

For Lancer GPD 502 230V 1-10HP,  
460V 1-25HP and Lancer GPD 602  
230V 5-10HP, 460V 5-25HP  
Adjustable Frequency Drives

## DYNAMIC BRAKING (DB) KITS (BRAKING MODULES AND BRAKING RESISTOR UNITS)

SEE MODEL NUMBERS IN TABLE 1

Before installing this kit, a TECHNICALLY QUALIFIED INDIVIDUAL who is familiar with this type of equipment and the hazards involved, should READ this ENTIRE INSTRUCTION SHEET.

### IMPORTANT

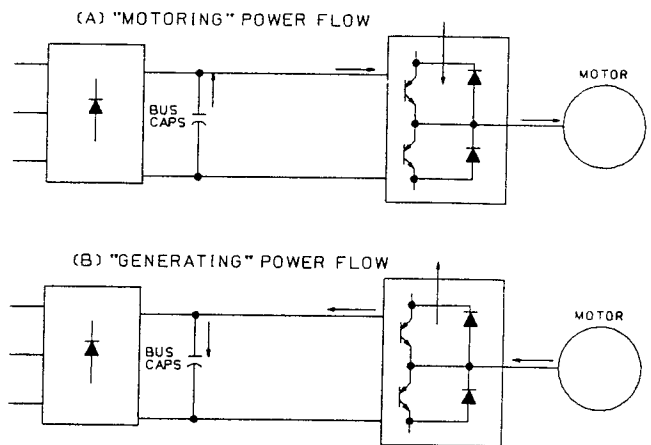
This kit may have been installed by the factory. However, certain steps can only be completed at the installation site. Therefore, review and perform those steps which complete the installation process.

### DESCRIPTION

Installation of this kit enables the motor to be brought to a smooth and rapid stop. This is achieved by dissipating the regenerative energy of the AC motor across the resistive component(s) of the Dynamic Braking Kit.

### Dynamic Braking Operation

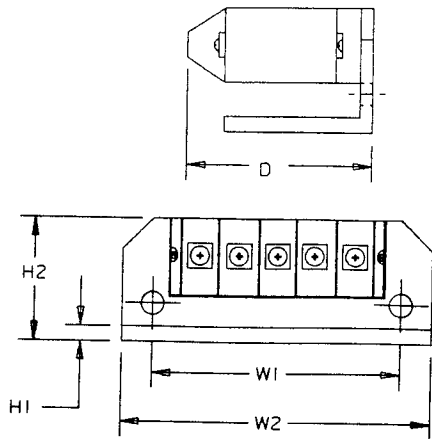
Whenever an excited motor is operated in the negative slip region (or is subjected to an overhauling load), the motor will behave as an induction generator. In this mode, energy will actually flow from the motor back into the inverter, as shown in the following illustration:



This energy will cause the DC Bus voltage to rise. This rise in DC Bus voltage can also result when high utility voltage causes the input contactor (IM) to disconnect the inverter from the incoming utility. When the DC Bus voltage reaches a certain level, the Dynamic Braking option will activate. This option will actually "shunt" the regenerative energy away from the bus capacitors and dissipate it as heat in the DB resistors. This is represented by the following illustration:

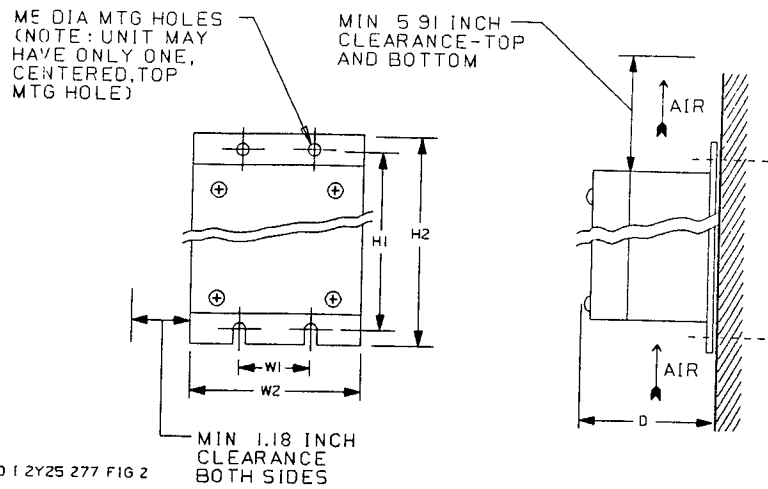
(SEE SHEET 4)

CHANGE RECORD				DWG. NO. 02Y00025-0277
1	STD-3583			SHEET 1 OF 13
2	STD-3683	R22	7-17-89	EFF. 12/29/88 (0)



TD.1.2Y25 277 FIG.1

Figure 1. Braking Module



TD.1.2Y25 277 FIG.2

Figure 2. Braking Resistor Unit

Table 1.

A. For GPD 502

INVERTER		DB KIT MODEL NO.	P/N (QTY)	BRAKING RESISTOR UNIT				
				DIMENSIONS (IN.)				
VOLTS	HP			H1	W1	H2	W2	D
230	1	DS681	501851-01 (1)	10.24	1.97	10.83	3.90	5.71
	3,5	DS682	501851-02 (1)	13.19	2.95	13.78	4.88	5.71
	7.5,10	DS683	501851-02 (2)					
460	1	DS691	501853-01 (1)	10.24	1.97	10.83	3.90	5.71
	3,5	DS692	501853-02 (1)	13.19	2.95	13.78	4.88	5.71
	7.5,10	DS693	501853-02 (2)					
	15,20, 25	DS694	501853-03 (1)	12.78	12.99	18.70	13.78	9.84

DWG. NO. 02Y00025-0277  
 SHEET 2 OF 13  
 EFF. 12/29/88 (0)

