Section 5 Trouble Shooting

DANGER This guide references components inside the welding power supply. Working inside a capacitor discharge (CD) power supply is inherently dangerous. Do not attempt to service components inside a CD power supply unless you have been trained in the proper safety and service procedures. If you have questions, consult your distributor or the factory directly.

Problem	Possible Cause	Corrective Action
Error Code E01	A ground fault has been detected.	Verify that the outlet and other cables are wired correctly.
Error Code E02	The positive (+) side weld SCR is bad.	Have a qualified service tech check and replace the + weld SCR.
Error Code E03	The negative (-) side weld SCR is bad.	Have a qualified service tech check and replace the - weld SCR.
Error Code E04	The positive (+) phase, high charge SCR is bad.	Replace control board.
Error Code E05	The positive (+) phase, low charge SCR is bad.	Replace control board.
Error Code E06	The negative (-) phase, high charge SCR is bad.	Replace control board.
Error Code E07	The negative (-) phase, low charge SCR is bad.	Replace control board.
Error Code E08	The discharge FET is bad.	Replace control board.
Error Code E09	The discharge resistors are bad.	Have a qualified service tech check and replace the discharge resistors.
Error Code E11	Stud did not lift during gap weld.	Check control cable connection. Check gap weld tool settings.
Error Code E12	No earth ground.	Check power cords and outlets.
All Other Error Codes		Call for service to have a qualified service tech assess problem.
Poor Weld	Poor surface condition.	Properly prepare the weld surface. Make sure it is free of contaminants such as dirt and oil. If there is heavy oxide (rust for steel or aluminum oxide for aluminum) it must first be removed.
	Poor ground connection.	Make sure all cable connections are in good condition and tightly secured.
	Broken or loose cables.	Make sure all cable connections are in good condition and tightly secured.
	Use of center punch or witness marks.	Do not use center punch/witness marks to locate CD weld studs. They effectively reduce the tip length degrading weld performance.
	Loose collet or chuck.	The collet should have a firm hold on the weld stud. If you are able to easily (with no real resistance) pull the stud out of the collet then the collet is worn. Replace collet.
		If the inside of the collet looks like there are threads in it then the collet is worn out and should be replaced.
	Dirt in weld tool preventing smooth operation.	Service weld tool per your weld tool's Operation Manual.
	Cables are coiled.	Uncoil weld and ground cables.
	Voltage incorrect for size stud to be welded.	Check the weld parameter table on page 15 to ensure that you are using the correct voltage for the size stud you are trying to weld.
	Studs or pins are not perpendicular to the work surface.	If the operator can not suitably hold the welding tool perpendicular to the work surface, then a template or fixture may be required.
	Arc Blow (all weld material moves or "blows" to one side).	Use double grounds, one on each side of the weld zone to balance current flow.
		Move ground connections away from weld zone.
		Space ground connections evenly around the weld zone.
	Incorrect plunge setting.	Adjust plunge per weld tool's Operation Manual.
	Incorrect spring rate.	Adjust spring pressure per weld tool's Operation Manual.
Weld is too hot.	Weld voltage too high.	Decrease weld voltage.
	Gap too small when using gap process.	If using a gap weld tool, increase the weld gap per weld tool's Operation Manual.
	Plunge too small.	Increase the plunge per weld tool's Operation Manual.
	Spring pressure too low.	Increase the spring pressure per weld tool's Operation Manual.
Weld is too cold.	Weld voltage too low.	Increase weld voltage.
	Gap too large when using gap process.	If using a gap weld tool, decrease the weld gap per weld tool's Operation Manual.
	Plunge too large.	Decrease the plunge per weld tool's Operation Manual.
	Spring pressure too high.	Decrease the spring pressure per weld tool's Operation Manual.

