P5 Service Manual

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P5 Troubleshooting guide

Symptom	Things to check	Comment
Screen Black	Power cycle the unit from the master switch on the back panel	
	Press the Blue PS Audio button to make sure the unit is not in standby	
	Test the fuse on the unit	120V unit: 5amp 5x20mm 250v Slowblow 240V unit: 3amp 5x20mm 250v Slowblow (fuse located on back panel by AC inlet)
	Power the unit up and check for the green LEDs are illuminated on the IO Board	
	Check the cable connection for the display screen	
	Try loading the latest firmware	http://www.psaudio.com/support/downloads/
	Contact PS Audio for a replacement screen assembly	make sure to verify the unit ID, it will be required before the screen assembly can be shipped
Screen has Vertical/Horizontal Pixel line in the screen	Contact PS Audio for a replacement Touchscreen	make sure to verify unit ID, it will be required before the screen assembly can be shipped
Surging line scrolling on screen	Contact PS Audio for a replacement screen assembly	make sure to verify unit ID, it will be required before the screen assembly can be shipped
Unit will not respond to touch screen inputs	Calibrate the screen	Turn the unit off from the master switch, hold down the blue PS Audio button while turning the unit back on, the screen will turn on in a white background and a numbered box in the four corners, accurately and in order press the numbered boxes
	Loosen the screen assembly screws a half turn	
	Contact PS Audio for a replacement Touchscreen	make sure to verify unit ID, it will be required before the screen assembly can be shipped
Unit not showing ANY life	Test the fuse	120V unit: 5amp 5x20mm 250v Slowblow 240V unit: 3amp 5x20mm 250v Slowblow (fuse located on back panel by AC inlet)
	Check the circuit breaker reset on the back panel/	
Unit will not accept firmware update	Make sure that the SD Card is under 32MB	
	Reformat the SD Card to Default FAT	
	Contact PS Audio for Force Loading firmware	

	Check the contacts of the SD Card and SD Card slot, make sure there is no dust or anything obstructing the SD Card from making a clean contact in the slot	
	check that all of the internal ribbon cables are connected	
Unit stuck in initialization	Recalibrate the touchscreen	
	Loosen the 4 screws to the display assembly by a half turn	
	Try loading the latest firmware	http://www.psaudio.com/support/downloads
	Contact PS Audio for a replacement screen assembly	make sure to verify unit ID, it will be required before the screen assembly can be shipped
Unit Initializes with Yellow/Red Outlets	Try loading the latest firmware	http://www.psaudio.com/support/downloads
	Contact PS Audio for new regenerator boards	
Unit Displays Short Circuit	Power cycle the unit from the master switch on the back panel	
	Try loading the latest firmware	http://www.psaudio.com/support/downloads/
	Contact PS Audio for new regenerator boards	
Unit stops/ shuts down during listening sessions	Check the load percentage of the unit if the unit goes over 100% it will shut down in protection	
Unit Output THD is = to or > Input	Power cycle the unit from the master switch on the back panel	
	Try loading the latest firmware	http://www.psaudio.com/support/downloads/
	Verify that Phase tune is set to zero on the Setup Menu	
	Contact PS Audio for new regenerator boards	
No power to back outlets	Power cycle the unit from the master switch on the back panel	
	Try loading the latest firmware	http://www.psaudio.com/support/downloads/
	open chassis and look for loose or disconnected cables	
	Contact PS Audio for replacement back panel	