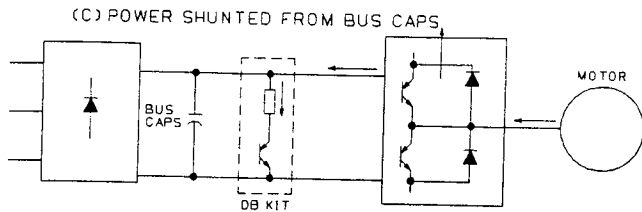
Table 1. (Continued)

B. For GPD 602

INVERTER		DB KIT MODEL NO.	P/N (QTY)	BRAKING MODULE				
VOLTS	HP			DIMENSIONS (IN.)				
				H1	W1	H2	W2	D
230	5	DS651	501850-02 (1)	0.18	3.39	1.75	3.78	1.38
	7.5,10	DS652	501850-03 (1)					
460	5	DS661	501852-01 (1)					1.52
	7.5,10	DS662	501852-02 (1)					
	15,20,25	DS663	501852-03 (1)					

INVERTER		DB KIT MODEL NO.	P/N (QTY)	BRAKING RESISTOR UNIT									
VOLTS	HP			DIMENSIONS (IN.)									
				H1	W1	H2	W2	D					
230	5	DS651	501851-02 (1)	13.19	2.95	13.78	4.88	5.71					
	7.5,10	DS652	501851-02 (2)										
460	5	DS661	501853-02 (1)						12.78	12.99	18.70	13.78	9.84
	7.5,10	DS662	501853-02 (2)										
	15,20,25	DS663	501853-03 (1)										

DWG. NO. 02Y00025-0277  
 SHEET 3 OF 13  
 EFF. 12/29/88 (0)



Since the energy is not returned to the DC Bus, the OV trip is prevented; thus the motor remains excited and continues to produce braking torque.

### RECEIVING

All equipment is tested against defect at the factory. Report any damages or shortages evident when the equipment is received immediately to the commercial carrier who transported the equipment. Assistance, if required, is available from your MagneTek Drives & Systems representative.

### STORAGE

If the kit is not to be installed immediately, it must be stored under the following conditions:

- Ambient temperature: -10 to +40°C.
- Protected from rain or moisture.
- Free from corrosive gases or liquids.
- Free from dust or metal particles.
- Clean and dry.
- Free from excessive vibration.

### INSTALLATION

#### Preliminary Procedure

#### WARNING

HAZARDOUS VOLTAGE CAN CAUSE SEVERE INJURY OR DEATH.

LOCK ALL POWER SOURCES FEEDING DRIVE IN "OFF" POSITION.

1. Disconnect all electrical power to drive.

2. Remove drive front cover.

3. Verify that voltage has been disconnected by using a voltmeter to check for voltage at the incoming power terminals.

#### NOTE

Since GPD 502 inverters have integral braking transistors, the associated DB Kits include only the required braking resistor unit(s).

#### A. Braking Module Installation (GPD 602 only)

4. The braking module with integral mounting bracket fits in the bottom of the inverter, behind the main circuit terminals. Mounting screws are already present in the inverter.

5. Connect braking module to inverter according to the appropriate connection diagram in Figure 4 or Figure 5.

#### B. Braking Resistor Unit(s) Installation

6. The braking resistor unit requires vertical installation with ample clearance space (see Figure 2), to achieve high cooling efficiency.

#### IMPORTANT

Since the braking resistor unit generates heat during dynamic braking operation, install it in a location away from other equipment which emits heat.

7. Remove unit front cover to access terminals (see Figure 3). Connect braking resistor unit to drive according to Table 2 and the appropriate wiring diagram, Figure 6, 7 or 8.

DWG. NO. 02Y00025-0277  
SHEET 4 OF 13  
EFF. 12/29/88 (0)

NOTE

External control components shown in the figures are not supplied with this kit. These components are necessary for safe operation of the Dynamic Braking Kit.

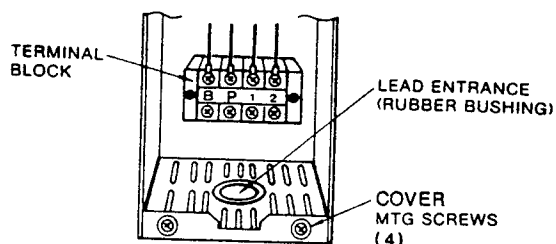


Figure 3. Braking Resistor Unit Terminals

Table 2.

Terminals	B,P	1,2 *
Lead Size (AWG)	12-10	18-14 *
Lead Type	600V vinyl-sheathed lead	
Terminal Screw	M4	

\* Power leads for the braking resistor unit generate high levels of electrical noise; these signal leads must be grouped separately.

NOTE

There are no adjustments to be made on the braking module or in the braking resistor unit(s).

