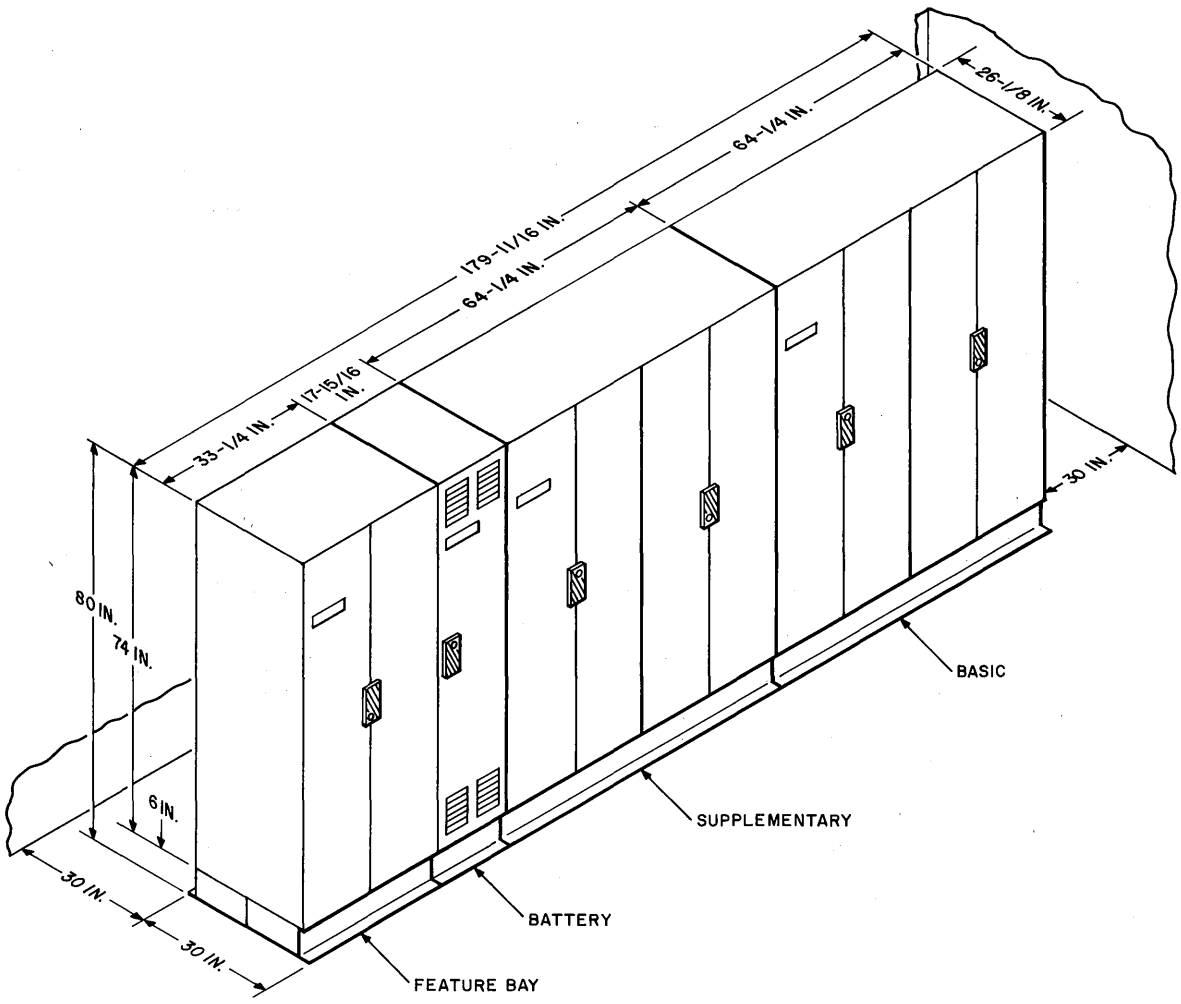


**Fig. 2 — In-Line Arrangement Of Two 100-Line Modules, Feature Bay, and Optional Battery Reserve Supply With Dimensions**

**3.03** Module weights vary according to the equipment installed in each at time of installation. See Table C to determine the overall system weight.

***Caution: Prior to installation of the 701PK PBX equipment, it must be determined that the carrying capacity of the floor is adequate.***

**3.04** No provision is made to separate the modules from a straight unbroken line-up. Floor loading and space requirements for anticipated growth should be considered at the time of the initial installation.

**3.05** The module bases provide effective templates for locating and marking module positions and drill holes for securing bases to floor.

