powermax800™

600 Volt Conversion

Installation Manual
802480 - Rev. 0

HYPERTHERM®

powermax800

600 Volt Conversion

Installation Manual
IM-248
(P/N 802480)

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Section 1 INTRODUCTION AND SPECIFICATIONS

In this section:

INTRODUCTION AND SPECIFICATIONS

INTRODUCTION

The instructions in this manual will enable a qualified electronics technician to convert the 208/240/480 volt Powermax800 power supply into a 600 volt power supply. The kit (128032) contains a transformer and case, wheels, castors, and 2 line cords - one to hook up to a line disconnect box or 3-phase plug, and a shorter cord to connect from the transformer case to the link box at the rear of the Powermax800 - See Figure 2-1. See also Section 3 for a list of parts for the 600 volt conversion kit.

When installation is complete, refer to the Powermax800 Operator Manual for setup, operating instructions and maintenance of the Powermax800 system.

SPECIFICATIONS

600 Volt Powermax800 Power Supply

Rated Open Circuit Voltage (OCV) (U_0)	300VDC
Rated Output Current (I_2)	20-50 amps
Rated Output Voltage (U_2)	120VDC
Duty Cycle (X) @ 40°C	50% (I_2=50A, U_2=120V) See data tag on power supply for more information on duty cycle
Ambient temperature/duty cycle	Power supplies will operate between +14° and 104° F (-10° and +40° C). Power supplies operated in an ambient temperature above 86° F (30° C) may show some decrease in duty cycle.
Apparent Input Power (S_1)	10.4kVA (U_1I_1)
Input Voltage (U_1)/Input Current (I_1) @ 6 kw Output	600V/11A - 3ϕ, 60 Hz
Dimensions and Weight:	
Depth	23.1" (590 mm)
Width	15.25" (390 mm)
Height	27.7" (700 mm)
Weight	128 pounds (58 kg)
Gas Type	Air or Nitrogen
Gas Quality, Air	Clean, dry, oil-free
Gas Quality, Nitrogen	99.995% pure
Gas Inlet Pressure	90 psi (6.2 bar)
Gas Flow	320 scfh/5.3 scfm at 90 psi (150 l/min at 6.2 bar) supplied to power supply pressure regulator
Power Supply pressure regulator setting	70 psi (4.8 bar) flowing

Section 2 600V INSTALLATION

In this section:

600V INSTALLATION

WARNING

INSTALLATION MUST BE PERFORMED ONLY BY HYPERTHERM DISTRIBUTORS OR QUALIFIED ELECTRONICS TECHNICIANS!!

SHOCK HAZARD: Always turn off power, unplug cord from wall and wait 5 minutes before removing any cover of the power supply! If power unit is directly connected to a line disconnect box, place line disconnect switch to OFF position. Lock out and tag out switch before proceeding!

INSTALLATION

The installation of the 600V kit to the 208/240/480V Powermax800 involves 6 basic steps:

I. Installation of wheels and casters to transformer case.

II. Attaching 600V power supply bracket to Powermax800 chassis.

III. Attaching 600V case assembly to Powermax800 chassis.

IV. Switching voltage configuration to 480V.

V. Hooking up the three-phase transformer secondary power cord from the 600V transformer case assembly to the Powermax800.

VI. Choosing the plug, power cord and line disconnect box fuse.

WARNING

THE 208/240/480V POWERMAX800 POWER SUPPLY IS SET UP TO OPERATE AT 240V WITH A SINGLE-PHASE INPUT. WHEN CONVERTED TO A 600V POWER SUPPLY, THE VOLTAGE CONFIGURATION IN THE POWER SUPPLY MUST BE SWITCHED TO 480V, AND THE POWER CORD MUST BE HOOKED UP FOR THREE-PHASE. See steps IV and V on pages 2-9 to 2-10.