Section 5 Trouble Shooting

Problem	Possible Cause	Corrective Action
Arc blow (all weld material moves or "blows" to one side).	Ground(s) not positioned properly.	Reposition ground clamp to "steer" weld material. Weld material will flow away from the ground clamp.
		Use double grounds, one on each side of the weld zone to balance current flow.
Welder turns on but does not operate.	Broken ground cable or incomplete connection.	Make sure all cable connections are in good condition and are tightly secured.
	Broken weld tool, weld cable or incomplete connection.	Make sure all cable connections are in good condition and are tightly secured.
	Broken control cable.	Verify continuity on all leads in the control cable (black and white only for contact weld tools).
	Shorted trigger switch (trigger LED always on).	Verify continuity on the trigger switch. Replace if defective.
	Faulty trigger switch (trigger LED doesn't light when trigger pulled).	Verify continuity on the trigger switch. Replace if defective.
	Faulty control board.	Replace control board.
Weld too hot regardless of voltage setting.	Faulty control board.	Replace control board.
Green ready LED doesn't light.	Faulty control board.	Replace control board.
	Unit detects trigger.	Check cables. Ensure trigger switch is not broken.
	Unit detects contact.	Check cables. Ensure weld tool is not touching grounded work piece.
Green ready LED blinks, welder doesn't operate.	Faulty control board.	Replace control board.
Yellow contact LED doesn't light when weld tool is placed against work.	Missing or faulty ground.	Make sure all cable connections are in good condition and are tightly secured.
	Faulty control board.	Replace control board.
Red trigger LED doesn't light.	Broken control cable.	Verify continuity on all leads in the control cable (black and white only for contact weld tools).
	Control cable not fully connected.	Make sure all cable connections are in good condition and are tightly secured.
	Faulty trigger switch.	Verify continuity on the trigger switch. Replace if defective.
	Faulty control board.	Replace control board.
Breaker blows each time unit is powered on.	Shorted weld capacitor.	Use a capacitance meter to test weld capacitor. Visually inspect weld capacitor for obvious signs of damage. Replace defective weld capacitor.
	Faulty control board.	Replace control board.
Welder doesn't turn on.	Not plugged in.	Plug in unit.
	Panel breaker blown.	Reset breaker.
	Faulty power switch.	Replace power switch.
	Faulty control board.	Replace control board.
Welder shuts down immediately.	Weld SCR shorted.	Check Error Code (E02 **+** and E03 **-**) take corrective action to replace weld SCR.
	Faulty power switch.	Replace power switch.
	Faulty control board.	Replace control board.
Welder shuts down after a weld.	Weld SCR shorted.	Check Error Code (E02 **+** and E03 **-**) take corrective action to replace weld SCR.
	Faulty power switch.	Replace power switch.
	Incorrect gap weld tool adjustment.	Gap process welds must complete within 2 seconds of trigger pull. Make adjustments per the weld tool's Operation Manual.
	Faulty control board.	Replace control board.

Section 6 System Maintenance

SYSTEM MAINTENANCE

Power Supply

This unit is equipped with a fresh air intake filter. This filter should be replaced on a semi-annual basis. If the environment is particularly dirty, the filter should be replaced more frequently.

On an annual basis, the unit should be opened up and thoroughly blown out so it is free of all contaminants.

Welding Tool

Typically, most trouble stems from the stud weld tool. The stud weld tool should be serviced once every quarter. Monthly service may be required if use is exceptionally heavy. Please refer to the stud weld tool service manual for maintenance guidelines and instructions.