***Unit will not connect* to network**	Check LEDs at Ethernet connection	Identify that the communication LEDS are illuminated
	Check for green globe on display	
	Check the unit is getting a unique IP address	The IP address is visible from the last page of the Setup screen
	Restart the P10 and the Network	Reset modem first, then router, then the P10
Unit is not visible in Globalnet/PowerPlay	Check for green globe on display	If not green, troubleshoot network problem
Unit not showing graph info on Scope pages	Try loading the latest firmware	http://www.psaudio.com/support/downloads/
	Contact PS Audio for replacement regenerator boards	
Unit Bottom plate is bent	Unit was dropped during shipment	Contact PS Audio for a new bottom plate/
	Inspect unit thoroughly for further damage	
Unit outputting odd voltages	Try loading the latest firmware	http://www.psaudio.com/support/downloads/
	Contact PS Audio for replacement regenerator boards	
Blowing Fuses	Verify that the fuse being used is the correct value	120V unit: 5amp 5x20mm 250v Slowblow 240V unit: 3amp 5x20mm 250v Slowblow (fuse located on back panel by AC inlet)
	Open top and look for any loose connections or obvious damage	
	Verify Back panel is not shorted	Disconnect both white connectors (J2 and J3 on relay board) from back panel. If fuse still blows, contact PS Audio for a replacement back panel.
	Verify transformer is not shorted by disconnecting secondaries	Disconnect red or blue wires going to the rectifier bridge. Disconnect the orange and yellow wires to the buck boost board. Disconnect J1 and J2 on Regenerator board. Disconnect J9 on I/O board. If fuse still blows contact PS Audio for a replacement transformer
	Contact PS Audio for replacement regenerator boards	
Unit not measuring accurate voltage	See Power Plant Calibration in this guide	
Unit clicking	Check to see if outlets are delivering power	if one or more outlets are turning on and off with audible clicking recalibrate the screen

	Check to see if voltage correction is 10V or greater	If Voltage is greater than 10V the clicking can be normal operation due to the buck/boost relay engaging and disengaging frequently
	Monitor the status screen in the scope menu to see if the clicking correlates with the THD reading alternating between a high and low reading	Contact PS Audio for replacement regenerator boards
Screen graphics appear upside down	Make sure Recalibrate the touchscreen	