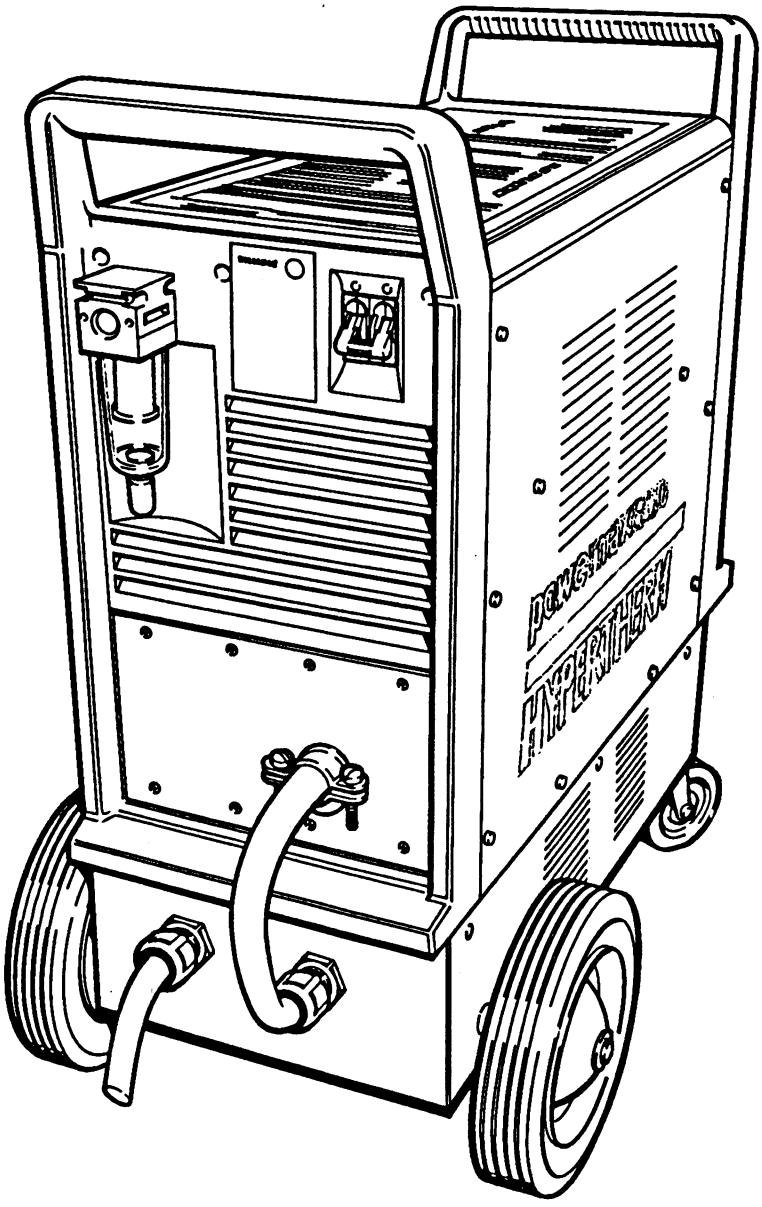


Figure 2-1 Powermax800 600V Power Supply Assembled

600V INSTALLATION

I. INSTALLATION OF WHEELS AND CASTERS TO TRANSFORMER CASE

Wheel Installation

1. Carefully turn transformer case assembly upside down.
2. Snap a retaining ring on one end of the wheel axle.
3. Slide one wheel on the axle.
4. Slide plastic shoulder washer over end of axle with the larger diameter end of the washer facing the mounted wheel.
5. Slide axle through both holes in the rear of the transformer case assembly.
6. Slide plastic shoulder washer over end of axle with the smaller diameter end of the washer facing the transformer case.
7. Slide second wheel onto axle.
8. Snap second retaining ring on end of axle to secure second wheel.

Caster Installation

1. Attach caster to case with 10-32 screws and star washers as shown in Figure 2-2.
2. Repeat for second caster.

Wheel and caster installation complete. Turn transformer case back over on to wheels - Figure 2-3.