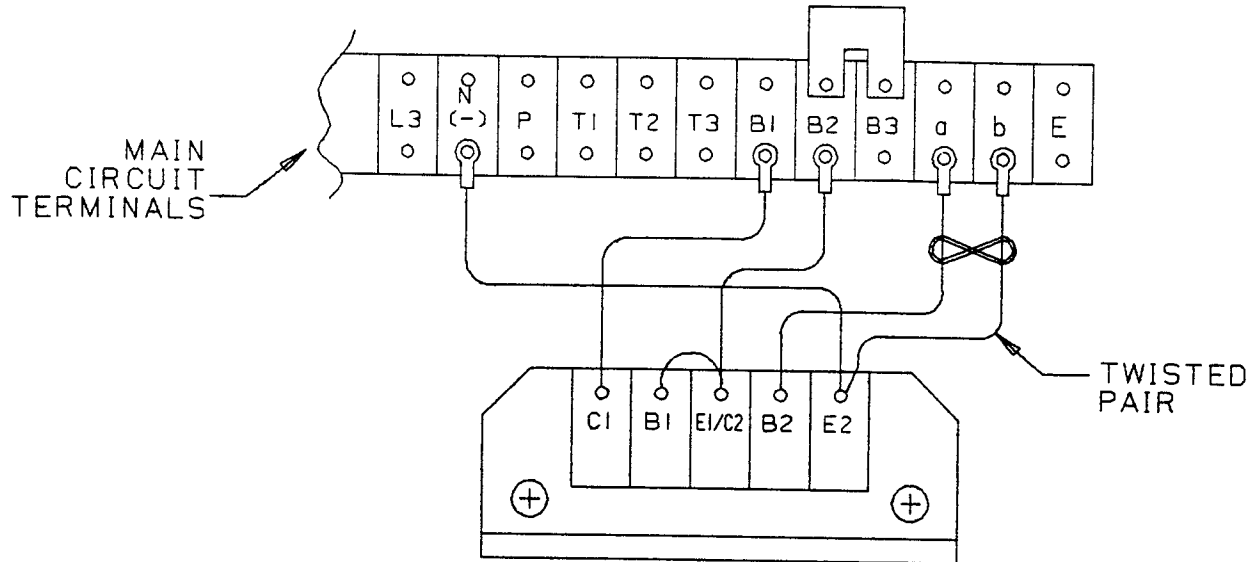
8. Reinstall and secure front covers on drive and braking resistor unit(s).

9. Place this instruction sheet with the GPD Technical Manual.

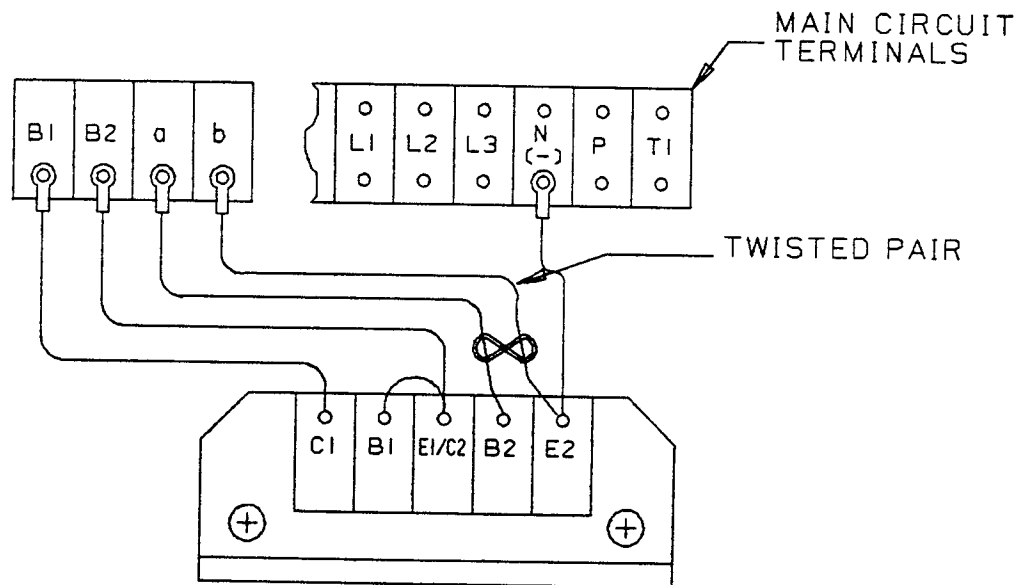
This completes the installation of this kit.

DWG. NO. 02Y00025-0277  
 SHEET 5 OF 13  
 EFF. 12/29/88 (0)

(A) KIT MODEL DS651 (5HP)



(B) KIT MODEL DS652 (7.5, 10HP)