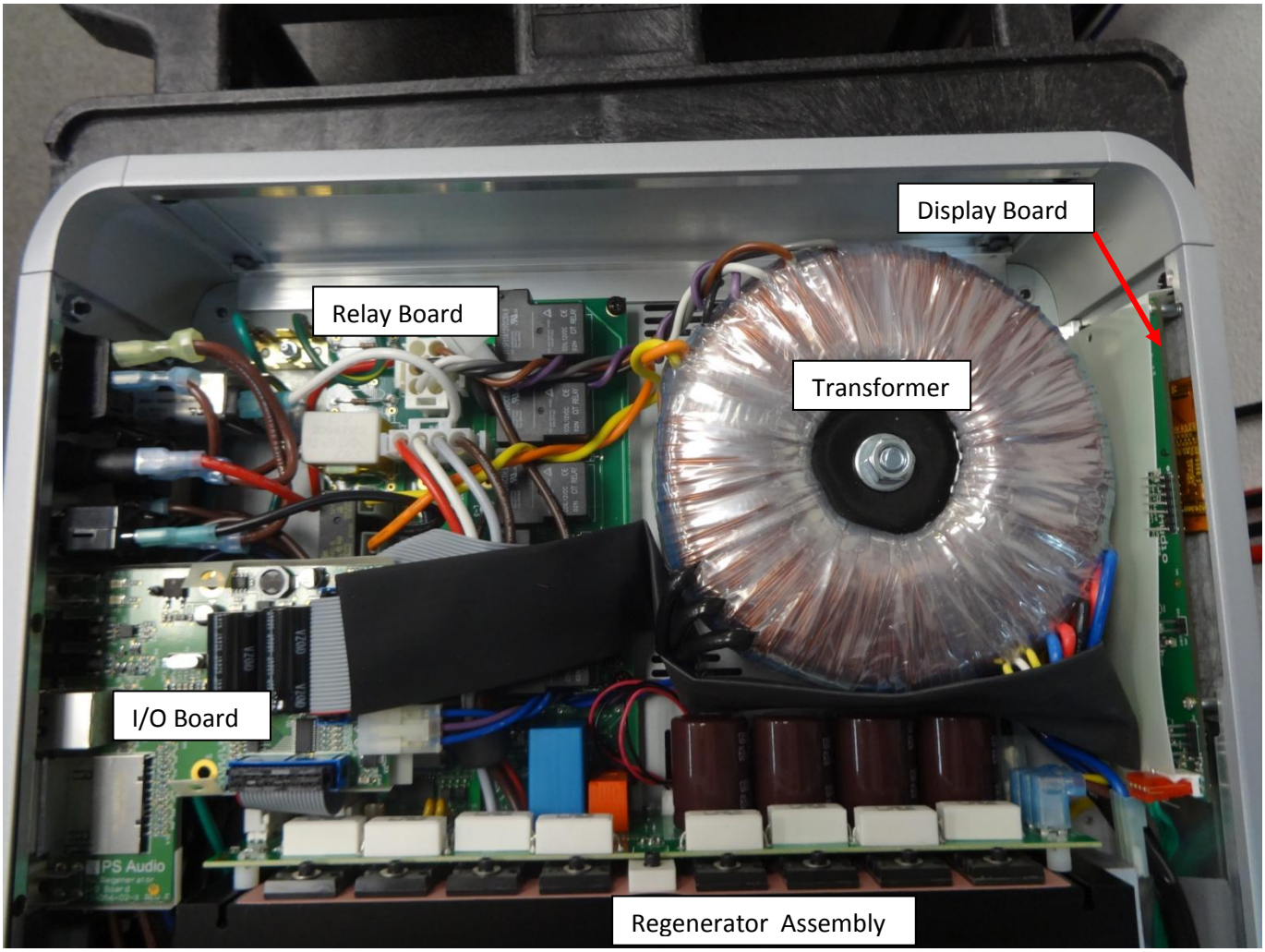
P5 Specifications

Environment Specification	**US/JP**	**Europe/Asia**
Location	Indoor use only	Indoor use only
Duty Cycle	Suitable for continuous operation	Suitable for continuous operation
Moisture Sensitivity	Not sealed against moisture	Not sealed against moisture
Operating Humidity	<80%rh	<80%rh
Storage Temperature	-40C to +40C	-40C to +40C
Operating Temperature	0C to 40C	0C to 40C
Max Operating Altitude	12,000’ (3500m)	12,000’ (3500m)
Electrical Supply Nominal Rating	120V 15A 60Hz US 100V 15A 50/60 Hz JP	230V 10A 50/60Hz
Instrument Specification		
Unit Dimensions	17” W x 14” D x 4” H (43cm W x 36cm D x 10.16 cm H)	17” W x 14” D x 4” H (43cm W x 36cm D x 10.16 cm H)

Unit Weight	37 lbs (16.7kg)	37 lbs (16.7kg)
Shipping Dimensions	24” x 21” x 10” (61cm x 53cm x 25cm)	24” x 21” x 10” (61cm x 53cm x 25cm)
Shipping Weight	48 lbs (21.7kg)	48 lbs (21.7kg)
Nominal Input Voltage	95 – 145 VAC	200 –285VAC
Maximum Continuous Load	1000VA	1500VA
Maximum Peak Load	1200VA	1800VA
Voltage Regulation	0.5V	1V
Output Distortion (Resistive Load)	<0.5%	<0.9%
Output Distortion (Reactive Load)	<0.5%	<0.9%
Output Impedance	<0.015 ohm	<0.015 ohm
Noise Reduction	100kHz – 2MHz >80dB	100kHz – 2MHz >80dB
Efficiency @1200 VA	>85%	>85%
Input Frequency	45 – 65 Hz	45 – 65 Hz
Under Voltage Limit	Continuous -10% of setting 15 sec duration -15% of setting	Continuous -10% of setting 15 sec duration -15% of setting
Over Voltage Limit	Continuous 5% of setting 15 sec duration 10% of setting	Continuous 5% of setting 15 sec duration 10% of setting
Energy Dissipation	2440J	3670J
Peak Current Surge	144,000A	84,000A
Max Surge Voltage	6,000V	6,000V

