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OPT 051, 410

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**INSTALLATION AND SERVICE
MANUAL**

**29402B
CABINET**



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OPTIONS COVERED

This manual covers options 200, 210, 400 and 410.

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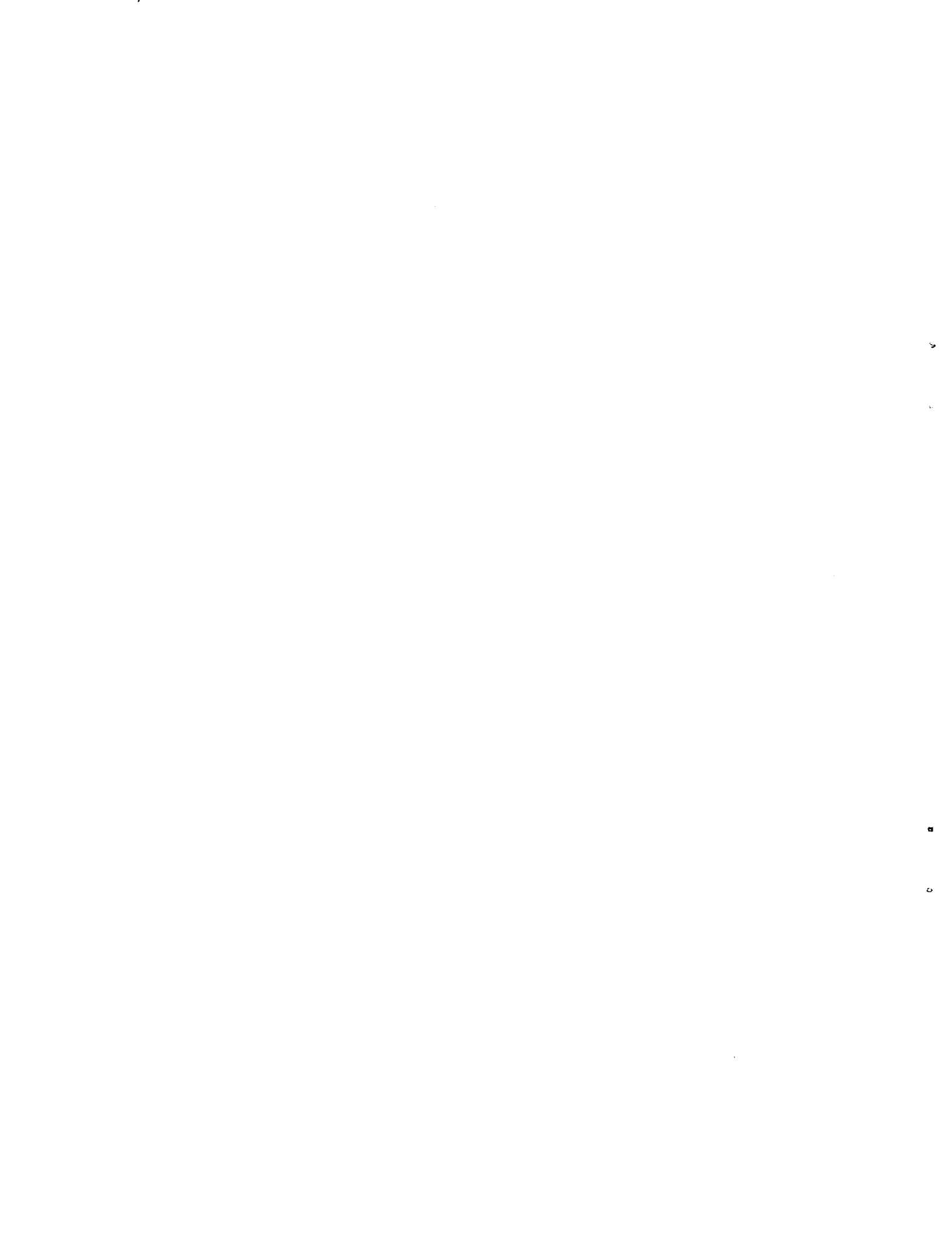
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Figure 1-1. HP 29402B Cabinet

GENERAL INFORMATION

SECTION

I

1-1. INTRODUCTION

This section contains general information pertaining to the HP 29402B Cabinet (figure 1-1). The information consists of a general description of the cabinet, identification information, and specifications.

1-2. GENERAL DESCRIPTION

The HP 29402B Cabinet is an all-aluminum, sheetmetal cabinet used to house rack-mountable type electronic equipment. The mechanical design of this cabinet allows maximum interchangeability of parts and is based on E.I.A. standards. The basic enclosure contains a base, support columns, removable side panels, a cable entry panel, support rails, pull-out front extender feet, and a rear door. Standard color scheme for the cabinet series is HP moss grey with rear door in mint grey.

All rear doors have locks to prevent access by unauthorized persons. For convenience, one key fits the locks on all of the doors.

The cabinet has a usable depth of 701-millimetres (27.6-inches) and has mounting strips to receive equipment with E.I.A. standard 483-millimetre (19-inch) mounting flanges. The mounting strips run the entire height of the equipment bay, in front.

Lightweight aluminum instrument support rails are provided for positioning and supporting instruments along the entire depth. The rails come in pairs and are mounted inside the cabinet on channels running vertically from top to bottom.

Each cabinet is provided with smooth-rolling heavy-duty casters to facilitate cabinet movement over short distances such as required in installation, maintenance, or relocation to another test area.

Each cabinet can be optionally equipped with a complete electrical system, UL recognized and wired in accordance with current International Electrotechnical Commission (IEC) electrical specifications. Cabinets are available with input power configurations to match local 50 to 60-Hz power mains: 120 Vac, 230 Vac noncenter-tapped (for European systems), 240 Vac center-tapped, and 120/208 Vac three-phase, Wye connected. Refer to table 1-2 for electrical options.

An important feature of the wiring arrangement is that all power input leads from the mains, except safety earth

ground, are interrupted in the event of a short circuit in any bay. Only 24 volts (not full mains voltage) is switched through the cabinet power switch, thus providing further protection from electrical shock. All input power is brought into the Power Control Unit (PCU), and distributed to Power Distribution Units (PDU) in each individual bay.

Included with the electrical system is a fan located at the lower rear of each bay to maintain the internal cabinet temperature at the proper equipment operating level. Air is drawn in from the rear through a cleanable snap-in type filter and exhausted through openings in the cabinet top cover and rear panel top. Internal temperature rise is less than 15°C (27°F) over ambient temperature where internal power consumption per bay does not exceed 2,000 watts (includes 53 watts for Power Control Unit and fan).

1-3. SPECIFICATIONS

See table 1-1 for cabinet specifications and table 1-2 for electrical options.

1-4. IDENTIFICATION

Each cabinet has an identification label affixed to the inside, upper right, back corner. The label identifies the cabinet model number, and also the serial number and any option numbers for the cabinet.

1-5. SERIAL NUMBER

Each cabinet is uniquely identified by a 9-digit, single-letter serial number (0000A000000). The first four digits are a serial-number prefix used to indicate design changes. The letter designates the country in which the cabinet was manufactured ("A" indicates the United States). The remaining five digits are a sequential suffix number that changes with each cabinet.

1-6. OPTION NUMBER

The option number of the cabinet is marked on the bottom of the identification label. When optional features are supplied for installation in the field, the appropriate option number should be entered in addition to the existing number.

1-7. CABINET OPTIONS

1-8. OPTION 200

This option includes the following:

- a. Power control module with system on/off power switch.
- b. Ventilation fan.
- c. Power service strip with nine NEMA 5-15R type receptacles.
- d. Vented rear door.
- e. Pre-drilled tapped holes for mounting system front door.
- f. Pull-out, anti-tip rear extender legs.
- g. Three-metre (10-foot), 20A power cable with 5-20P power plug.

The cabinet input main power may be strapped (jumpers provided) within the power control unit (terminal block) for the following modes of operation:

- 120 volts, single-phase, 2-wire plus earth ground.
- 120/240 volts, split-phase, 3-wire plus earth ground.
- 120/208 volts, three-phase, 4-wire plus earth ground.

1-9. OPTION 210

This option is identical to option 200 except that it requires a 230-Vac, single-phase power source, and that the

power service strip has 12 CEE-22R power receptacles.

1-10. OPTION 400

This option provides a single-bay cabinet for field add-on to an existing 29402B Cabinet. This option includes the following:

- a. Power distribution module.
- b. Ventilation fan.
- c. Power service strip with nine NEMA 5-15R power receptacles.
- d. Vented rear door.
- e. Pre-drilled tapped holes for mounting system front door.
- f. Tie-together hardware.
- g. Barrier panel to separate air flow from the adjacent cabinet.

1-11. OPTION 410

This option is identical to option 400 except that it requires a 230-Vac, single-phase power source, and that the power service strip has 12 CEE-22R power receptacles.

1-12. ACCESSORIES

A number of accessories are available which can be included with the cabinet or installed at a later date. A complete list of these accessories is given in table 1-3.

Table 1-1. 29402B Cabinet Specifications

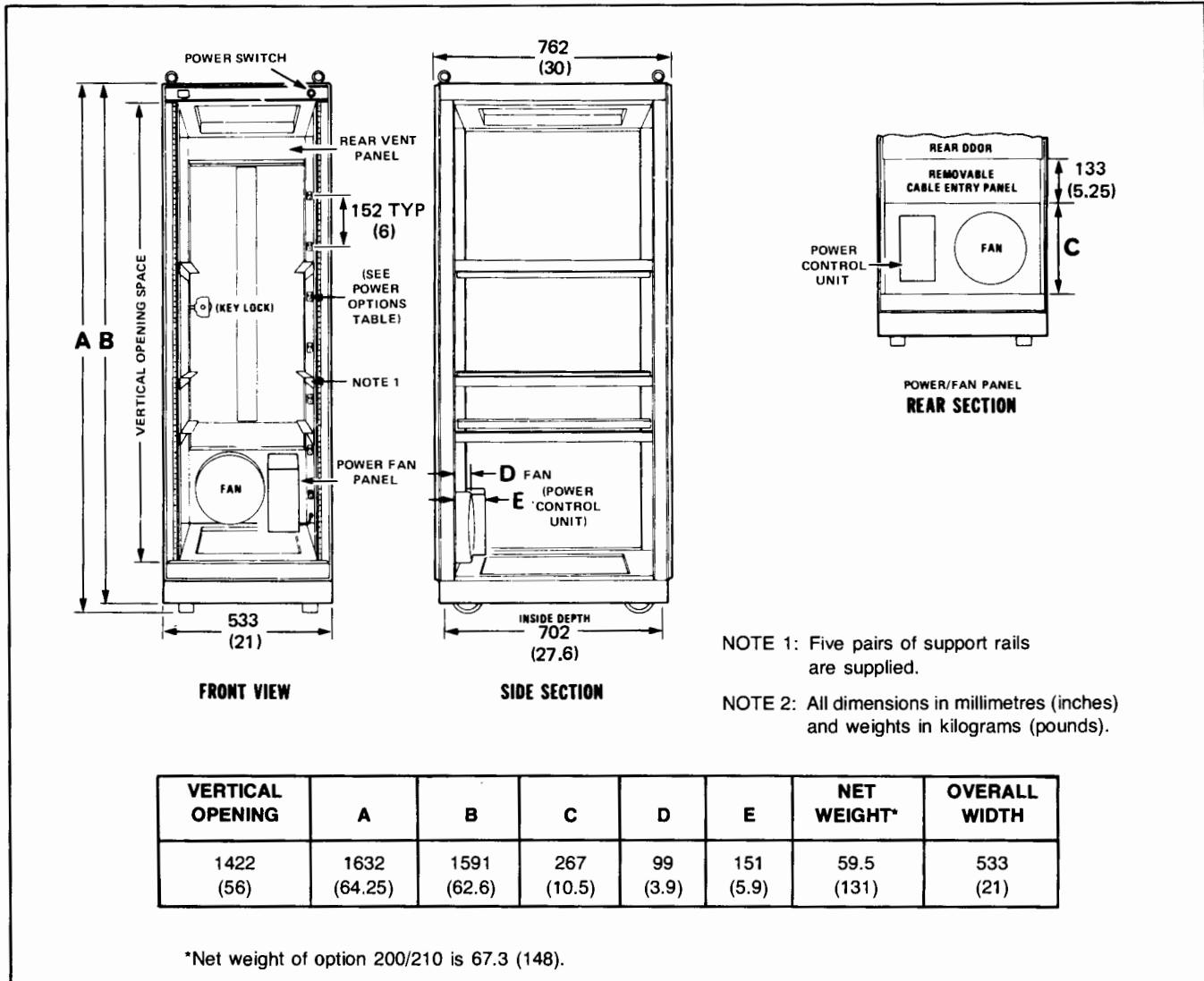


Table 1-2. Electrical Options

OPTION NUMBER	PRIMARY POWER INPUT (Vac) (LIMITS)	INTERNAL POWER	REMARKS
200	120(86-127), 120/240(172-254), 120/208(149-220)	86-127 Vac, 20 Amps/line	Nine NEMA 5-15R outlets. Power cable with 5-20P power plug supplied with single, stand-alone cabinet. Frequency: 47.5-66 Hz.
210	230(195-253)	195-253 Vac, 10 Amps/line	Power cable not supplied. 12 CEE-22R outlets. Frequency: 47.5-66 Hz.
400	120(86-127)		Nine NEMA 5-15R outlets.
410	230(195-253)		12 CEE-22R outlets.

Table 1-3. Accessories

WRITING SURFACES, topped with off-white Formica. Fixed shelves are removed for shipping. Slide-out shelf is installed if ordered with cabinet.

TYPE OF SHELF	USABLE AREA MM (IN.)	PANEL HEIGHT	ACCESSORY NO.
1-BAY Fixed	381 × 508 (15 × 20)	44 (1.75)	12675B
2-BAY Fixed	381 × 1041 (15 × 41)	44 (1.75)	12676B

BLANK PANELS with standard mounting holes, finished in HP mint grey. Blank panels in sizes larger than those indicated are provided in 4.4 mm (1.75 in.) height increments.

HEIGHT MM (IN.)	ACCESSORY NO.	HEIGHT MM (IN.)	ACCESSORY NO.
45 (1.75)	12680B	178 (7)	12683B
89 (3.5)	12681B	222 (8.75)	12684B
133 (5.25)	12682B	267 (10.5)	12685B

CABINET STABILIZER. Accessory No. 40017A is required to meet UL anti-tip requirements on single-bay, stand-alone cabinets that contain any of the following combinations of rack-mounted equipment:

- Computer without 7900/7905 disc drive.
- Computer on rack mounting slides (not support rails) regardless of other equipment in cabinet.
- One 7900/7905 disc drive without computer.
- More than one 7900/7905 disc drive regardless of other equipment in cabinet.
- 7970 magnetic tape drive regardless of other equipment in cabinet.
- Any combination of rack-mounted equipment weighing less than 72 kg (160 lbs).

NOTE

Multi-bay cabinets bolted together do not require the cabinet stabilizer.

LIFTING FIXTURE

Accessory No. 40010A used for lifting or tilting up loaded systems weighing up to 1816 kg (4000 lbs).

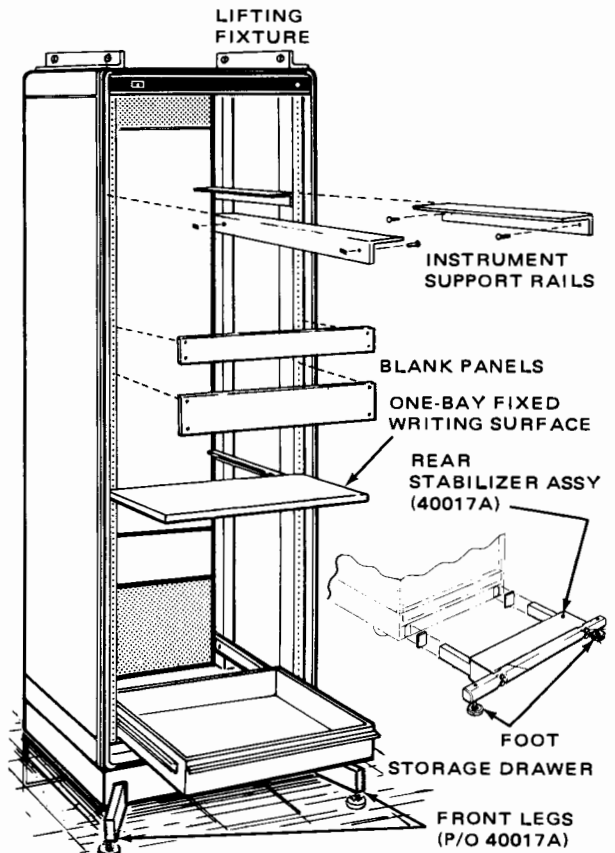
EQUIPMENT SLIDES

Accessory slides are designed for mounting HP instruments and are rated at 68 kg (150 lbs) load limit per pair. A cabinet base extension is recommended when using slides. Instrument support rails are recommended for products weighing more than 29.5 kg (65 lbs).

STORAGE DRAWERS (SLIDE-MOUNTED). Installed at bottom of cabinet if other location is not specified. The load capacity is 34 kg (75 lbs).

HEIGHT MM (IN.)	DEPTH MM (IN.)	ACCESSORY NO.
89 (3.5)	406 (16)	12672B
133 (5.25)	406 (16)	12673B

INSTRUMENT SUPPORT RAILS, one pair with attaching hardware, accessory number 12679B.



MECHANICAL INSTALLATION

SECTION

II



2-1. INTRODUCTION

This section contains information pertaining to unpacking, inspection, reshipment, and installation of the cabinet.

2-2. INSPECTION

If the shipping carton is damaged upon receipt, request the carrier's agent be present when the cabinet is unpacked. Inspect the cabinet for damage (scratches, dents, broken parts, etc.) If the cabinet is damaged or fails to operate properly after installation, notify the carrier and the nearest Hewlett-Packard Sales and Service Office immediately. (Sales and Service Offices are listed at the back of this manual.) Retain the shipping carton and packing material for the carrier's inspection. The Sales and Service Office will arrange for the repair or replacement of damaged cabinets without waiting for any claims against the carrier to be settled.

2-3. UNPACKING AND HANDLING

CAUTION

The tilting up and vertical lifting of a cabinet loaded with equipment must be done using the optional lifting fixture (HP 40010A), otherwise damage to equipment and or cabinet may result.

The standard forged eyebolts supplied with the cabinet are suitable only for lifting empty cabinets. Under no circumstances should the eyebolts be subjected to lateral stress (use spreader bar). An equipment loaded multi-bay cabinet which has been connected together in the field must not be hoisted, otherwise damage to cabinet and/or equipment will result. In this case, the bays must be disconnected and hoisted individually with the optional lifting fixture. The cabinets may also be lifted by means of a forklift, but to prevent damage to the bottom trim, the cabinet must be on a skid.