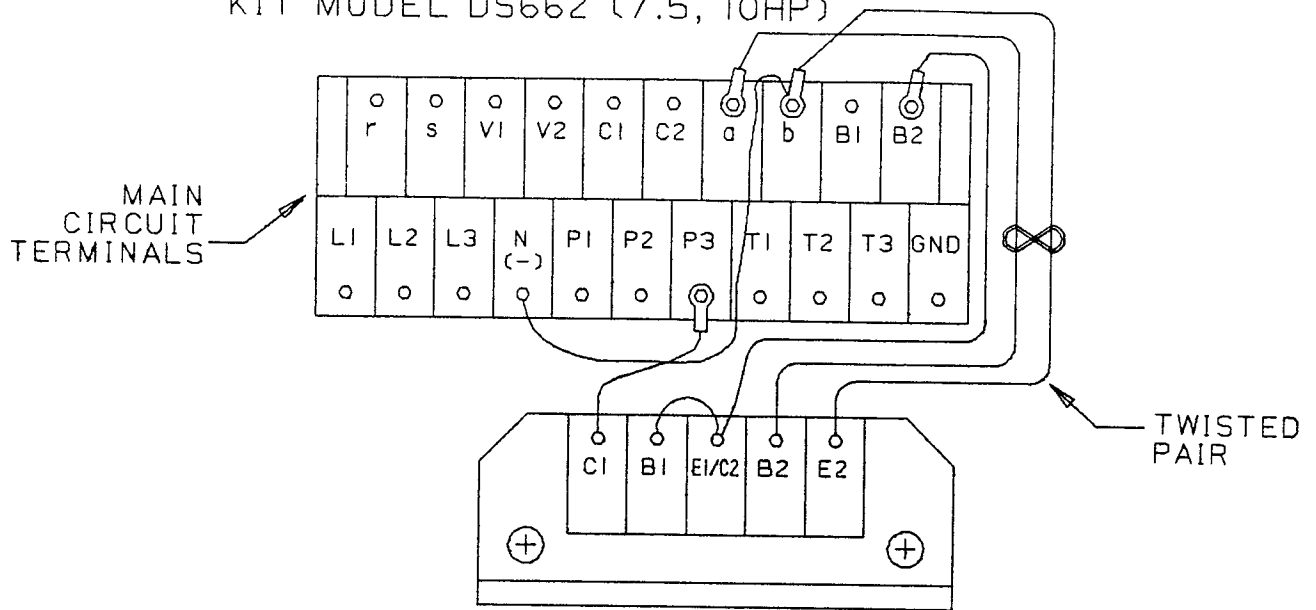


TD.I.2Y25.277.F16.4

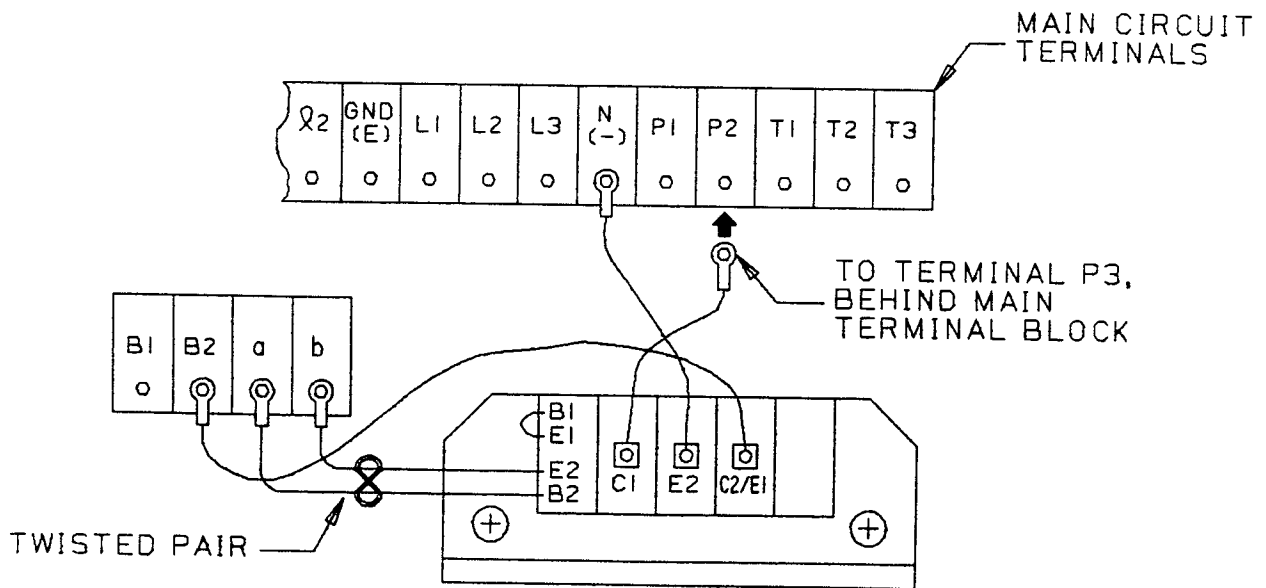
Figure 4. Lead Connections for Braking Module With 230V GPD 602

DWG. NO. 02Y00025-0277  
 SHEET 6 OF 13  
 EFF. 12/29/88 (0)

(A) KIT MODEL DS661 (5HP)  
 KIT MODEL DS662 (7.5, 10HP)



(B) KIT MODEL DS663 (15, 20, 25HP)

