

powermax900

230 Volt CE Conversion

Installation Manual
803210 - Rev. 0

Hypertherm
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plasma cutting technology*

powermax900®

230 Volt CE Conversion

Kit: 128313

**Installation Manual
IM-321
(P/N 803210)**

Revision 0 September, 1998

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Section 1 SPECIFICATIONS

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SPECIFICATIONS

INTRODUCTION

The instructions in this manual will enable a qualified electronics technician to convert the 400 volt CE Powermax900 into a 230 volt CE power supply. The kit (128313) 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 Powermax - See Figure 2-1. See also Section 3 for a list of parts for the 230 volt CE conversion kit.

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

SPECIFICATIONS

230 Volt CE Powermax900 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% ($I_2=55A$, $U_2=120V$) 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)	11.4kVA (U_1I_1)
Input Voltage (U_1)/Input Current (I_1) @ 6.6 kw Output	230V/30A - 3 ϕ , 50/60 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	360 scfh/6 scfm at 90 psi (170 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 230V INSTALLATION

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230V CE 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!

See Section 3 for a parts list of the 128313 Powermax900 230V conversion kit.

INSTALLATION

The installation of the 230V kit to the 400V CE Powermax900 involves 5 basic steps:

1. Installation of wheels and casters to the transformer case.
2. Attaching the power supply bracket to the Powermax900 chassis.
3. Attaching the 230V case assembly to the Powermax900 bracket and chassis.
4. Hooking up the three-phase transformer secondary power cord from the 230V transformer case assembly to the Powermax900.
5. Choosing the plug, power cord and line disconnect box fuse.