When the lifting fixture is ordered in conjunction with a cabinet it will be shipped installed, ready for use. The lifting fixture is tested for maximum permissible cabinet loads of 1,816 kg (4000 lbs) in a tilt-up or vertical lift. The lifting fixture must be removed prior to operating the

system, since ventilation holes in the cabinet top are covered and proper cooling can not take place.

WARNING

When moving a loaded cabinet on its casters, care should be taken to prevent casters from becoming caught on debris or in floor seams. The high center of gravity together with momentum and a pushing or pulling force could cause the system to tip over resulting in injury to personnel and damage to equipment.

2-4. RESHIPPING

If the cabinet is to be shipped to Hewlett-Packard for service or repair, attach a tag to the cabinet identifying the owner and indicating the service or repair to be accomplished. Pack the unloaded cabinet in the original shipping carton if available. If the original shipping carton is not available, a suitable container and necessary packing material can be procured from your local Hewlett-Packard Sales and Service Office.

If the original shipping carton is not used, wrap the cabinet in heavy paper and place it in a heavy (350 lb/sq in. test) carton or wooden container. Place adequate packing material around all sides of the cabinet and place a cardboard strip over the front doors. Bind the carton or wooden box with strong tape or metal bands and mark the shipping container "FRAGILE."

2-5. SPACE AND FLOOR LOADING REQUIREMENTS

2-6. CABINET SPACE

A location for the cabinet should be selected that will afford adequate space for the doors to be fully opened. Refer to figure 2-1 for radius and angle of door swing.

2-7. FLOOR LOADING

If a raised floor has been constructed for routing of cables beneath the floor surface, it is the customer's responsibility

ity to calculate floor loading. When calculating floor loading, include weights of cabinet, equipment and cables, interface and office equipment. Include the weight of the raised floor when calculating primary floor loading.

Since the weight of the equipment in the cabinets is concentrated over the casters, the floor must withstand a concentrated load of 21.09 kilograms per square centimeter (300 pounds per square inch). This requirement is based on calculations for the heaviest loaded equipment cabinet. Note that the anti-tip extender legs are load-bearing only when equipment extends from the cabinet proper.

2-8. INSTALLATION

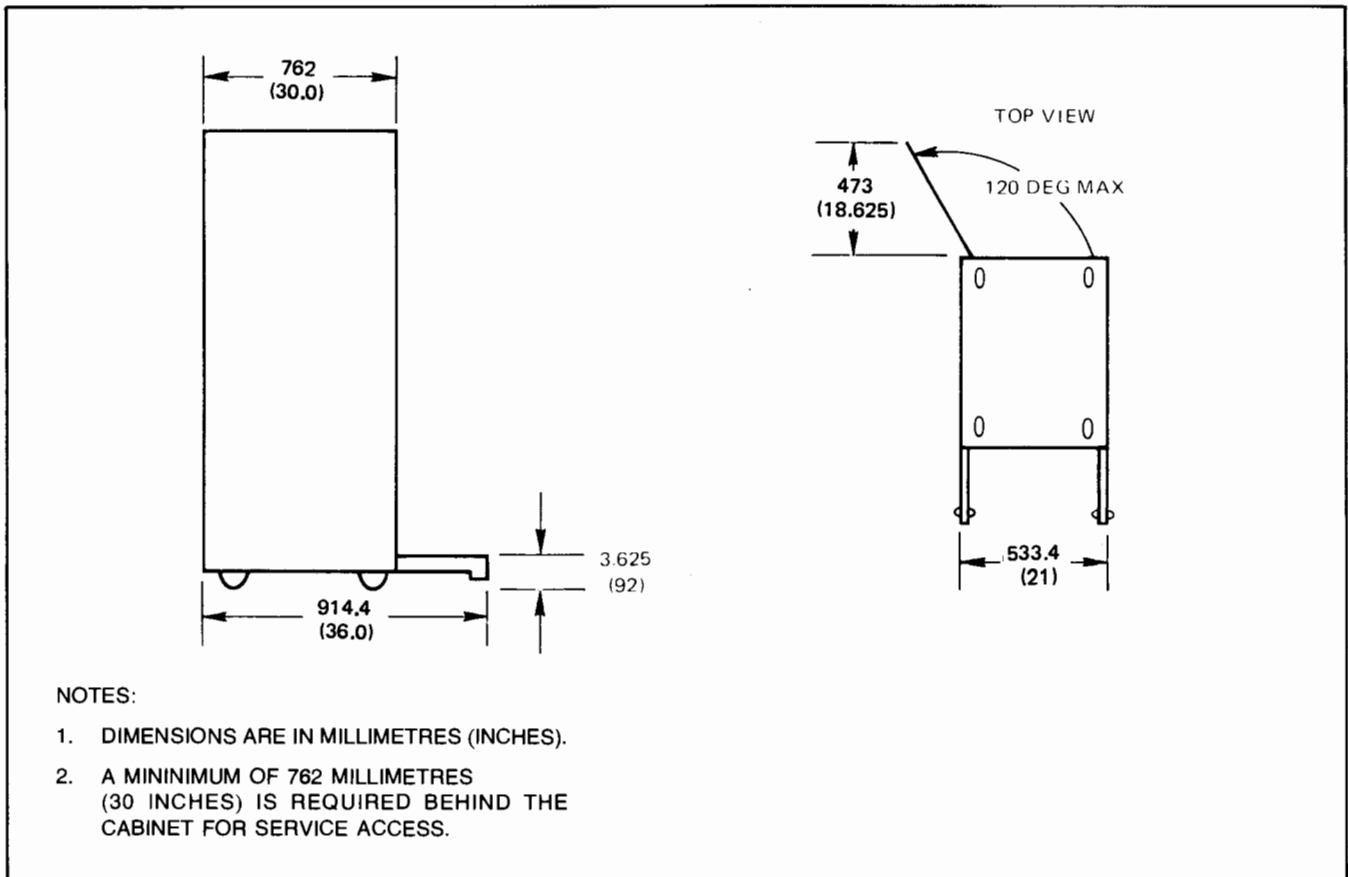
2-9. ANTI-TIP EXTENSION INSTALLATION

CAUTION

Fully raise the leveling feet if the cabinet must be moved after the extendable legs have been installed.

2-10. FRONT EXTENDABLE LEGS. The anti-tip extendable legs should be installed before equipment is installed in the cabinet but after the cabinet has been located at its permanent site. To install the extendable legs, proceed as follows:

- a. Remove plastic inserts at base left and right corners of cabinet.
- b. Insert extendable leg in opening, at lower left (or right) front corner of cabinet, until it is stopped by the locking pin.
- c. Have another person reach inside cabinet and raise the spring-loaded, ringed locking pin located near the base of the side panel.
- d. Push the extendable leg into the cabinet as far as it will go.
- e. Release the spring-loaded locking pin and slowly pull the extendable leg out of the cabinet until the locking pin snaps into position, locking the extendable leg in place.
- f. Use a suitable wrench to lower the leveling foot until it touches the floor firmly.
- g. Repeat steps b through f for the other extendable leg.



- NOTES:
1. DIMENSIONS ARE IN MILLIMETRES (INCHES).
 2. A MINIMUM OF 762 MILLIMETRES (30 INCHES) IS REQUIRED BEHIND THE CABINET FOR SERVICE ACCESS.

7102-13

Figure 2-1. Overall Cabinet Dimensions

WARNING

If it is necessary to slide or swing equipment out from the cabinet to gain access to the spring-loaded locking pins, use extreme care to slide or swing the equipment out from the cabinet only far enough to gain access to the locking pins. If the equipment is extended too far out from the cabinet with the extendable legs not fully extended, the cabinet may tip over; possibly injuring personnel and/or damaging the equipment.

NOTE

To retract the extendable legs into the cabinet, fully raise the leveling feet, reach inside the cabinet, lift the spring-loaded locking pin, and push the extendable leg into the cabinet as far as it will go. (It may be necessary to slide out, swing out, or remove some equipment from the cabinet to gain access to the spring-loaded locking pin after equipment has been installed in the cabinet.)

2-11. REAR EXTENDABLE LEGS. To install the rear stabilizer legs, proceed as follows:

WARNING

Once installed, the extendable legs should never be removed unless absolutely necessary. If the extendable legs are removed, no equipment should be extended from the rack. Failure to heed this warning could result in injury to personnel, damage to equipment, or both.

- a. Ensure that the front legs are installed, latched, and fully extended with the feet firmly in contact with the floor.
- b. Remove side trim retaining screws (see figure 5-2, item 18) from the underside of both sides of the cabinet.
- c. Partially insert thumbscrews, (part no. 0510-0617), in place of the side trim retaining screws.
- d. Remove the two cap plugs from the base assembly.
- e. Insert both legs until they bottom against front legs.

- f. Tighten thumbscrews.
- g. Extend the two leveling feet until they contact the floor firmly.

2-12. REMOVABLE SIDE PANELS

The removable side panels, when removed, allow easy access to cabinet interiors for equipment installation and service. To remove a side panel, remove the eight fastening screws.

2-13. OPTION 400/410 INSTALLATION

To join a 29402B-400/410 add-on cabinet to a 29402B stand-alone cabinet, proceed as follows:

- a. Remove side panel from 29402B cabinet where it is to be joined to 29402B-400/410 cabinet.
- b. Insert two channel nuts in 29402B cabinet front column as shown in figure 2-2, detail A. Ensure that spring side of nuts is against column side. Similarly, insert two channel nuts on cabinet rear column.
- c. Using a 7/16-nutdriver, attach bracket to front column of 29402B cabinet with two 1/4-20 × 5/8-inch screws, as shown in figure 2-2, detail A. Ensure that threaded stand-offs are positioned as shown. Similarly, mount a bracket on cabinet rear support column.
- d. Position add-on cabinet next to cabinet to which it is to be joined. Check that barrier panel is on side next to other cabinet.
- e. Insert four channel nuts in add-on cabinet support columns. Using a 7/16-nutdriver, attach cabinets together with four 1/4-20 × 5/8-inch screws inserted through brackets previously attached to columns of 29402B cabinet.
- f. Using a Pozidriv screwdriver, attach tops of cabinets together with two plates secured by four 3/8-16 × 3-inch flat-headed screws screwed into column mounting bolts. See figure 2-2, detail B.
- g. Attach side panel to 29402B-400/410 add-on cabinet.
- h. Remove the front and rear (if any) extendable legs which are nearest the add-on cabinet and install them in the outer openings of the add-on cabinet. (Refer to paragraphs 2-10 and 2-11, respectively.)

2-14. MOUNTING STRIPS

Cabinets have mounting strips on each side of the equipment bays, both in front and in the rear. The mounting strips consist of short lengths of zinc-plated steel, dropped into a channel in each of the extruded columns (figure 2-3). The strips are drilled and tapped for standard 10-32 machine screws. Each front column has eight or ten

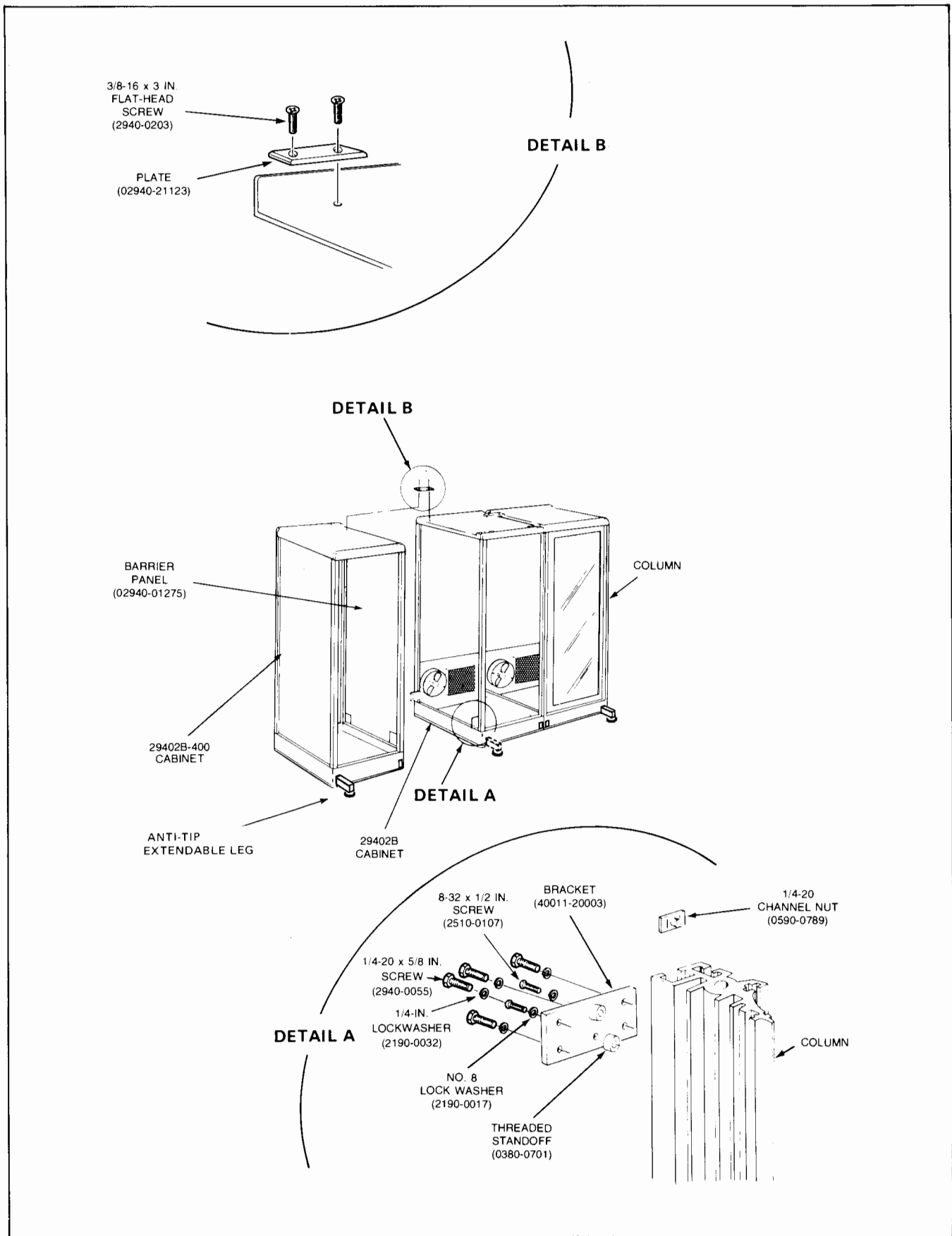
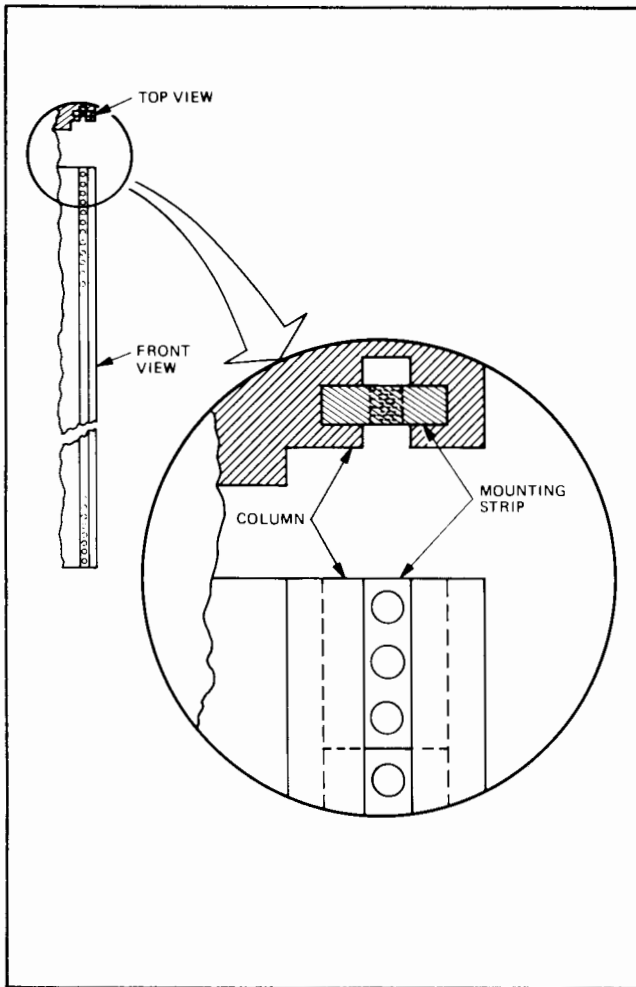


Figure 2-2. Cabinet Attachment Details



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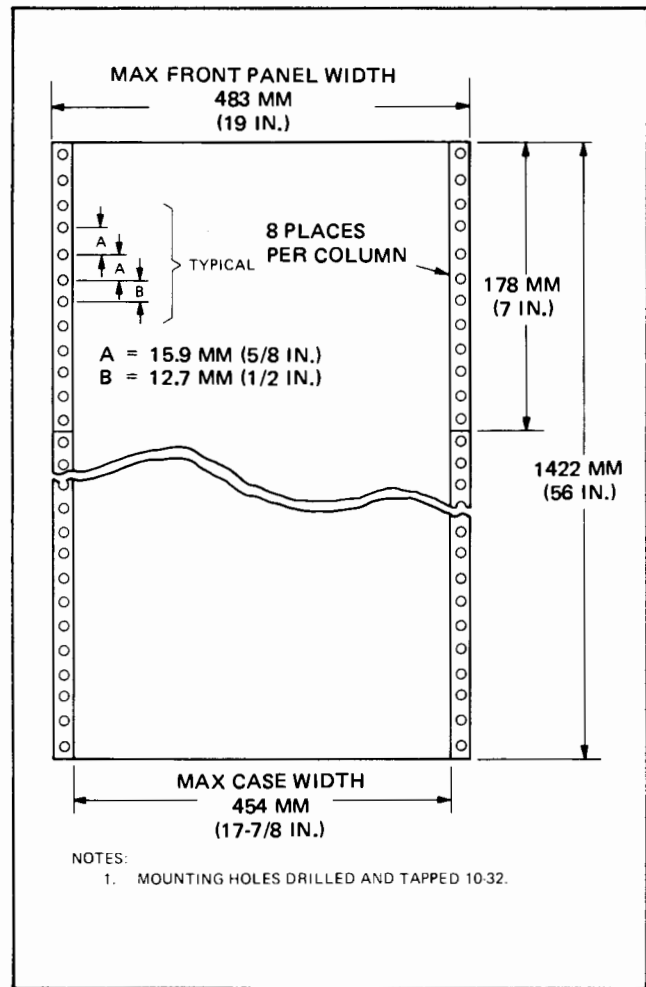
Figure 2-3. Cabinet Mounting Strips

7-inch strips (depending on cabinet model). Figure 2-4 shows the hole spacing in the mounting strips, and the available equipment space. Equipment is mounted inside the cabinet by securing the equipment mounting flange to the mounting strips with 10-32 screws.