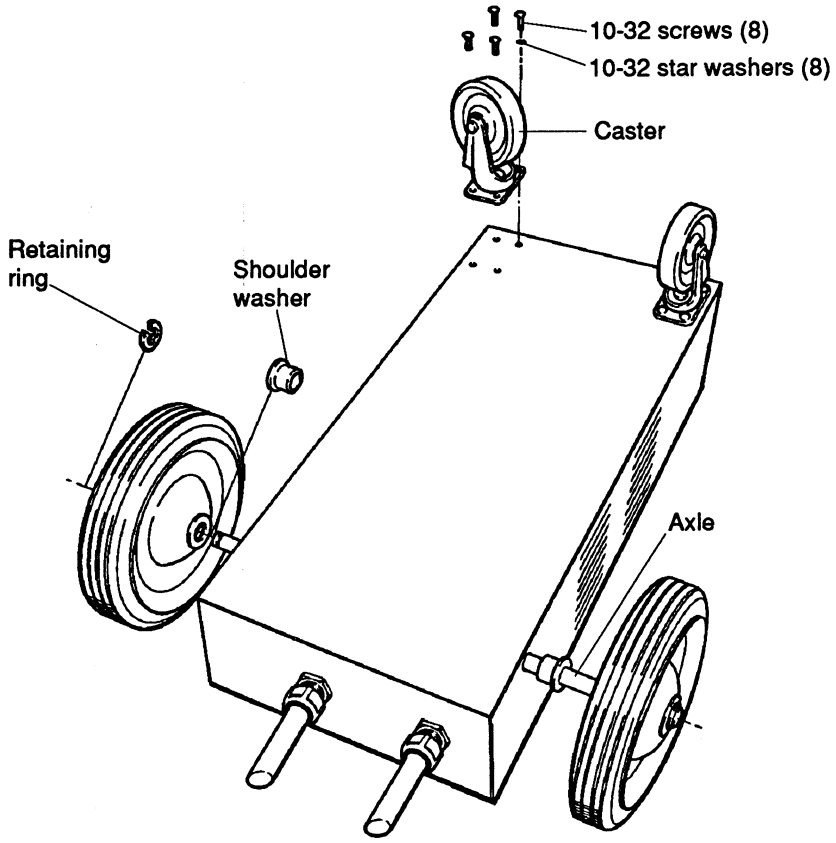


Figure 2-2 Wheel and Caster Installation

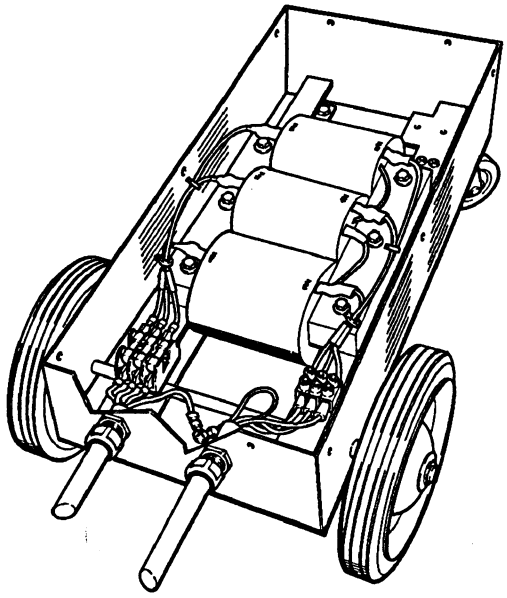


Figure 2-3 Wheels and Casters Installed on 600V Transformer Case

II. ATTACHING POWER SUPPLY BRACKET TO POWERMAX800 CHASSIS.

1. If torch is connected to power supply, disconnect it.

WARNING

INSTALLATION MUST BE PERFORMED ONLY BY HYPERTHERM DISTRIBUTORS OR QUALIFIED ELECTRONICS TECHNICIANS!!

SHOCK HAZARD: Always turn off power, unplug cord from wall and wait 5 minutes before removing any cover of the power supply! If power unit is directly connected to a line disconnect box, place line disconnect switch to OFF position and remove power cord from line disconnect box.

2. Remove power cord from line disconnect box or from receptacle. See warning above.
3. Remove power cord from power supply. See Figure 2-4.
   - 3.1. Loosen the 2 screws on the power cord strain relief.
   - 3.2. Remove the 8 screws securing the line cord rear panel.
   - 3.3. Slide rear panel down on power cord to expose link box.
   - 3.4. Disconnect power cord from link box.
   - 3.5. Remove power cord from rear panel.

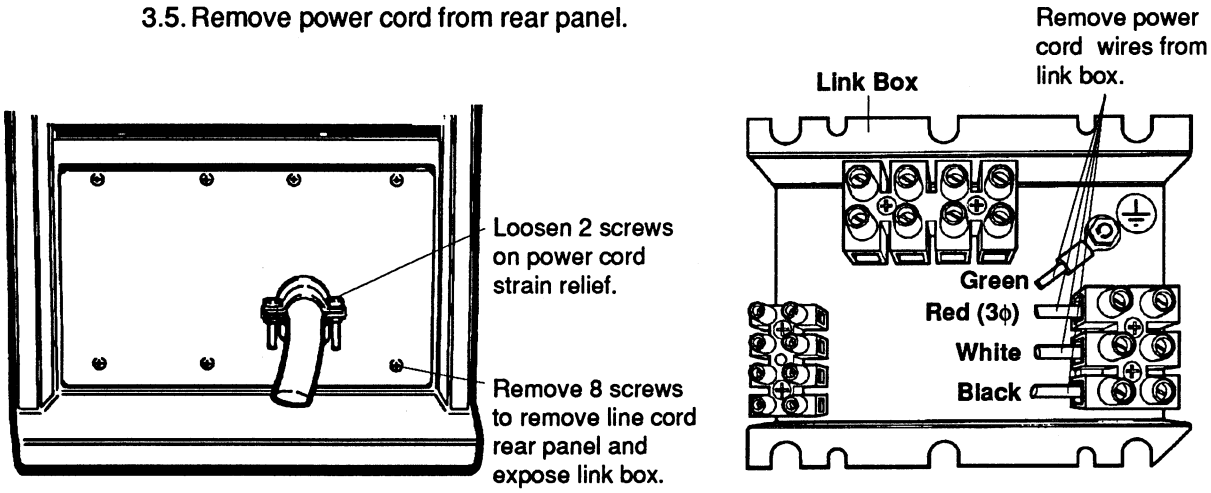


Figure 2-4 Removal of Single-Phase Power Cord from Powermax800 Power Supply

4. Lay down a cloth or towel in front of the Powermax800 and carefully tilt Powermax800 over onto its front handle as shown in Figure 2-5.

5. Place power supply bracket against bottom of power supply as shown in Figure 2-5 and fasten with 10-32 screws and star washers in 12 locations.