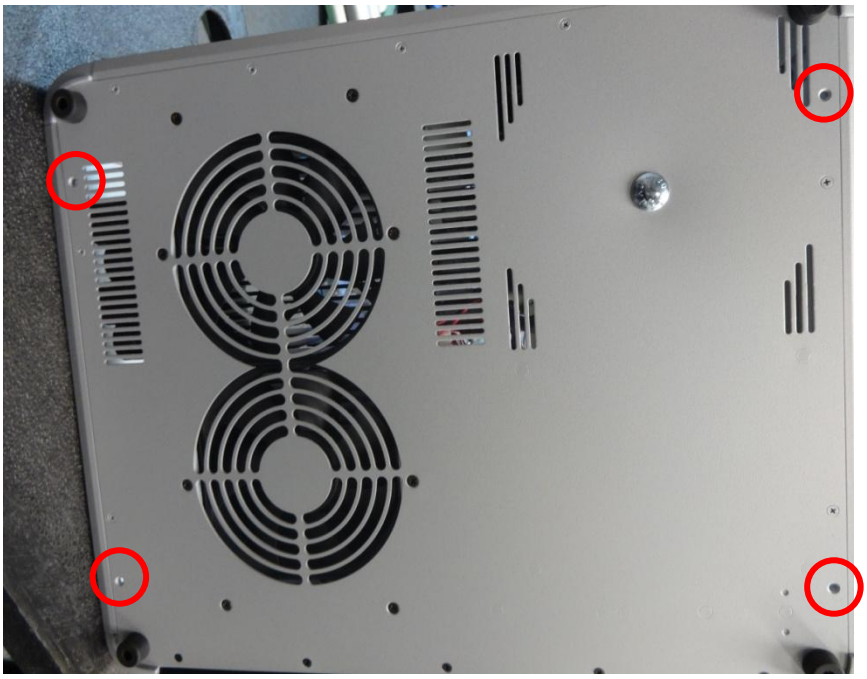
Clamp Level	330V	800V
DC Trigger Configuration	Tip Positive	Tip Positive
DC Trigger Voltage	5 – 15Vdc	5 – 15Vdc

P5 Board Overview



Removing the Top:

Remove qty 4 4-40 pfh screws from the bottom



Place the unit upright and lift the top. There are emi suppression fingers on the cover assembly that make the top stick tightly on the unit. If you have trouble removing the top, insert some long 4-40 screws back into the top cover holes on the bottom, turn the unit upright, and push down. The screws will push the top off. Be careful to notice if all of the emi fingers stay connected to the top. If they come off, they are a shorting hazard to the high voltage circuitry inside the P5.

If you have trouble lifting the top off, thread some long 4-40 screws into the holes for the same 4 that you removed from the bottom shown in the above photo. Then place the P5 upright on the screws and push the unit down, which will force the cover to come up. Then remove the long 4-40 screws and lift off the top.

Removing the I/O Board

- Remove the Top.
- Unplug connectors – make a note of what came from where
- Remove qty 2 6-32 pph screws holding the I/O board to the backpanel. Also remove any screws holding down the I/O board internally.

Removing the Transformer:

- Remove the Top
- Map carefully all of the wires coming out of the transformer.
- Disconnect all the wires
- Remove 5/16" Hex nut
- Lift out the transformer

