

September 2019 Med Tips

PRODUCT UPDATES

New Release of Eclipse 5® Power Supply

Effective September 2019 the Eclipse power supply (CAIRE PN 21334759) will replace the previous version (CAIRE PN 20852326) on all newly manufactured 2-LED Eclipse 5 devices, as well as all spare power supply part kit numbers in Table 1 below.

Table 1: Spare Power Supply Kit PNs

20852326S	Kit, Power Supply US Cord
20852325S	Kit, Power Supply EU Cord
20852324S	Kit, Power Supply UK Cord

Power supply 21334759 is backwards-compatible with all previously manufactured 2-LED and 3-LED Eclipse 5 units.

Note: Please reference Service Bulletin 21220048 when using the 3-LED power supply (PN 5941-SEQ [US], 20553100 [EU], and 20553098 [UK]) with 2-LED units, as this will require label changes on the device.

Please refer to Service Bulletin PN 21464617.

Table 2: Power Cord and Power Supply PNs

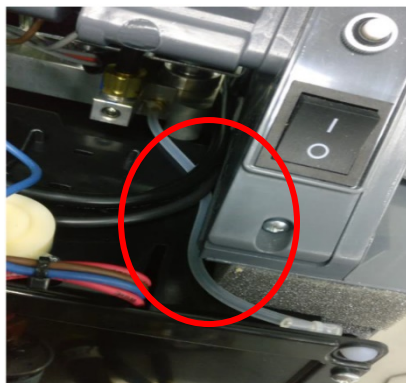
Power Supply PN	Region	Cord PN	Spare Power Supply Plus Cord
5940-SEQ	USA	3588-SEQ	20852326S
20553098	UK	3590-SEQ	20852324S
20553100	EU	3589-SEQ	20852325S
N/A	AUS	N/A	N/A
20852326	USA	4997-SEQ	20852326S
	UK	4999-SEQ	20852324S
	EU	4998-SEQ	20852325S
	AUS	20669418	N/A
21334759	USA	21336129	20852326S
	UK	21475874	20852324S
	EU	21336073-C4	20852325S
	AUS	21463776	N/A
* For spare cords you will only receive 21334759 for all kits.			

VisionAire™ Manifold Tube Replacement

CAIRE has updated the manifold tube on the VisionAire units for ease of servicing and to increase robustness of this connection. Tube item number 21424242 has replaced tube item numbers TU152-1 or TU152-070.



Previous Tube PN TU152-1 or TU152-070



Current Tube PN 21424242

Please refer to Service Bulletin PN 21438402 for the replacement procedure.

NewLife® Units Valve Retainer Clip Change

Please note the valve retainer clips on the NewLife Elite and Intensity units have changed. The red plastic caps are no longer in use and have been changed to metal clips (see pictures below). The part number has remained the same, HA064-1.



Previous Red Cap Retainer



Current Metal Clip Retainer

Helpful Hints & FAQs

OxySafe™ Thermal Fuse

The new CE-Marked OxySafe thermal fuse can be ordered using PN: 20773184. OxySafe is intended to be used in conjunction with the eQuinox, Eclipse, NewLife, VisionAire, and FreeStyle series of concentrators. Customers in regions requiring compliance to EN ISO 8359:1996-Ammendement 1:2012, can meet this requirement with OxySafe. OxySafe was designed as a thermal fuse to stop the flow of gas in the event that the downstream cannula or oxygen tubing is ignited and burns to the OxySafe.



PN: 20773184, OxySafe Thermal Fuse

CAIRE's autoSAT Feature

Q: What is the autoSAT® Feature?

A: CAIRE's proprietary autoSAT feature allows the Concentrator to deliver a consistent volume of oxygen (bolus) per breath, up to a maximum breath rate.

As the user's breath rate increases (i.e. during walking), the autoSAT feature adjusts the device operation to deliver a set bolus volume. autoSAT can be enabled or disabled via the device menu.

Q: What is the maximum breath rate?

A: The maximum breath rate when the autoSAT breath rate is enable is up to 40 breath per minute.

Shipping Li-ion Batteries

Effective January 1, 2019, all shipments containing lithium-ion (Li-ion) batteries require updated warning labels.

Lithium-ion batteries packed by themselves must be shipped at a state of charge **not exceeding 30%** of their rated design capacity. Cells and/or batteries at a state of charge greater than 30% may only be shipped with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities.



FreeStyle® Comfort® Battery below 30%



Label UN3480 should be used for Li-ion batteries or power cartridges packed by themselves (CAIRE PN: LA454-1). Label UN3481 should be used for Li-ion batteries or power cartridges packed with equipment (CAIRE PN: LA454-2).



UN3480 and UN3481 Label Examples

These guidelines for Li-ion shipping also apply to all other CAIRE concentrators equipped with Li-ion batteries, such as the Eclipse 5, FreeStyle, FreeStyle 5, and Focus™.

Please refer to Service Bulletin PN 21472390.

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Please consult the applicable product instructions for use for product indications, contraindications, warnings, precautions, and detailed safety information.



SERVICE BULLETIN

PN: 21438402

RELEASE DATE: June 21 2019

MODEL: VisionAire Oxygen Concentrator

ISSUE: PVC Manifold Tube Replacement.

NOTES: CAIRE has updated the PVC manifold tube on the VisionAire units for ease of servicing and to increase robustness of this connection. Tube item number 21424242 has replaced tube item numbers TU152-1 or TU152-070. The steps to performing this replacement are:

1. Make sure the power cord is disconnected. Remove front panel. Pull out the compressor enclosure as far possible.
2. Cut off the cable tie of the capacitor. Remove the capacitor and cable tie. Pull off the PVC tube (TU152-1 or TU 152-070). See figure 1.