2-15. EQUIPMENT INSTALLATION

To install an instrument in the cabinet, insert one 1/4-20 channel nut in each of the four columns and attach two instrument support rails as shown in figure 2-5. The instrument should be positioned so that the holes on either side of the front panel are aligned with the 10-32 tapped holes on the front of the cabinet columns. Equipment should be installed from top to bottom to facilitate handling.

To meet the temperature specification given for cabinets equipped with fans, all unused front panel space must be covered with blank filler panels and the rear door must be closed. After securing the front panels of all instruments and blank panels to the cabinet, the side panel trim can be snapped into place. To allow for full opening of the rear door(s) and to ensure an adequate intake of cooling air, the



7102-17

Figure 2-4. Available Mounting Space Per Bay

NOTES:

1. MOUNTING HOLES DRILLED AND TAPPED 10-32.

back of the cabinet should be located no closer than 30 inches from the wall.

2-16. CABLE ACCESS

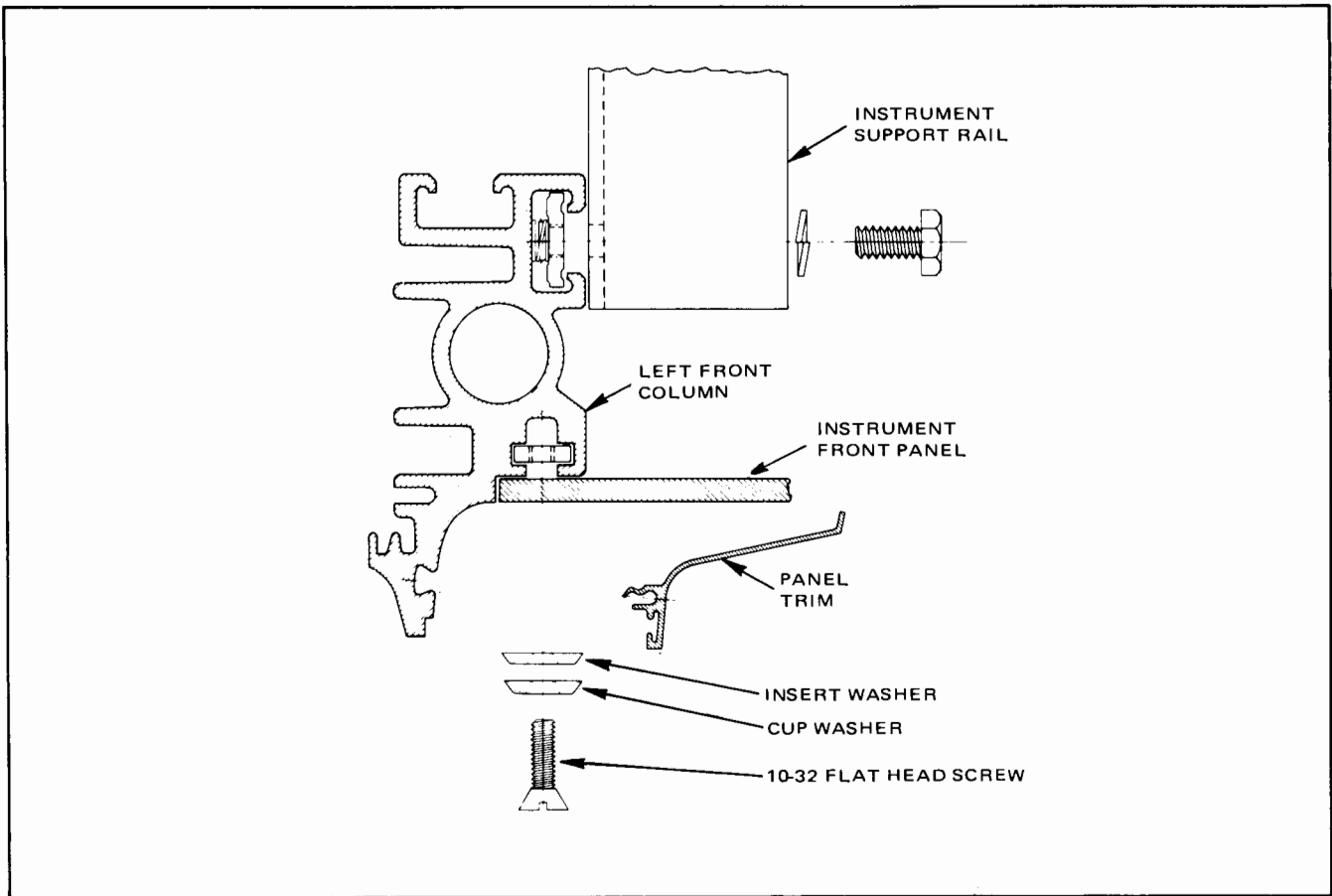
A cable entry panel with two knock-out openings is located at the rear of each bay. Either or both knock-out openings may be removed. Insert a neoprene or nylon grommet in each opening to protect cable insulation.

2-17. BLANK PANELS

The filler blank panels are 0.062-inch thick aluminum formed to the standard (0.187-in./4.7 mm) distance from the panel mounting flange. The panels are supplied with EIA/IEC mounting holes and attaching parts. The attaching parts are:

- a. Screw, machine, flh, no. 10-32, 0.750 in. (2680-0108).
- b. Washer, cup, no. 10 (3050-0007).
- c. Washer, filler cup, no. 10 (3050-0248).

A vertical trim on each side of the enclosure covers the mounting screws (see figure 2-5).



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Figure 2-5. Section View of Top, Left Front of Cabinet

ELECTRICAL CONNECTION

SECTION

III



3-1. INTRODUCTION

This section contains information pertaining to connection of cabinet electrical distribution system to the customer power source.

3-2. GENERAL DESCRIPTION

The power assembly is the primary unit and controls and distributes ac power to the fan assemblies in neighboring bays (if any). The fan assembly serves as a power inter-connection point in the distribution of power between bays; it also distributes power within the bay via the power service strip.

All power assemblies contain a fan and power control unit (PCU) (figure 3-1). The power control unit is the same for all options, except for different power connections to the primary of the 24-volt transformer.

All fan assemblies contain a 9-inch fan and a power distribution unit (PDU). On Option 210 and 410, all fans and all power service strips are changed to European standards (230V, two-wire plus earth ground). All fans plug into the power service strip.

The SYSTEM ON/OFF power indicating switch assembly is located in the front, upper right cabinet corner. When pressed, it applies 24 volts ac to the coil of the contactor in the power control unit, causing the contactor to close and apply power to the distribution terminal block.

3-3. SITE POWER REQUIREMENTS

The power source requirement is dependent upon the electrical option installed in the cabinet. The power assemblies are limited by design to accommodate one of the four types of power:

- a. 120 volts, 60 Hertz, single-phase, 2-wire plus earth ground (Options 200 and 400).
- b. 120/240 volts, 60 Hertz, split-phase, 3-wire plus earth ground (Option 200).
- c. 120/208 volts, 60 Hertz, 3 phase, wye connected, 4-wire plus earth ground (Option 200).
- d. 230 volts, 50 Hertz, 1 phase, 2-wire plus earth ground (Options 210 and 410).

NOTE

The following is to be performed by an electrical contractor.

Except for a single, stand-alone, cabinet with Option 200, the means used to connect the power assembly to the power source must be furnished by the customer and must comply with local electrical codes. The minimum wire size recommended is number 10 AWG. The absolute minimum is number 12 AWG. The earth wires should be terminated to the earth bus bar utilizing the box lug provided. Standard 1-1/4 inch trade-sized conduit should be used to bring the wires to the power assembly. For ease of maintenance, the last 3 or 4 feet should be flexible conduit. Refer to figures 3-2, 3-3, and 3-4 for input wiring requirements.

3-4. INSTALLATION

3-5. POWER ASSEMBLY

The power assembly is installed and shipped as part of the cabinet. A single, stand-alone cabinet with Option 200 is supplied with a power cable and is wired for 120-Vac, single-phase, 2-wire plus earth ground; a cabinet with Option 210 is strapped for 230-Vac, single-phase, 2-wire plus earth ground. Refer to figure 3-3 for split-phase or three-phase strapping requirements.

If add-on cabinets (Option 400/410) are installed, it is recommended that the power assembly be rewired and strapped for split-phase, if single add-on cabinet, or for three-phase, if two add-on cabinets. Refer to figure 3-3 for wiring and strapping requirements.

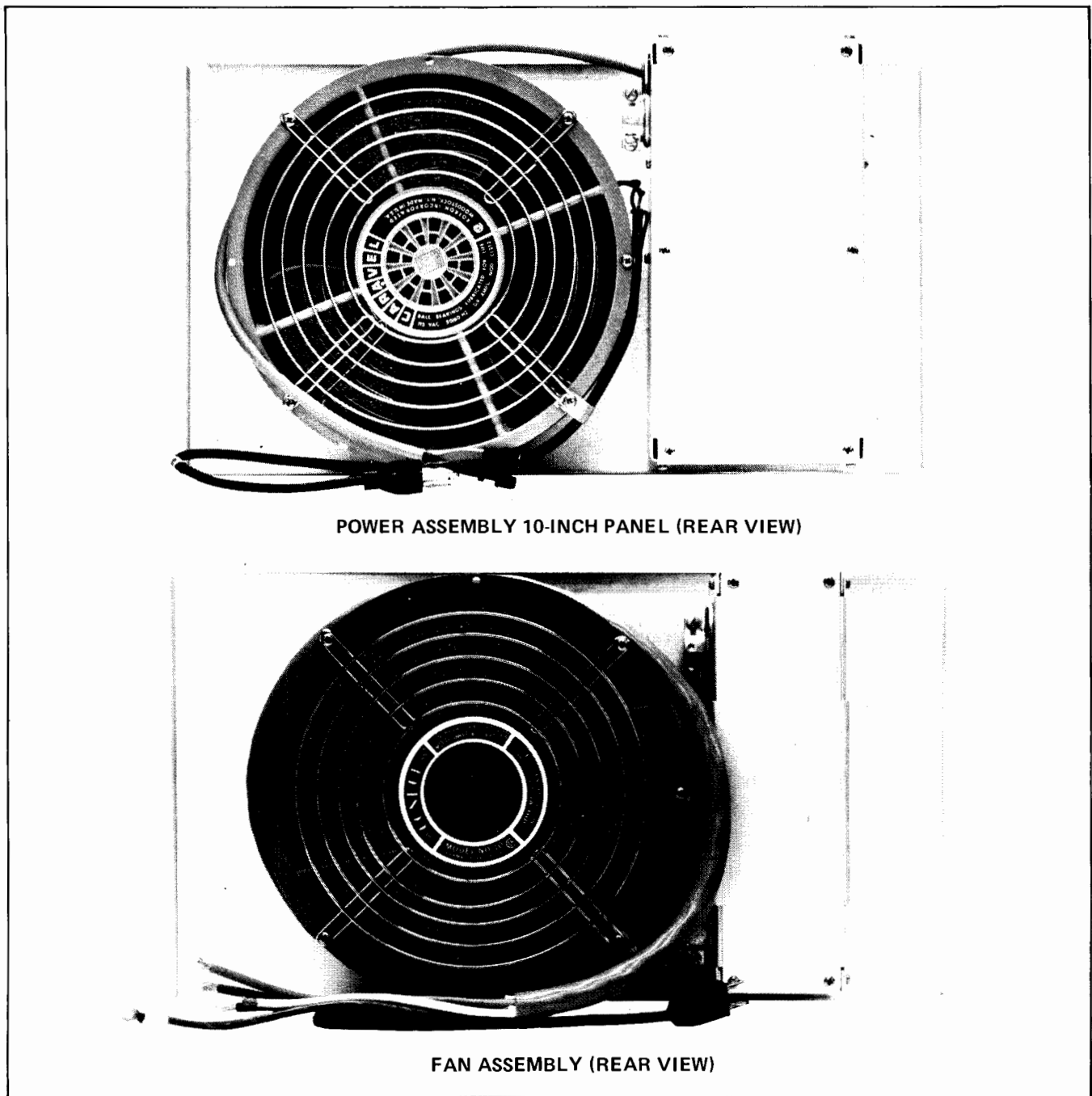
3-6. FAN ASSEMBLY

The fan assembly is installed and shipped as part of the cabinet.

3-7. PDU TO PCU. To connect the power distribution unit (PDU) of a fan assembly to the power control unit (PCU) of a power assembly proceed as follows:

WARNING

Remove main primary power to cabinet. Contact with terminals may result in injury to personnel.



POWER ASSEMBLY 10-INCH PANEL (REAR VIEW)

FAN ASSEMBLY (REAR VIEW)

7102-20

Figure 3-1. Power and Fan Assemblies

- a. Set cabinet circuit breaker to OFF.
- b. Open main primary power line to cabinet. Remove WARNING access panel on power assembly. Ensure no power present by checking for voltage at input terminal block with ac voltmeter.
- c. Remove top plate from power assembly power control unit.
- d. Look inside cabinet for identification label to determine electrical option installed. Refer to appropriate option schematic diagram for wiring information.
- e. Remove cover from fan assembly PDU.
- f. Connect 5-conductor cables from PDU to PCU in accordance with applicable electrical option.
- g. Secure earth wire (green/yellow) to earth bus bar with screw and lockwashers.
- h. Change jumpers connection as required and secure all connections (figure 3-3).
- i. Check all wiring per appropriate electrical option (see figures 3-2, 3-3, 3-4 and 3-5).

- j. Replace all covers and plates on PDU and PCU.
- k. Replace WARNING access panel on power assembly.
- l. Apply main power to cabinet, set circuit breaker to ON and SYSTEM ON/OFF switch to ON. The fans should operate.
- m. Use ac voltmeter to test for proper line voltage at each receptacle on service strip.

3-8. PDU TO PDU. To connect the power distribution unit of one fan assembly to the power distribution unit of another fan assembly, proceed as follows:

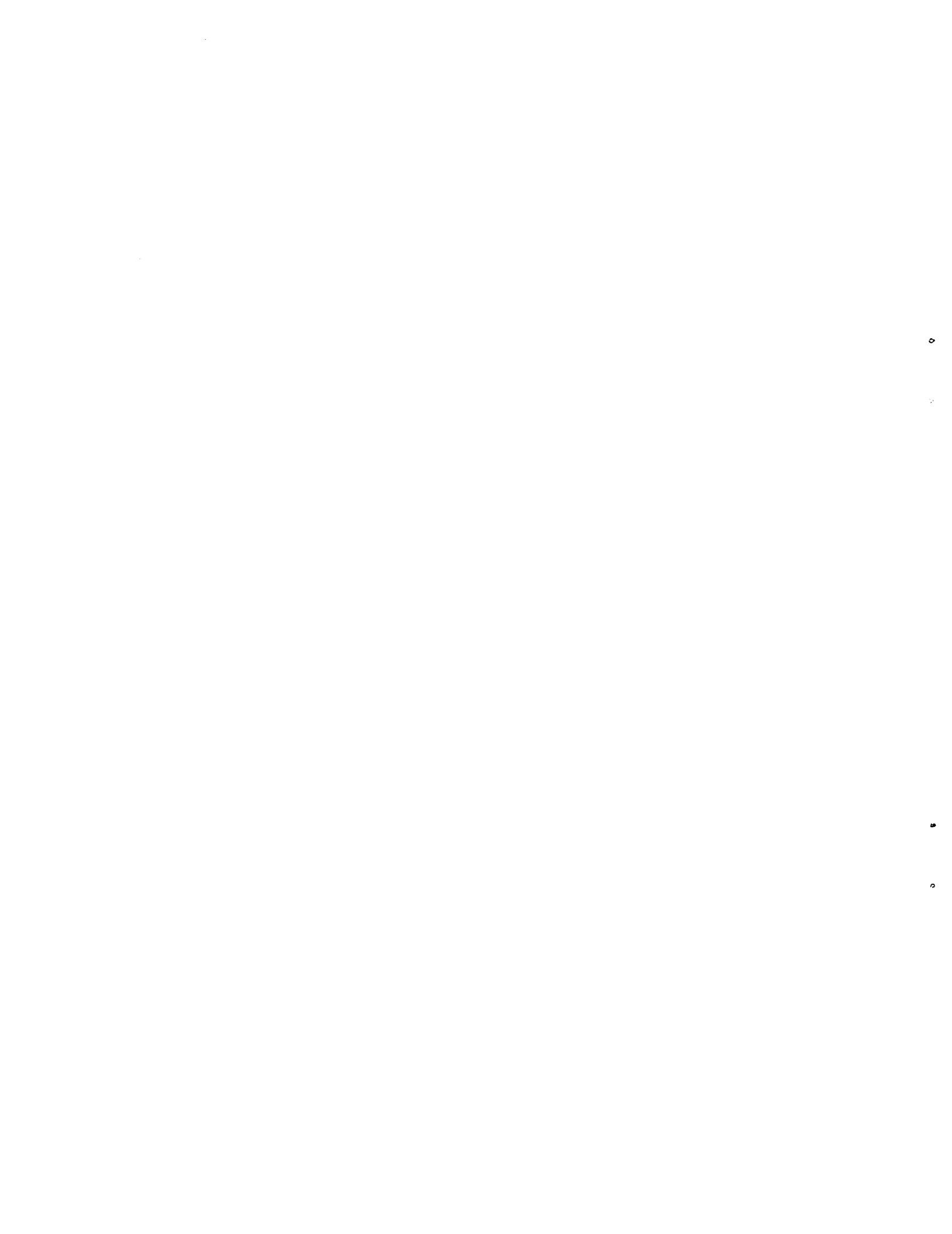
WARNING

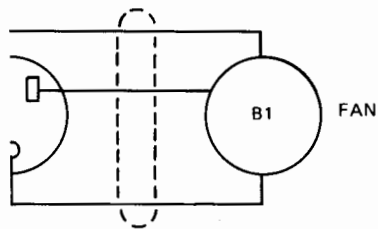
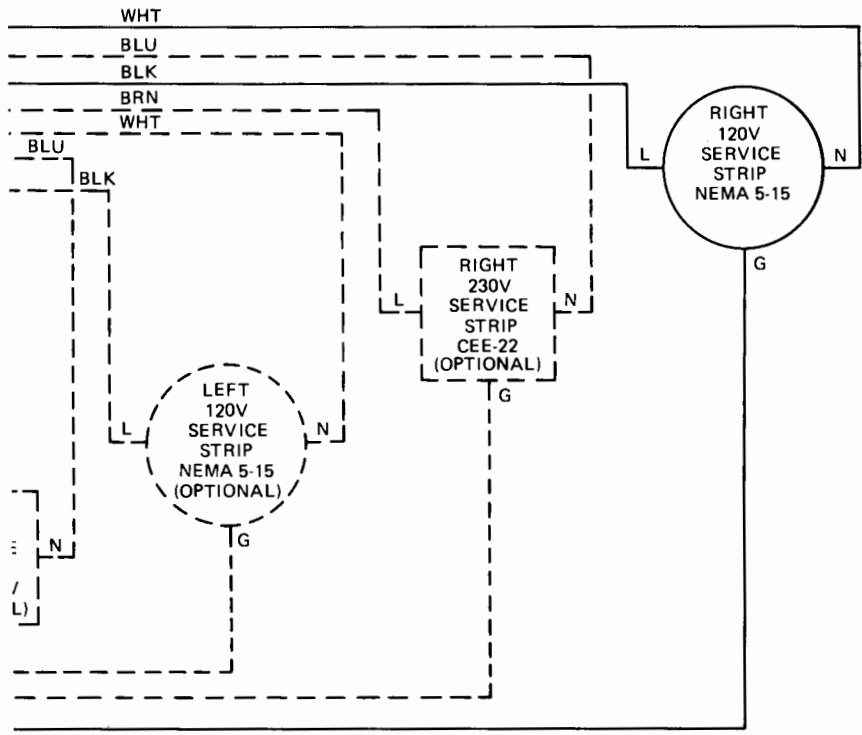
Open main primary power line to cabinet. Contact with terminals may result in injury to personnel.