230V CE INSTALLATION

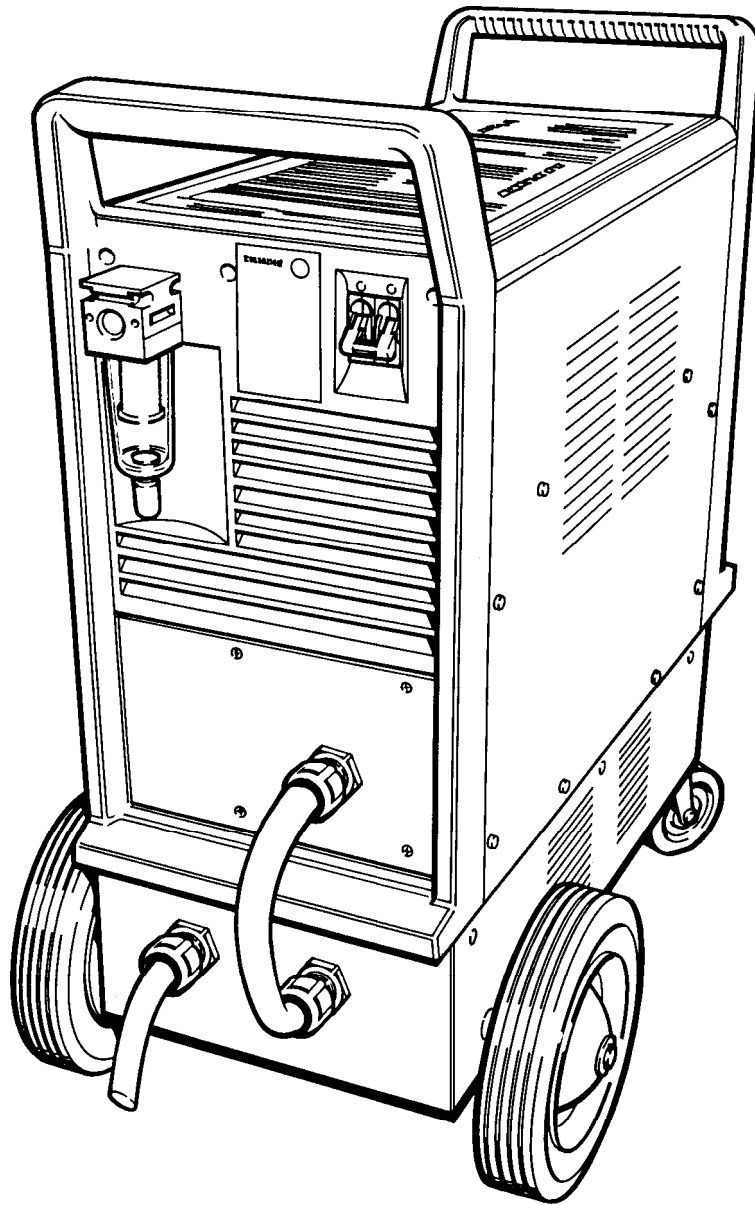


Figure 2-1 Powermax900 230V CE Power Supply Assembled

230V CE INSTALLATION

INSTALLATION OF WHEELS AND CASTERS TO TRANSFORMER CASE

Wheel Installation

1. Carefully turn transformer case assembly upside down.
2. Snap an 027249 retaining ring on one end of the 004672 wheel axle.
3. Slide one 027057 wheel on the axle.
4. Slide 008973 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 second 008973 shoulder washer over the end of the axle with the smaller diameter end of the washer facing the transformer case.
7. Slide the second 027057 wheel onto the axle.
8. Snap the second 027249 retaining ring on the end of the axle to secure the second wheel.

Caster Installation

1. Attach the 027299 casters to the case with the 075470 10-32 screws and 075174 star washers as shown in Figure 2-2.
2. Turn transformer case back over on to wheels - Figure 2-3.

Wheel and caster installation complete.