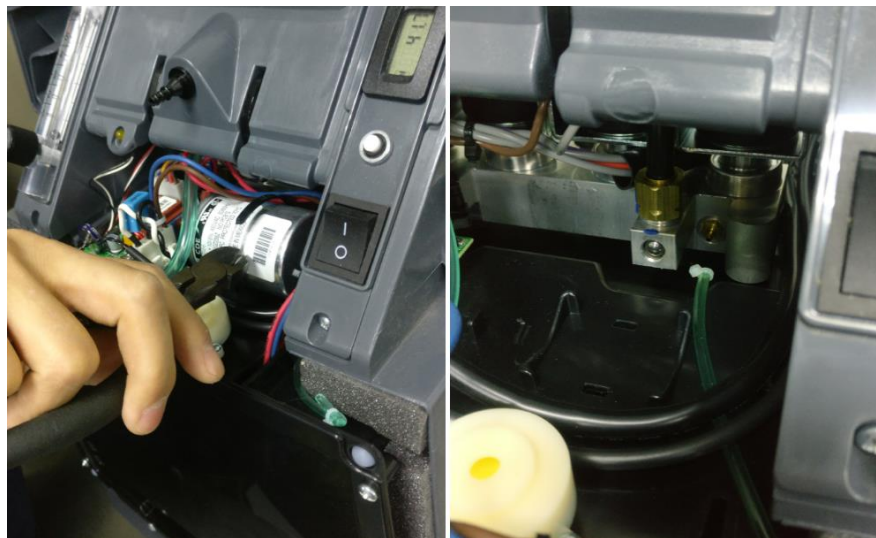


Figure 1

3. Use long nose pliers to clip and install the cable tie TW011-2 and silicone tube 21424242. See figure 2.

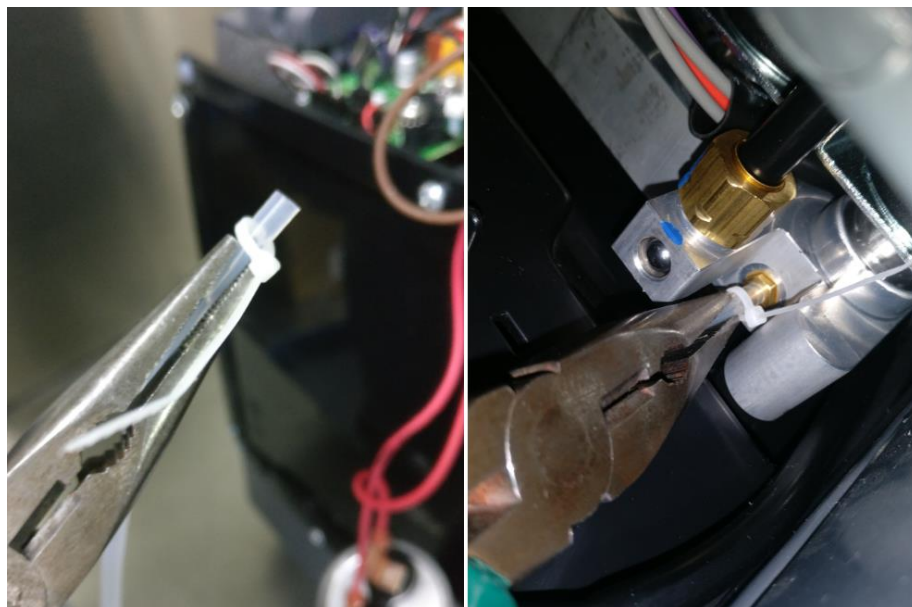


Figure 2

4. Use a screw driver to push the cable tie all the way to the brass fitting. Use long nose pliers to secure the cable tie. And then use a knife to cut off the cable tie. See figure 3.



Figure 3

5. Use a screw driver to make sure the cable tie is set all the way to the brass fitting again. Then route out the silicone tube as shown in figure 4, fold the open end of the tube over onto itself, and seal the end with cable tie.

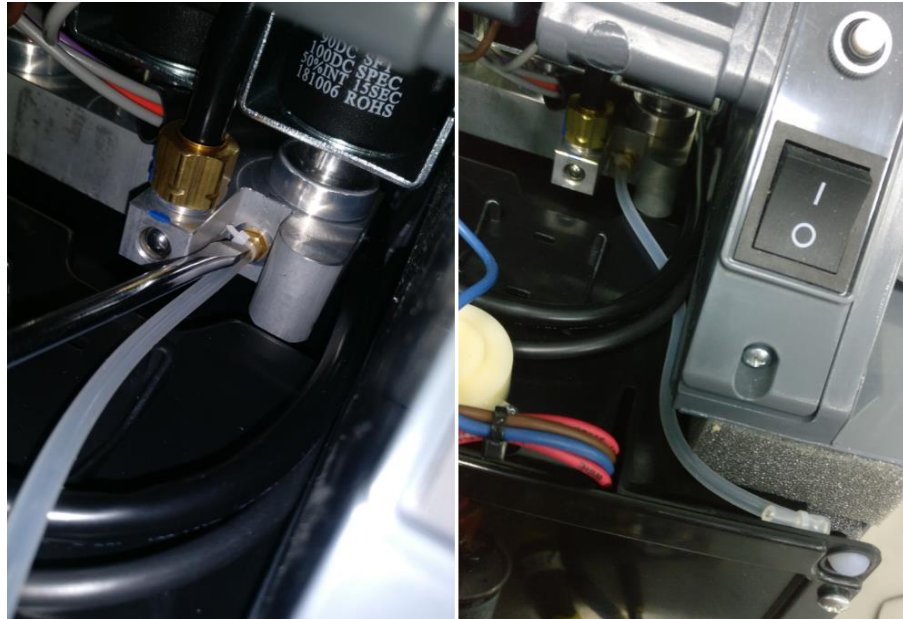


Figure 4

6. Remove the compressor enclosure cover and re-secure the capacitor with cable tie TW017-1. Then re-install the compressor enclosure cover and push the compressor enclosure back all the way into the center section. See figure 5.