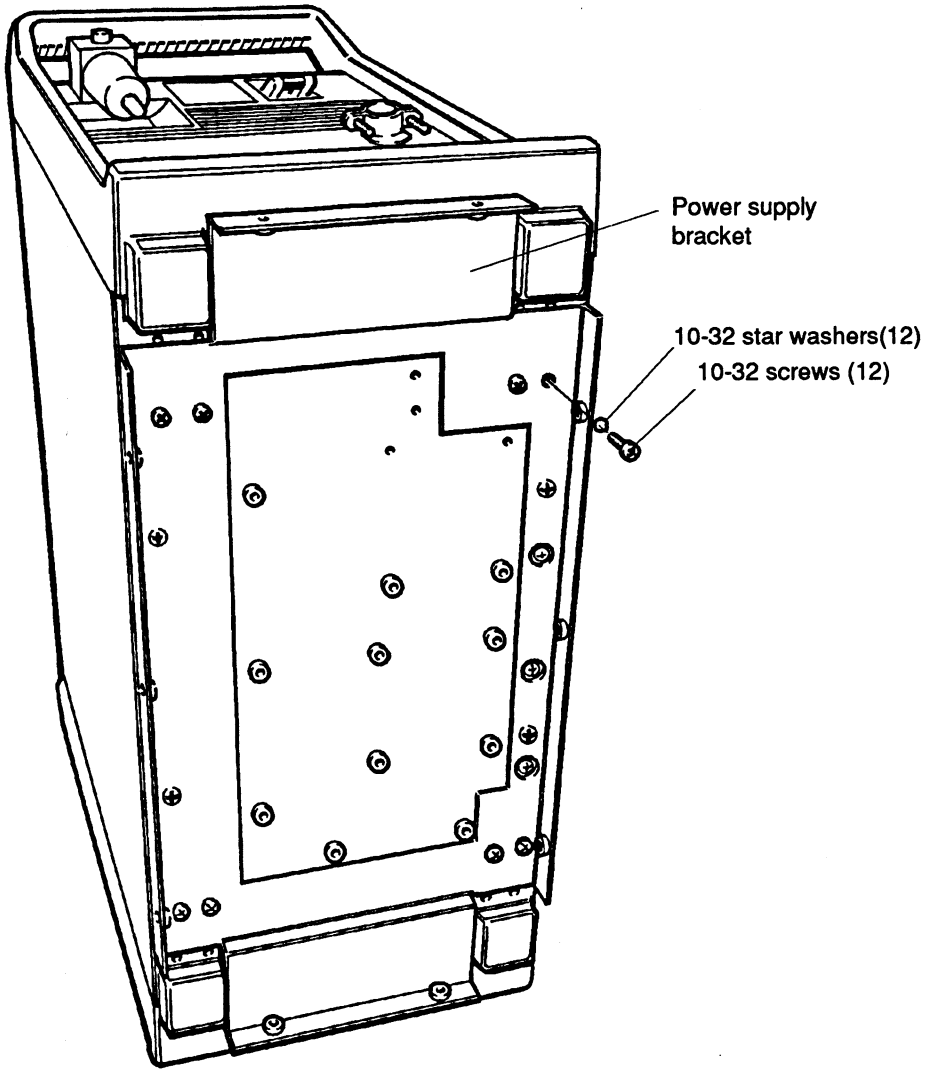


Figure 2-5 Attaching 600V Power Supply Bracket to Powermax800 Chassis

III ATTACHING 600V TRANSFORMER CASE ASSEMBLY TO POWERMAX800 CHASSIS

1. Lift Powermax800 over transformer case assembly with the rear of the power supply lined up over the power cord side of the transformer case.
2. Carefully set down the Powermax800 onto the transformer case assembly.
3. Fasten the Powermax800 to the transformer case assembly by screwing in the 8-32 screws in 10 locations.
4. Thread the transformer secondary power cord (shorter cord) through the strain relief of the line cord rear panel.

