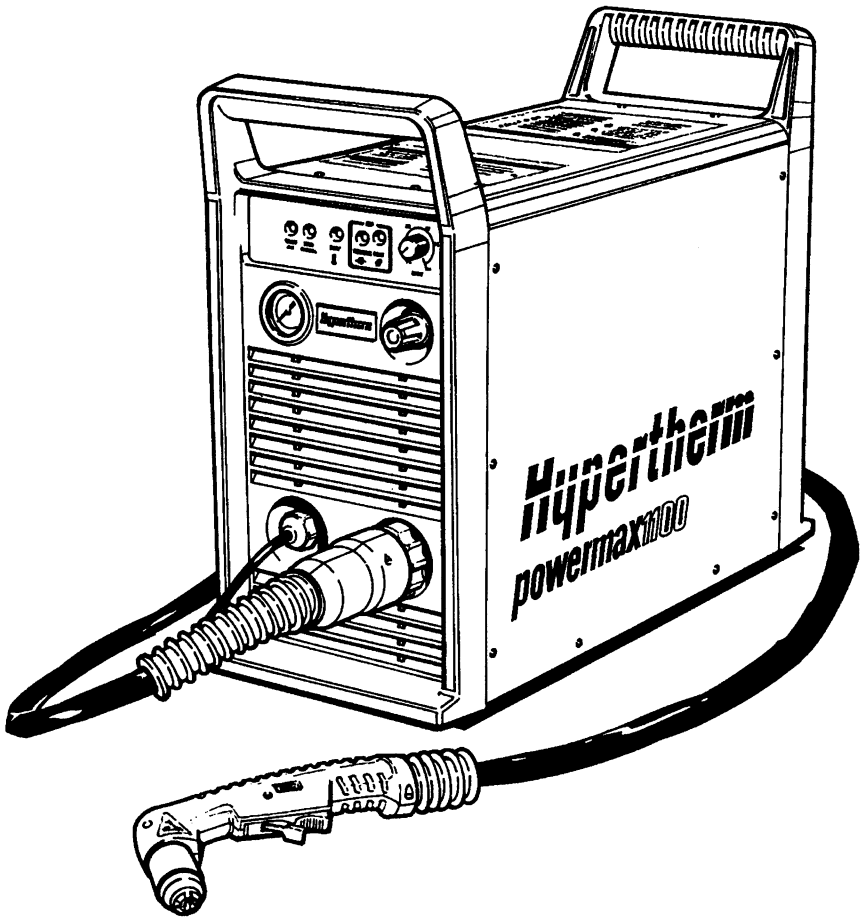
powermax1100®

600 Volt Conversion

Installation Manual
802870 - Rev. 1



powermax1100

600 Volt Conversion

Installation Manual
IM-287
(P/N 802870)

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Section 1 SPECIFICATIONS

In this section:

SPECIFICATIONS

INTRODUCTION

The instructions in this manual will enable a qualified electronics technician to convert the 208/240/480 volt Powermax1100 power supply into a 600 volt power supply. The kit (128147) 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 contactor at the rear of the Powermax1100. See **Section 3** for a list of parts for the 600 volt conversion kit.

When installation is complete, refer to the Powermax1100 Operator Manual for setup, operating instructions and maintenance of the Powermax1100 system.

SPECIFICATIONS

600 Volt Powermax1100 Power Supply

Rated Open Circuit Voltage (OCV) (U_0)	280-320 VDC
Rated Output Current (I_2)	30-80 amps
Rated Output Voltage (U_2)	140 VDC
Duty Cycle (X) @ 104° F (40° C)	50% (I_2=80A, U_2=140V) 100% (I_2=57A, U_2=140V) 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).
Apparent Input Power (S_1)	19.2 kVA (U_1I_1)
Input Voltage (U_1)/Input Current (I_1) @ 11.2 kw Output	600V/20A - 3ϕ, 60 Hz
Dimensions and Weight:	
Depth	25.1" (638 mm)
Width	15.8" (401 mm)
Height	29.9" (759 mm)
Weight, with power cord	160 pounds (73 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	400 scfh/6.7 scfm at 90 psi (189 l/min at 6.2 bar) supplied to power supply pressure regulator
Power Supply pressure regulator setting	65 psi (4.5 bar) flowing