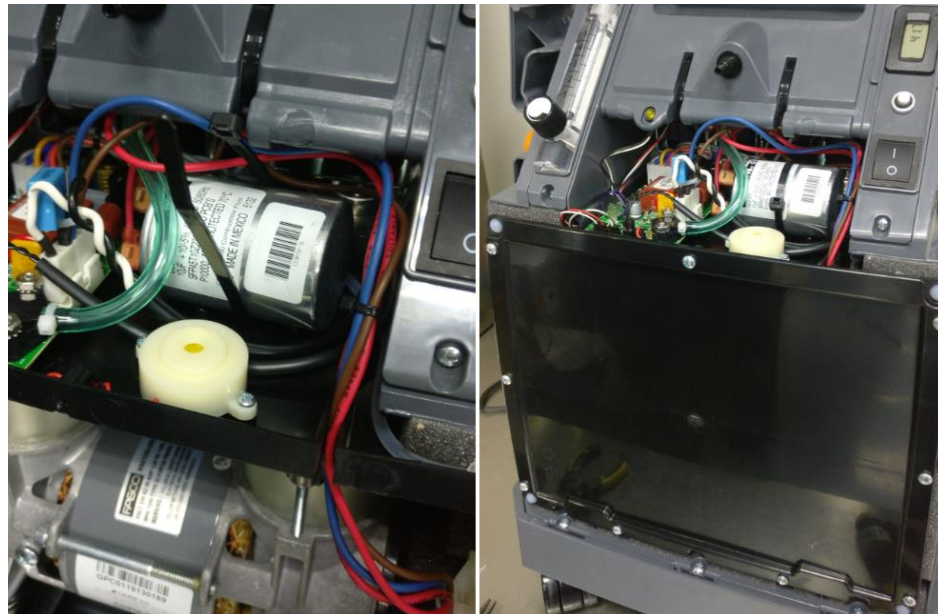


Figure 5

7. Re-install the front panel. Retest the device to ensure it meets all specifications before returning the device to service.

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SERVICE BULLETIN

PN: 21464617

RELEASE DATE: September 3, 2019

MODEL: SeQual® Eclipse 5®

ISSUE: New Release Eclipse 5 Power Supply

NOTES: Effective September 2019 Eclipse power supply (CAIRE PN:21334759) will replace the previous version (CAIRE PN: 20852326) on all newly manufactured 2-LED Eclipse 5 devices as well as all spare power supply part kit numbers in Table 1 below.

Table 1: Spare Power Supply Kit PNs

20852326S	Kit, Power Supply US Cord
20852325S	Kit, Power Supply EU Cord
20852324S	Kit, Power Supply UK Cord

Power supply 21334759 is backwards compatible with all previously manufactured 2-LED and 3-LED Eclipse 5 units.

Note: Please reference Service Bulletin [21220048](#) when using the 3-LED power supply (PN 5941-SEQ (US), 20553100 (EU), and 20553098 (UK)) with 2-LED units as this will require label changes on the device.

Figures 1 and 2 display the different power connections between the new part number 21334759 and the previous part number 20852326.



Figure 1: Current Eclipse 5 power supply (PN 21334759)



Figure 2: Previous Eclipse 5 power supply (PN 20852326)

Figure 3 displays the power supply connection for use on the 3-LED version Eclipse models. These part numbers are obsolete, replaced by the power supply kits listed above.



Figure 3: Eclipse 3-LED Power Supply (PN 5941-SEQ (US), 20553100 (EU), and 20553098 (UK))

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SERVICE BULLETIN

PN: 21472390

RELEASE DATE: August 30, 2019

MODEL: FreeStyle® Comfort® and all units that are equipped with li-ion batteries

ISSUE: Shipping Li-ion Batteries

NOTES: Effective January 1, 2019 all shipments containing lithium ion (Li-ion) batteries require updated warning labels.

Lithium ion batteries packed by themselves must be shipped at a state of charge not exceeding 30% of their rated design capacity. Cells and/or batteries at a state of charge greater than 30% may only be shipped with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities. See Figures 1 and 2 below.



Figure 1: FreeStyle Comfort Battery below 30%



Figure 2: FreeStyle Comfort Battery Indicating 25%

Given this requirement, any units received from end users should always be plugged in and allowed to charge to prevent misinterpreting a low battery alarm as a warranty return (i.e. Comfort alarm codes 0100 or 0010). See Figure 3 below.



Figure 3: Comfort Low Battery Warnings

Label **UN3480** should be used for Li-ion batteries or power cartridges packed **by themselves** (CAIRE PN: LA454-1). Figure 4 below.

Label **UN3481** should be used for Li-ion batteries or power cartridges packed **with equipment** (CAIRE PN: LA454-2). Figure 4 below.



Figure 4: UN3480 and UN3481 Label Examples

Lithium ion batteries packed by themselves are forbidden for transport as cargo on passenger aircraft unless shipped under exemption issued by all states concerned, and appropriate Class 9 label and/or Cargo Aircraft Only label attached. See figure 5 below.



Figure 5: UN Class 9 Lithium Battery Label and Cargo Aircraft Only Label

These guidelines for Li-ion shipping also apply to all other CAIRE concentrators equipped with Li-ion batteries, such as the Eclipse 5[®], FreeStyle[®] 3, FreeStyle[®] 5, Focus[™].

Note: This bulletin does not substitute for knowledge of and training on the latest IATA Dangerous Goods Regulations relating to Li-ion regulations as well as applicable local, national, or international regulations regarding transport of Li-ion batteries.

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SERVICE BULLETIN

PN: 21467120

RELEASE DATE: September 5, 2019

MODEL: Onyx 5L and 10L (Ultra) Models

ISSUE: Onyx 5L and 10L (Ultra) Main Circuit Board Retrofit Instructions

RELEASE DATE: September 5, 2019

NOTES: This instruction is intended to guide technicians through replacing circuit board item CB154 / CB160 (or older circuit boards) with circuit board CB200.

Table 1. Available Kit Options

Kit Part Number	Main Board Included in Kit	Model
KI611-4	CB200-4	Onyx 5L (220 V, 50Hz)
KI611-3	CB200-3	Onyx 5L (120V, 60Hz)
KI611-2	CB200-2	Onyx 10L (220V, 50Hz)
KI611-1	CB200-1	Onyx 10L (120V, 60Hz)

Tools Required:

- Flat-Head Screwdriver
- Phillips-Head Screwdriver
- ESD Electrostatic Protection
- Wire Cutters
- 5/16 wrench

Table 2. Parts Included with KI611

Part Number	Description	Qty
CB200-*	Main Circuit Board, programmed (* see Table 1 for details)	1
WH147-1	Wire Harness Main New Life	1
WH146-1	Power Switch Wire Harness	1
WH097-1	Wire Harness, Power Switch/	1
TW001-4	Tie Wrap, 4"	2
21467120	Instruction Bulletin for Board Retrofit	1
CD004-1	Cord, Power, 3-Prong, 12ft	1
CD006-1	Cord, Power, Strain Relief	1
CN001-3	Connector, Push-On, Straight	2
CN049-5	Connector, Terminal Ring	1
CA007-11	Cabinet, Receptacle	1
CD007-1	Cord, Power, 2-Prong, 8ft	1

Procedure:

1. Turn off the unit and disconnect the power cord.
2. Remove the side panels with a flat head screwdriver.
3. Disconnect the main power 10-pin connector from the circuit board.