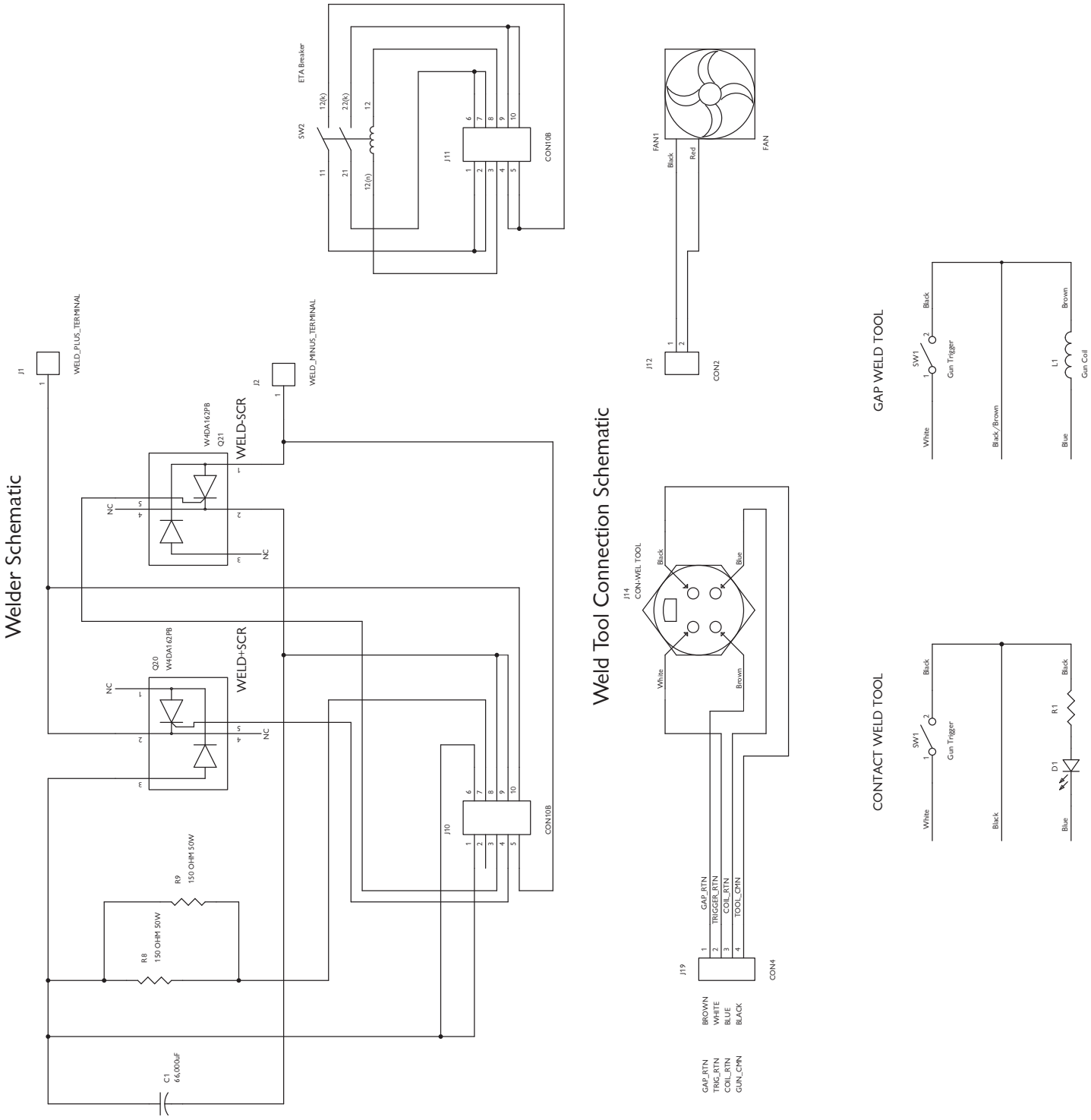
Cables

Cables can be a frequent source of trouble. Users often drag the power supply around by the cables. This can damage cables. Whenever the weld tool service is performed, the cables should be visually inspected for worn / damaged insulation or fraying wire. If the cables are damaged they should be repaired to prevent any degradation of weld quality and to protect operator safety.

BUILT IN EQUIPMENT SAFETY

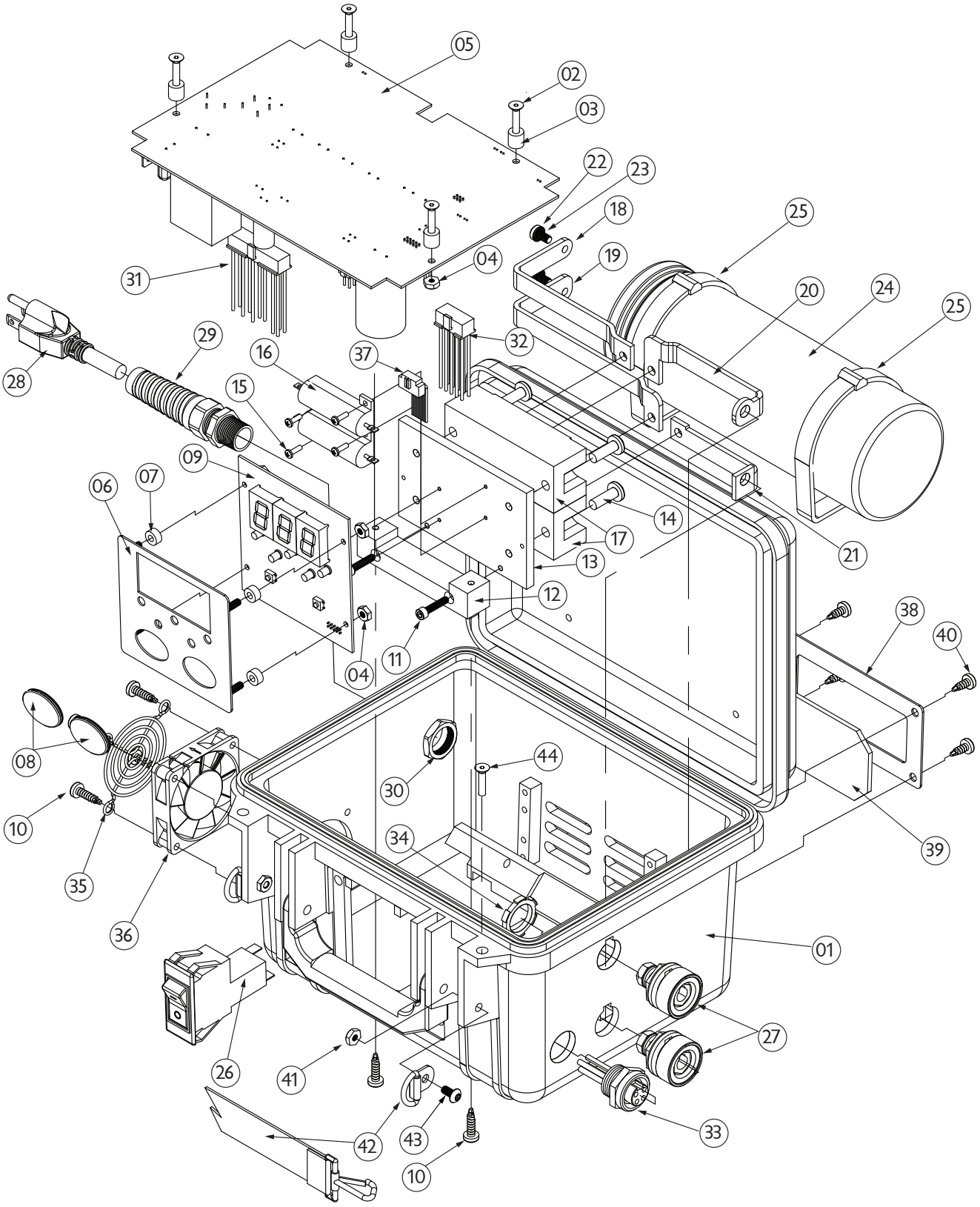
A fault in the welding power supply can create a potentially dangerous condition. The microprocessor continually monitors the system for faults and shuts the unit off when one is detected. This is done for operator and equipment safety purposes. The unit can be restarted, but will shut down again as soon as the fault condition is detected. The unit must be repaired. Serious faults, resulting from component failure, disable the unit for operator safety.