Section 2 600V INSTALLATION

In this section:

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 OF WHEELS AND CASTERS TO TRANSFORMER CASE

Wheel Installation

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

Caster Installation

1. Attach a caster to the case with 10-32 X 3/4" screws and star washers as shown in Figure 2-1.
2. Repeat for the second caster.

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

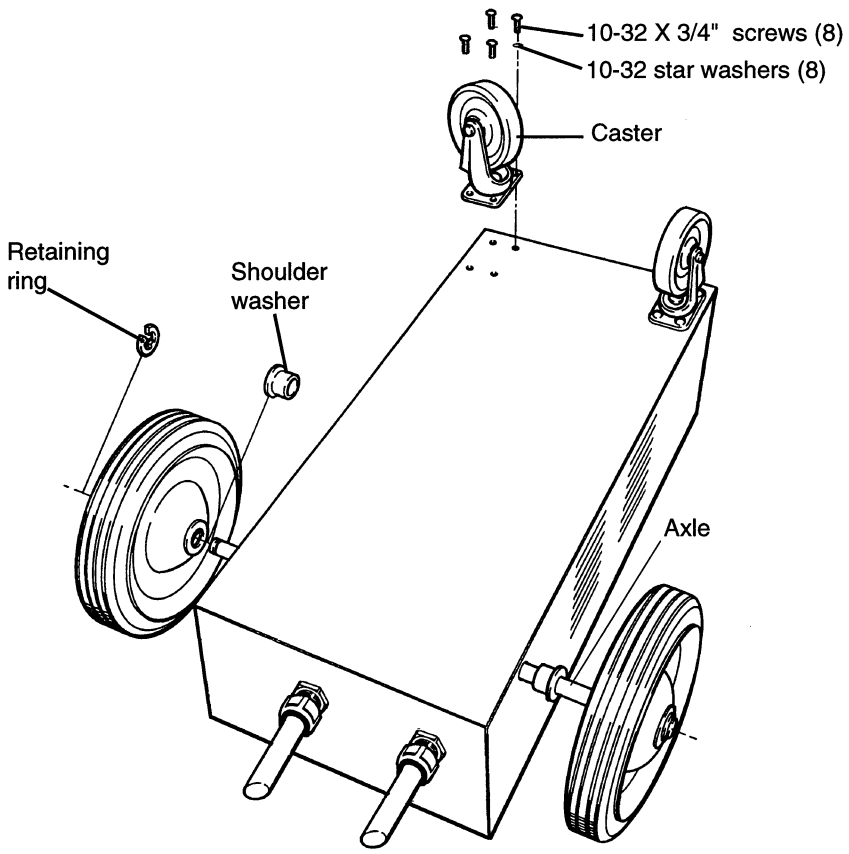


Figure 2-1 Wheel and Caster Installation

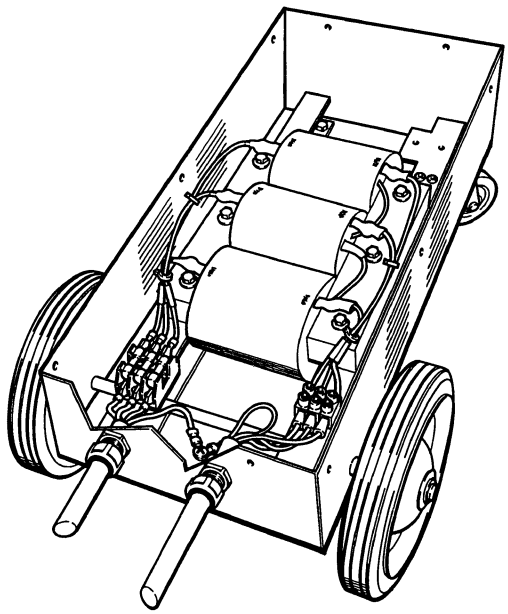


Figure 2-2 Wheels and Casters Installed on 600V Transformer Case

ATTACHING POWER SUPPLY BRACKET TO POWERMAX1100 CHASSIS

1. If the torch is connected to the 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. If connected, remove the power cord from the line disconnect box or from receptacle.