See Figure 1

Important Note: It is strongly recommended to use standard electrostatic discharge (ESD) protection when handling any circuit boards. Damage to boards may result if ESD procedures are not properly followed.

Note: If working on the Onyx 10L 220V unit, the 2-pin compressor connector will need to be disconnected as well. This is located directly to the left of the main power 10-pin connector. (Red & White Wires)

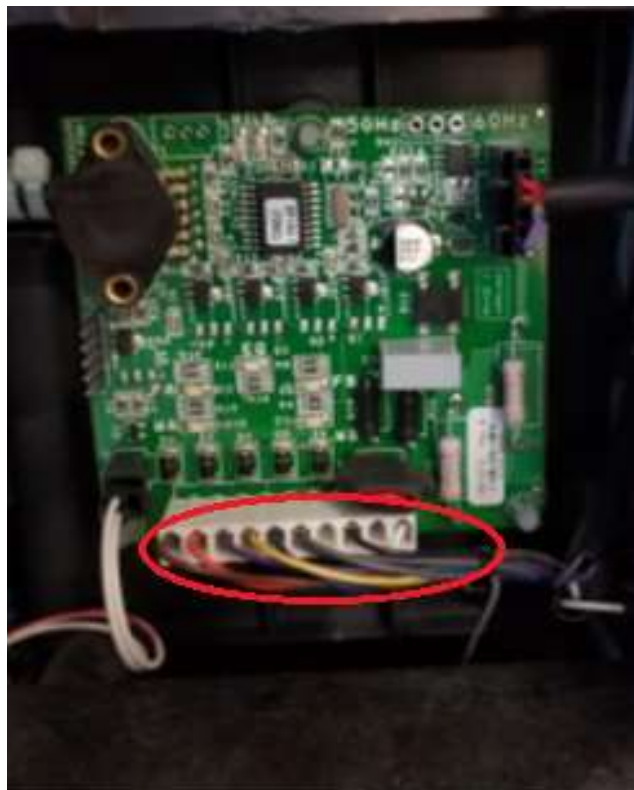


Figure 1. Main board harness

4. Cut the tie-wrap at the circuit board pressure transducer and disconnect the green tube from the transducer.

See **Figure 2**

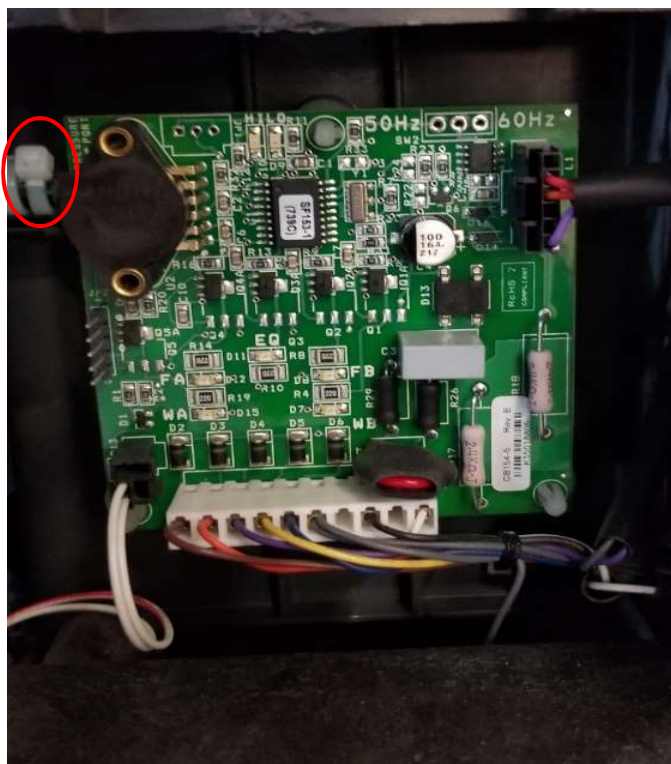


Figure 2. Pressure transducer zip tie

5. Push in on the circuit board support tabs while you lift each area of the circuit board to remove the circuit board from the control panel.

See **Figure 3**

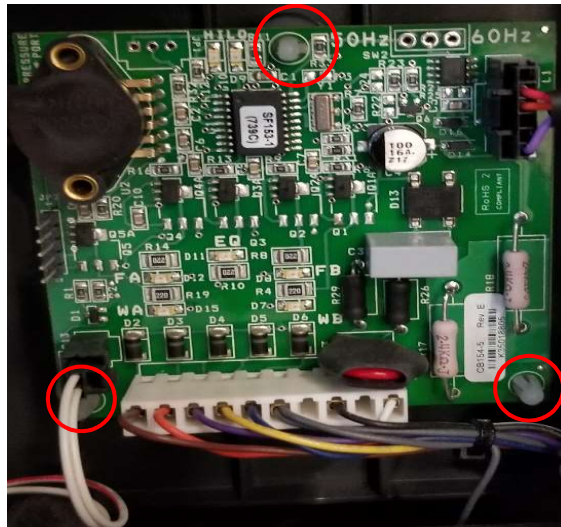


Figure 3. Board supports

6. Remove main wire harness from the main control board, terminal block, valve block, EQ valve, and fan. You will also need to disconnect the two white plugs and then cut the light blue and brown wire from the power cord to remove the harness from the Superstructure. Discard the wire harness.
See Figures 4 and 5.