CAUTION

Although several bays may be tied together, their combined current requirements must not exceed the maximum current capacity of the power assembly, otherwise damage to equipment may result.

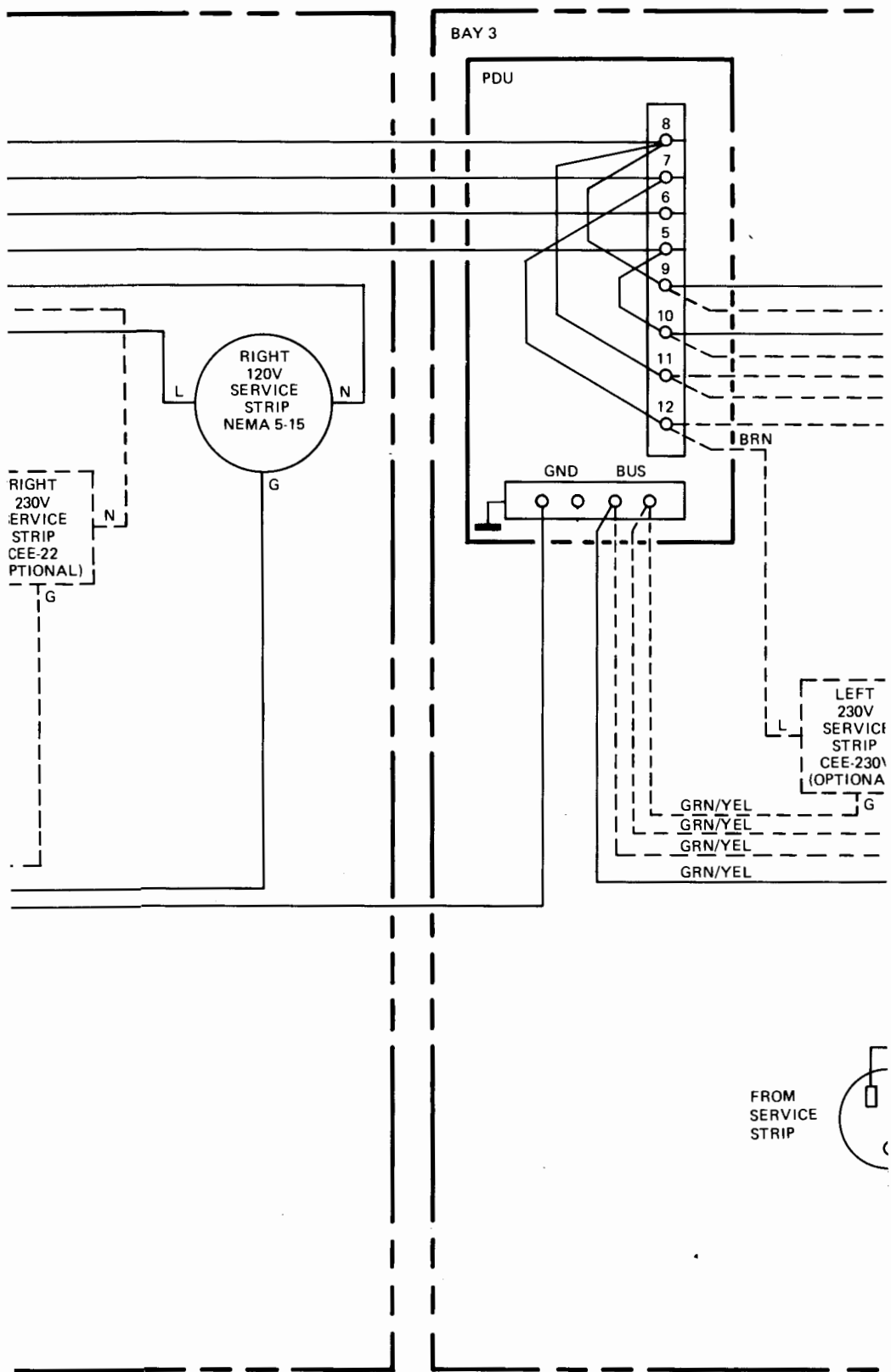
- a. Set cabinet circuit breaker to OFF.
- b. Open main primary power line to cabinet.
- c. Remove covers on both power distribution units.
- d. Insert 5-conductor cable from new PDU through cable entry hole on existing PDU. Connect to terminal block per figure 3-5.
- e. Secure earth wire (green/yellow) to earth bus bar with screw and lockwasher.
- f. Ensure that each cable and jumper straps (as required) are securely fastened within PCU.
- g. Fasten cable clamp securely.
- h. Check that service strip connections are secure.
- i. Check all wiring per electrical option.
- j. Replace covers on PDUs. Connect fan power plug to service strip.
- k. Apply power to cabinet, set circuit breaker to ON and SYSTEM ON/OFF switch to ON. All fans should operate.
- l. Use ac voltmeter to test for proper line voltage at each receptacle on service strip.

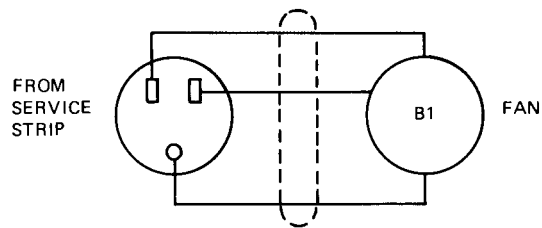
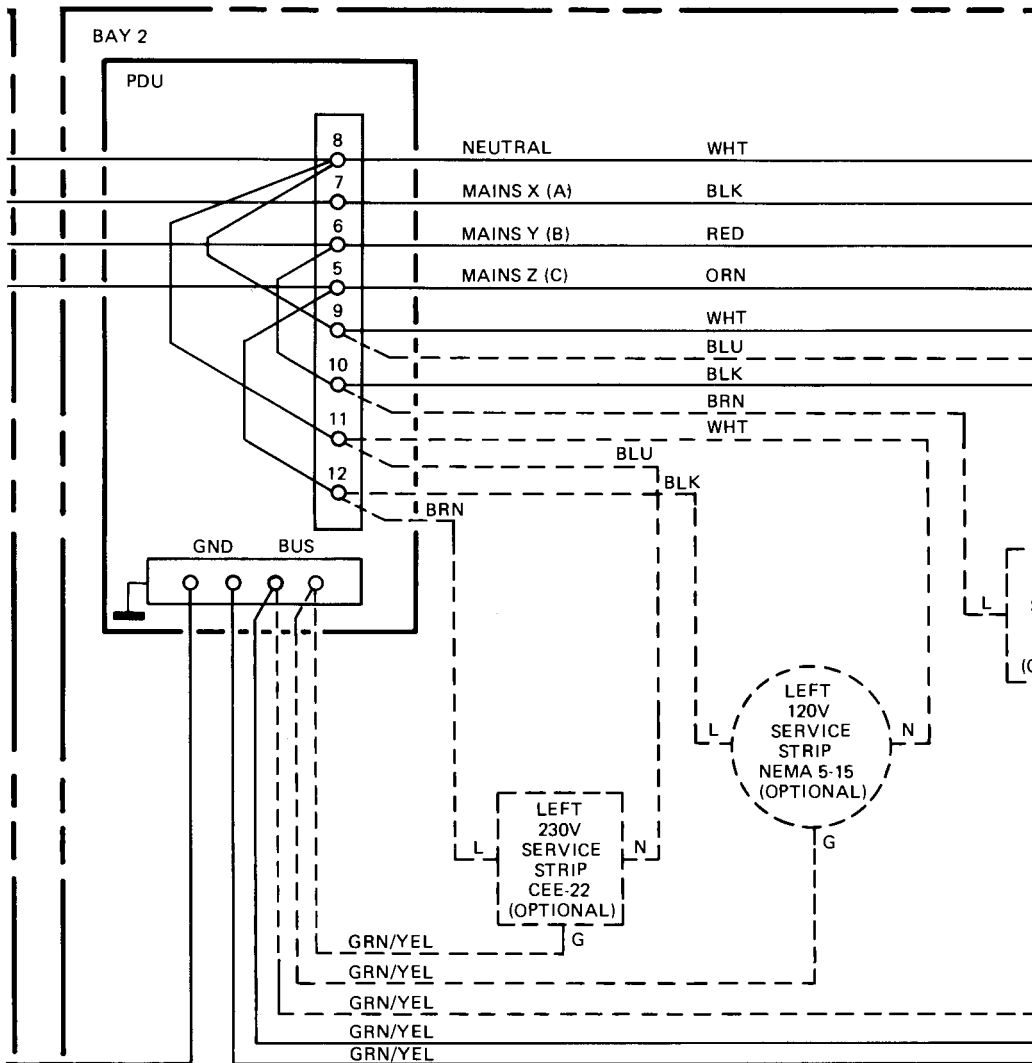




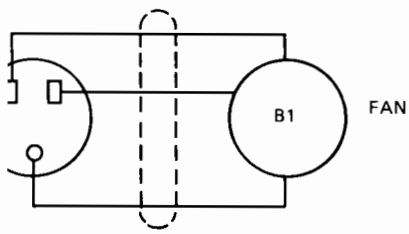
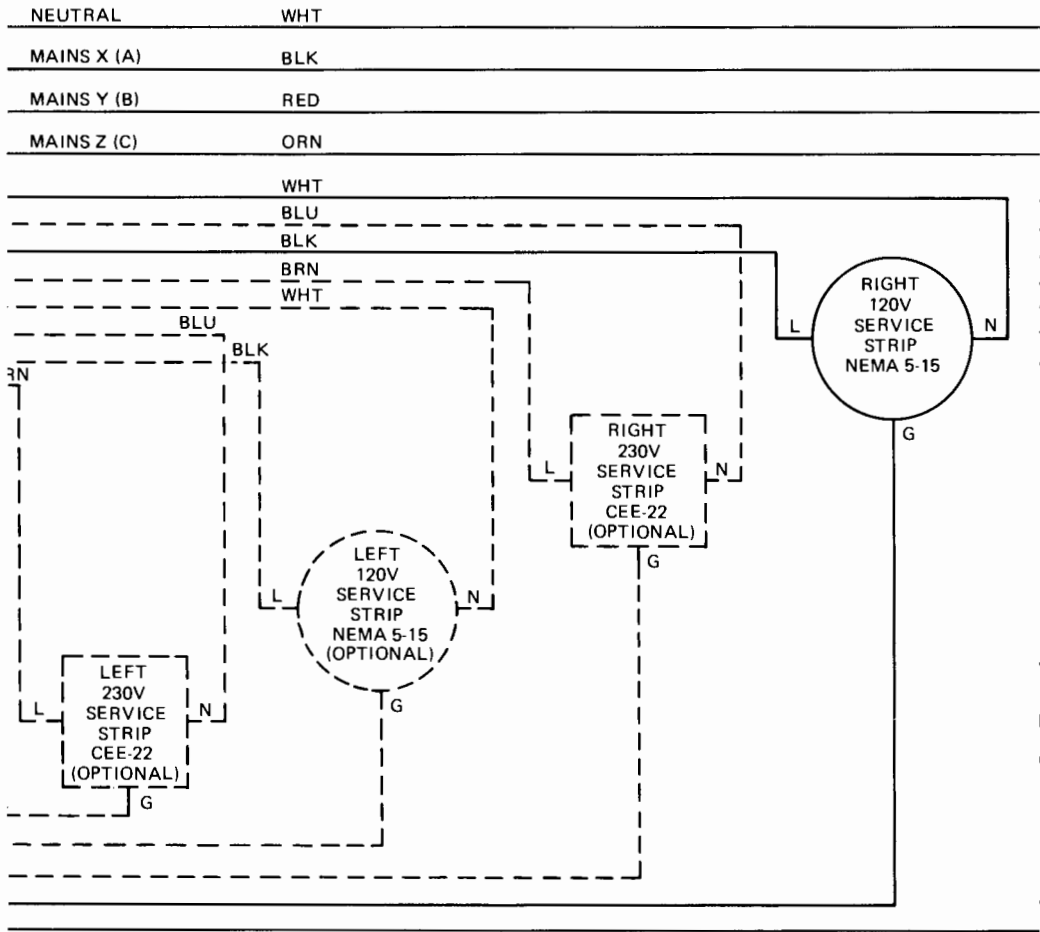
NO
1.

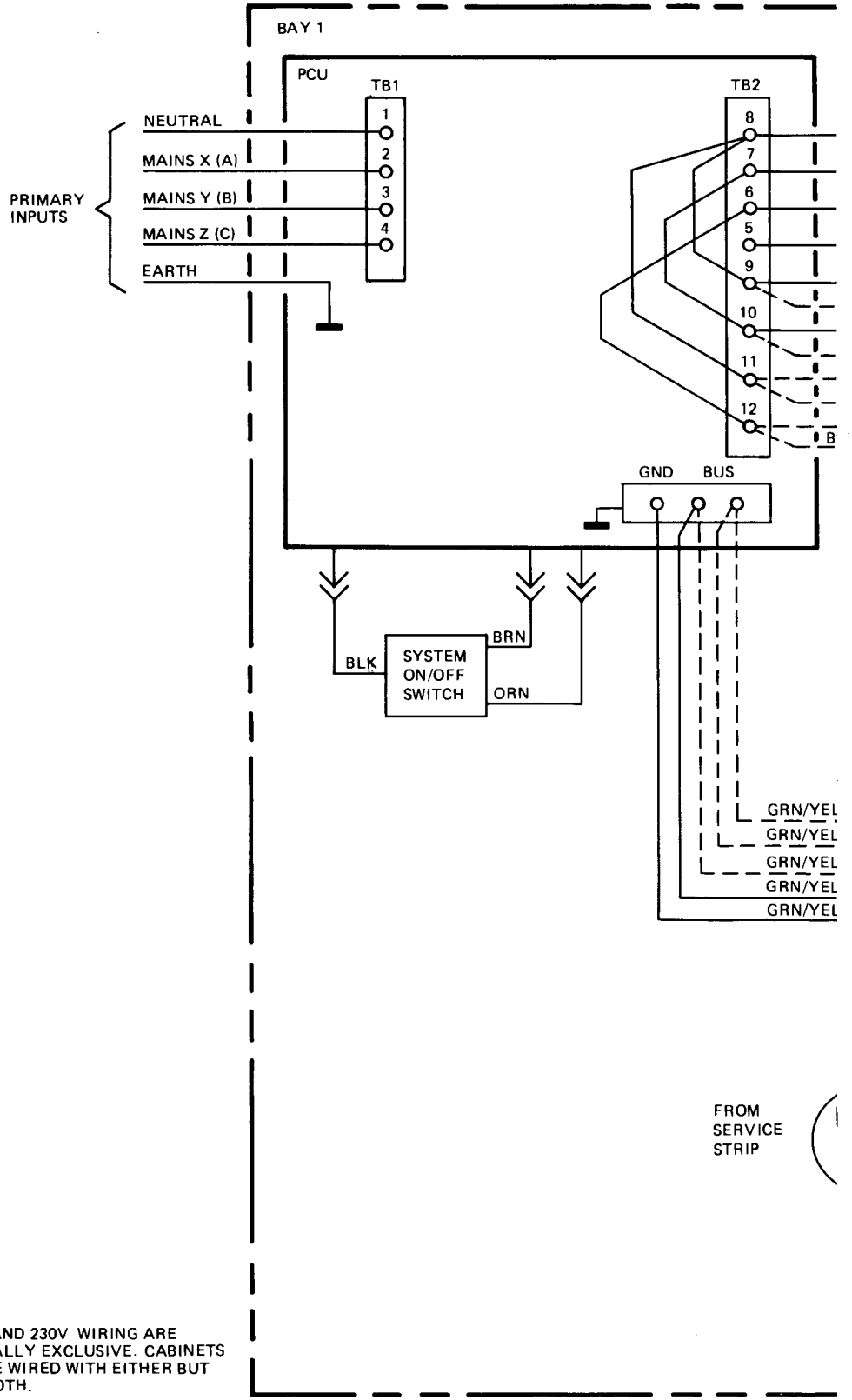
Figure 3-2. Cabinet Wiring Diagram





NO1
1.