**3.06** All initial cable wiring and cross-connections should be completed before module cabinets are installed.

## UNCRATING

**3.07** The module frames are packed and shipped in their normal upright position (Fig. 5). Cabinets, mounting bases, switch frames, and power supply units are crated separately. See Table C for dimensions and weights of the major

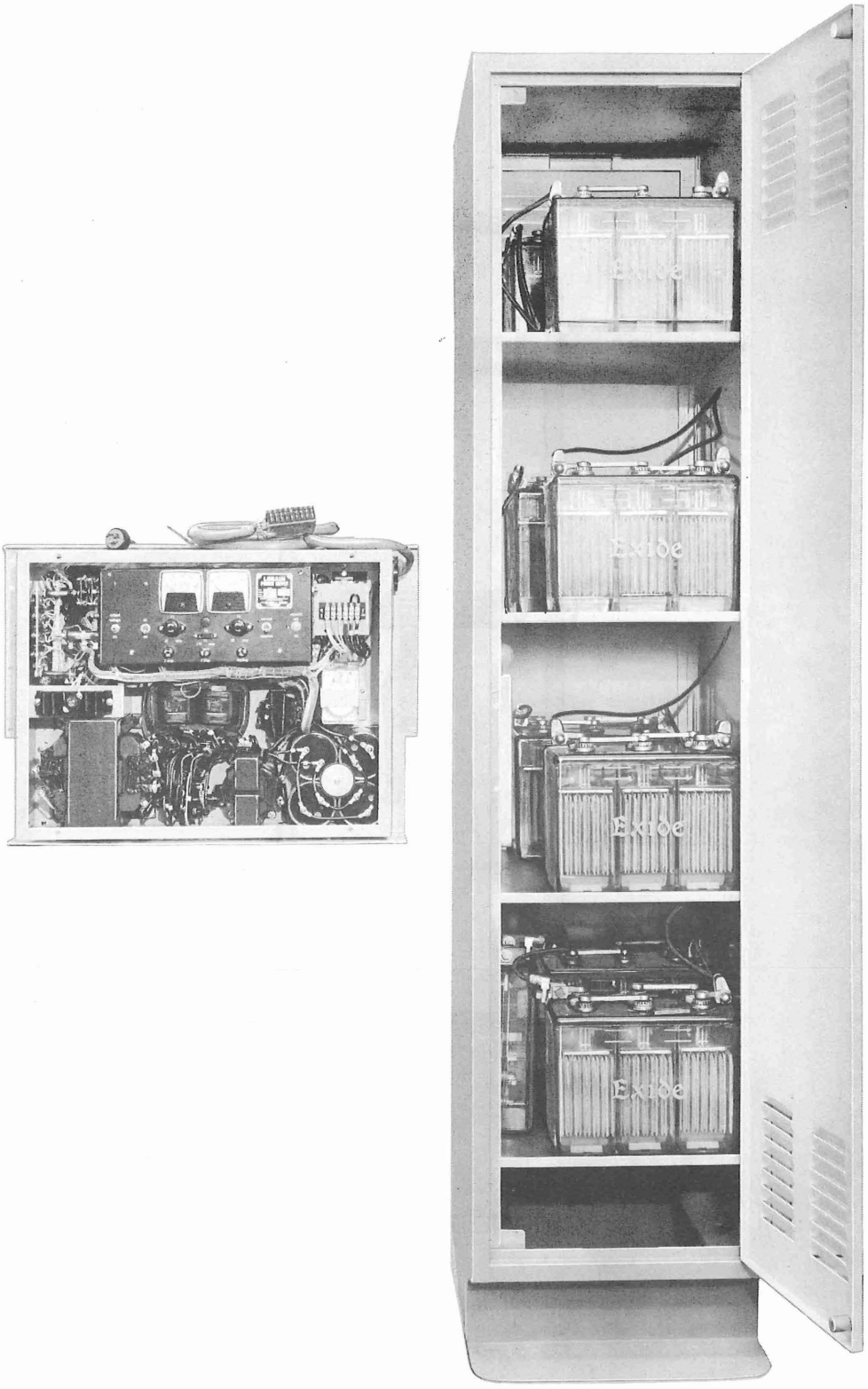


**Fig. 3 — Battery Reserve Power Plant With Battery Charging Power Supply Unit**

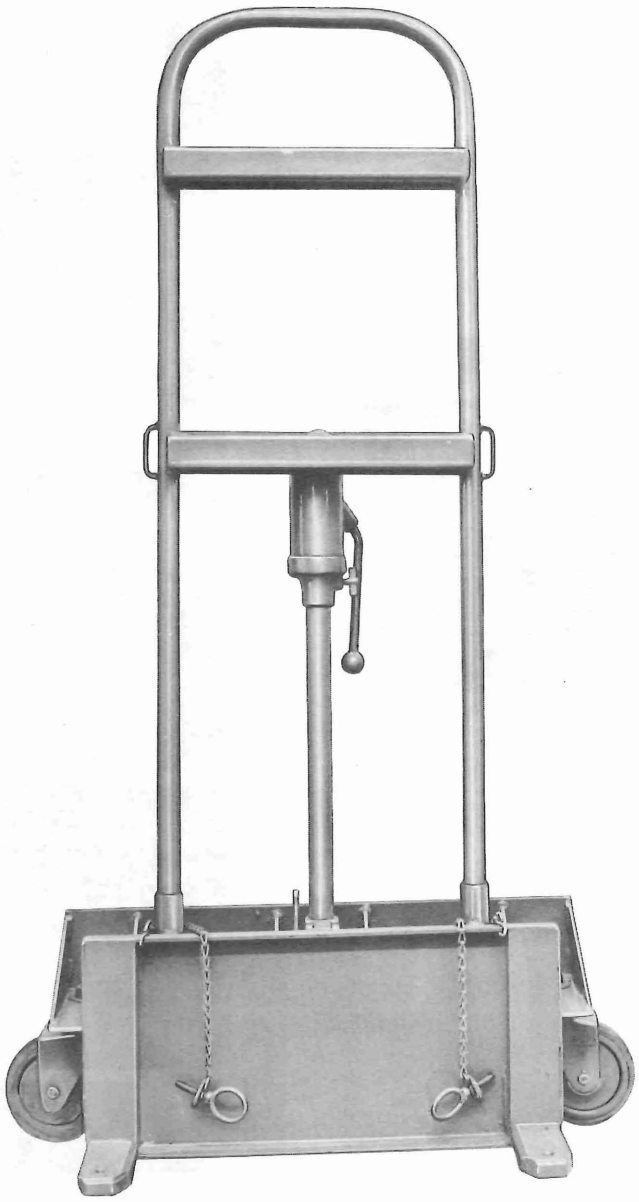

Fig. 4 — Hydraulic Lift Truck


**Fig. 5 — Modular 200-Line 701PK PBX Including Cabinets, Bases, and Power Units (consists of four packages for each module)**

equipment items. Each container is marked with the J code and list number of the equipment enclosed.

**3.08** Uncrate module bases and mark locations as outlined in 3.05. Place the module frames as near as possible to the designated installation area and uncrate.

***Caution: Care should be taken in uncrating and positioning module frames until secured to bases. All necessary precautions should be considered to avoid personal injury or damage to equipment.***

**3.09** Uncrate remaining items as required.

## SWITCH FRAME AND CABINET INSTALLATION

**3.10** Drill holes and insert anchors, if required, for all bases.