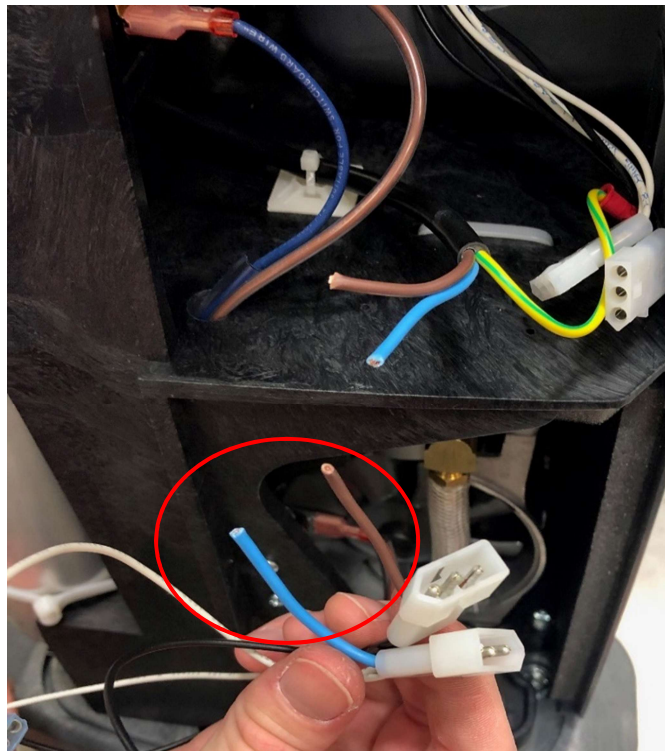


Figure 4. Disconnected white plugs and cut light blue and brown wires from power cord.

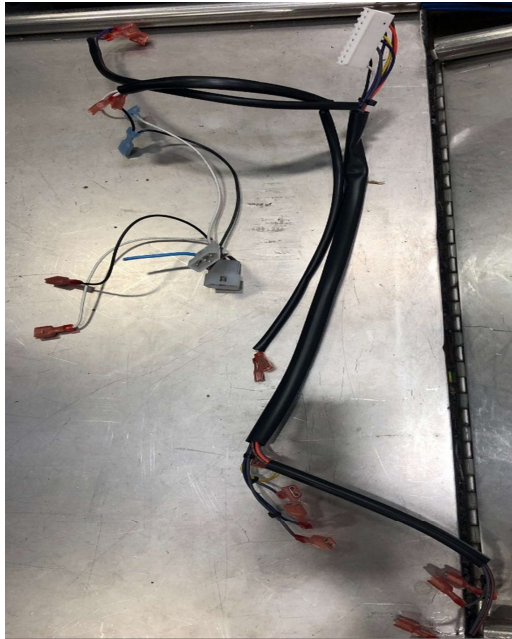


Figure 5. *Main wire harness removed from the unit.*

7. Leave only the brown and blue wires coming up from the compressor on the terminal block.

See Figure 6



Figure 6. *Terminal block with only blue and brown compressor wires.*

8. Remove the grounding wire from the front panel by removing the nut and pulling green wire off of screw.

See Figure 7



Figure 7. *Ground wire and nut is located.*

9. Cut the zip tie mounted on the unit that secures the power cord.

See Figure 8



Figure 8. *Zip tie holding the power cord*

10. Remove the power cord completely from the superstructure by untwisting two plastic ties that hold the cord, beside fan.

See Figure 9

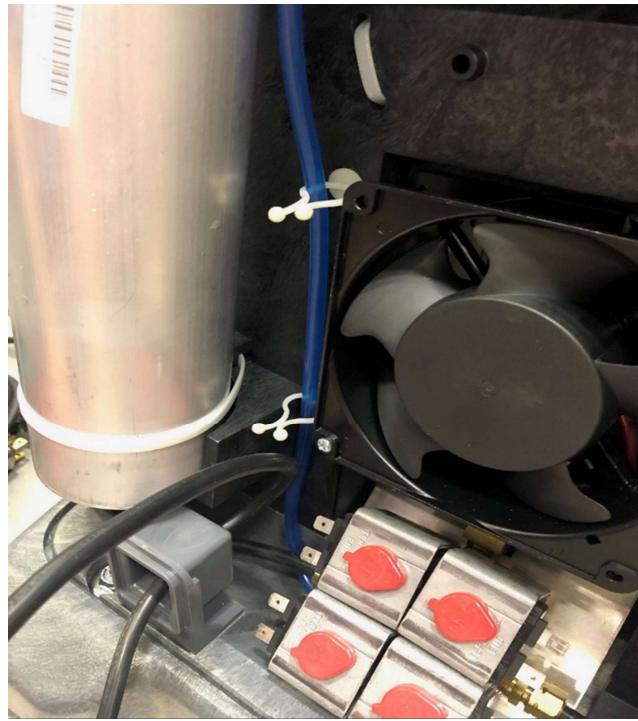


Figure 9. *Power cord removed from twist ties.*

11. Lay unit down horizontally with compressor side of the superstructure towards the table. Remove the power cord housing from the base of unit which is secured by 2 Philips head screws. Re-install your new power cord/power cord housing and feed power cord back up through twist ties.

See Figure 10



Figure 10. *Location of two Philips head screws on the bottom of the base of the unit.*

12. Remove the 4 nuts holding the front panel on the unit with a 5/16" wrench. These will be located at the top and bottom corners of the left and right sides of the front panel.

See Figure 11



Figure 11. Shows the screw on the front panel once the nut is removed.

13. Once the 4 nuts are taken off front panel screws, gently pull on the front panel to remove it from the front of the superstructure to expose wiring to hour meter, power switch, and circuit breaker.