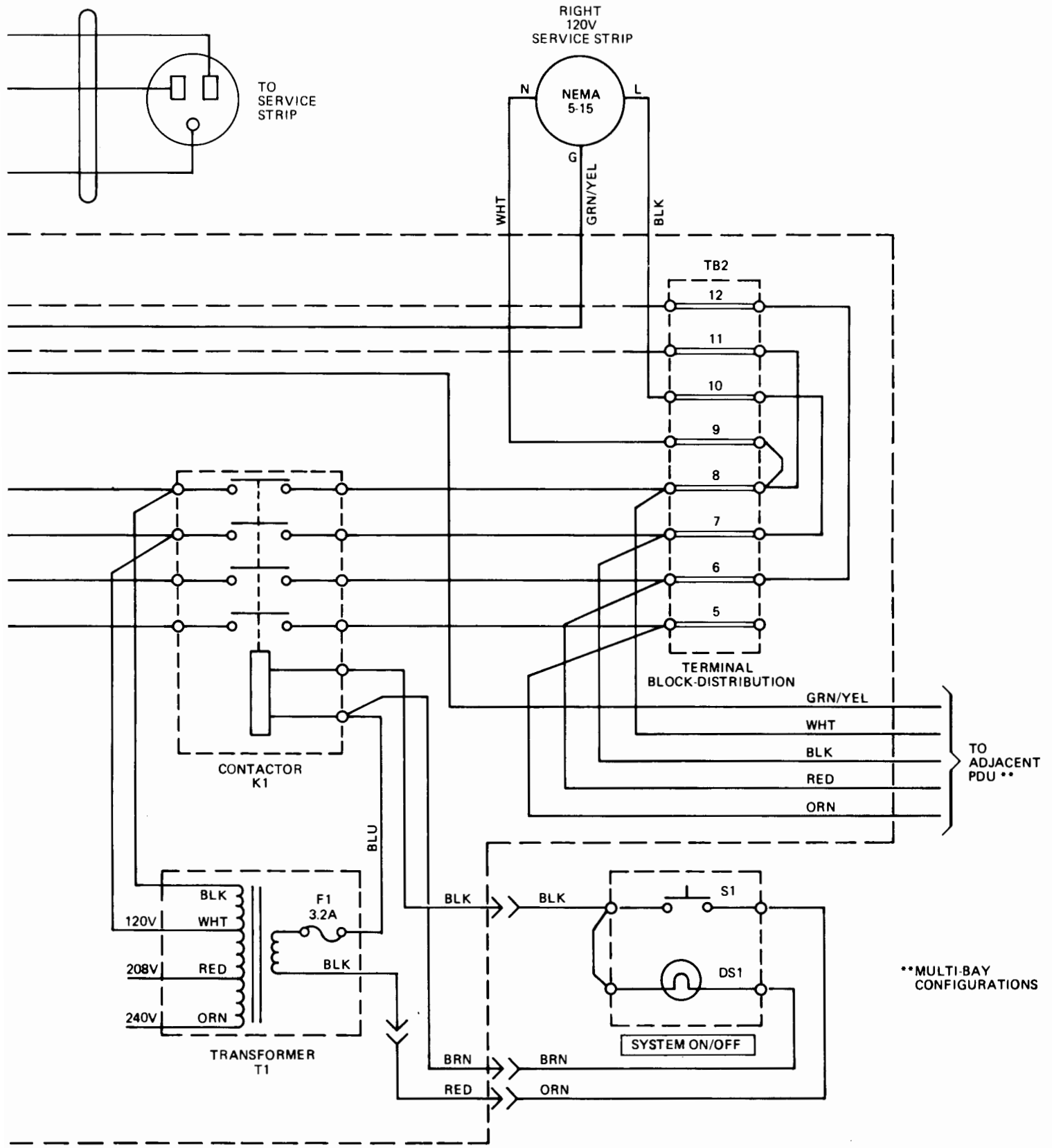
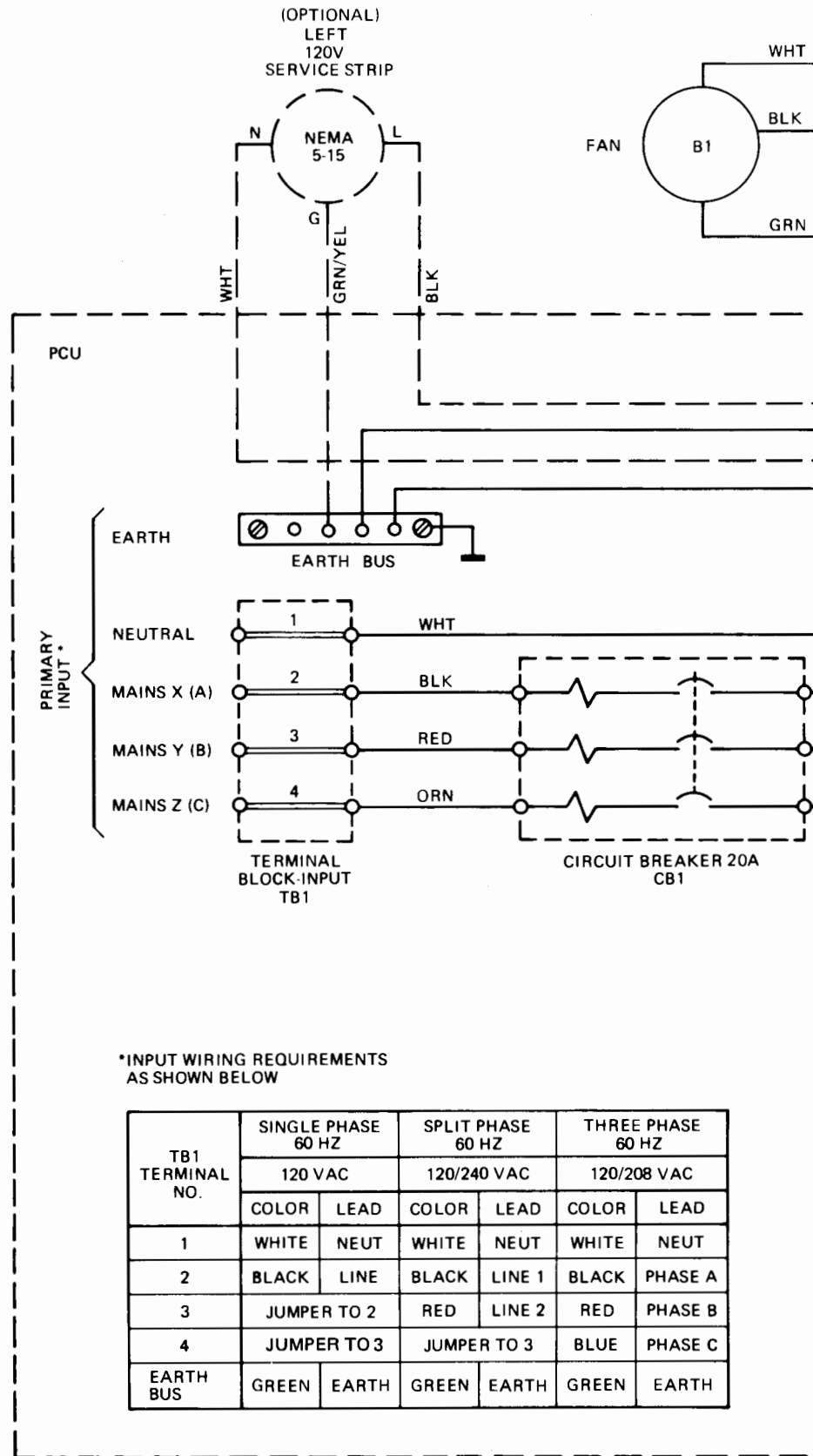


Figure 3-3. Option 200 Cabinet Wiring Diagram



*INPUT WIRING REQUIREMENTS AS SHOWN BELOW

TB1 TERMINAL NO.	SINGLE PHASE 60 HZ		SPLIT PHASE 60 HZ		THREE PHASE 60 HZ	
	120 VAC		120/240 VAC		120/208 VAC	
	COLOR	LEAD	COLOR	LEAD	COLOR	LEAD
1	WHITE	NEUT	WHITE	NEUT	WHITE	NEUT
2	BLACK	LINE	BLACK	LINE 1	BLACK	PHASE A
3	JUMPER TO 2		RED	LINE 2	RED	PHASE B
4	JUMPER TO 3		JUMPER TO 3		BLUE	PHASE C
EARTH BUS	GREEN	EARTH	GREEN	EARTH	GREEN	EARTH

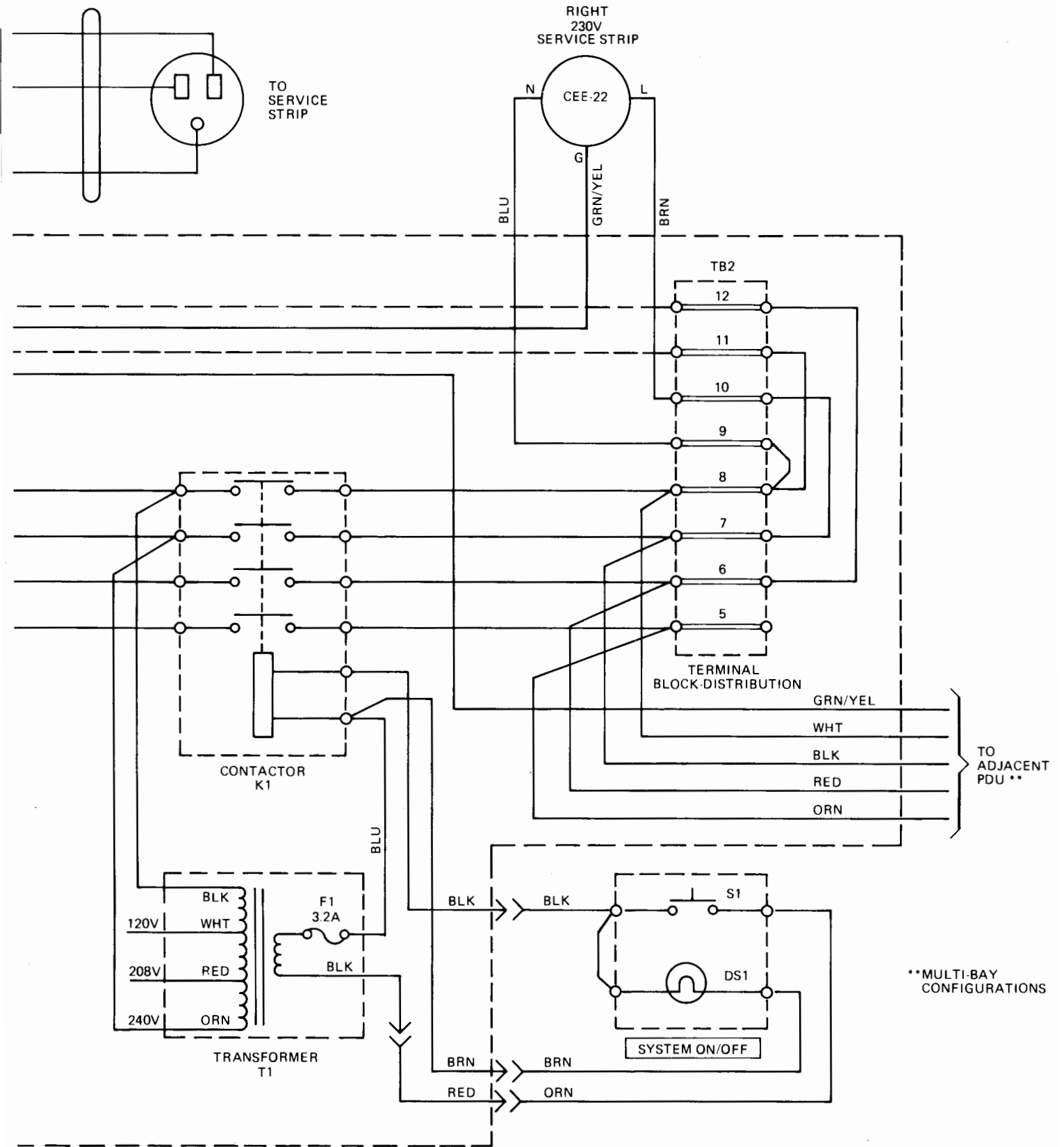
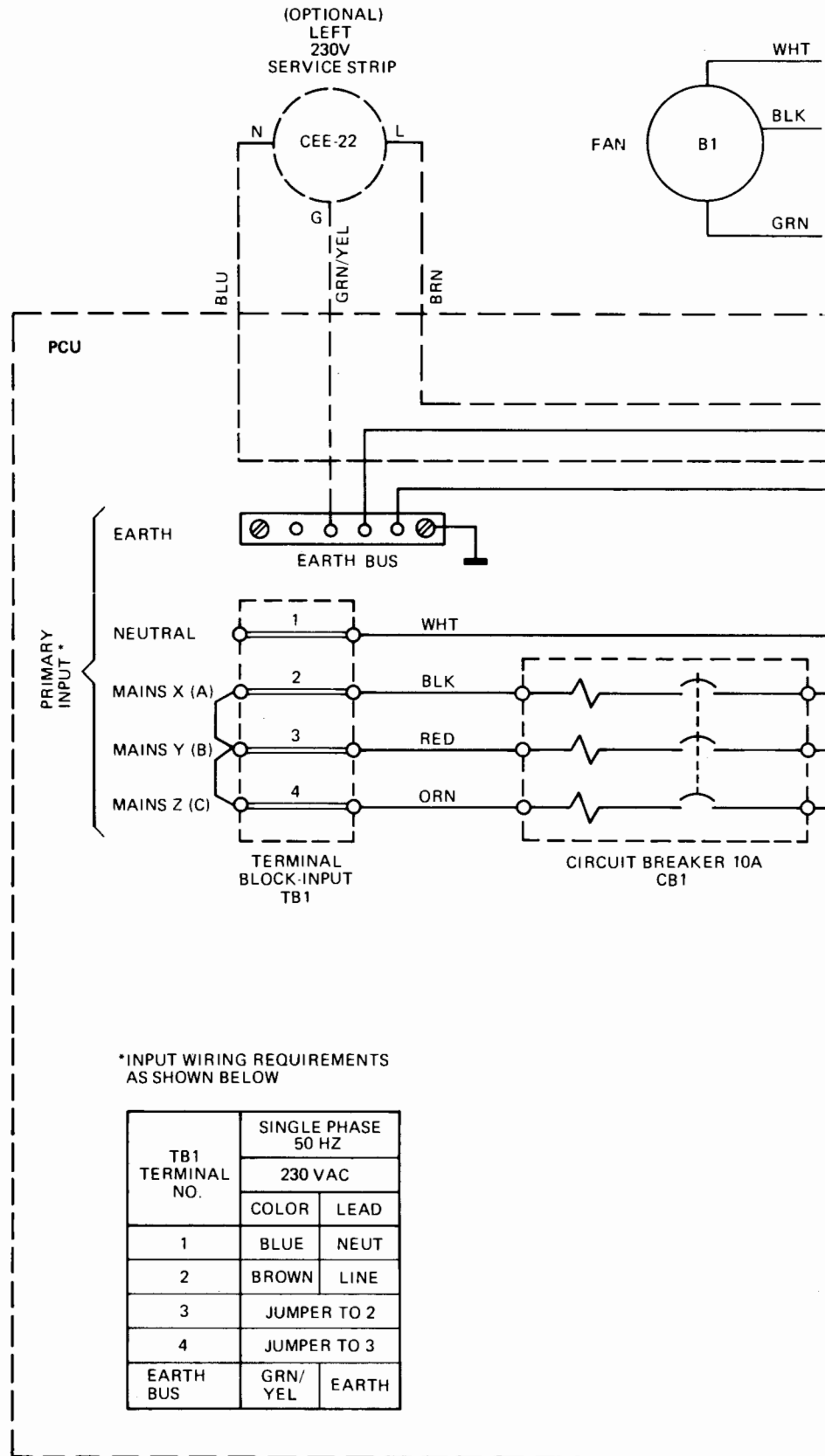


Figure 3-4. Option 210 Cabinet Wiring Diagram



*INPUT WIRING REQUIREMENTS AS SHOWN BELOW

TB1 TERMINAL NO.	SINGLE PHASE 50 HZ 230 VAC	
	COLOR	LEAD
1	BLUE	NEUT
2	BROWN	LINE
3	JUMPER TO 2	
4	JUMPER TO 3	
EARTH BUS	GRN/YEL	EARTH

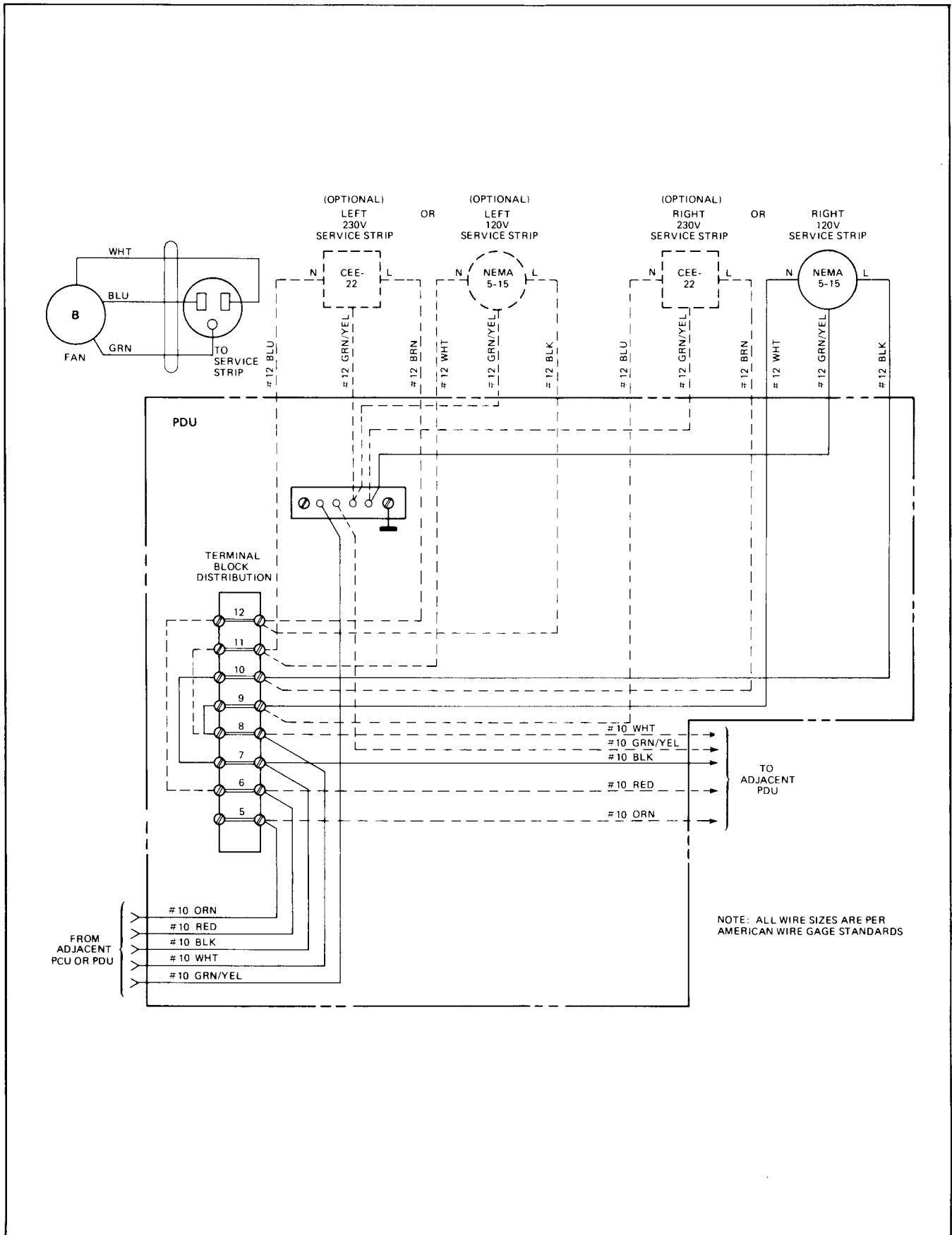


Figure 3-5. Fan Assembly Wiring Diagram

4-1. INTRODUCTION

This section contains information and instructions pertaining to preventive maintenance, troubleshooting, and repair of the cabinet.