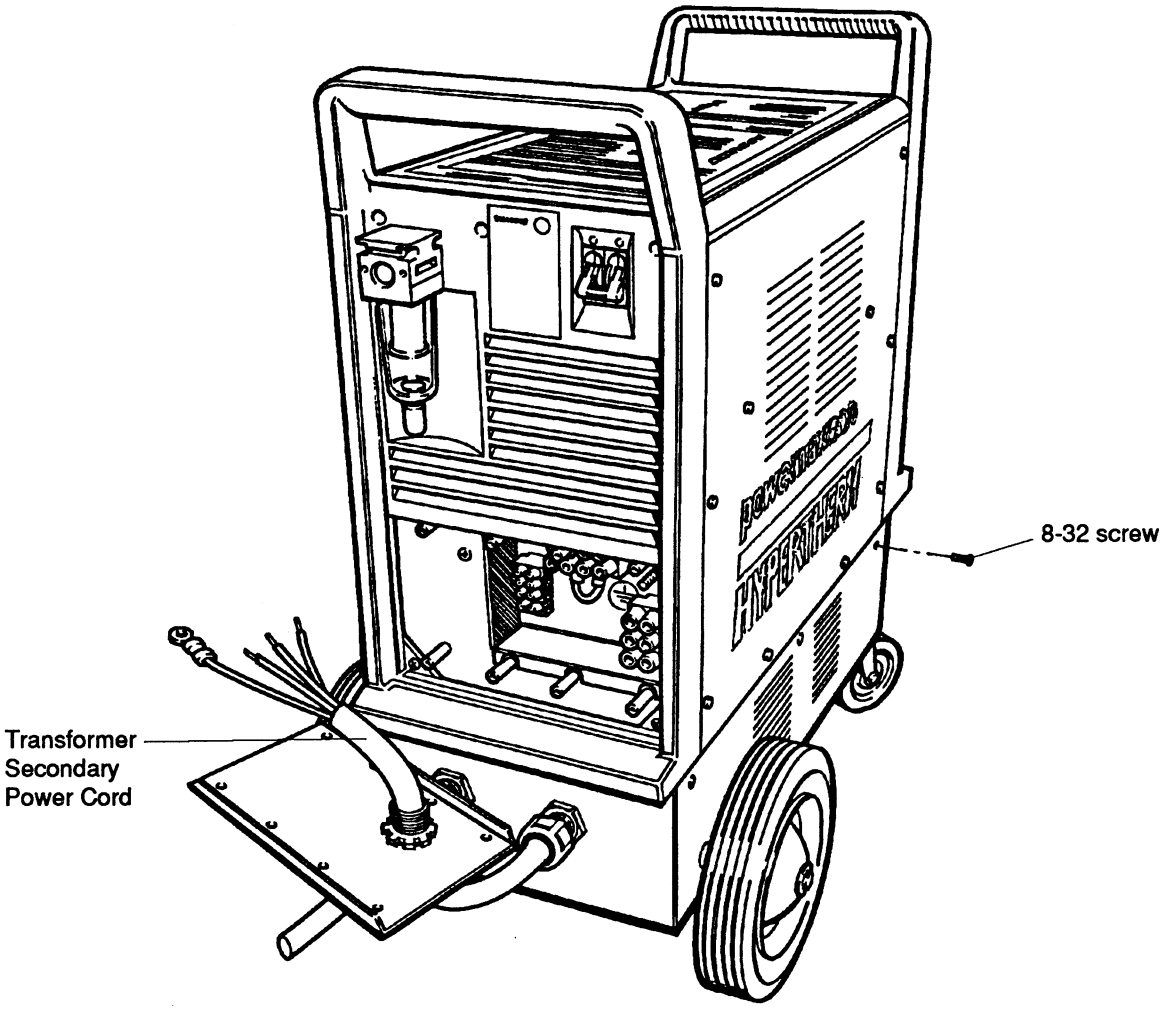


Figure 2-6 Attaching 600V Transformer Case Assembly to Powermax800 Chassis

IV SWITCHING VOLTAGE CONFIGURATION TO 480V

1. Configure TB2 by moving the voltage link wire (Black) to the position shown in Figure 2-7.

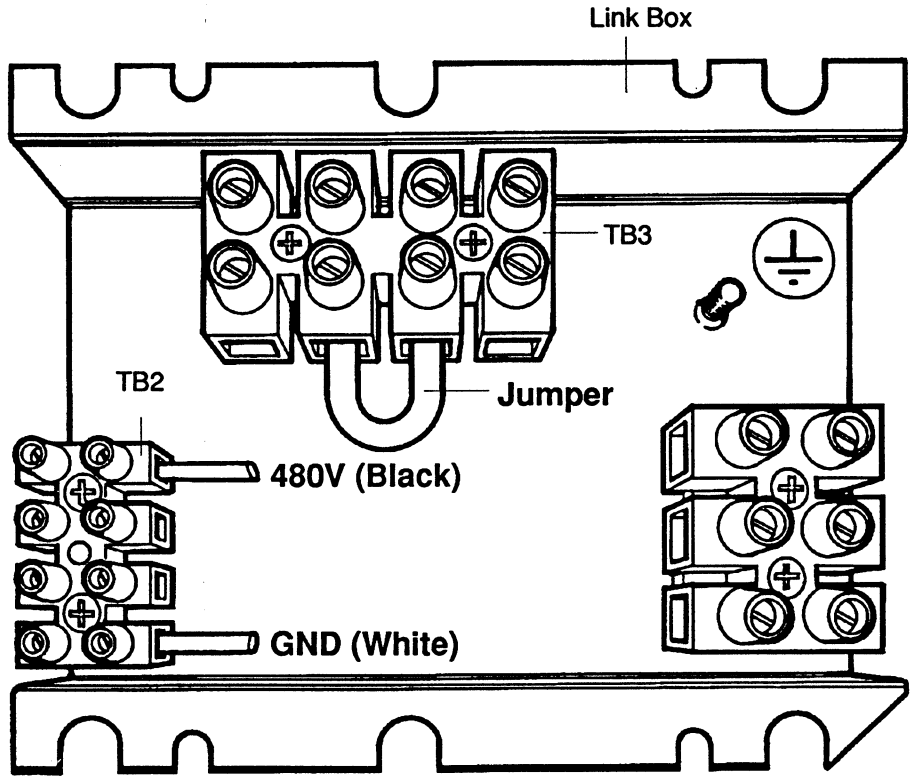


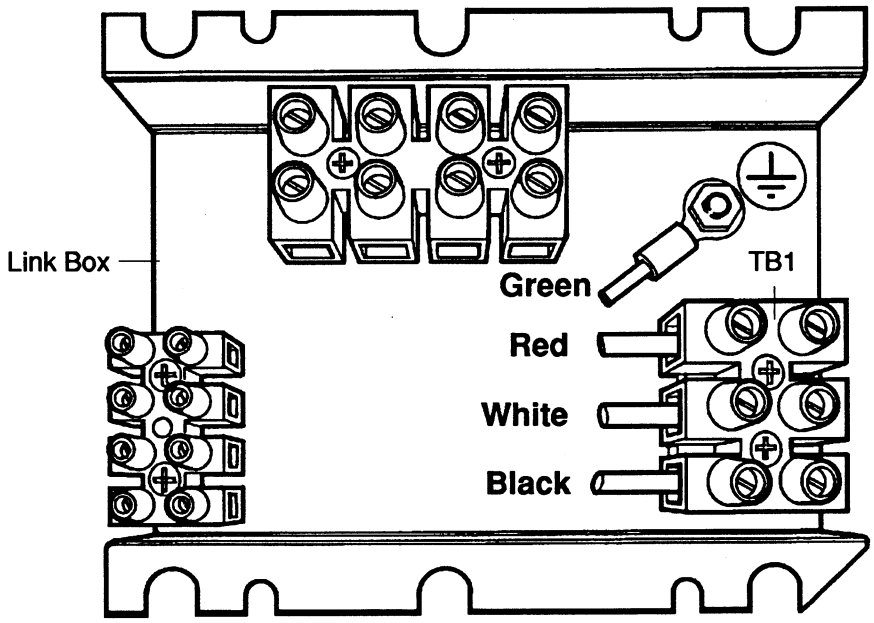
Figure 2-7 Switching Voltage Configuration to 480V

2. Configure TB3 with one jumper linked in the position shown in Figure 2-7.
3. Secure unused link jumper in the clip located in the link box,

V HOOKING UP THE THREE-PHASE TRANSFORMER SECONDARY POWER CORD FROM 600V TRANSFORMER CASE ASSEMBLY TO POWERMAX800

1. Connect L1 (Black), L2 (White) and L3 (Red) of the three-phase transformer secondary power cord to TB1 of the link box as shown in Figure 2-8.

2. Connect the ground (Green) wire to the stud marked ⏚ above the terminal block .



Conductor	Color
L1	Black
L2	White
L3	Red
Ground	Green

Figure 2-8 Connecting the Transformer Secondary Power Cord from 600V Transformer Case to Powermax800

3. Connect rear panel to Powermax800 power supply and secure with 8 screws.

4. Tighten strain relief screws around the power cord. Be certain that the strain relief grips the outer insulation of the power cord and not the individual wires. See completed assembly in Figure 2-1.

WARNING