3. If connected, remove the power cord from the power supply. See Figure 2-3.
   3.1. Loosen the power cord strain relief.
   3.2. Remove the 8 screws securing the line cord rear panel.
   3.3. Slide rear panel down on the power cord to expose the contactor.
   3.4. Disconnect the power cord from the contactor.
   3.5. Remove the power cord from the rear panel.

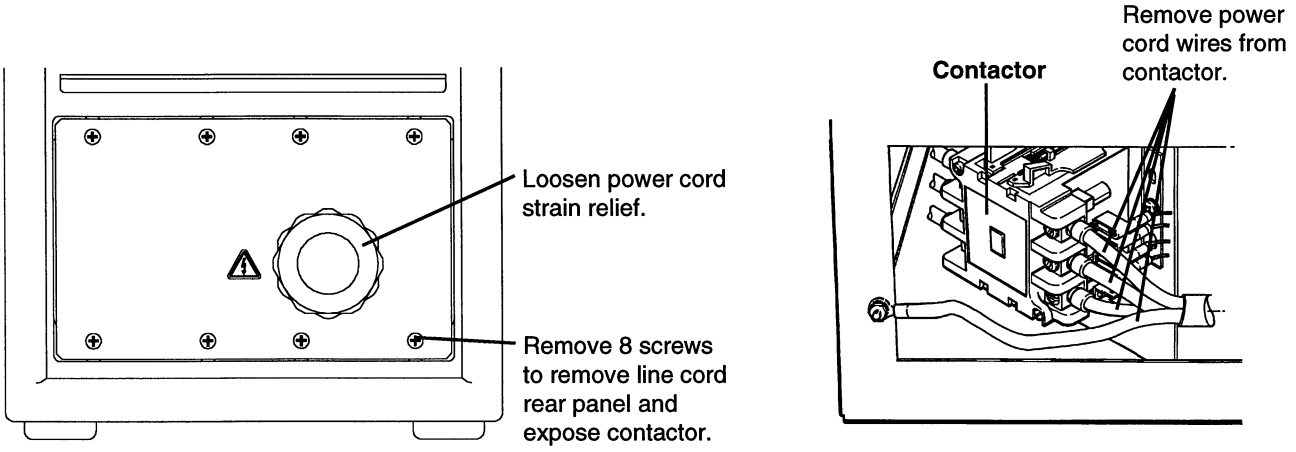


Figure 2-3 Removal of Power Cord from Powermax1100 Power Supply

4. Lay down a cloth or towel in front of the Powermax1100 and carefully tilt Powermax1100 over onto its front handle as shown in Figure 2-4.

5. Place the power supply bracket against the bottom of the power supply as shown in Figure 2-4 and fasten with 10-32 X 3/4" screws and star washers in 12 locations.