See Figure 12

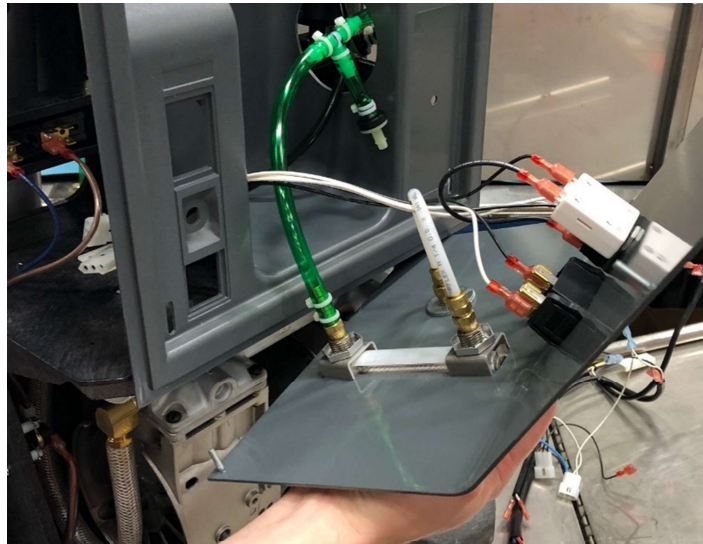


Figure 12. Front panel disconnected from the front of the unit

14. Once the backside of the front panel is exposed, take all wiring off of the hour meter, power switch and circuit breaker.

15. Place circuit board mounts into superstructure. Reconnect the pressure sensor tubing back onto boards top pressure sensor and secure with a zip tie.

See Figure 13

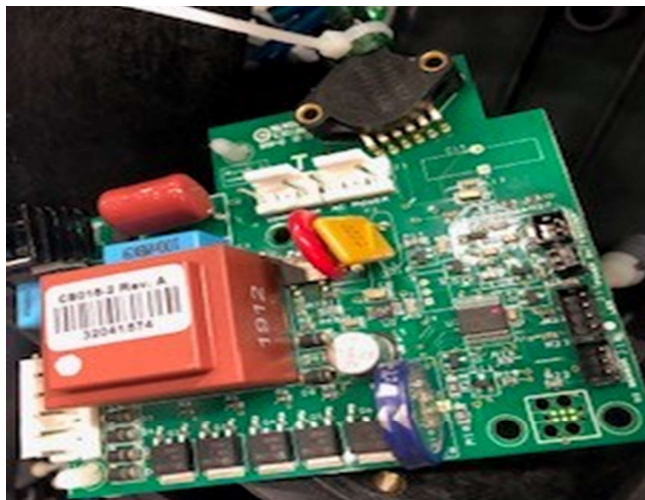


Figure 13. Pressure sensor tubing reconnected to board with zip tie.

16. Place the circuit board back onto circuit board mounts.

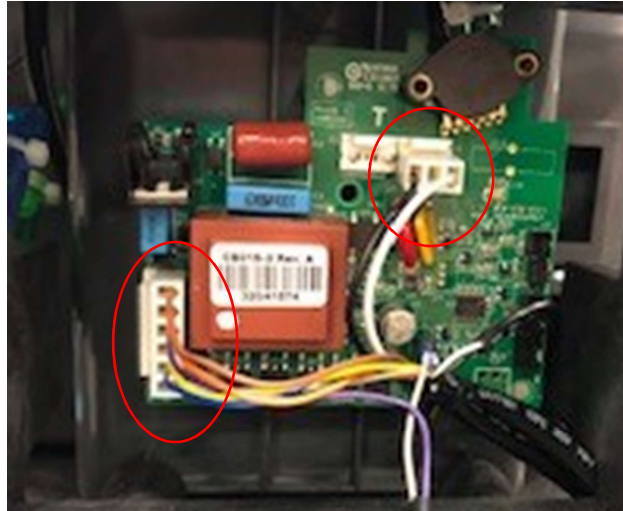
See Figure 14.



Figure 14. Board reinstalled onto superstructure.

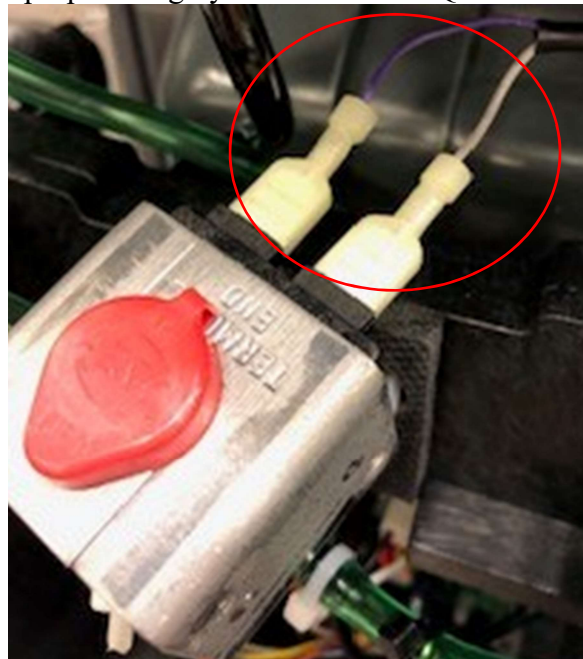
17. Plug main wire harness and AC power into the board.

See **Figure 15**



***Figure 15.** Showing AC power and main wire harness on board.*

18. Plug the purple and grey wires into the EQ valve. See **Figure 16**



***Figure 16.** Purple and grey wires connected to the EQ valve.*

19. Plug in valve block wire harness.

Note: On each side, the wires that connect to the valves on top will be a shorter in length than the ones that connect to the valves on the bottom of the block.

See **Figure 17**

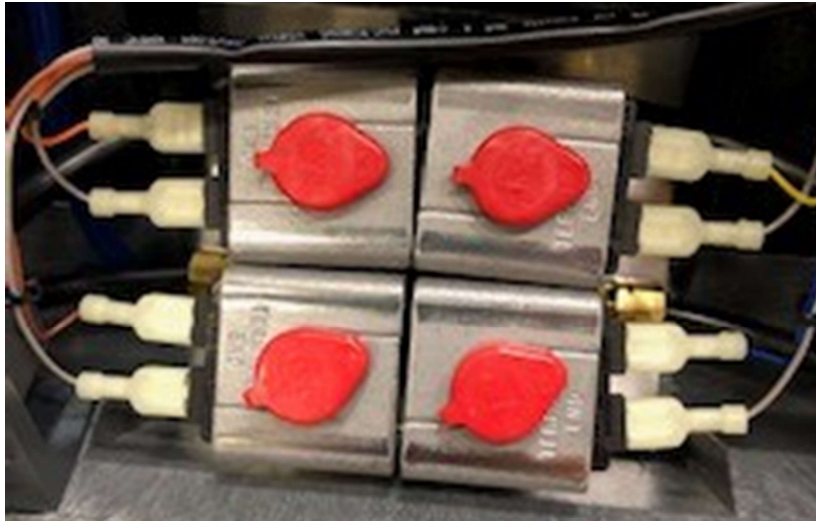


Figure 17. *Valve block wire harness connections*

20. Install Fan Wire into the Circuit Board. The Circuit Board is marked “Fan” on the lower right side where this connection goes.