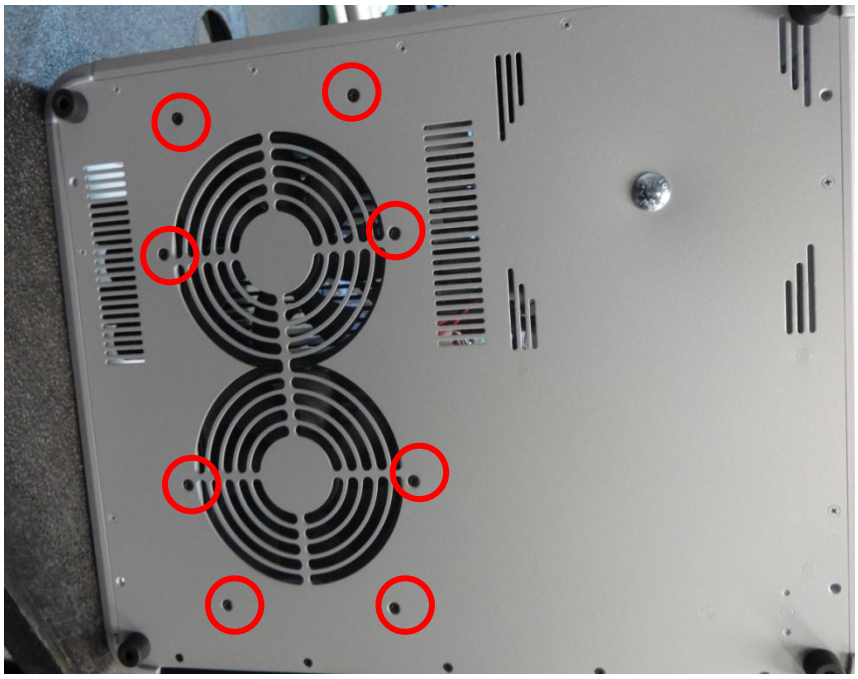
Remove the display board:

- Remove the top
- Remove the transformer
- Remove the two cables connected to the display board
- Remove the insulator sheet
- Remove qty 4 2-56 pph screws
- Remove display board, metal bracket, and LCD display.

If it is necessary to attach the LCD display to the display board:

- Open the LCD flex circuit "ZIF" connector. There are a few different styles of connector. The locking mechanisms are all plastic and break easily. When locking and unlocking use care to try to spread the force evenly across the locking mechanism
- Carefully insert the flex circuit of the display into the "ZIF" connector. Push the flex circuit into the "ZIF" connector. This may be a snug fit, so be careful.
- Using 2 fingers close the "ZIF" connector by flipping the lock mechanism down.
- There are a few different revisions of display boards. Most are interchangeable. However, if you find a situation that does not seem correct, contact the factory for additional instruction.
- Installation of the new display board is the reverse of the removal process. When installing the mounting screws, do not overtighten. Only tighten enough to keep the display board in position. If too much stress is applied with the screws, it causes the touchpanel to erroneously signal the microprocessor that it is being touched, which freezes the operation of the PowerPlant.

Remove Regenerator assembly:

- Remove the Top
- Remove the I/O board
- It is not necessary to remove the transformer, but you may find it convenient to do so. If you do not remove the transformer, remove all of the wires from the transformer to the regenerator assembly
- Disconnect the cable from the regenerator to the relay board.
- Disconnect the ground wire from the regenerator to the ground distribution block
- Remove qty 8 6-32 X 1/4" Ph FH screws holding the regenerator assembly to the bottom plate
- 
- Set the unit upright again and lift out the regenerator assembly

P5 Parts List

Part Number	P5	Price
MS-39-100220	Touchscreen	$23.10
MS-11-059-97-1	Screen/Board Fru	$133.95
MS-11-059-95-1	Regen Assy 120V	$374.22
MS-11-059-95-2	Regen Assy230V	$374.22
MS-12-056-02-1	I/O Board	$87.22
MS-11-059-91-X	Backpanel assy	$147.48
MS-12-054-06-1	Logo Button Board	$6.63
MS-13-059-11-1	Transformer	$79.88
MS-53-203005	3A fuse INT unit	$2.00
MS-53-205005	5A Fuse US unit	$2.00
MS-39-2056-01	Remote	$15.00
MS-53-203005	3A fuse INT unit	$2.00
MS-53-205005	5A Fuse US unit	$2.00
MS-16-054-04-1	Inner Box	$2.71
MS-16-054-05-2	Korvu insert	$6.10Per
MS-16-054-06-1	Outer Box	$3.75