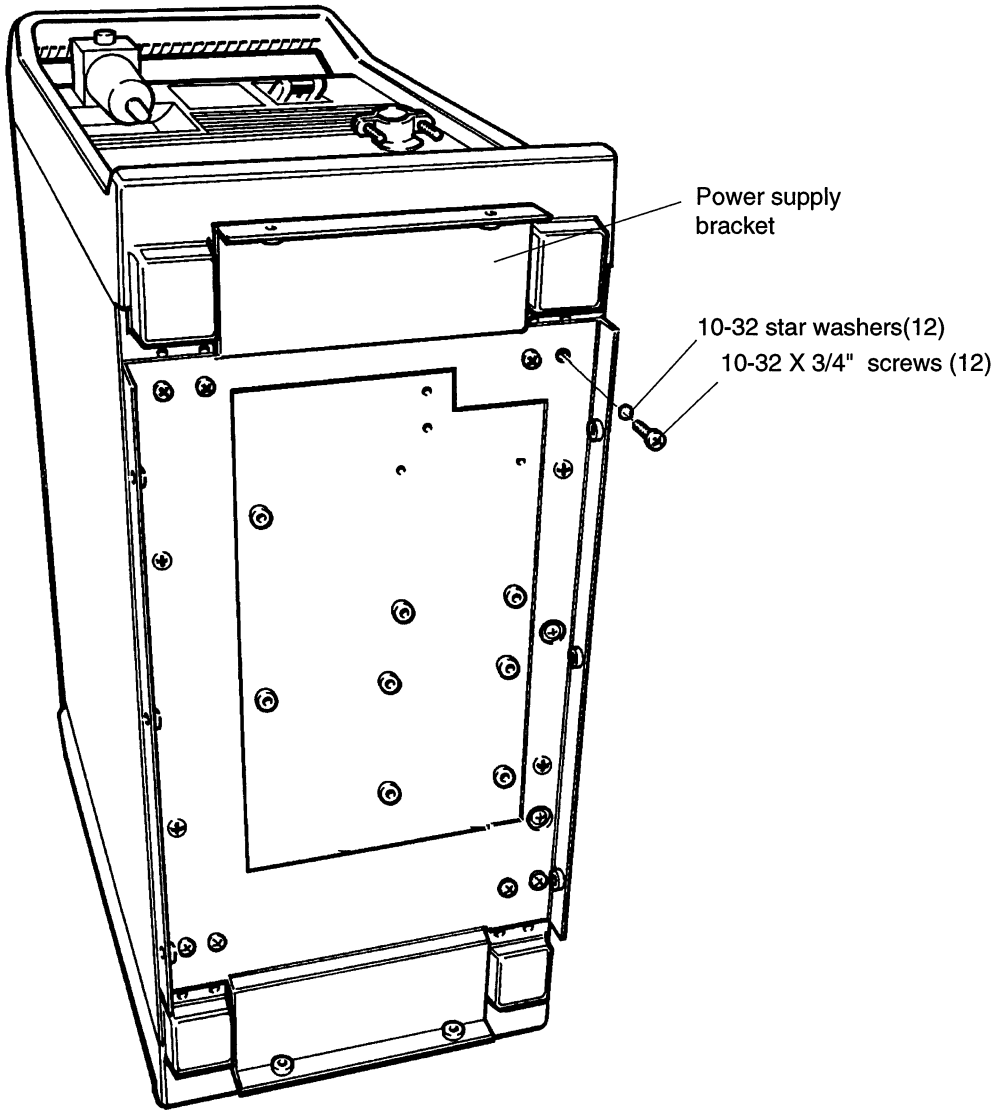


Figure 2-4 Attaching 600V Power Supply Bracket to Powermax1100 Chassis

ATTACHING 600V TRANSFORMER CASE ASSEMBLY TO POWERMAX1100 CHASSIS

1. Lift the Powermax1100 over the 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 Powermax1100 onto the transformer case assembly.
3. Fasten the Powermax1100 to the transformer case assembly by screwing in the 10-32 X 3/8" screws in 10 locations.
4. Thread the transformer secondary power cord (shorter cord) through the strain relief of the line cord rear panel.