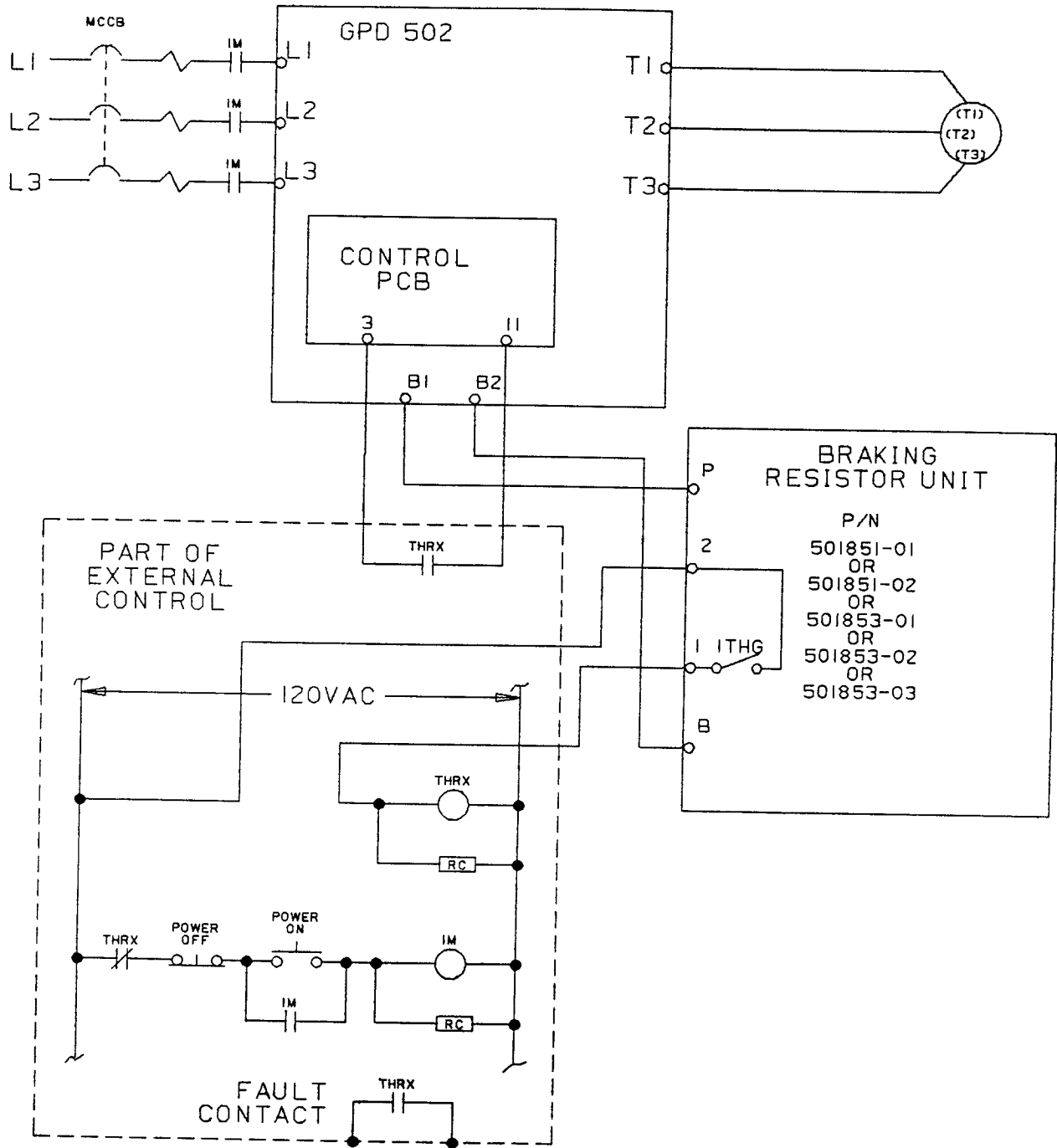


TD.1.2Y25.277.FIG.5

Figure 5. Lead Connections for Braking Module With 460V GPD 602

DWG. NO. 02Y00025-0277  
 SHEET 7 OF 13  
 EFF. 12/29/88 (0)

(A) 230V, 1-5HP ;460V, 1-5, 15-25HP



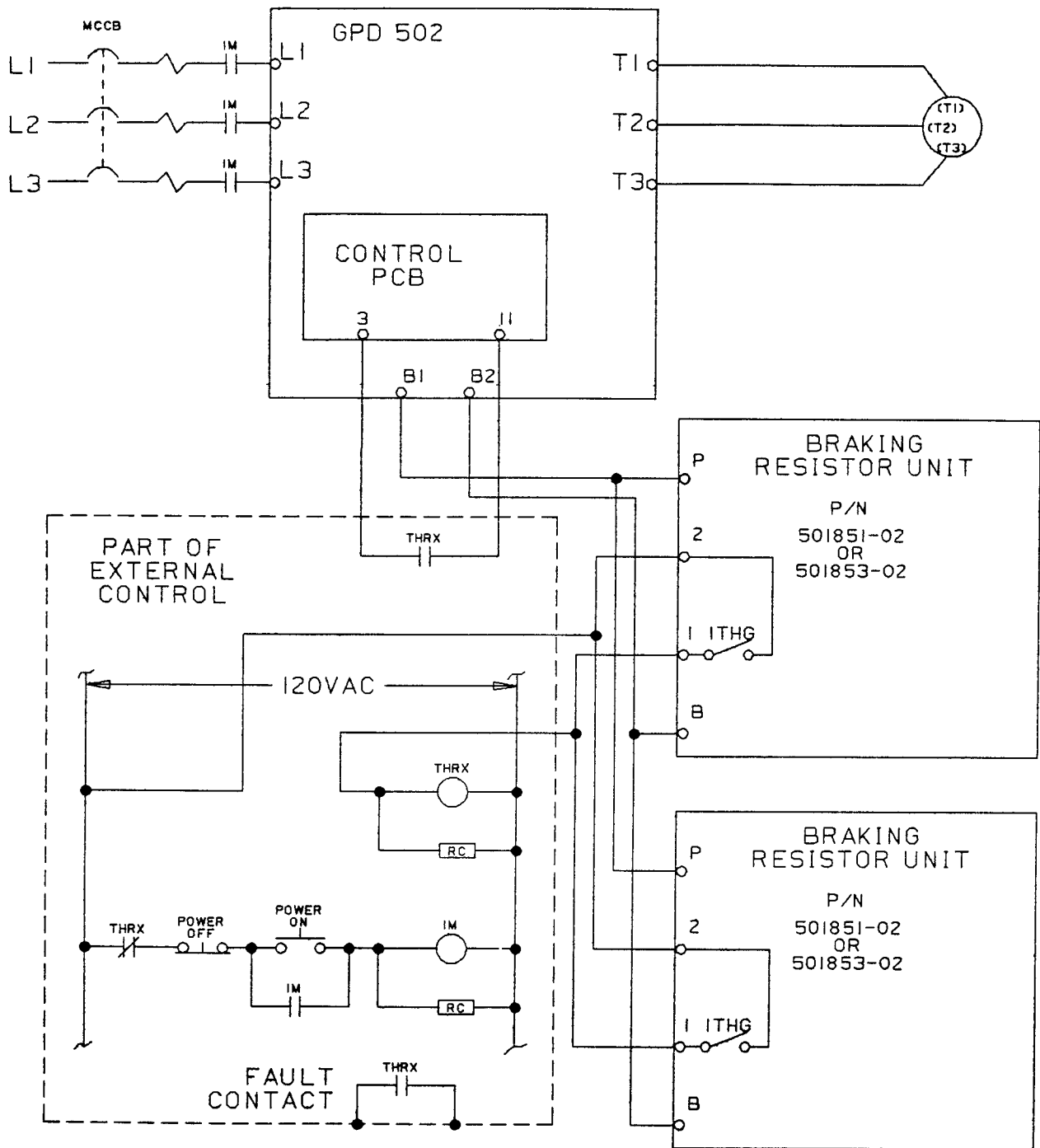
TD.1.2Y25.277.FIG.6A

Figure 6. Wiring Braking Resistor Unit(s) to GPD 502  
(Sheet 1 of 2)