230V CE INSTALLATION

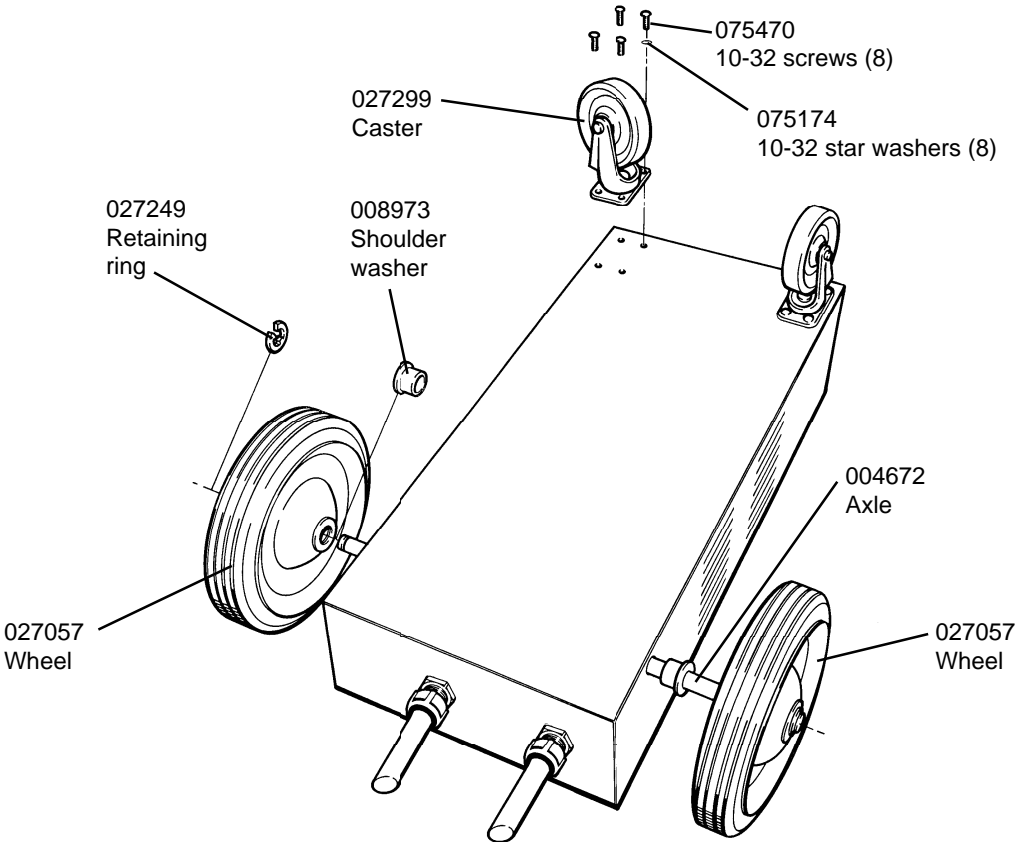


Figure 2-2 Wheel and Caster Installation

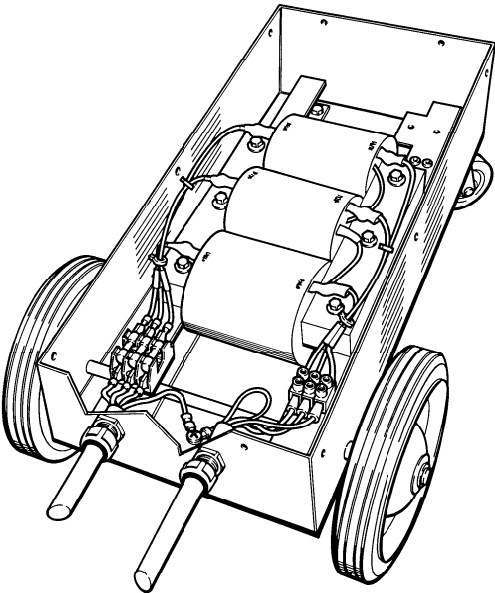



Figure 2-3 Wheels and Casters Installed on 230V Transformer Case


230V CE INSTALLATION

ATTACHING POWER SUPPLY BRACKET TO POWERMAX900 CE 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.
3. Remove power cord from power supply. See Figure 2-4.
 - 3.1. Loosen the power cord strain relief.
 - 3.2. Remove the screws securing the line cord rear panel.
 - 3.3. Slide rear panel down on power cord to expose filter board and TB1.
 - 3.4. Disconnect power cord from TB1 and ground stud. See Figure 2-5.