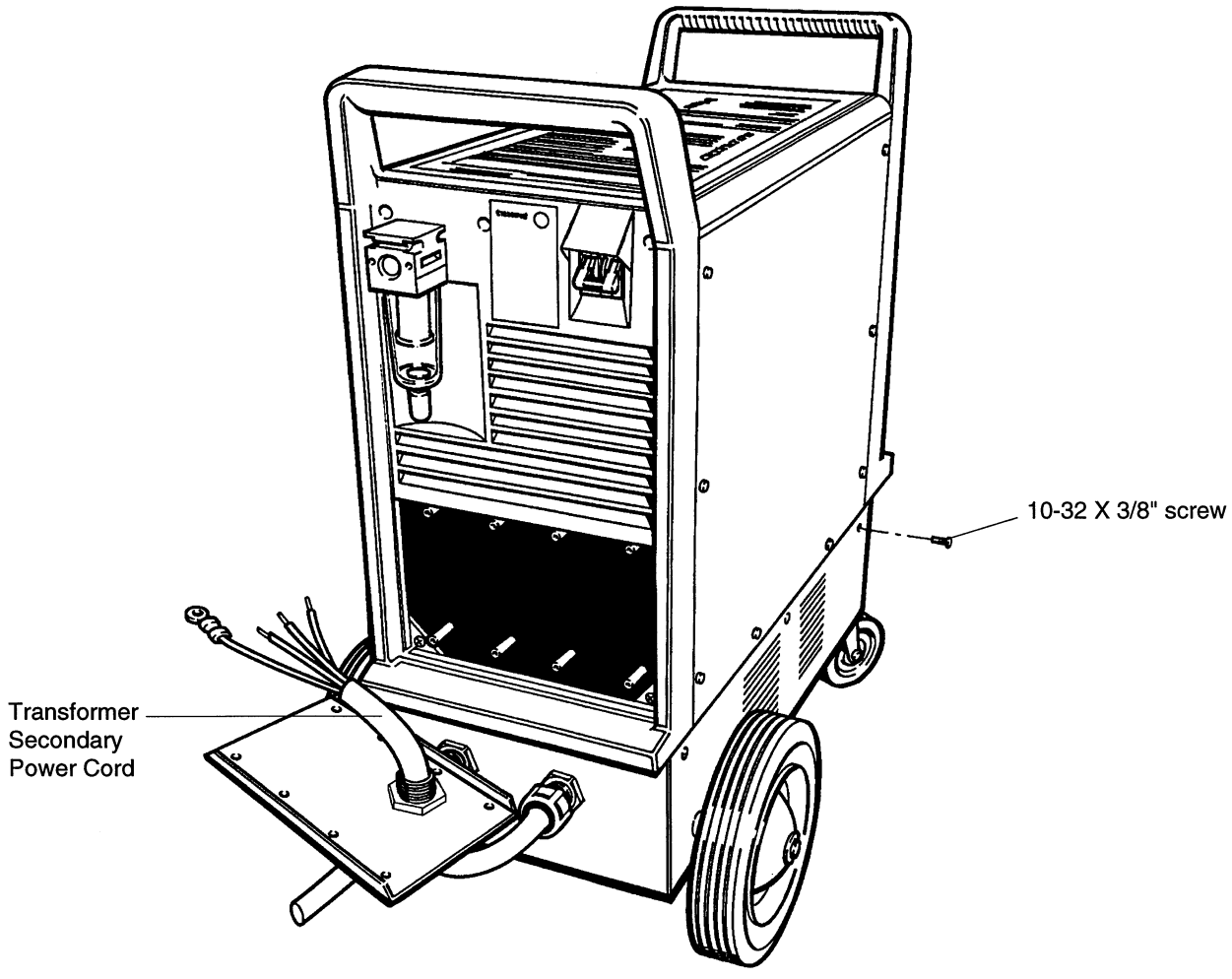


Figure 2-5 Attaching 600V Transformer Case Assembly to Powermax1100 Chassis

VERIFY 480V CONFIGURATION

The large transformer in the transformer case assembly steps the incoming voltage down from 600V to 480V. In order for the Powermax1100 to operate properly, TB2 and TB3 (located behind the rear panel) must be configured for 480V.