BE CERTAIN THAT WIRES ARE CONNECTED EXACTLY AS SHOWN ABOVE. AS A PRECAUTION, CHECK CONTINUITY FROM POWER SUPPLY ENCLOSURE TO INCOMING GROUND WIRE BEFORE CONNECTING TO POWER.

VI CHOOSING PLUG, POWER CORD AND LINE DISCONNECT BOX FUSE

Power Cord Plug

The 600V Powermax800 kit is shipped with a three-phase power cord and no plug. The user must obtain a plug that is certified by national or local electrical codes. The plug should be connected to the power cord by a licensed electrician.

Power Cord - 600V

If the three-phase power cord length needs to be changed, use the table below to choose the proper gauge size for the appropriate length. Use a 4-conductor SO type cord for three-phase power supplies. The cord should be installed only by a licensed electrician.

Input Voltage	Input Current	Recommended Power Cord Gauge Size (AWG)				
		to 10 ft	10 – 25 ft	25 – 50 ft	50 – 100 ft	100 –150 ft
600 VAC	11 amps	12	12	12	12	10

Line Voltage Disconnect Box and Fuse

Use a line disconnect box for each power supply. This disconnect box allows the operator to turn the power supply off quickly in an emergency situation. The switch should be located on a wall near the power supply, and should be easily accessible to the operator. The interrupt level of the switch must be equal to or exceed the continuous rating of the fuses. Use slow-blow fuses according to the power requirements listed below.