DWG. NO. 02Y00025-0277  
SHEET 8 OF 13  
EFF. 12/29/88 (0)



(B) 230V, 7.5, 10HP ; 460V, 7.5, 10HP

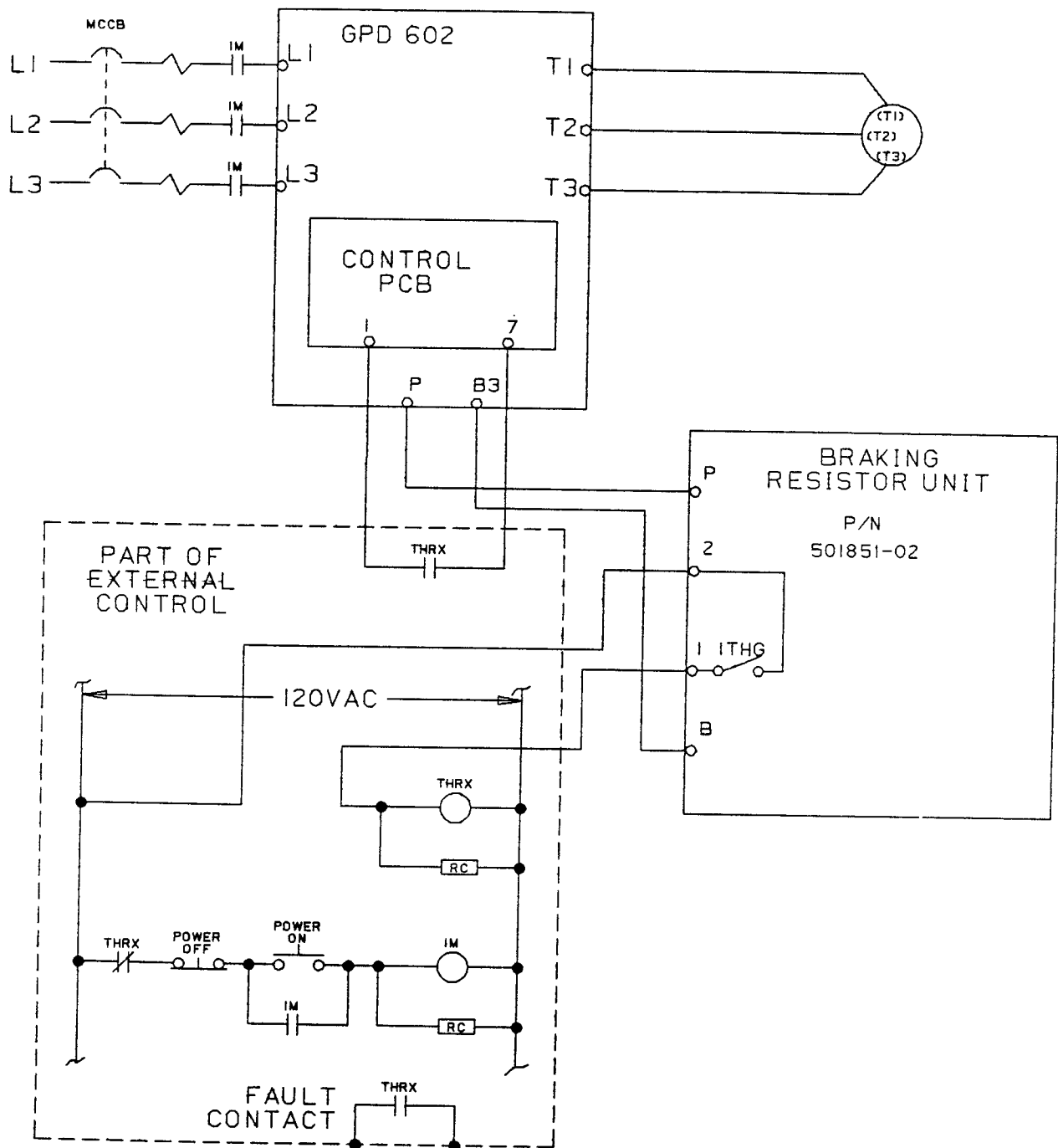


TD.I.2Y25.277.FIG.6B

Figure 6. Wiring Braking Resistor Unit(s) to GPD 502  
(Sheet 2 of 2)

DWG. NO. 02Y00025-0277  
SHEET 9 OF 13  
EFF. 12/29/88 (0)