4-2. PREVENTIVE MAINTENANCE

The cabinet requires a minimum of preventive maintenance. Table 4-1 lists the schedules for periodic inspection and cleaning of the cabinet.

Table 4-1. Preventive Maintenance Schedule

ROUTINE	SCHEDULE
Inspection (paragraph 4-3)	Monthly
Cleaning (paragraph 4-4)	Every 2 weeks

4-3. INSPECTION

The cabinet should be periodically inspected for signs of mechanical and electrical defects. Electrical components that show signs of overheating, frayed insulation, and other signs of deterioration should be checked and a thorough investigation made to verify proper operation. Mechanical parts should be inspected for excessive wear, looseness, misalignment, and corrosion.

4-4. CLEANING

The cabinet should be kept free of dust, moisture, grease, and foreign matter to ensure trouble-free operation of the system units. A dry, clean cloth, a soft bristle brush, or a cloth saturated with mild detergent solution or a similar cleaning compound may be used to clean the metal portion of the cabinet.

NOTE

A vacuum cleaner or other equipment that generates line noise should not be connected to the service strips while the units are in operation. Erratic unit operation may result.

The filters for the blower (or fan) of the cabinet should be cleaned to ensure that the cabinet remains free of dust. To clean the filters, vacuum the outer side (only).

4-5. TROUBLESHOOTING

Because most of the cabinet consists of mechanical parts, troubleshooting is confined to the power and ventilation systems. Checkout of the power system consists of voltage and continuity checks at the service strips and the power assembly, using a multimeter or equivalent test equipment. Figures 3-2 through 3-5 illustrate the power assembly, fan, PDU, and service strip wiring. Checkout of the ventilation system consists of checking the fan for proper operation and checking the fan filter and ventilated panels in the rear of the cabinet for airflow obstructions.

WARNING

Dangerous line voltages are present at various points within the cabinet. Use extreme caution when working on the cabinet with the protective covers removed, or serious injury could result.

4-6. REMOVAL AND REPLACEMENT

The following paragraphs contain information pertaining to the removal and replacement of cabinet parts. Simple and obvious procedures are not included. Parts location diagrams are contained in Section V and should be used in conjunction with these procedures. Once removed, cabinet parts may be replaced by performing the removal procedures in reverse order.

4-7. REAR DOOR REMOVAL

The rear door is equipped with spring-loaded hinge pins for fast removal and replacement. Refer to figure 5-1 for a detailed view of rear door hinge pins. Remove doors as follows:

- Unlock door and swing it fully open.
- Support weight of door with one hand and grasp upper hinge pin with other hand.
- Pull upper hinge pin down until free of hinge bracket; move door slightly ajar and release hinge pin.
- Grasp door and pull up until free of cabinet; then pull door away from cabinet.

4-8. POWER ASSEMBLY OR POWER CONTROL UNIT REMOVAL

The following procedures describe how to disconnect the wiring from the PCU in preparation for removing or replacing either the PCU or the entire power assembly.

WARNING

Dangerous line voltages, which could cause serious injury are present within the cabinet. Therefore, before performing the following procedures, ensure that power to the cabinet is shut off and will not be turned on by personnel unaware that work is being done on the cabinet.

NOTE

Wires disconnected from terminal blocks in the following procedure should be disconnected, tagged one at a time, and covered with insulating tape. The tag should identify the terminal to which the wire is to be reconnected during replacement.

- a. Turn off or disconnect main power to the cabinet at the service panel. Fix a tag to the circuit breaker indicating maintenance work is being performed and power is not to be turned on.
- b. Set the circuit breaker on the power assembly to the OFF position.
- c. Remove the inspection plate (1, figure 5-3).
- d. Disconnect and tag the four wires from the primary power terminal block TB1, located behind the inspection plate.
- e. Loosen the clamp fitting assembly screws (7, figure 5-4) and pull the electrical cable free of the power assembly.
- f. Remove the end case (3) which covers distribution terminal block TB2.
- g. Disconnect and tab each wire which connects to TB2 from an external load and pull wires free of PCU.
- h. Disconnect the three-wire cable (consisting of a brown, black, and orange wire) at the three quick-disconnect connectors (one for each wire) located at a distance, along the cable, approximately 18 inches from the PCU.

4-9. POWER DISTRIBUTION UNIT REMOVAL

The following procedures describe removal of the power distribution unit (PDU) from a cabinet. Replacement is essentially the reverse of removal. Two sets of procedures are provided. One set is for removal of a PDU from a bay 2 cabinet. The second set is for removal from a bay 3 cabinet.

4-10. REMOVAL OF A POWER DISTRIBUTION UNIT FROM A BAY 2 CABINET. To remove a PDU from a bay 2 cabinet, proceed as follows:

WARNING

Dangerous line voltages, which could cause serious injury are present within the cabinet. Therefore, before performing the following procedures, ensure that power to the cabinet is shut off and will not be turned on by personnel unaware that work is being done on the cabinet.

- a. Turn off or disconnect main power to all cabinets in the group of cabinet bays to be worked on at the service panel. Fix a tag to the circuit breaker indicating maintenance work is being performed and power is not to be turned on.
- b. At the bay 1 cabinet power assembly, remove the end case (3, figure 5-4) of the PCU to expose TB2.
- c. Disconnect and tag the wires from TB2-5, 6, 7, and 8 and the earth bus which run from the PCU to the PDU in bay 2.
- d. Loosen the clamp fitting assembly screws (7) and pull the cable, which runs to the PDU in bay 2, free of the PCU.
- e. At the bay 2 cabinet, remove the screws which secure the fan assembly to the cabinet and pull the fan assembly out several inches from the cabinet to gain access to the PDU.
- f. Remove the cover (1, figure 5-6) from the PDU.
- g. If a third bay is not installed, skip to step j.
- h. Disconnect and tag the wires from TB2-5, 6, 7, and 8 and the earth bus which run from the bay 2 PDU to the bay 3 PDU.
- i. Loosen the clamp fitting assembly screws (8) and pull the cable, which runs to the PDU in bay 3, free of the PDU.

- j. Disconnect and tag the three wires running from the power service strip to TB2.
- k. Unplug the cable connecting the fan to the connector assembly.
- l. Remove the PDU from the fan panel by removing the fastening screws.

4-11. REMOVAL OF A POWER DISTRIBUTION UNIT FROM A BAY 3 CABINET. To remove a PDU from a bay 3 cabinet, proceed as follows:

WARNING

Dangerous line voltages, which could cause serious injury are present within the cabinet. Therefore, before performing the following procedures, ensure that power to the cabinet is shut off and will not be turned on by personnel unaware that work is being done on the cabinet.

- a. Turn off or disconnect main power to all cabinets in the group of cabinet bays to be worked on at the service panel. Fix a tag to the circuit breaker indicating maintenance work is being performed and power is not to be turned on.
- b. At the bay 2 cabinet, remove the screws which secure the fan assembly to the cabinet and pull the fan assembly out several inches from the cabinet to gain access to the PDU.
- c. Remove the cover (1, figure 5-6) from the PDU.
- d. Disconnect and tag the wires from TB2-5, 6, 7, and 8 and the earth bus which run from the bay 2 PDU to the bay 3 PDU.
- e. Tighten all loosened screws on the terminal board.
- f. Loosen the clamp fitting assembly screws (8) and pull the cable, which runs to the PDU in bay 3, free of the PDU.
- g. At the bay 3 cabinet, remove the screws which secure the fan assembly to the cabinet and pull the fan assembly out several inches from the cabinet to gain access to the PDU.
- h. Remove the cover (1, figure 5-6) from the PDU.
- i. Disconnect and tag the three wires running from the power service strip to TB2.
- j. Unplug the cable connecting the fan to the power service strip.
- k. Remove the PDU from the fan panel by removing the fastening screws.

REPLACEABLE PARTS

SECTION

V

5-1. INTRODUCTION

This section contains parts information for the cabinet, power assembly, power control unit, fan assembly, and power distribution unit. Tables 5-1 through 5-6 and figures 5-1 through 5-6, respectively, list and illustrate field-replaceable parts of the HP 29402B Cabinet.

5-2. REPLACEABLE PARTS LISTS

Table 5-1 through 5-6 list the following information for each part:

- a. The figure and index number where the part is shown in the exploded view.
- b. Hewlett-Packard part number.
- c. Description of the part.
- d. Total quantity of each part used per assembly.

Items in the DESCRIPTION column of the replaceable parts lists are indented to indicate item relationships, as follows:

- *Subassembly
- *Attaching Parts for Subassembly
- **Subassembly Parts
- **Attaching Parts for Subassembly Parts

5-3. ORDERING INFORMATION

To order replacement parts, address order or inquiry to the local Hewlett-Packard Sales and Service Office. Specify the following information for each part ordered:

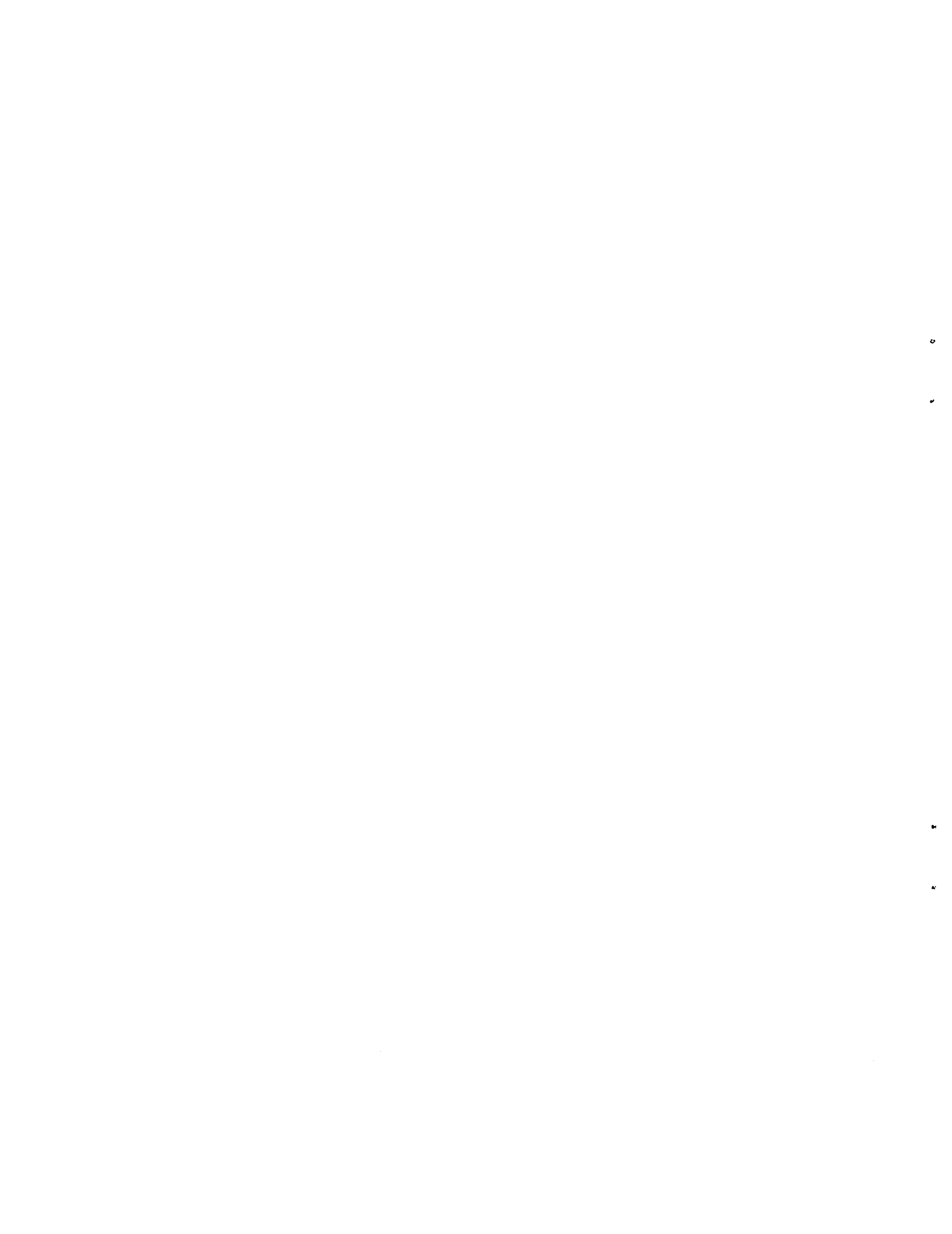
- a. Cabinet model (including options) and serial number.
- b. Hewlett-Packard part number for each part.
- c. Description of each part as provided in the replaceable parts lists.

Table 5-1. HP 29402B Cabinet Replaceable Parts

FIG & INDEX NO	HP PART NO	DESCRIPTION	ITEMS PER ASSY				
			STD	200	210	400	410
5-1-	40011-60001	*TIE-TOGETHER KIT (See figure 2-2)				1	1
1	0570-1101	*BOLT, eye	4	4	4	4	4
2	2190-0440	*WASHER, flat, 3/8 in. ID, .812 in. OD	4	4	4	4	4
3	02940-21027	*TRIM, panel	2	2	2	2	2
4	02940-60107	*REAR DOOR ASSEMBLY	1				
	02940-60141	*REAR DOOR ASSEMBLY, vented		1	1	1	1
5	3110-0066	**PIN, hinge	2	2	2	2	2
6	1460-1085	**SPRING, compression	2	2	2	2	2
7	0400-0064	**BUSHING, snap	2	2	2	2	2
8	2950-0007	**NUT, hex, 5/16-32	1	1	1	1	1
9	2190-0432	**WASHER, lock, 5/16 helical	1	1	1	1	1
10	02940-01263	**CAM, lock	1	1	1	1	1
11	2950-0152	**NUT, hex, 3/4-32	1	1	1	1	1
12	2190-0051	**WASHER, lock, 3/4 helical	1	1	1	1	1
13	1390-0344	**LOCK	1	1	1	1	1
14	0403-0091	**BUMPER, rubber (Attaching Parts)	2	2	2	2	2
	0624-0289	**SCREW, self-tapping, ph, no. 2-28	1	1	1	1	1
15	30390-00015	**BRACKET, door hinge (Attaching Parts)	1	1	1	1	1
	2680-0103	*SCREW, machine, ph, pozi, no. 10-32	1	1	1	1	1
	2190-0073	*WASHER, lock, no. 8	1	1	1	1	1
	3050-0055	*WASHER, flat, no. 10 ----- x -----	1	1	1	1	1
16	02940-01259	*TRIM STRIP, top rear (Attaching Parts)	1	1	1	1	1
	2360-0196	*SCREW, machine, fh, no. 6-32, 0.375L ----- x -----	2	2	2	2	2
17	02940-01006	*PANEL, entry, 5.25 in. (Attaching Parts)	1	1	1	1	1
	2680-0107	*SCREW, machine, ph, no. 10-32, 0.75L	4	4	4	4	4
	2190-0074	*WASHER, lock, helical, no. 10 ----- x -----	4	4	4	4	4
18	02940-21121	*PANEL, perforated, 5.25 in. (Attaching Parts)	2				
	2680-0107	*SCREW, machine, ph, no. 10-32, 0.75L	8				
	2190-0074	*WASHER, lock helical, no. 10 ----- x -----	4				
19	02940-60078	*FAN ASSEMBLY, 120 VAC, 60 HZ (See figure 5-5) (Attaching Parts)				1	
	2680-0107	*SCREW, machine, ph, no. 10-32, 0.75L				4	
	2190-0074	*WASHER, lock, helical, no. 10 ----- x -----				4	
	02940-60086	*FAN ASSEMBLY, 230 VAC, 50 HZ (See figure 5-5) (Attaching Parts)					1
	2680-0107	*SCREW, machine, ph, no. 10-32, 0.75L					4
	2190-0074	*WASHER, lock, helical, no. 10 ----- x -----					4
20	02940-60076	*POWER ASSEMBLY, 120 VAC, 60 HZ, 20A per line (See figure 5-3)		1			
	02940-60081	*POWER ASSEMBLY, 230 VAC, 50 HZ (See figure 5-3) (Attaching Parts)			1		
	2680-0107	*SCREW, machine, ph, no. 10-32, 0.75L		4	4		
	2190-0074	*WASHER, lock, helical, no. 10 ----- x -----		4	4		
21	12679-20001	*SUPPORT, angle (Attaching Parts)	10	10	10	10	10
22	2940-0103	*SCREW, cap, hex head, no. 1/4-20	20	20	20	20	20
23	2190-0032	*WASHER, lock, helical, 1/4 in.	20	20	20	20	20
24	0590-0789	*NUT, channel, cd, pl, no. 1/4-20 ----- x -----	20	20	20	20	20

Table 5-1. HP 29402B Cabinet Replaceable Parts (Continued)