Input Voltage	Phase	Input Current @ 6 kw Output	Recommended Slow-Blow Fuse Size
600 VAC	3	11 amps	20 amp

The 600Volt conversion is now complete. See the Powermax800 Operator Manual for further instructions to setup, operate and maintain the Powermax800 system.

Section 3 PARTS LIST

In this section:

PARTS LIST

POWERMAX800 600 VOLT CONVERSION KIT - 128032

Index No.	Part No.	Description	Quantity
1	001568	Panel:Powermax800 600V	1
2	004672	Axle:Powermax800 Power Unit	1
3	008973	Shoulder Washer:1/2" X 27/64 Nylon	2
4	027057	Wheel:8" X 1.75"	2
5	027249	Retaining Ring:1/2" Shaft Extension	2
6	027299	Caster:MAX70 Swivel	2
7	075467	M/S:8-32 X 3/8 Phillips Head Round SSB	10
8	075470	M/S:10-32 X 3/4 Phillips Head Pan	20
9	075174	Lockwasher :#10 Internal	20
	129053	**Powermax800 600V Conversion SA**	1
10	001569	Cover:Powermax800 600V	1
11	001570	Bracket:Powermax800 600V	2
12	008752	Fuseblock:3Position 30A600V 13/32X1-1/2	1
13	008949	Terminal board:3-Terminal	1
14	008962	Fuse:20A 600V .406X1.5 Slow	3
15	008963	Strain relief:3/4" X .625-.750	2
16	014198	Transformer:Powermax800 600V Input	1
17	123060	Cable:Powermax800 600V Conv. Fuses	1
18	123061	Cable:Powermax800 600V Conv. Term. Block	1

