

Waiter ECC

NO – REWIRING – REQUIRED

Electronic Climate Controller

October 30, 2022



Installation Manual

www.WaiterECC.com

SYSTEM DESCRIPTION

The Waiter ECC-NWR is an updated version of the original Waiter ECC that doesn't require any wiring changes, hence the name No-Wiring-Required (NWR)

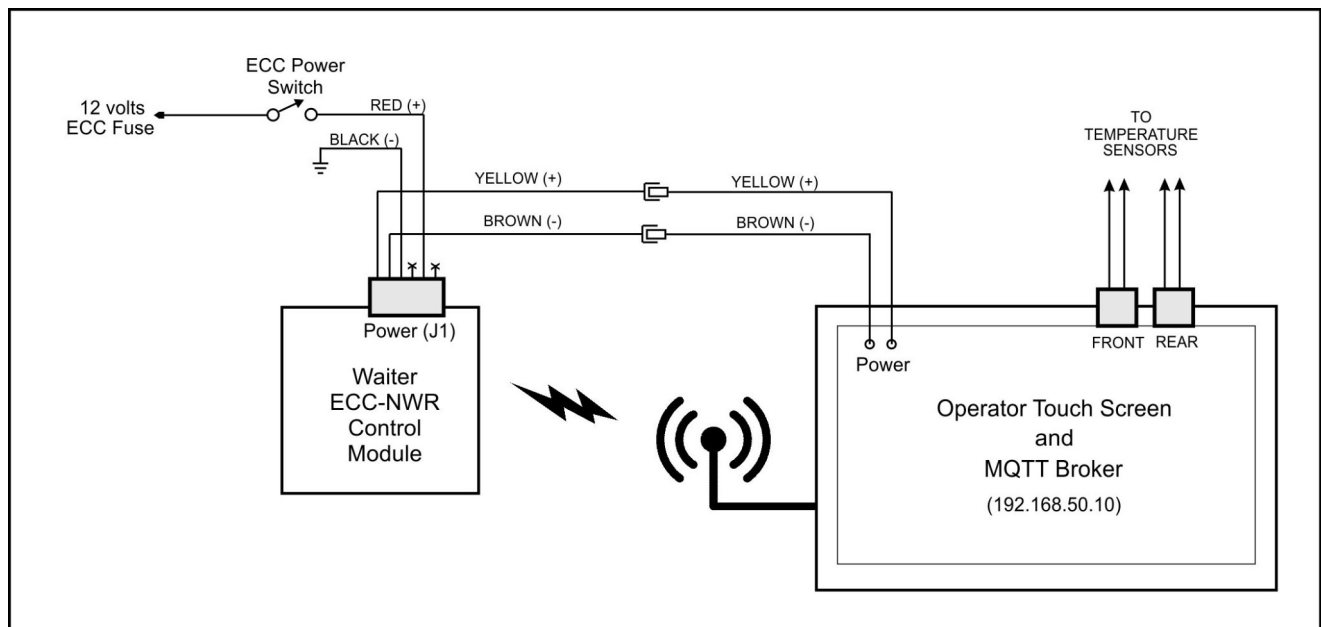
Waiter ECC-NWR is designed to be a direct replacement for older Intellitec ECC systems. The system is made up of two main components, the custom control circuit board and the operators touchscreen display assembly. It provides all the functionality of the original Intellitec system, plus several new features that will bring a 20 year old system up to date.

This unit is completely plug and play. The original temperature sensors plug into the back of the touch screen. 12 volt power for the touch screen is supplied by the control module via the two original IPX communication wires (yellow and brown wires).

The only recommendation we make is to install a switch (included) in the 12 volt supply to the control module. This will allow the system to be turned off/on without messing with fuses or plugs.

Kit includes:

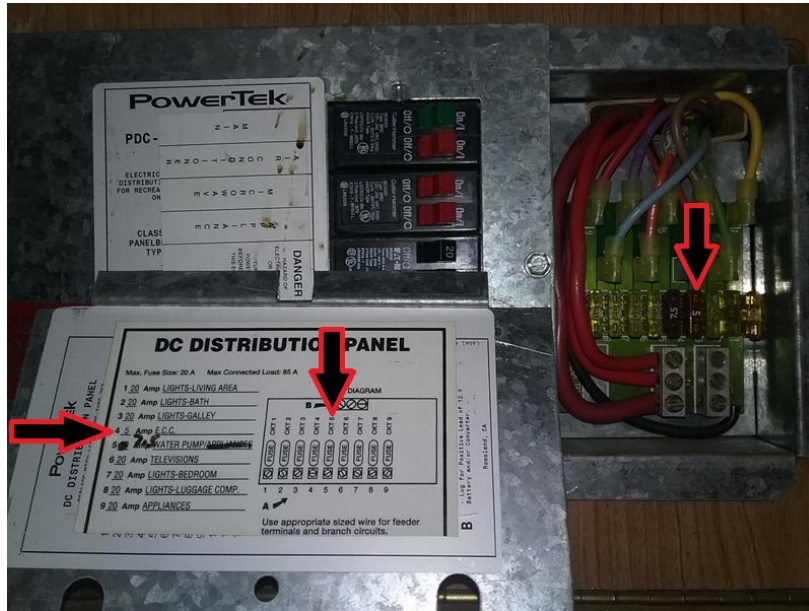
- Custom control circuit board
- Operator touchscreen assembly
- One external temperature probe sensor
- One power switch with lug connectors
- Template for mounting touchscreen to wall
- Valcro strips or Optional Wall Mount Plate