**3.11** Place the first (basic) module on base as illustrated in Figure 6 using two hydraulic lift trucks to lift switch frame onto base. Secure switch frame to base with hardware provided. Raise base and switch frame slightly and place over predrilled holes in floor. Secure base to floor and level. Remove hydraulic lift trucks.

**3.12** For placing additional modules, proceed according to 3.10 until switch frame is secured to base. Raise base and switch frame slightly and ease into an in-line position with from 12 to 14 inches separation between the adjacent module. Lower the end closest to the adjacent module onto roll bars inserted at right angles on each side of base approximately 6 inches under base and 6 inches from the end of the base. Remove the hydraulic lift truck located between the switch frames. Gently roll the switch frame as near as possible to the adjacent switch frame and over the predrilled holes. Remove roll bars using R-2384 pinch bars. Final adjustment over drill holes and leveling should be made with pinch bars, if required. Secure base to floor and level. Remove remaining hydraulic lift truck.

*Note:* If module is to be secured to a concrete floor with bolts and floor anchors, the module may be held in exact position over drilled holes by temporarily inserting 3-inch bolts with 1-inch threading and smooth shoulders into anchors before removing roll bars.

**3.13** After initial cable and cross-connections have been completed, place front and rear cabinet sections into place and secure to base with hardware provided. Place top panels and secure. Place end panels as required.