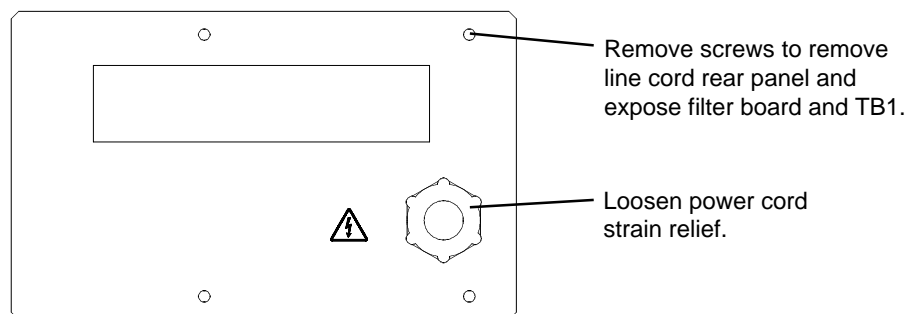


Figure 2-4 Removal of Power Cord from Powermax900 CE Power Supply - 1 of 2

230V CE INSTALLATION

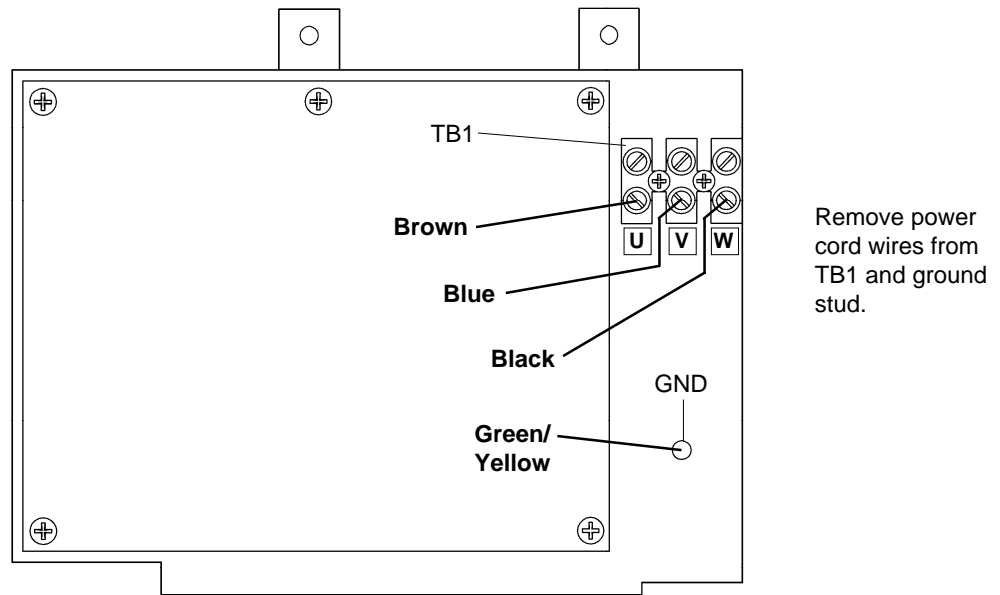


Figure 2-5 Removal of Power Cord from Powermax900 CE Power Supply - 2 of 2

3.5. Remove toroid from power cord wires. Save the toroid. See Figure 2-6.

3.5. Remove the power cord from the rear panel.

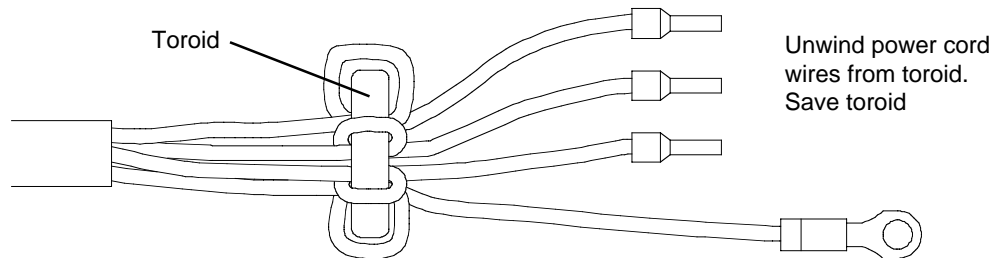


Figure 2-6 Removal of Toroid from Power Cord

230V CE INSTALLATION

4. Remove the power supply cover.
5. Carefully tilt the Powermax over onto its front handle as shown in Figure 2-7.
6. Place the 001568 power supply bracket against the bottom of the power supply as shown in Figure 2-7 and fasten with the 075470 10-32 screws, 075174 star washers and 075160 kepnuts in 12 locations.