(A) 5HP

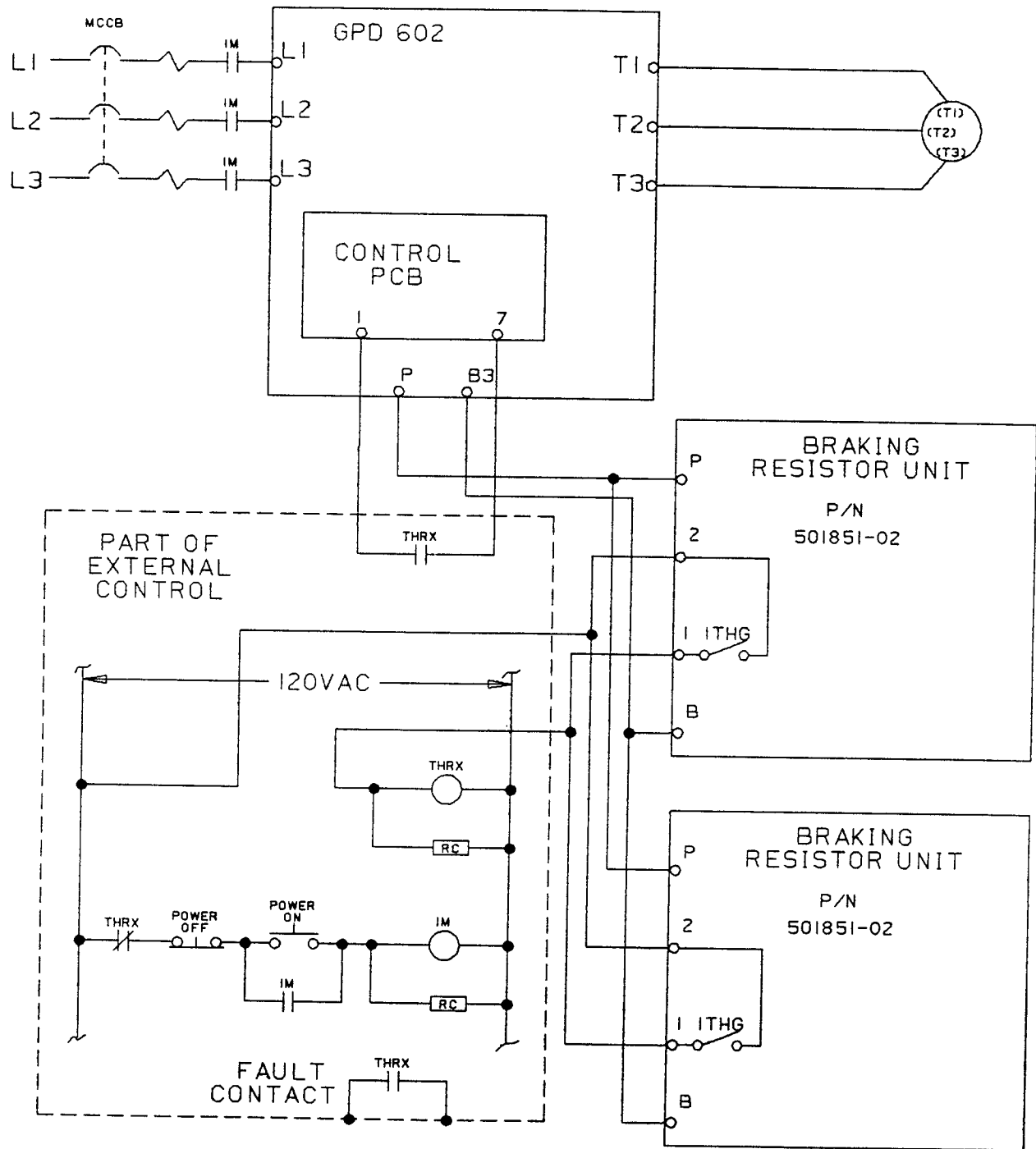


TD.I.2Y25.277.FIG.7A

Figure 7. Wiring Braking Resistor Unit(s) to 230V GPD 602  
(Sheet 1 of 2)

DWG. NO. 02Y00025-0277  
SHEET 10 OF 13  
EFF. 12/29/88 (0)