FIG & INDEX NO	HP PART NO	DESCRIPTION	ITEMS PER ASSY				
			STD	200	210	400	410
25	02940-20004	*HOLDER, nameplate	1	1	1	1	1
26	2360-0196	*SCREW, machine, fh, no. 6-32, .375L	2	2	2	2	2
27	02940-80010	*NAMEPLATE, HP, drilled for switch		1	1		
	02940-80011	*NAMEPLATE, HP	1			1	1
28	02940-01014	*COVER, top (Attaching Parts)	1	1	1	1	1
	2360-0196	*SCREW, machine, fh, no. 6-32, .375L — — — x — — — —	4	4	4	4	4
29	02940-60008	*SWITCH ASSEMBLY		1	1		
	3105-0029	**SWITCH		1	1		
	2140-0383	**LAMP		1	1		
	1450-0706	**LENS — — — x — — — —		1	1		
30	NO NUMBER	*BASE ASSEMBLY, (See figure 5-2) (Attaching Parts)	1	1	1	1	1
31	2940-0221	*SCREW, cap, hex head, no. 3/8-16	4	4	4	4	4
32	2190-0792	*WASHER, lock, helical, 3/8 in. — — — x — — — —	4	4	4	4	4
33	02940-00021	*COVER, BOTTOM (Attaching Parts)	1	1	1	1	1
34	2360-0196	*SCREW, machine, fh, no. 6-32, .375L — — — x — — — —	4	4	4	4	4
35	02940-01018	*TRIM STRIP (Attaching Parts)	2	2	2	2	2
	2360-0196	*SCREW, machine, fh, no. 6-32, .375L — — — x — — — —	2	2	2	2	2
36	7120-0134	*PLATE, identification	1	1	1	1	1
37	1251-3666	*CONNECTOR ASSEMBLY		1		1	
	1251-3669	*CONNECTOR ASSEMBLY (Attaching Parts)			1		1
38	2510-0106	*SCREW, machine, fh, no. 8-32, 0.5L		3	3	3	3
39	1251-3969	*CLAMP, connector assembly		3	3	3	3
40	3050-0055	*WASHER, flat, no. 8		3	3	3	3
41	0590-0818	*NUT, channel, no. 8 — — — x — — — —		3	3	3	3
42	02940-21003	*FRAME (Attaching Parts)	2	2	2	2	2
43	3030-0370	*SCREW, cap, hex socket head, no. 3/4-10, 2.5 in. — — — x — — — —	8	8	8	8	8
44	02940-01250	*PANEL, side, removable	2	2	2		
	02940-01275	*PANEL, barrier (Attaching Parts)				1	1
	0624-0212	*SCREW, tapping, pozi, no. 6-32 — — — x — — — —	16	16	16	16	16
45	0590-0828	*STRIP, mounting, 1.74 in.	8	8	8	8	8
	0590-0829	*STRIP, mounting, 6.99 in.	24	24	24	24	24
46	02940-21089	*COLUMN, 56 in.	4	4	4	4	4



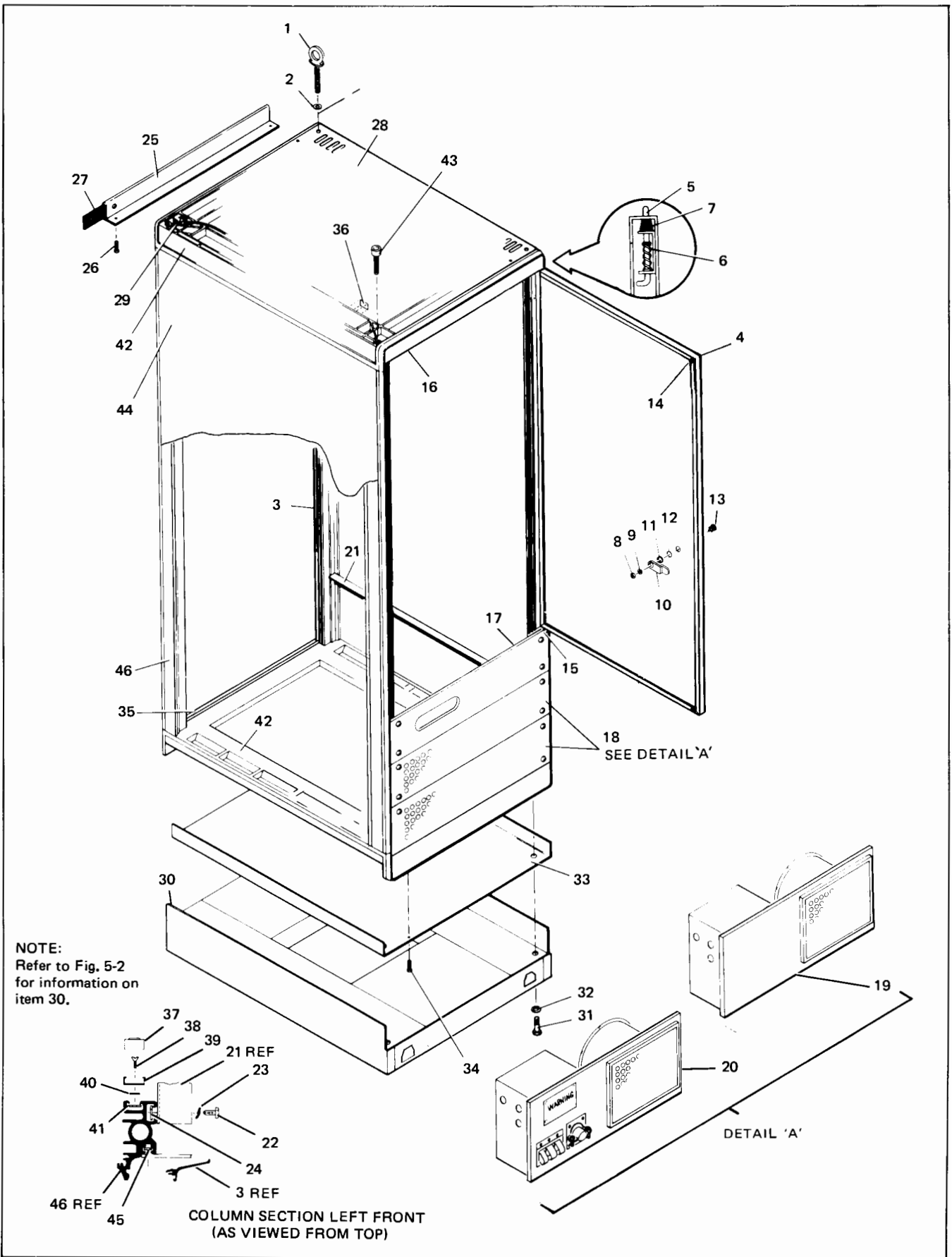


Figure 5-1. HP 29402B Cabinet Exploded View

Table 5-2. Base Assembly Replaceable Parts

FIG & INDEX NO	HP PART NO	DESCRIPTION	ITEMS PER ASSY		
			STD	200/210	400/410
5-2-	NO NUMBER	BASE ASSEMBLY (30, figure 5-1)			
1	0510-0005	*RING, retaining	2	2	2
2	1460-0661	*SPRING, compression	2	2	2
3	3050-0204	*WASHER, 1/4 in. ID	2	2	2
4	0510-0065	*RING, spiral retaining	2	2	2
5	02940-20130	*PIN, locking	2	2	2
6	02940-40001	*CAP, end	2	4	
7	0403-0323	*FOOT, cabinet	2	4	
8	02940-20124	*LEG, rack extender	2	4	
9	02940-40002	*PLUG, cap	4	4	4
10	1490-0909	*CASTER, swivel (Attaching Parts)	4	4	4
11	2950-0047	*NUT, hex, no. 5/16-18	16	16	16
12	2190-0432	*WASHER, lock, 5/16 helical	16	16	16
13	2940-0113	*SCREW, machine, no. 5/16-18 ----- x -----	16	16	16
14	02940-00290	*TRIM, end (Attaching Parts)	2	2	2
15	2740-0003	*NUT, hex, no. 10-32	6	6	6
16	3050-0027	*WASHER, flat, no. 10 ----- x -----	6	6	6
17	02940-00294	*TRIM, side (Attaching Parts)	2	2	2
18	0628-0003	*SCREW, tapping, ph, no. 6-20	2	2	2
19	3050-0016	*WASHER, flat, no. 6 ----- x -----	2	2	2
20	02940-01273	*CHANNEL DIVIDER (Attaching Parts)	2	2	2
21	2950-0004	*NUT, hex, no. 1/4-20	8	8	8
22	2190-0032	*WASHER, lock, 1/4 helical	8	8	8
23	2940-0055	*SCREW, cap, hex, no. 1/4-20 ----- x -----	8	8	8
24	02940-20127	*CHANNEL	2	2	2
25	0570-0617	*THUMBSCREW		2	

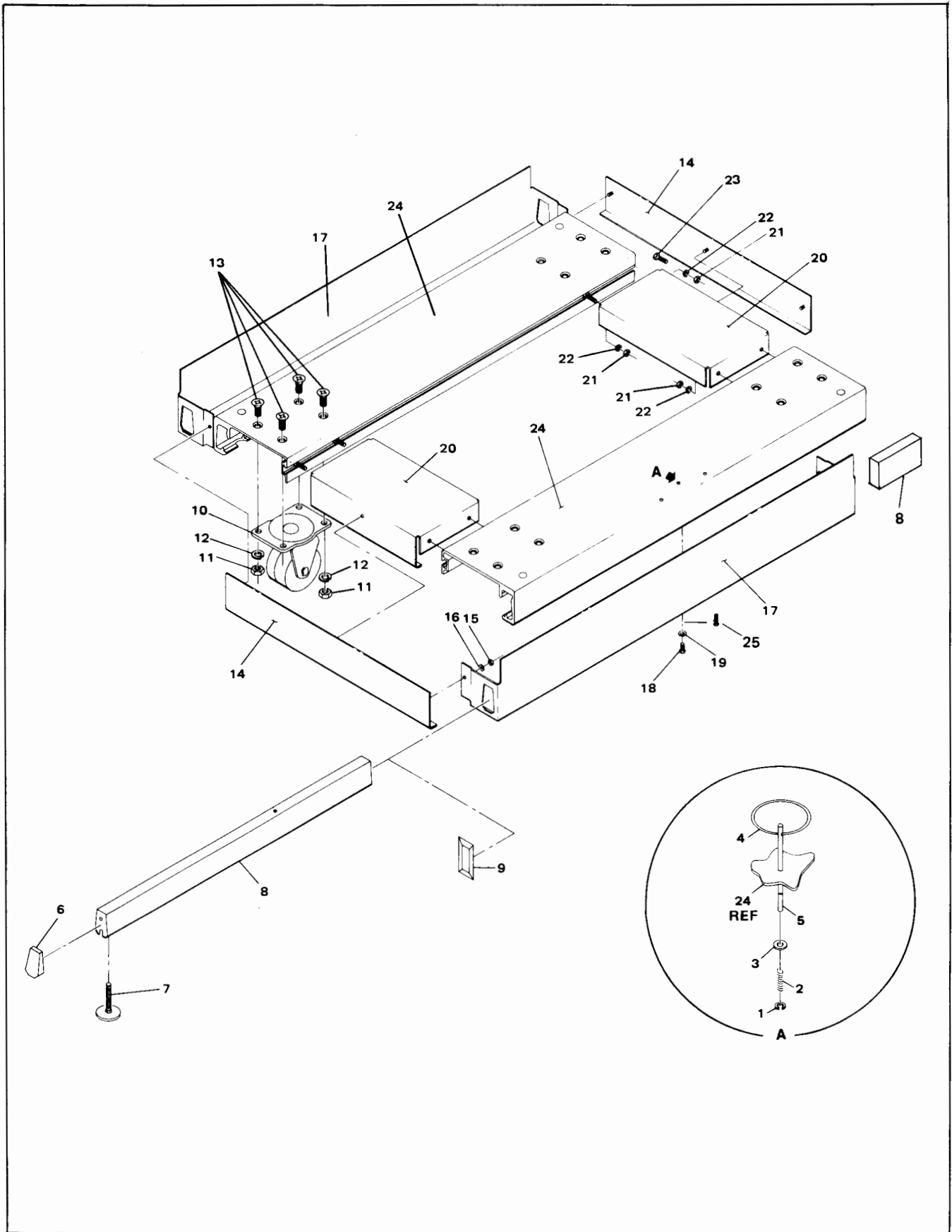


Figure 5-2. Base Assembly Exploded View

Table 5-3. Power Assembly Replaceable Parts

FIG & INDEX NO	HP PART NO	DESCRIPTION	ITEMS PER ASSY
5-3-	02940-60076	POWER ASSEMBLY, 20A, 120V (20, figure 5-1)	
	02940-60081	POWER ASSEMBLY, 10A, 230V (20, figure 5-1)	
1	02940-01238	*PLATE, inspection (Attaching Parts)	1
2	2360-0115	*SCREW, machine, ph, no. 6-32 — — — x — — —	4
3	NO NUMBER	*POWER CONTROL UNIT (See figure 5-4) (Attaching Parts)	1
4	2360-0115	*SCREW, machine, ph no. 6-32 — — — x — — —	4
5	3105-0038	*CIRCUIT BREAKER, 10A (Used with power assembly 02940-60081)	1
	3105-0039	*CIRCUIT BREAKER, 20A (Used with power assembly 02940-60076) (Attaching Parts)	1
6	2360-0115	*SCREW, machine, ph, no. 6-32 — — — x — — —	4
7	0100-0408	*CONNECTOR AND NUT ASSEMBLY	1
8	02940-01237	*PLATE, conduit (Attaching Parts)	1
9	2360-0113	*SCREW, machine, ph, no. 6-32 — — — x — — —	4
10	0626-0001	*SCREW, self-tapping, ph, no. 6-1/4	1
11	3150-0097	*FILTER, air	1
12	02940-00030	*CLIP, filter (Attaching Parts)	1
13	2580-0006	*NUT, hex, no. 8-32	1
14	2510-0103	*SCREW, machine, ph, no. 8-32 — — — x — — —	1
15	02940-00214	*BRACKET, filter (Attaching Parts)	1
16	2580-0006	*NUT, hex, no. 8-32	1
17	2510-0103	*SCREW, machine, ph, no. 8-32 — — — x — — —	1
18	3160-0213	*GUARD, fan (Attaching Parts)	1
19	2580-0006	*NUT, hex, no. 8-32	4
20	3050-0139	*WASHER, flat, no. 8	5
21	2510-0107	*SCREW, machine, ph, no. 8-32 — — — x — — —	4
22	1400-0024	*CLAMP, cable	1
23	2580-0006	*NUT, hex, no. 8-32	4
24	2510-0107	*SCREW, machine, ph, no. 8-32	4
25	0362-0395	*TERMINAL, crimp, no. 8	1
26	0362-0341	*SLEEVE, termination	2
27	8120-2058	*CORD, power, fan, 120V	1
	8120-1861	*CORD, power, fan, 230V	1
28	8120-2343	*CABLE SET, fan	1
29	2580-0006	*NUT, hex, no. 8-32	4
30	2510-0107	*SCREW, machine, ph, no. 8-32	4
31	3050-0139	*WASHER, flat, no. 8	4
32	3160-0213	*GUARD, fan	1
33	3160-0210	*FAN, tubeaxial, 120V	1
	3160-0211	*FAN, tubeaxial, 230V	1
34	02940-01232	*PANEL, power	1
35	8120-2517	*CORD, main power, 120V, single-phase only	1

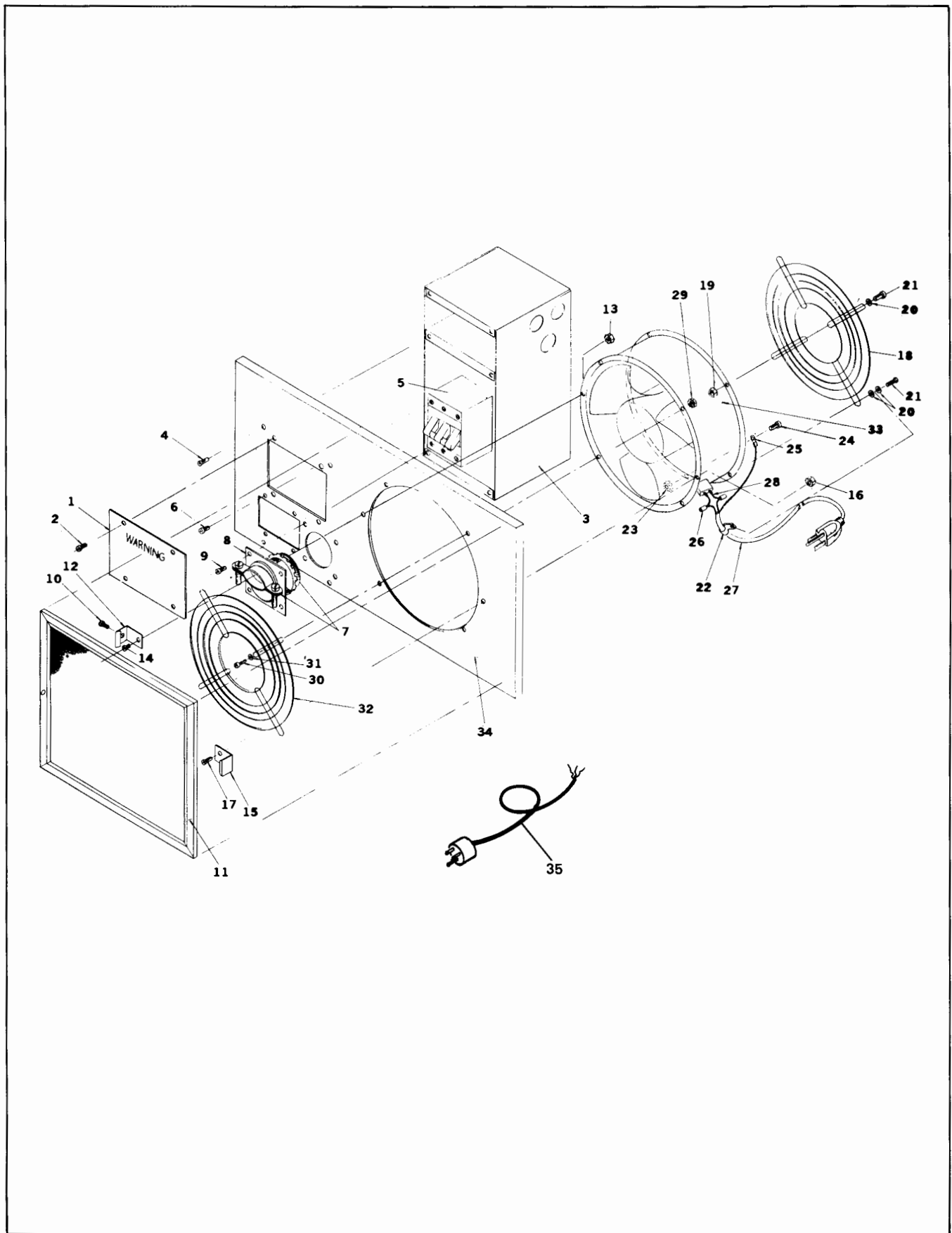


Figure 5-3. Power Assembly Exploded View

Table 5-4. Power Control Unit Replaceable Parts

FIG & INDEX NO	HP PART NO	DESCRIPTION	ITEMS PER ASSY
5-4-			
1	NO NUMBER 02940-00271	POWER CONTROL UNIT (3, figure 5-3) *COVER (Attaching Parts)	1
2	2360-0113	*SCREW, machine, ph, no. 6-32 ----- x -----	6
3	02940-00266	*END CASE (Attaching Parts)	2
4	2360-0113	*SCREW, machine, ph, no. 6-32 ----- x -----	9
5	02940-00267	*SIDE CASE (Attaching Parts)	1
6	2360-0113	*SCREW, machine, ph, no. 6-32 ----- x -----	2
7	0100-0300	*FITTING ASSEMBLY, clamp, conduit	1
8	0100-0433	*LOCKNUT, conduit	1
9	0100-0459	*FITTING ASSEMBLY, conduit	#
10	6960-0015	*HOLE PLUG, Nylon, for 0.812 in. hole	# #
11	02940-00268	*SIDE CASE, conduit (Attaching Parts)	1
12	2360-0113	*SCREW, machine, ph, no. 6-32 ----- x -----	2
13	NO NUMBER	*TERMINAL BLOCK ASSEMBLY (TB2) (Attaching Parts)	1
14	2580-0006	*NUT, hex, no. 8-32	2
15	3050-0139	*WASHER, flat, no. 8	2
16	2510-0107	*SCREW, machine, ph, no. 8-32 ----- x -----	2
	0360-1094	**TERMINAL END SECTION	1
	0360-1570	**TERMINAL SECTION	8
17	02940-00270	*BASE (Attaching Parts)	1
18	2360-0113	*SCREW, machine, ph, no. 6-32 ----- x -----	2
19	9100-3506	*TRANSFORMER (T1) (Attaching Parts)	1
20	2740-0002	*NUT, hex, no. 10-32	4
21	2190-0074	*WASHER, lock, helical, no. 10	4
22	3050-0226	*WASHER, flat, no. 10 ----- x -----	4
23	0490-0844	*CONTACTOR (Attaching Parts)	1
24	2740-0002	*NUT, hex, no. 10-32	4
25	2190-0074	*WASHER, lock, helical, no. 10	4
26	3050-0226	*WASHER, flat, no. 10 ----- x -----	4
27	NO NUMBER	*TERMINAL BLOCK ASSEMBLY (TB1) (Attaching Parts)	1
28	2580-0006	*NUT, hex, no. 8-32	2
29	3050-0139	*WASHER, flat, no. 8	2
30	2510-0107	*SCREW, machine, ph, no. 8-32 ----- x -----	2
	0360-1094	**TERMINAL END SECTION	1
	0360-1570	**TERMINAL SECTION	8

NOTE 1: Either one or two of these parts are used. If only one is used, the second is replaced by part no. 6960-0015.
 # # NOTE 2: This part may not be used. If used, the quantity is 1. If not used, it is replaced by part no. 0100-0459.