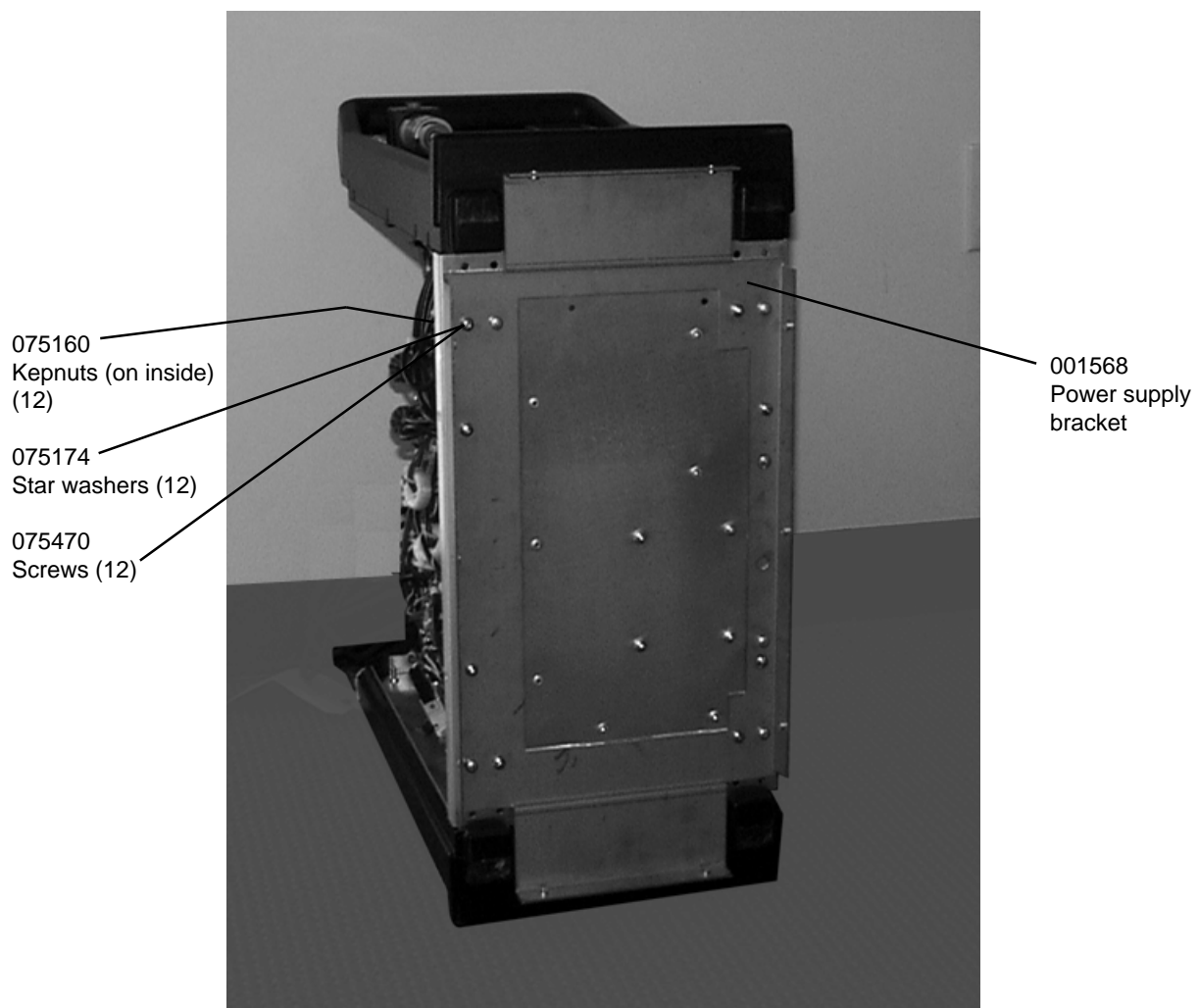


Figure 2-7 Attaching 230V Power Supply Bracket to Powermax CE Chassis

230V CE INSTALLATION

ATTACHING 230V TRANSFORMER CASE ASSEMBLY TO POWERMAX900 CE CHASSIS

1. Lift Powermax 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 Powermax onto the transformer case assembly.
3. Fasten the Powermax to the transformer case assembly by screwing in the 075467 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.

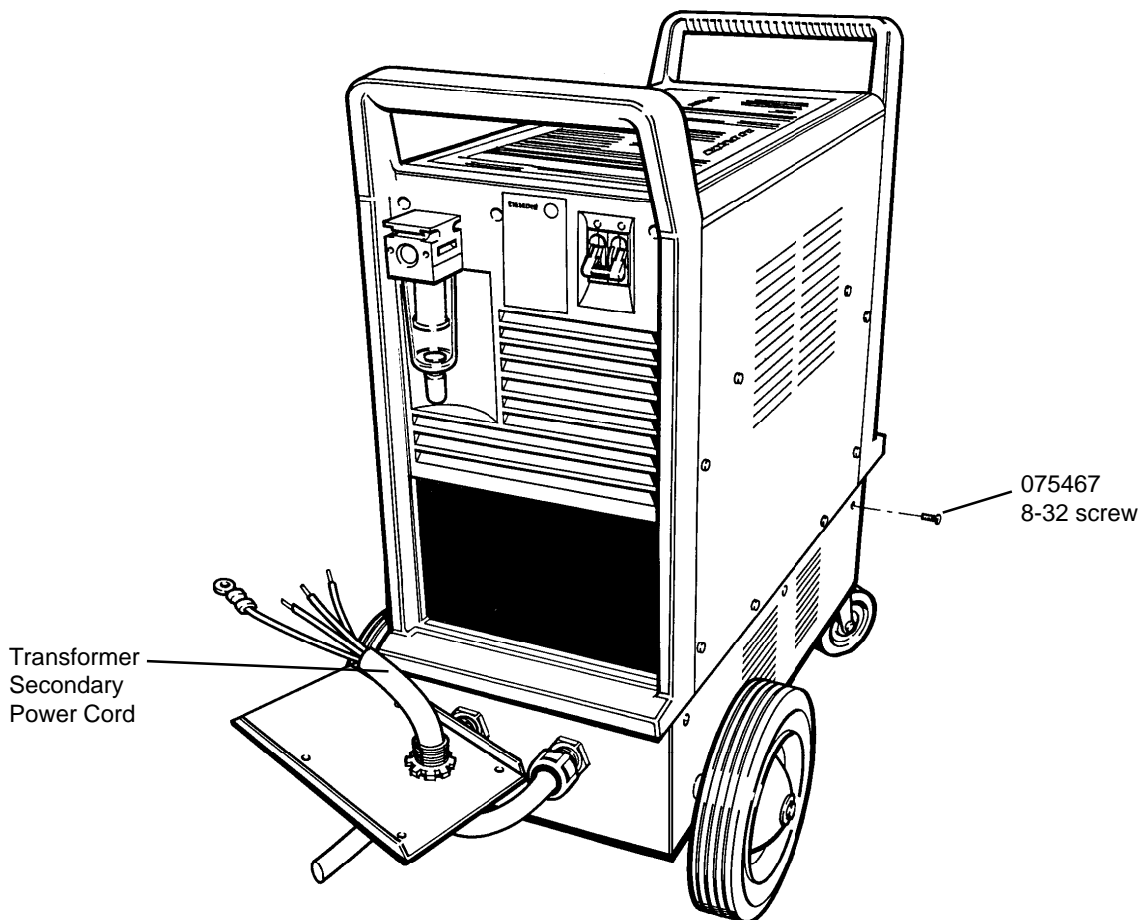


Figure 2-6 Attaching 230V Transformer Case Assembly to Powermax900 CE Chassis

230V CE INSTALLATION

HOOKING UP THE THREE-PHASE TRANSFORMER SECONDARY POWER CORD FROM 230V TRANSFORMER CASE ASSEMBLY TO POWERMAX900 CE POWER UNIT

Caution: The toroid must be installed as shown to maintain European EMC compliance.