(B) 7.5, 10HP

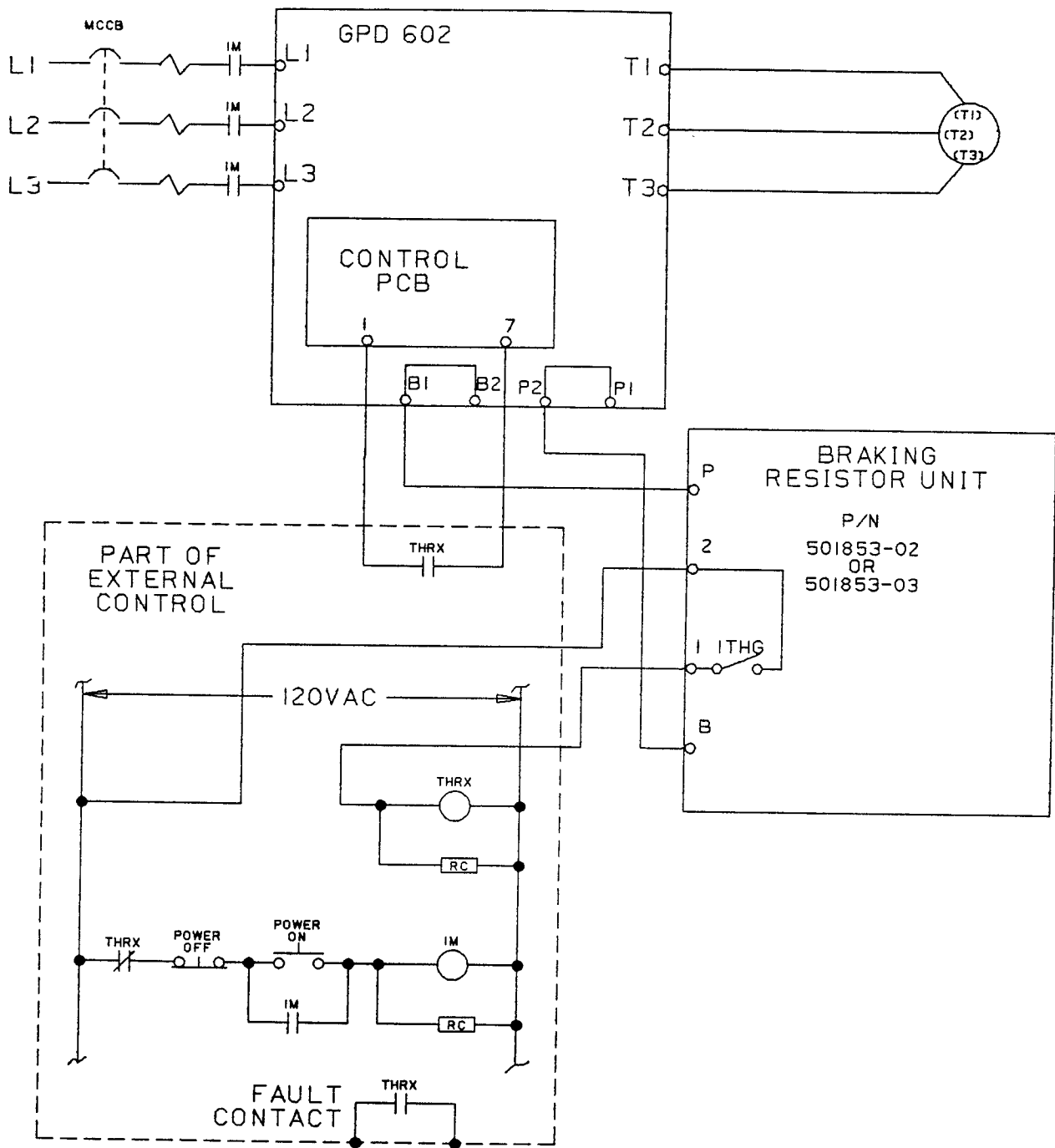


TD.I.2Y25.277.FIG.7B

Figure 7. Wiring Braking Resistor Unit(s) to 230V GPD 602  
(Sheet 2 of 2)

DWG. NO. 02Y00025-0277  
SHEET 11 OF 13  
EFF. 12/29/88 (0)

(A) 5,15,20,25HP

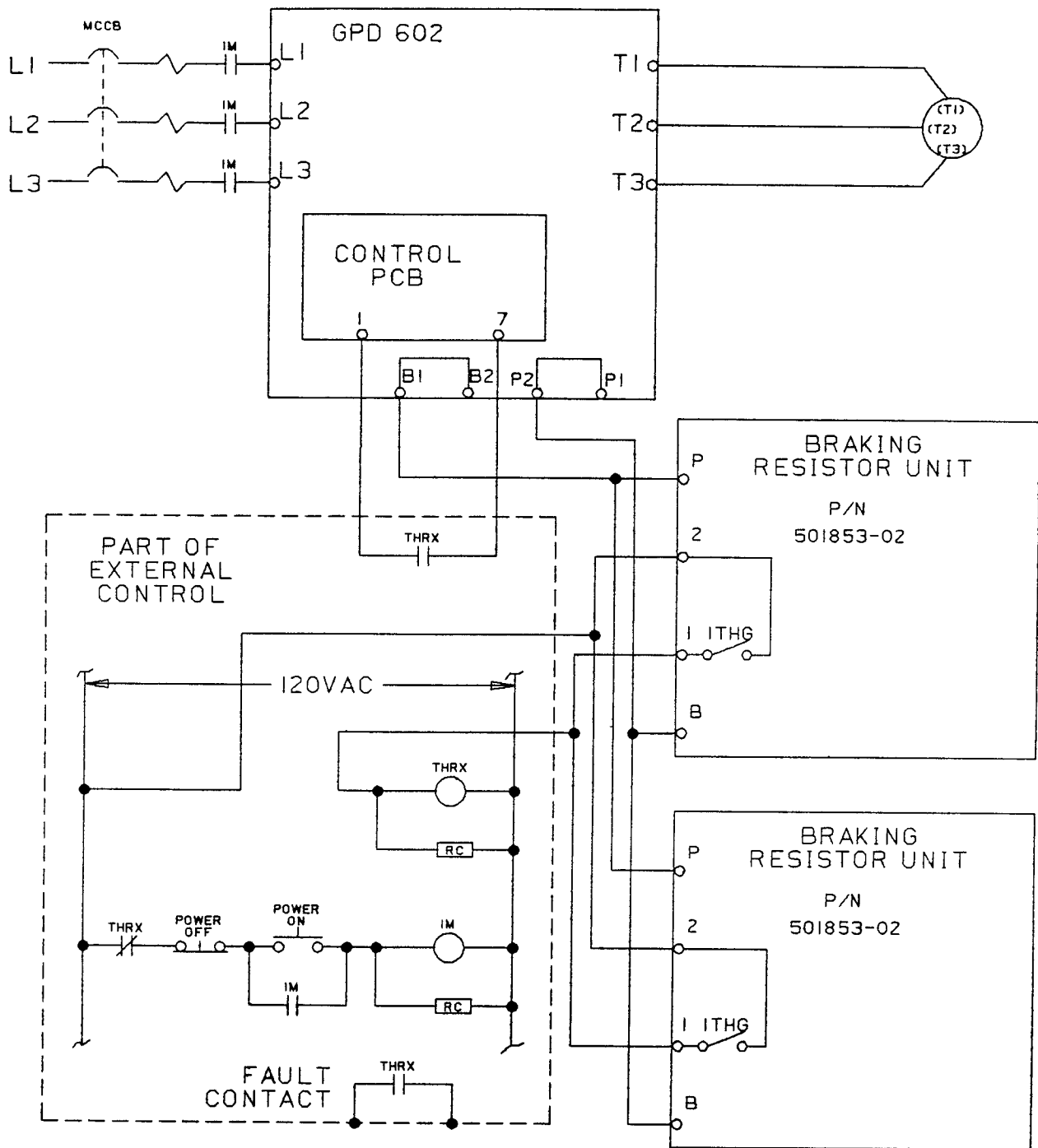


TD.I.2Y25.277.FIG.8A

Figure 8. Wiring Braking Resistor Unit(s) to 460V GPD 602  
(Sheet 1 of 2)

DWG. NO. 02Y00025-0277  
SHEET 12 OF 13  
EFF. 12/29/88 (0)

(B) 7.5, 10HP



TD.I.2Y25.277.FIG.8B

Figure 8. Wiring Braking Resistor Unit(s) to 460V GPD 602  
(Sheet 2 of 2)

DWG. NO. 02Y00025-0277  
SHEET 13 OF 13  
EFF. 12/29/88 (0)