1. Configure TB2 by moving the voltage link wire (Black) to the position shown in Figure 2-6.

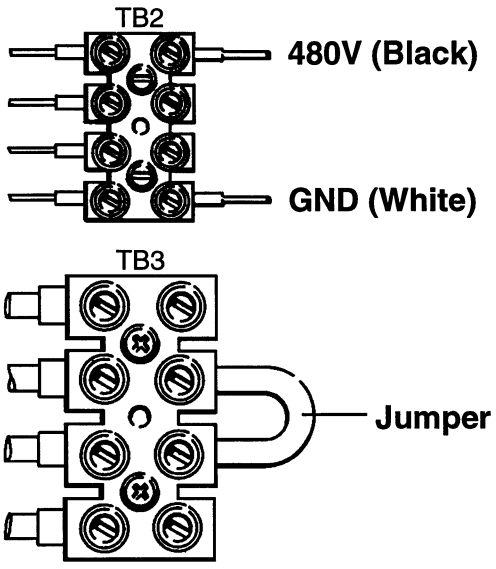


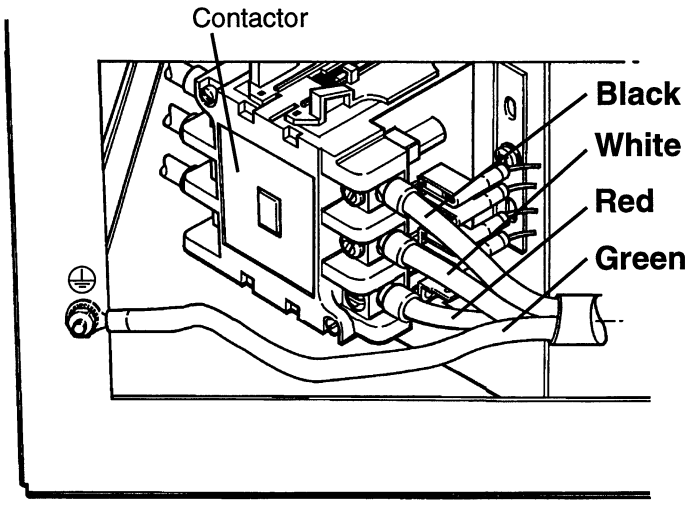
Figure 2-6 Verify 480V Configuration

2. Configure TB3 with one jumper linked in the position shown in Figure 2-6.
3. Secure unused link jumper (if applicable) in the clip located on the floor of the power supply.

HOOKING UP THE THREE-PHASE TRANSFORMER SECONDARY POWER CORD FROM 600V TRANSFORMER CASE ASSEMBLY TO POWERMAX1100

1. Connect L1 (Black), L2 (White) and L3 (Red) of the three-phase transformer secondary power cord to the contactor as shown in Figure 2-7.

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



Conductor	Color
L1	Black
L2	White
L3	Red
Ground	Green

Figure 2-7 Connecting the Transformer Secondary Power Cord from 600V Transformer Case to Powermax1100

3. Connect the rear panel to the Powermax1100 power supply and secure with 8 screws.

4. Tighten the strain relief around the power cord. Be certain that the strain relief grips the outer insulation of the power cord and not the individual wires.

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.

CHOOSING POWER CORD PLUG AND LINE DISCONNECT BOX FUSE

Power Cord Plug

The user must obtain a power cord plug that is certified by national or local electrical codes. The plug should be connected to the power cord by a licensed electrician.

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 @ 11.2 kw Output	Recommended Slow-Blow Fuse Size
600 VAC	3	20 amps	30 amp

The 600Volt conversion is now complete. See the Powermax1100 Operator Manual for further instructions to setup, operate and maintain the Powermax1100 system.