1. Prepare the power cord wires as shown in Figure 2-9. Note that all 4 wires must loop through the toroid.

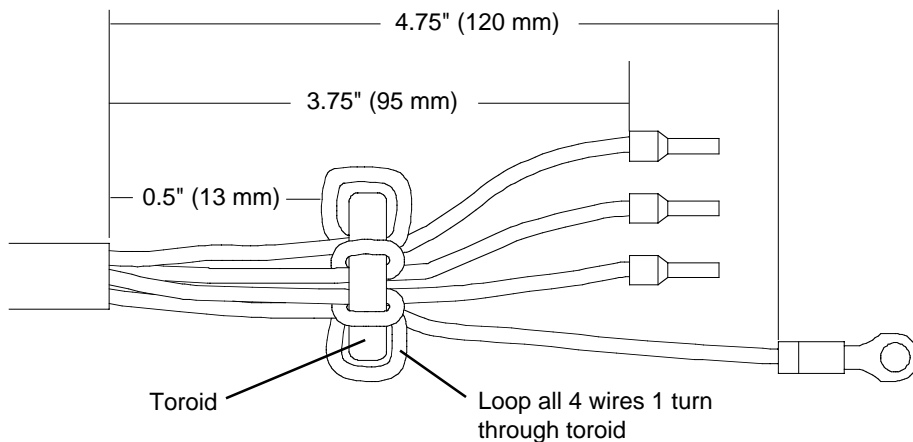


Figure 2-9 Power Cord Preparation

2. Connect the power cord wires and the ground wire as shown in Figure 2-10. **Be certain that all wires are fastened securely! Pull on wires after fastening to verify that they will not come loose.**
3. Connect the rear panel to the Powermax900 power supply and secure with 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.
5. Replace the power supply cover. See completed assembly in Figure 2-1.



WARNING



BE CERTAIN THAT WIRES ARE CONNECTED AS SHOWN IN FIGURE 2-10. AS A PRECAUTION, CHECK CONTINUITY FROM POWER SUPPLY ENCLOSURE TO INCOMING GROUND WIRE BEFORE CONNECTING TO POWER.

230V CE INSTALLATION

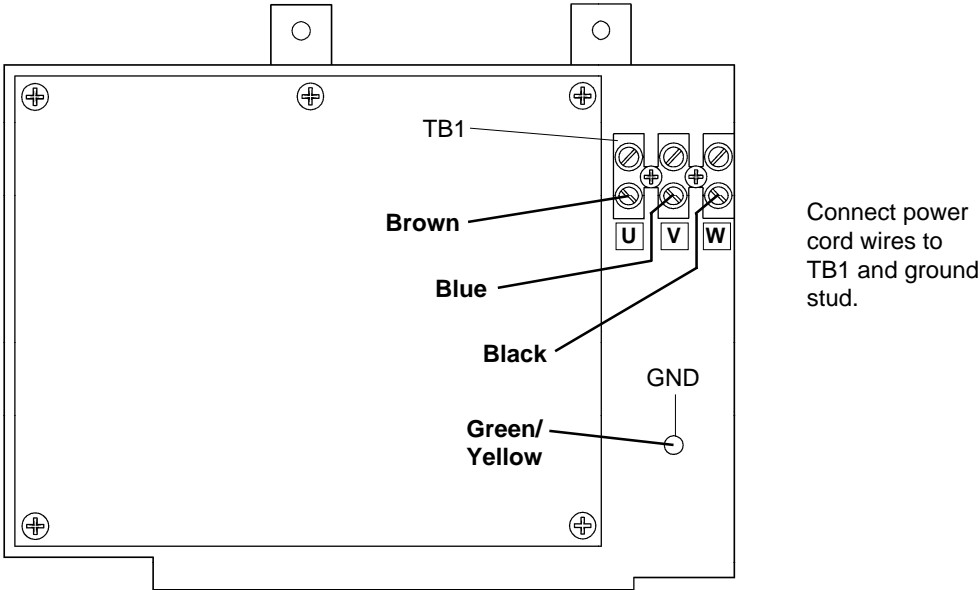


Figure 2-10 Connecting Power Cord to Powermax900 CE Power Supply

CHOOSING PLUG, POWER CORD AND LINE DISCONNECT BOX FUSE

Power Cord Plug

The 230V CE Powermax900 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 - 230V

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 cords that are certified by national or local codes. The cord should be installed only by a licensed electrician.