See **Figures 18, 19 and 20**



Figure 18. *Fan wire*

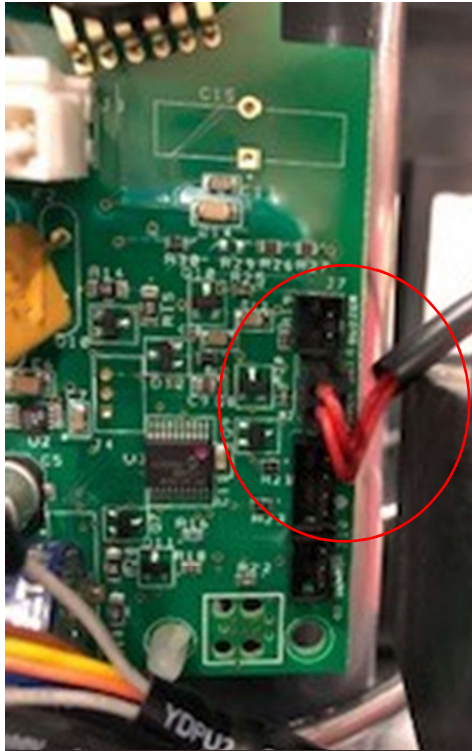


Figure 19. Fan wire connection to main board



Figure 20. Terminals connected to fan.

21. For 120V: Begin plugging wires into the terminal block of the superstructure. There is a left side and a right side to this terminal block.

Left Side of Terminal Block-

Top Left: Empty **Top Right:** Double white (Fan),

Bottom Left: Blue (Compressor) **Bottom Right:** Single White (AC Power)

Right Side of Terminal Block-

Top Left: Empty **Top Right:** Double Black (Fan)

Bottom Left: Brown (Compressor) **Bottom Right:** Single black (AC)

See Figure 21.

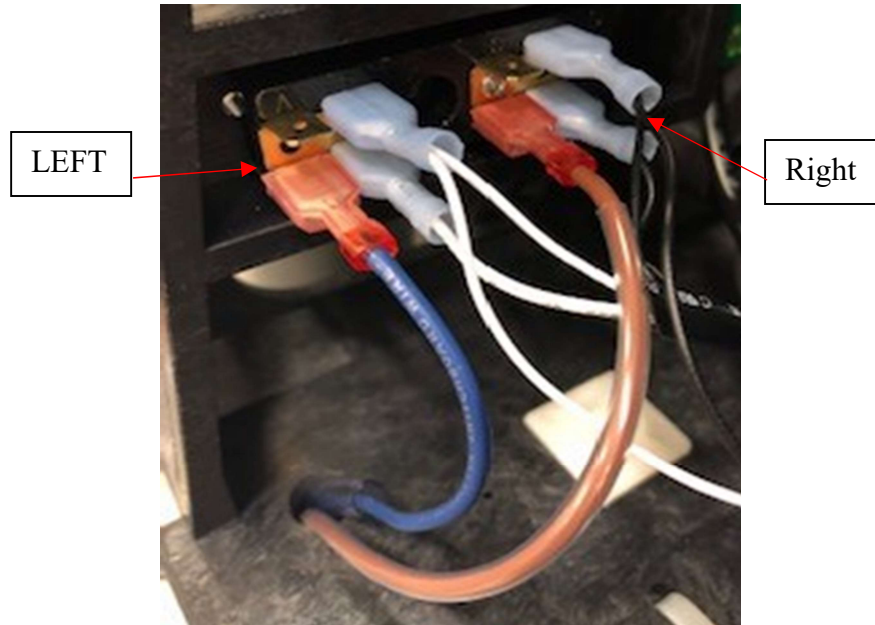


Figure 21. 120V terminal block connections.

22. For 220V: Begin plugging wires into the terminal block of the superstructure. There is a left side and a right side to this terminal block.

Figure 22

Left Side of Terminal Block-

Top Left: Light Blue (Power Cord)

Top Right: Double white (Hour Meter & AC),

Bottom Left: Dark Blue (Compressor) **Bottom Right:** Single White (AC)

Right Side of Terminal Block-

Top Left: Single Black (Power Switch)

Top Right: Double Black (Hour meter & AC)

Bottom Left: Brown (Compressor) **Bottom Right:** Single black (AC)

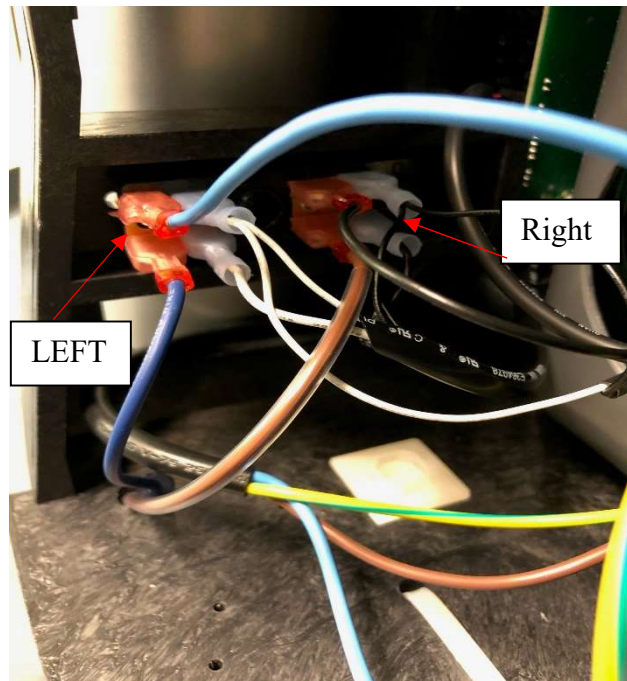


Figure 22. 5L 220V terminal block connections

***Note:** If you are working on a 10L 220V unit, the Compressor wires hook directly to the board and the terminal block will not have the brown and blue wires, only a light blue wire coming from the power cord on the top left side of the terminal block.*