Section 3 PARTS LIST

In this section:

PARTS LIST

POWERMAX1100 600 VOLT CONVERSION KIT - 128147

Index No.	Part No.	Description	Quantity
1	001633	Panel:Powermax1100 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	075237	M/S:10-32 X 3/8 Phillips Head	10
8	075470	M/S:10-32 X 3/4 Phillips Head Pan	20
9	075174	Lockwasher :#10 Internal	20
	129223	**Powermax1100 600V Conversion SA**	1
10	001634	Cover:Powermax1100 600V	1
11	001635	Bracket:Powermax1100 600V	2
12	008752	Fuseblock:3Position 30A600V 13/32X1-1/2	1
13	008933	Terminal board:3-Terminal	1
14	108036	Fuse:30A 600V .406X1.5 Slow	3
15	008963	Strain relief:3/4" X .625-.750	2
16	014225	Transformer:Powermax1100 600V Input	1
17	123230	Cable:Powermax1100 600V Conv. Fuses	1
18	123231	Cable:Powermax1100 600V Conv. Term. Block	1

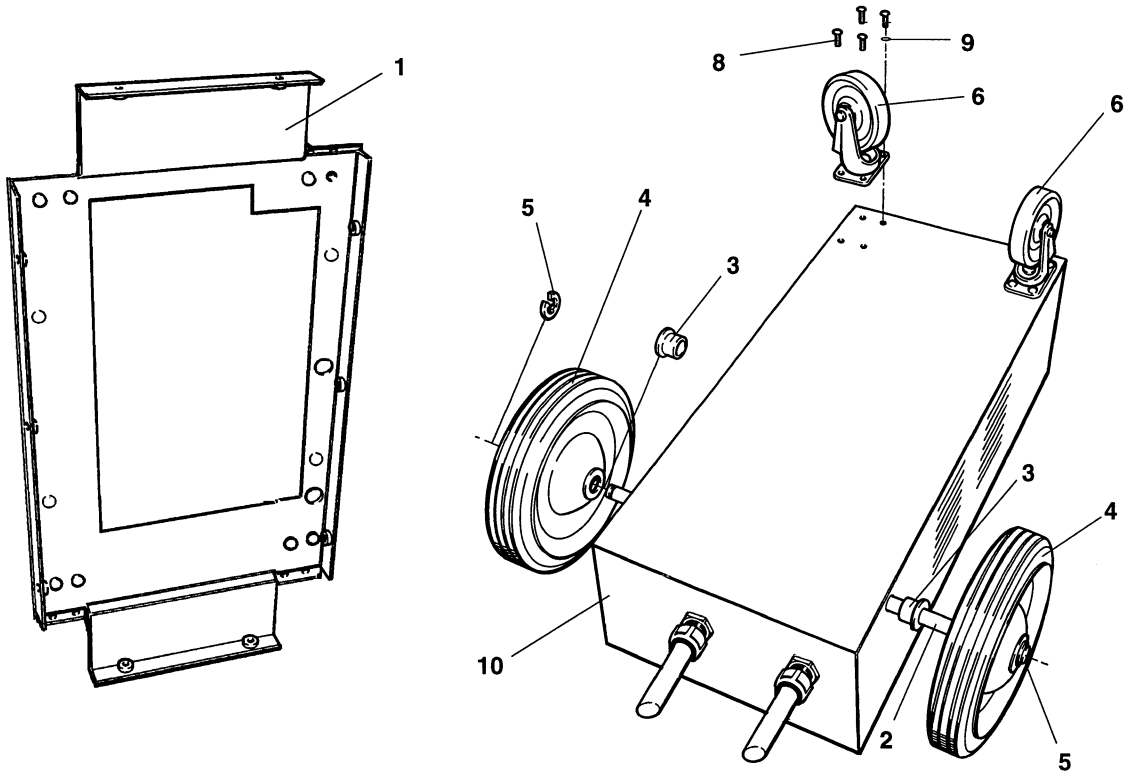


Figure 3-1 Powermax1100 600V Panel, Wheels and Casters

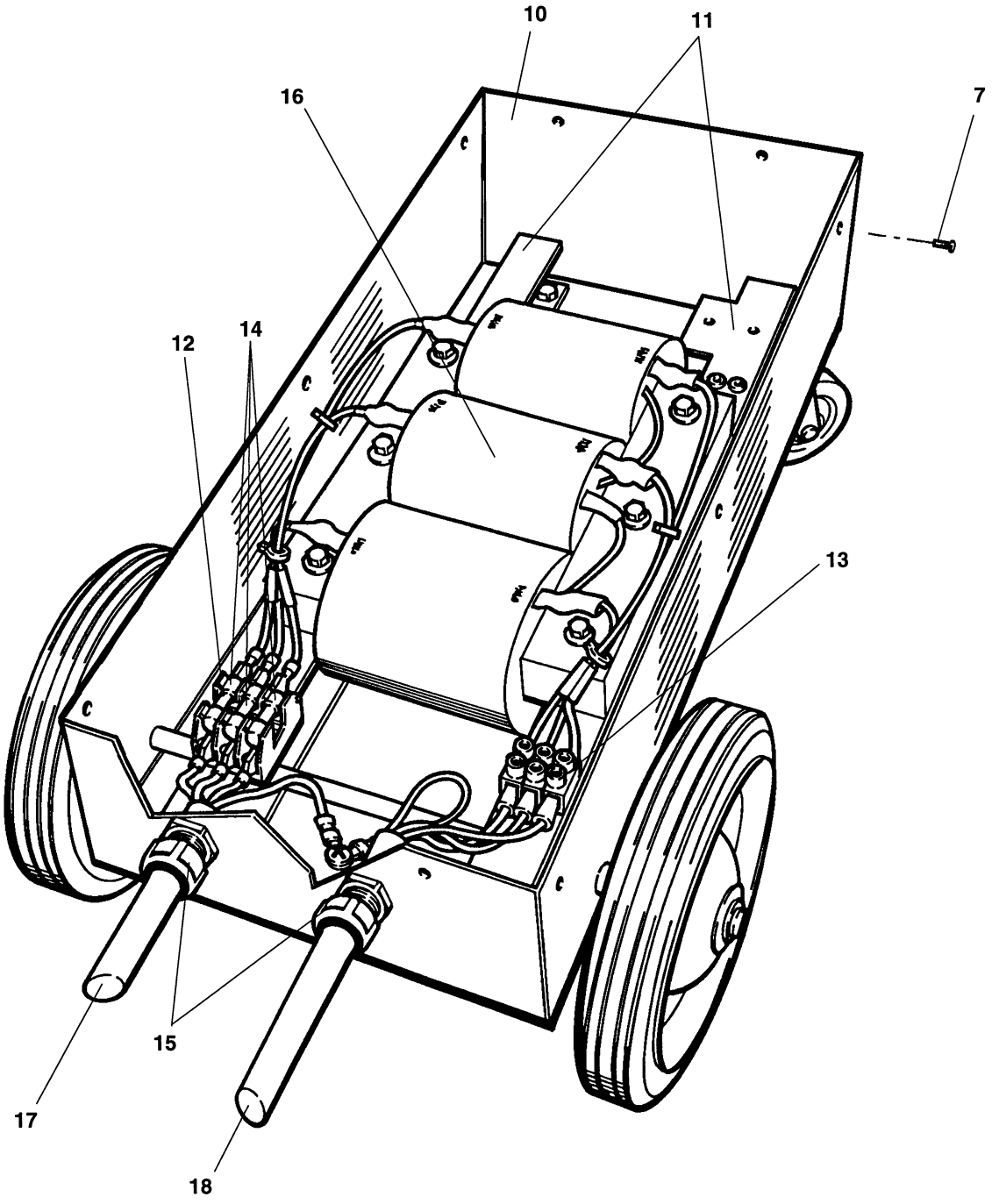


Figure 3-2 Powermax1100 600V Conversion Subassembly - 129223