Input Voltage	Input Current	Recommended Power Cord Gauge Size (mm ²)				
		< 3 m	3 – 7.5 m	7.5 – 15 m	15 – 30 m	30 – 45 m
230 VAC	21 amps	2.5	4	6	10	16

230V CE INSTALLATION

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.

<u>Input Voltage</u>	<u>Phase</u>	<u>Input Current @ 6.6 kw Output</u>	<u>Recommended Slow-Blow Fuse Size</u>
230 VAC	3	30 amps	40 amp

The 230 Volt CE conversion is now complete. See the Powermax Operator Manual for further instructions to setup, operate and maintain the Powermax system.

Section 3 PARTS LIST

In this section:

Powermax900 230 Volt CE Conversion Kit - 128313..... 3-2

PARTS LIST

POWERMAX900 230 VOLT CONVERSION KIT - 128313

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
	075160	Keypnut:10-32 S/Z	12
	129365	Powermax900 230V CE Conversion SA	1
10	001672	Cover:Powermax900 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	108092	Fuse:32A 400V 10mm X 38mm	3
15	008963	Strain relief:3/4" X .625-.750	2
16	014236	Transformer:Powermax900 230V Input	1
17	123383	Cable:Powermax900 230V Conv. Fuses	1
18	123384	Cable:Powermax900 230V Conv. Term. Block	1