Table 5-4. Power Control Unit Replaceable Parts (Continued)

FIG & INDEX NO	HP PART NO	DESCRIPTION	ITEMS PER ASSY
31	2510-0099	*SCREW, machine, ph, no. 8-32	4
32	2190-0087	*WASHER, lock, internal tooth, no. 8	4
33	02940-20122	*GROUNDING BAR (Attaching Parts)	1
34	2580-0006	*NUT, hex, no. 8-32	2
35	2510-0123	*SCREW, machine, fh, no. 8-32	1
36	2510-0107	*SCREW, machine, ph, no. 8-32 ----- x -----	1
37	02940-00269	*DECK	1

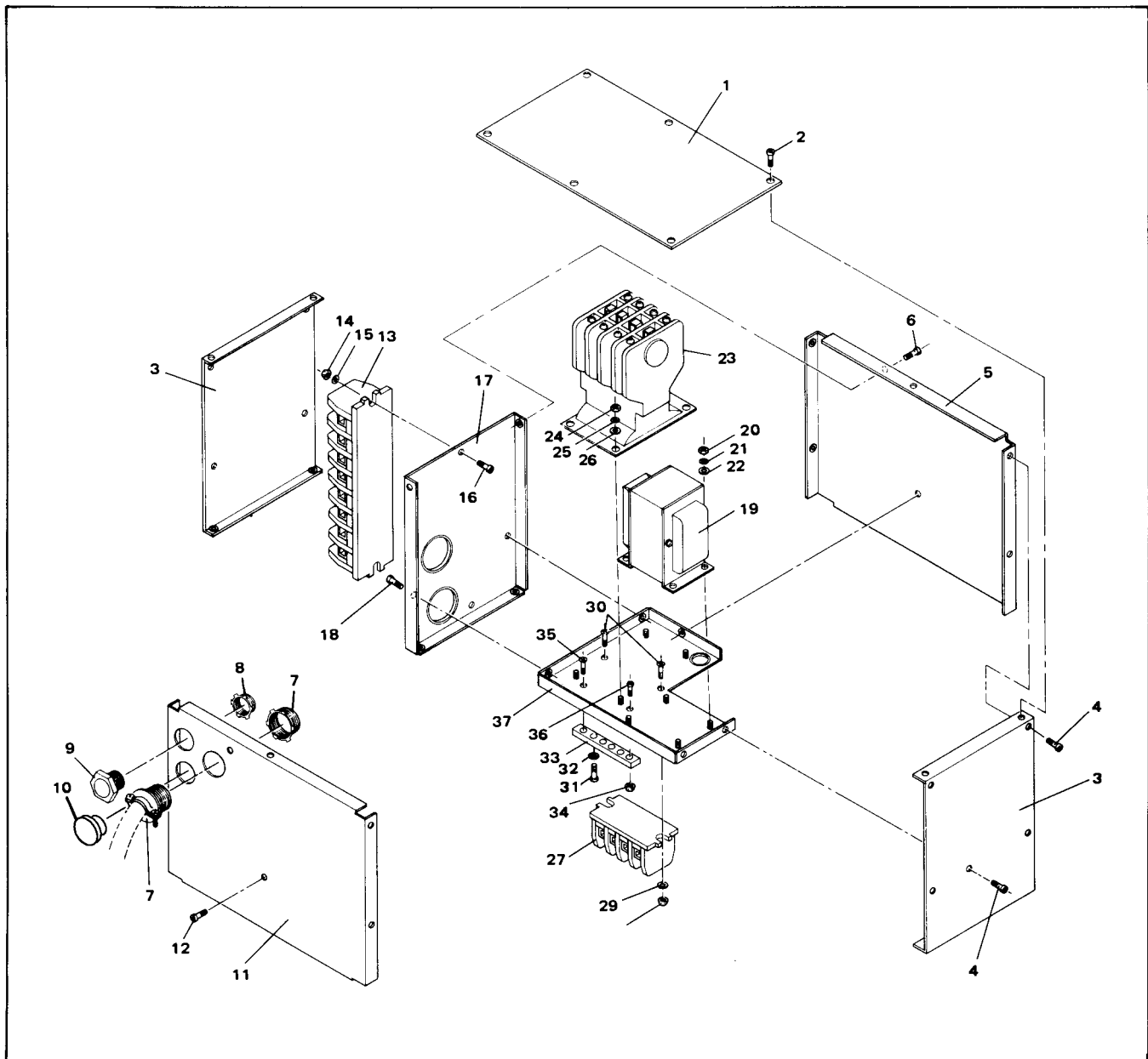


Figure 5-4. Power Control Unit Exploded View

Table 5-5. Fan Assembly Replaceable Parts

FIG & INDEX NO	HP PART NO	DESCRIPTION	ITEMS PER ASSY
5-5-	02940-60078	FAN ASSEMBLY, 120V (19, figure 5-1)	
	02940-60086	FAN ASSEMBLY, 230V (19, figure 5-1)	
1	0626-0001	*SCREW, self-tapping, ph	1
2	3150-0097	*FILTER, air	1
3	02940-00030	*CLIP, filter (Attaching Parts)	1
4	2580-0006	*NUT, hex, no. 8-32	1
5	2510-0103	*SCREW, machine, ph, no. 8-32 — — — x — — —	1
6	02940-00214	*BRACKET, filter (Attaching Parts)	1
7	2580-0006	*NUT, hex, no. 8-32	1
8	2510-0103	*SCREW, machine, ph, no. 8-32 — — — x — — —	1
9	NO NUMBER	*POWER DISTRIBUTION UNIT, 120V (See figure 5-6)	1
	NO NUMBER	*POWER DISTRIBUTION UNIT, 230V (See figure 5-6) (Attaching Parts)	1
10	2360-0115	*SCREW, machine, ph, no. 6-32 — — — x — — —	4
11	3160-0213	*GUARD, fan (Attaching Parts)	1
12	2580-0006	*NUT, hex, no. 8-32	4
13	2510-0107	*SCREW, machine, ph, no. 8-32	4
14	3050-0139	*WASHER, flat, no. 8 — — — x — — —	4
15	2580-0006	*NUT, hex, no. 8-32	1
16	2510-0103	*SCREW, machine, ph, no. 8-32	1
17	1400-0024	*CLAMP, cable	1
18	0362-0341	*SLEEVE, termination	2
19	0362-0395	*TERMINAL, crimp, no. 8	1
20	8120-2058	*CORD, fan power, 120V	1
	8120-1861	*CORD, fan power, 230V	1
21	8120-2343	*CABLE SET, fan	1
22	2580-0006	*NUT, hex, no. 8-32	4
23	2510-0107	*SCREW, machine, ph, no. 8-32	4
24	3050-0139	*WASHER, flat, no. 8	4
25	3160-0213	*GUARD, fan	1
26	3160-0210	*FAN, tubeaxial, 120V	1
	3160-0211	*FAN, tubeaxial, 230V	1
27	02940-01234	*PANEL, fan	1

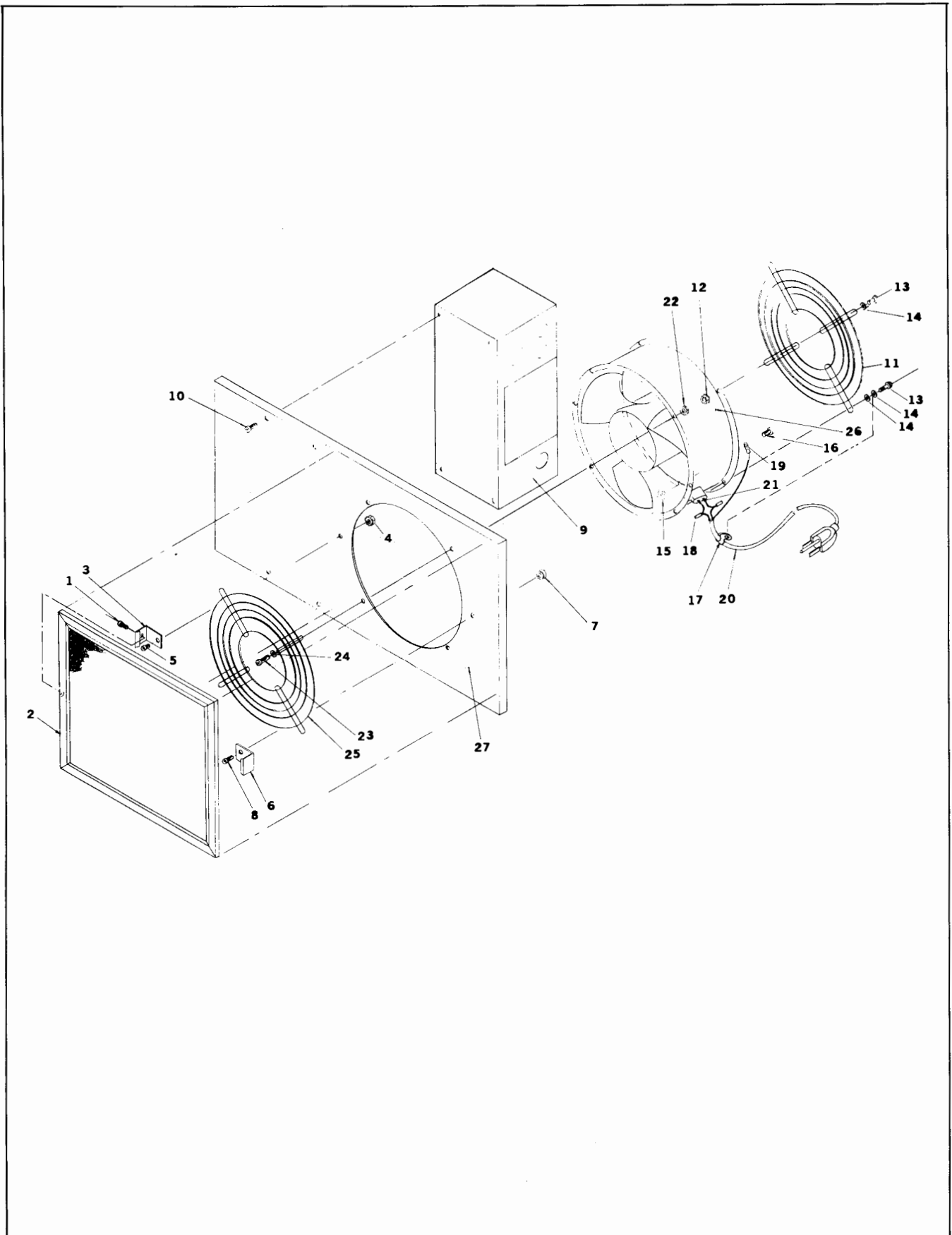


Figure 5-5. Fan Assembly Exploded View

Table 5-6. Power Distribution Unit Replaceable Parts

FIG & INDEX NO	HP PART NO	DESCRIPTION	ITEMS PER ASSY
5-6-	NO NUMBER	*POWER DISTRIBUTION UNIT (9, figure 5-5)	
1	02940-00276	*COVER	1
2	2360-0113	*SCREW, machine, ph, no. 6-32 — — — x — — —	4
3	02940-00275	*END CASE (Attaching Parts)	2
4	2360-0113	*SCREW, machine, ph, no. 6-32 — — — x — — —	4
5	0100-0433	*LOCKNUT, conduit	#
6	0100-0459	*FITTING, conduit, 0.5 in.	#
7	6960-0015	*HOLE PLUG, Nylon, for 0.812 in. hole	# #
8	0100-0300	*FITTING ASSEMBLY, clamp, conduit	1
9	0100-0300	*FITTING ASSEMBLY, clamp, conduit	1
10	02940-60090	*CABLE, power (Used with fan assembly 02940-60078)	1
11	NO NUMBER	*TERMINAL BLOCK ASSEMBLY (Attaching Parts)	8
12	2580-0006	*NUT, hex, no. 8-32	2
13	3050-0139	*WASHER, flat, no. 8	2
14	2510-0123	*SCREW, machine, fh, no. 8-32 — — — x — — —	2
	0360-1094	**TERMINAL END SECTION	1
	0360-1570	**TERMINAL SECTION	8
15	2510-0099	*SCREW, machine, ph, no. 8-32	4
16	2190-0007	*WASHER, lock, no. 6	4
17	02940-20122	*GROUNDING BAR (Attaching Parts)	1
18	2580-0006	*NUT, hex, no. 8-32	2
19	2510-0123	*SCREW, machine, fh, no. 8-32 — — — x — — —	2
20	02940-00274	*CASE, power distribution unit	1

NOTE 1: Either one or two of these parts are used. If only one is used, the second is replaced by part no. 6960-0015.
 # # NOTE 2: This part may not be used. If used, the quantity is 1. If not used, it is replaced by part no. 0100-0459.

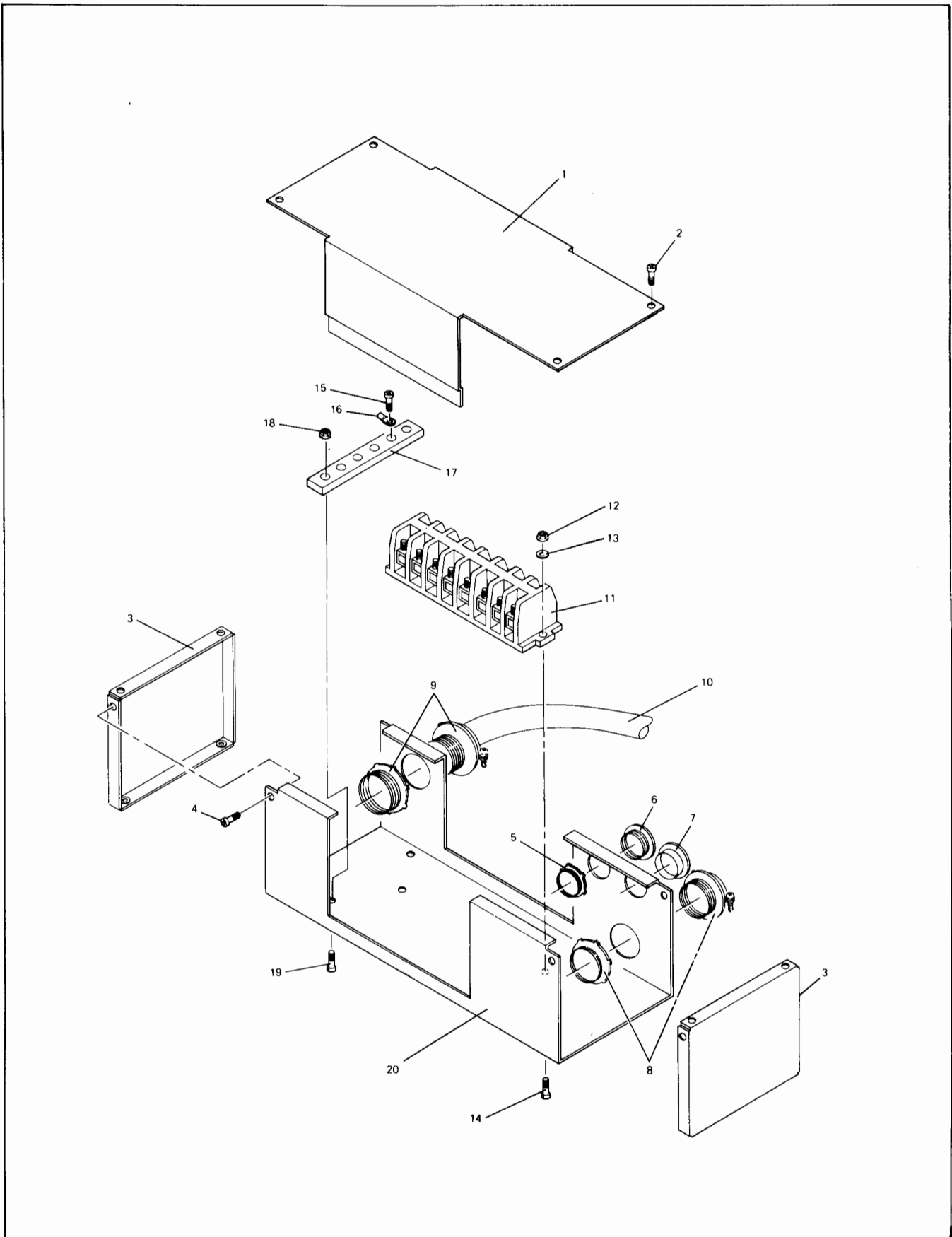


Figure 5-6. Power Distribution Unit Exploded View