Section 7 Schematic Diagram



Section 8

Parts List



Section 8 Parts List

Item	Description	120 VAC Part Number	240 VAC Part Number
01	CD66 Housing Assembly	PRC226	10143
02	Flat Head #8-32 X 1	FXC16-1ZP	FXC16-1ZP
03	Stand Off Nylon	SON17-38-38	SON17-38-38
04	Nut, Hex Steel #8-32	NHC16ZP	NHC16ZP
05	Main Control Board	PRP101	10215
06	Face Plate Assembly	PRM1300	PRM1300
07	Stand Off Nylon, UI .166 ID, .375	SON17-50-19	SON17-50-19
08	Switch Actuator Button	PRM26	PRM26
09	User Interface PCB	PRP102	PRP102
10	Pan Head 10-14 X 3/4	PXC19-75TZ	PXC19-50TZ
11	Socket Head Cap Screw #8-32 X 3/4	SHC16-75	SHC16-75
12	Heat Sink Mounting Block	PRC220	PRC220
13	Heat Sink	PRE1101	PRE1101
14	1/4 - 20 X 3/4 Pan Head Screw	PPC25-75ZP	PPC25-75ZP
15	Pan Head, Phillips #4 - 40 X 3/8	PPC11-37ZP	PPC11-37ZP
16	Resistor 50W, 150 OHM	ER50W-150A	ER50W-150A
17	SCR-Diode Module	ESD30013BR	ESD30013BR
18	Cap Plus Bus Bar	PRE2101	PRE2101
19	Cap Neg Bus Bar	PRE2102	PRE2102
20	Weld Ground Bus Bar	PRE2103	PRE2103
21	Weld Negative Bus Bar	PRE2104	PRE2104
22	Button Head #10-32 X 3/8	HBC19F-37ZP	HBC19F-37ZP
23	#10 Lock Washer	WLZ19ZP	WLZ19ZP
24	Weld Capacitor	EC160-66KE	EC160-66KE
25	Cable Tie Nylon	CTN12-508	CTN12-508
26	Circuit Breaker	PKE1 +	10212 +
27	Weld/Ground Cable Receptacle	CDN04RFB	CDN04RFB
28	Power Cord 8'	PKE9001	10213 *
29	Strain Relief Extended	PRM52	PRM52
30	Nut, Strain Relief	PRM53	PRM53
31	Power Harness	PRH001	PRH001
32	Weld Harness	PRH002	PRH002
33	Control Cable Harness	PRH003	PRH003
34	Nut, 1/2 NPT	NPC50	NPC50
35	Fan Guard	PRM900	PRM900
36	Fan Assembly	PRE902	10220
37	Operator Interface Cable	PRH005	PRH005
38	Screen Cover	PRC222	PRC222
39	Filter Intake	PRC218	PRC218
40	Pan Head #10-14 X 1/2	PXC19-50TZ	PXC19-50TZ
41	Nut, Hex #10-32	NHC19FZP	NHC19FZP
42	D-Ring w/ Shoulder Strap (partial view)	PRM500	PRM500
43	Button Head #10-32 X 3/8	BHC19F-37	BHC19F-37
44	Security Screw	FXS19-75P	FXS19-75P

Note: *The 240V Power Cord does not include End Connector

+ The 120V has White Rocker and the 240V has Red Rocker

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