## DISTRIBUTING FRAME AND CROSS-CONNECTING TERMINALS

**3.14** The inside frame vertical on each module is arranged for mounting distributing frame terminal strips on both the front and rear sides. This vertical is fully equipped and wired by the shop except for the intermodule jumpers required. Rubber grommets are equipped within the channel on each of the end distributing frame uprights to permit passage of the intermodule jumper wires.

**3.15** The house and feeder cables should be terminated on solder-type terminals on the distributing frames and extended to suitable cross-connecting at house terminal boxes as required. Quick connect 66-type connecting blocks are recommended for the cross-connecting terminals.

**3.16** Attendant switchboard positions for the 701PK PBX should be connected to the distributing frame terminals of the basic and supplementary modules by means of a local cable.

**3.17** Additional terminal strips may be added to the end vertical of the supplementary module distributing frame. The verticals are arranged to mount 16-inch terminal strips. To facilitate wiring, the distributing frame terminal strip mounting brackets swivel 25 to 30 degrees in either direction from the normal position. (See Figure 7.)

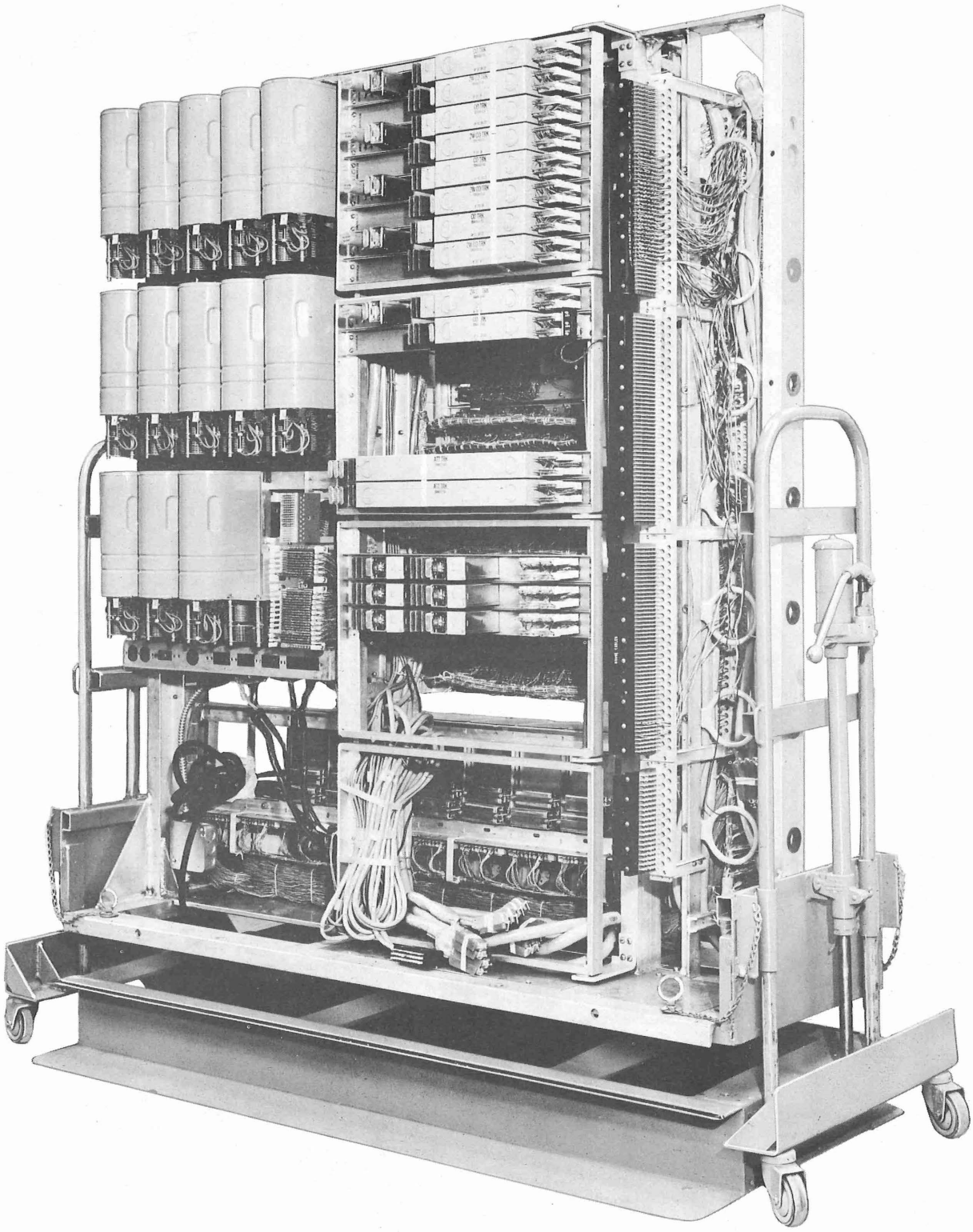

**Fig. 6 — Use of Hydraulic Lift Trucks on Modular 701PK PBX**

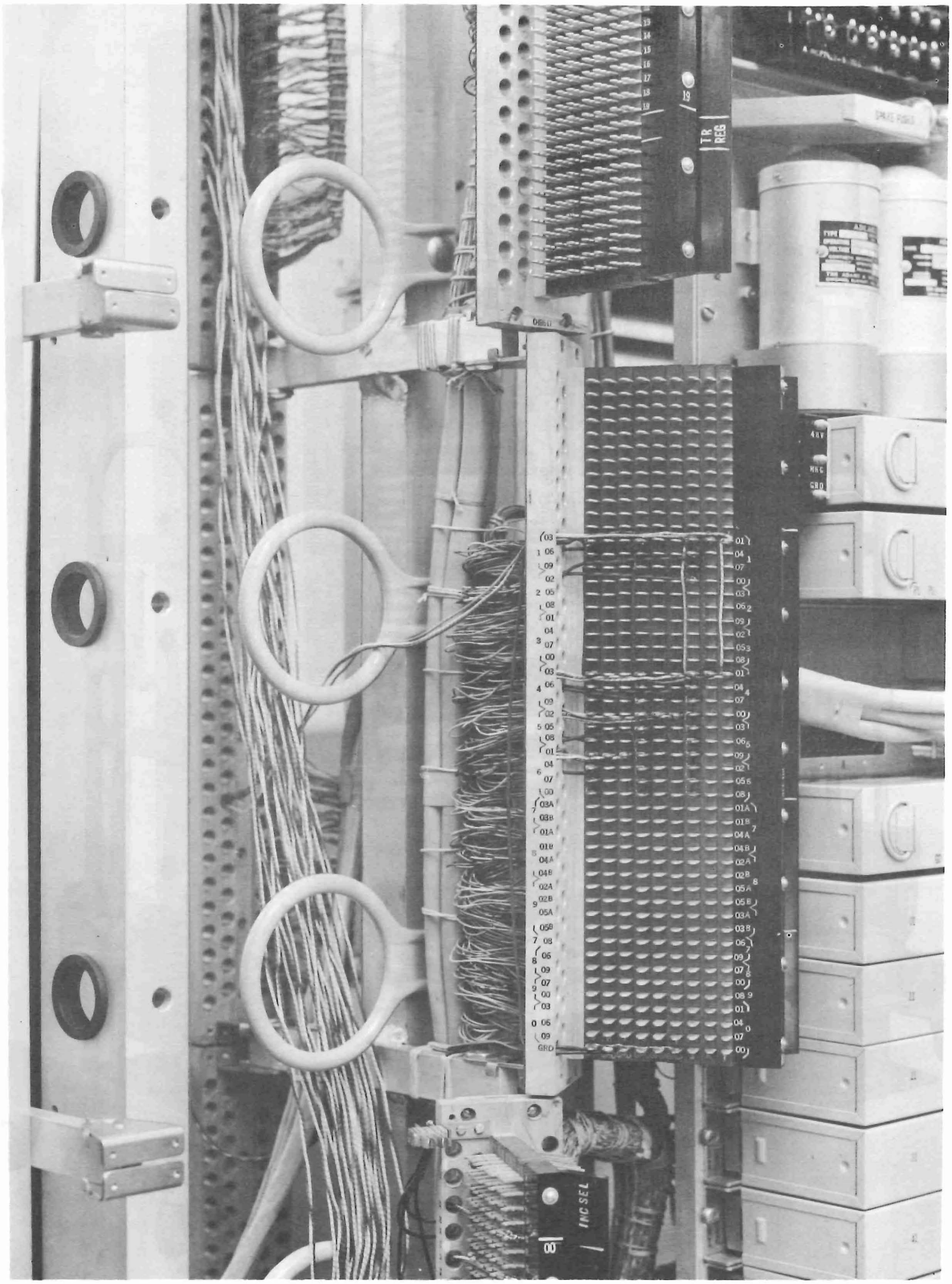


**Fig. 7 — Terminal Strips on Distributing Frame Positioned to Facilitate Wiring**