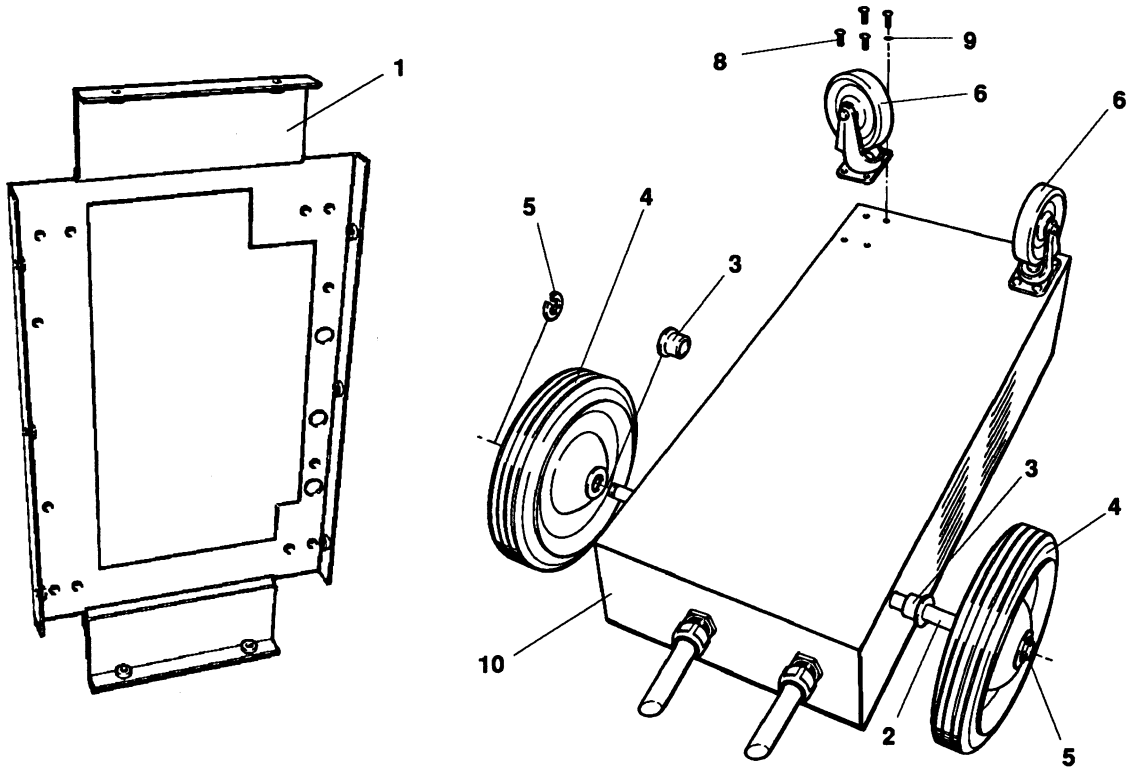


Figure 3-1 Powermax800 600V Panel, Wheels and Casters

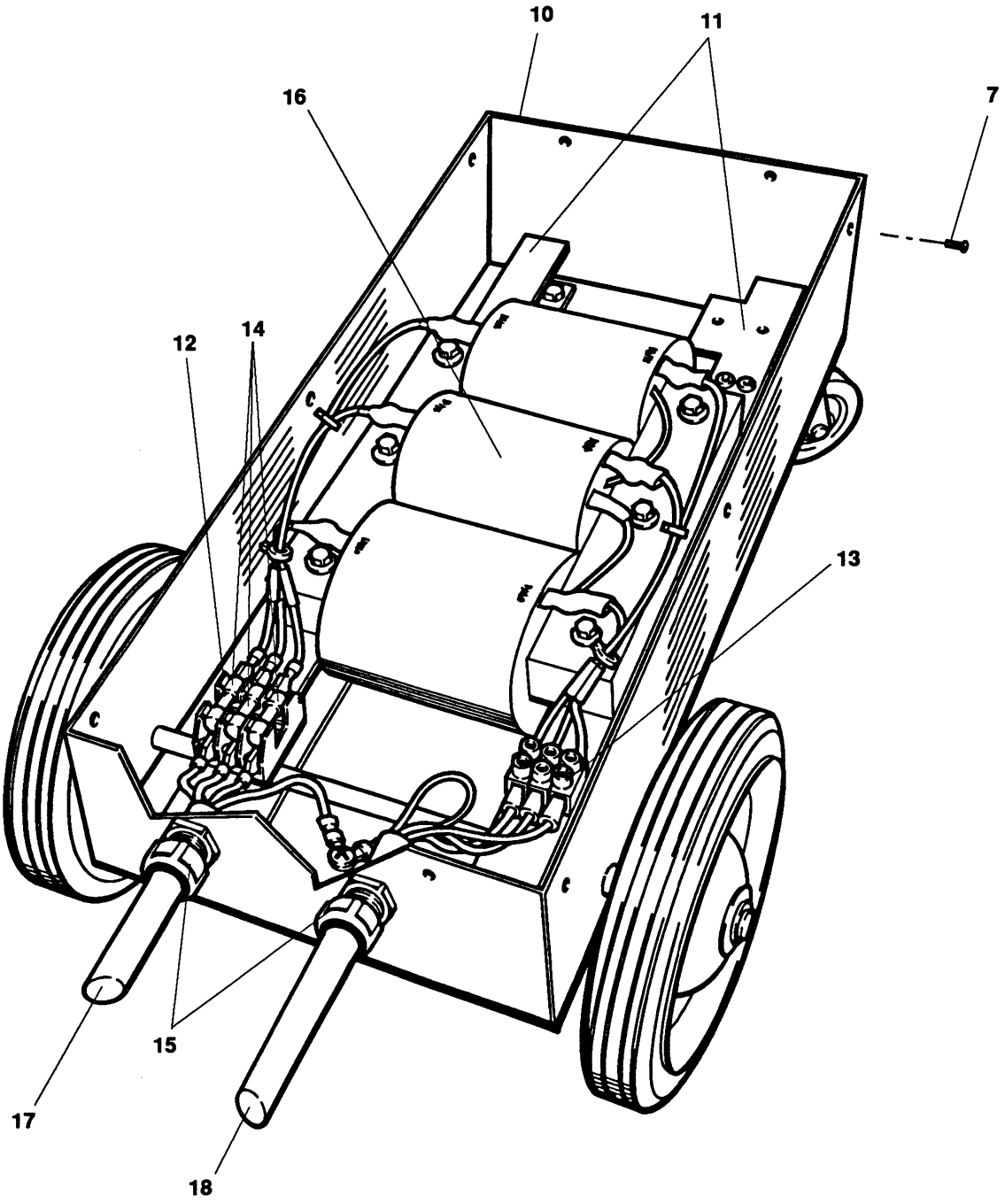
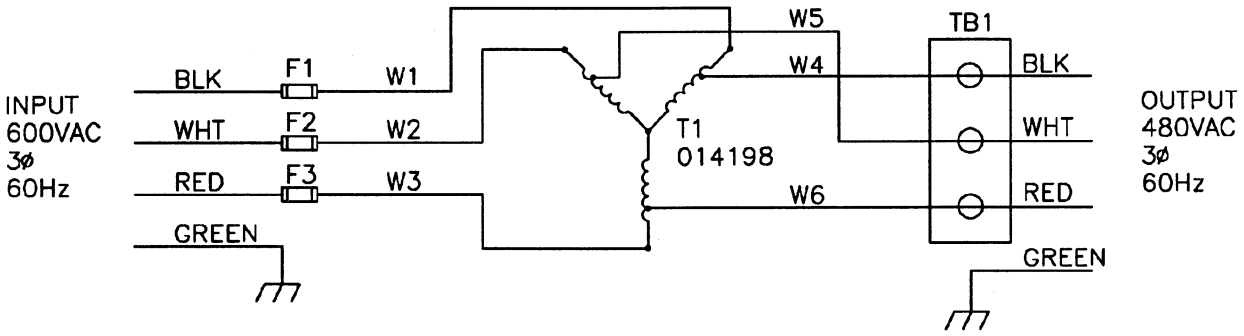


Figure 3-2 Powermax800 600V Conversion Subassembly - 129053



Wiring Diagram: Powermax800 600V Transformer - 013295 Rev A