See Figure 23 and 24

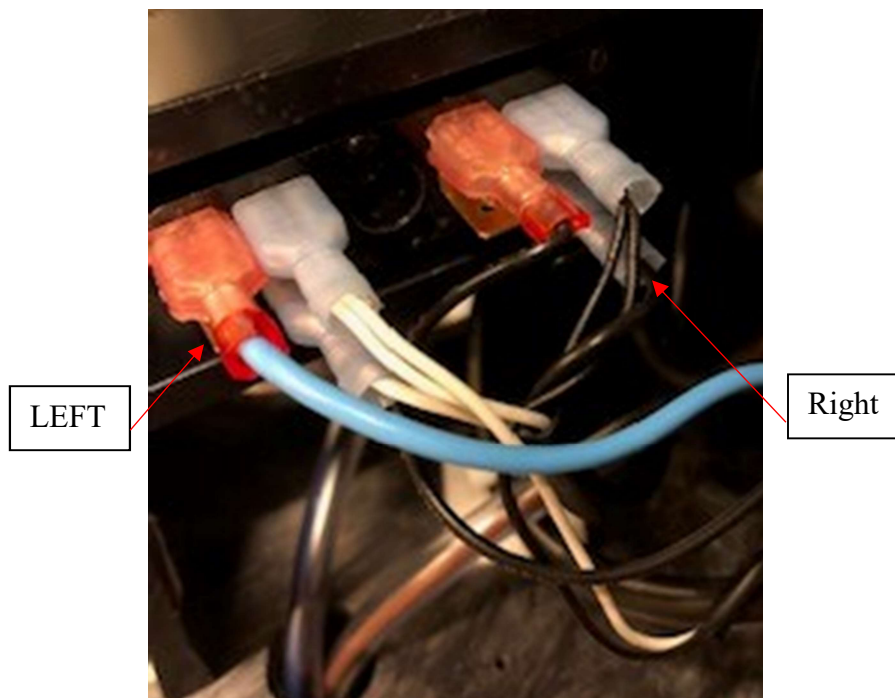


Figure 23. Onyx 10L (Ultra) 220V unit's terminal block will be wired up without the compressor wires.

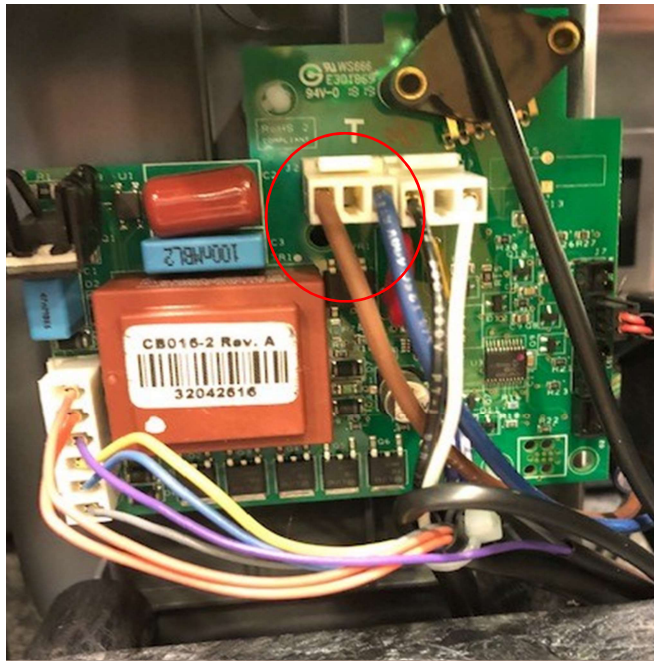


Figure 24. Blue and brown compressor wires connect directly to the board on a 10L (Ultra) 220V unit.

22. Install Circuit Breaker and Power Switch harness.

Circuit Breaker-

Left: Brown (from Power Cord),

Right: Black (from Power Switch Wire Harness)

See Figure 25 and 26

Power Switch-

Top Left: Black (from Circuit Breaker),

Top Right: Red (from board)

Bottom Left: Black (from Terminal Block),

Bottom Right: Red (from board)

See Figure 25 and 26



Figure 25. Showing how the front panel is wired up.

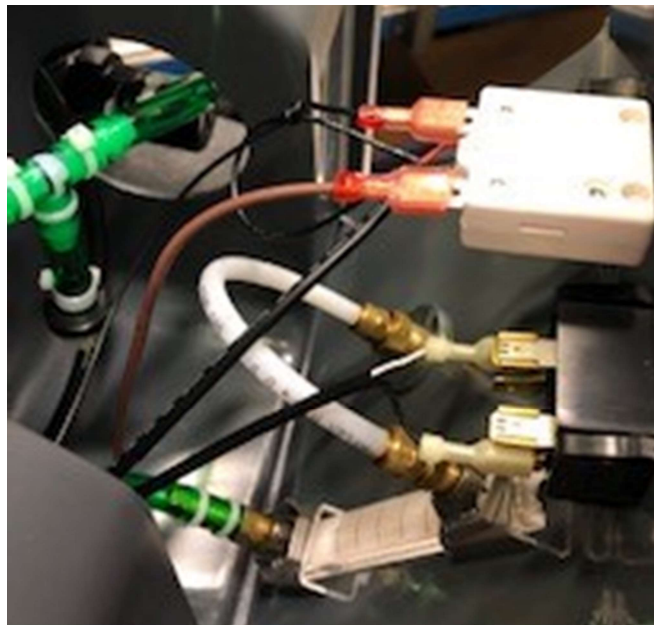


Figure 26. Showing a different angle of how front panel is wired up.

23. Reinstall the ground wire and 4 nuts that hold the front panel in place with the 5/16" wrench.

See **Figure 27**



Figure 76. *Showing ground wire and nut re installed.*

24. Re-attach case panels and test to ensure purity / flow meets manufacturing specifications.

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