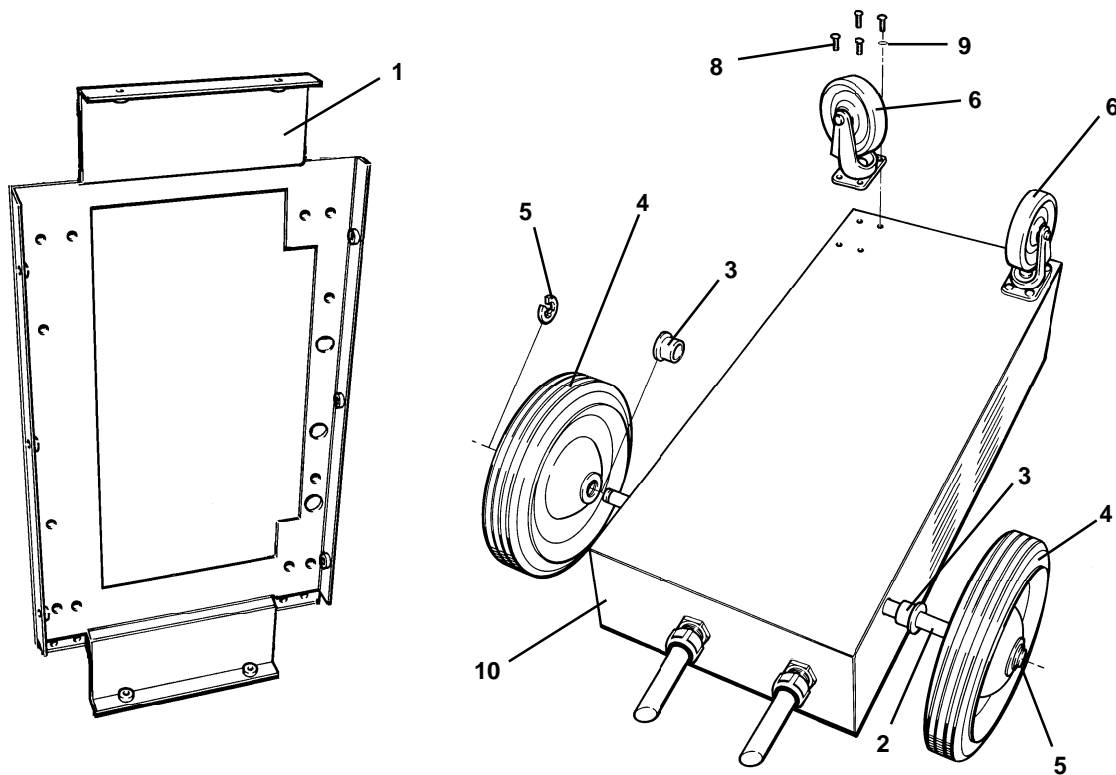


Figure 3-1 Powermax900 230V CE Panel, Wheels and Casters

PARTS LIST

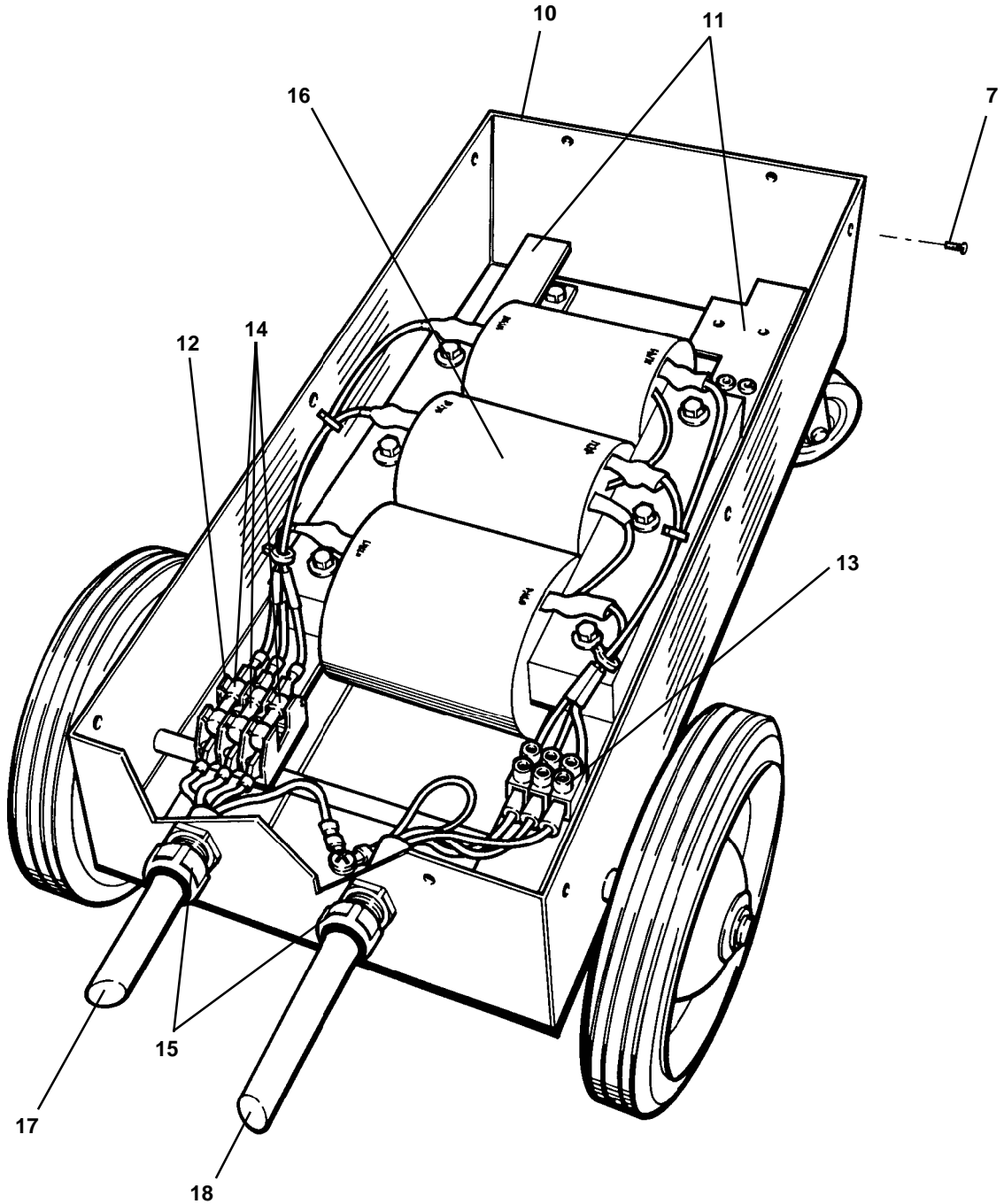


Figure 3-2 Powermax900 230V CE Conversion Subassembly - 129369

PARTS LIST