STEP by STEP INSTALL

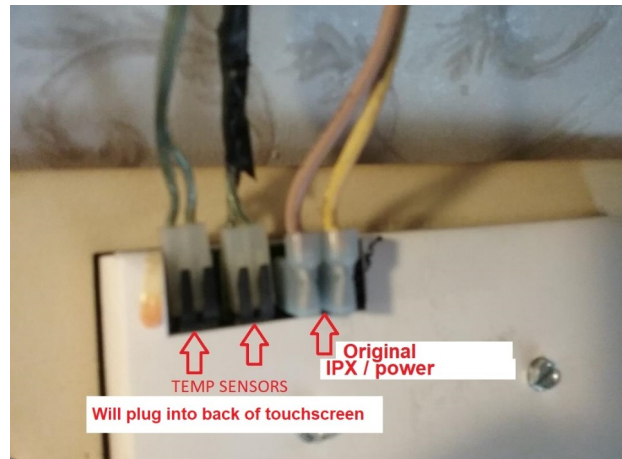
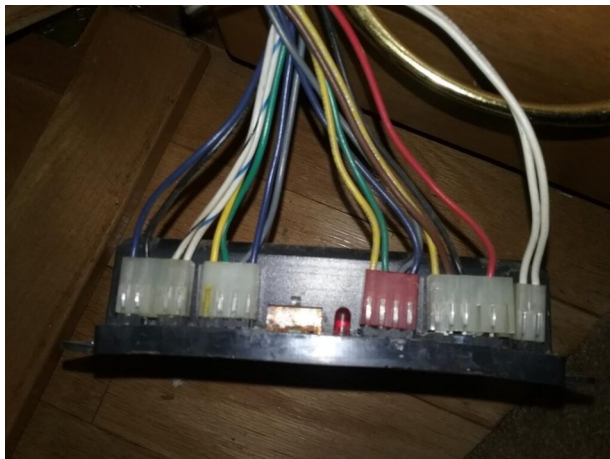
1) REMOVE 12 VOLT FUSE

Remove the 12 volt fuse (5 amp) marked ECC. The 12 volt fuses are located in the power distribution panel, you'll need to remove the cover from the 12 volt portion to get access to the fuses. Your DC distribution panel may differ from the one in the photo.



2) REMOVE ORIGINAL OPERATOR PANEL and CONTROL MODULE

Photograph the connectors and wires before disconnecting them. They should look similar to this



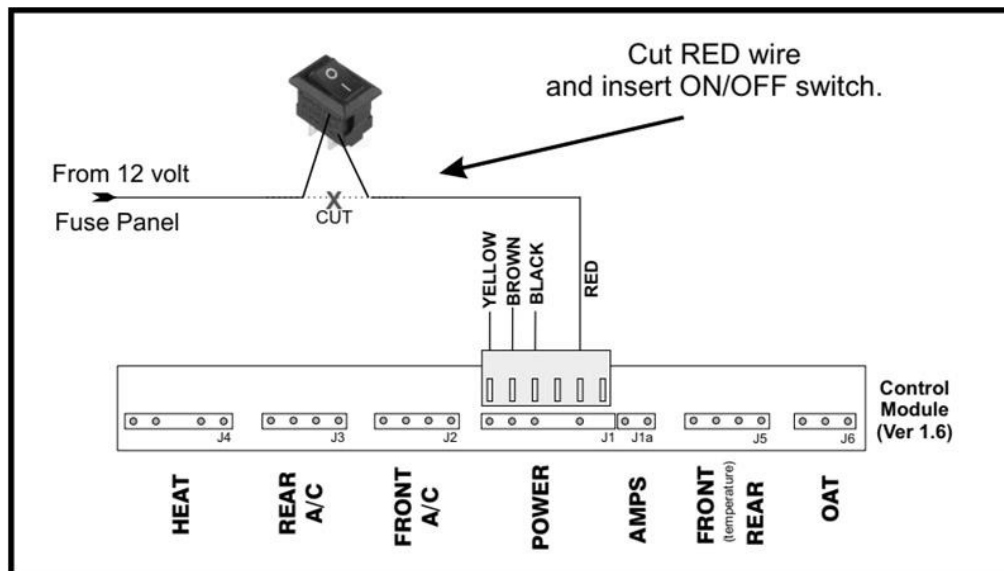
WARNING

The Intellitec operator panel MUST be completely disconnected and removed prior to plugging in the new system.

Failure to do this will destroy the Intellitec operator panel.

3) 12 VOLT POWER ON/OFF SWITCH

Cut the RED wire that feeds 12 volts to the control module. Install the ON/OFF switch between the ends that were cut. The enclosed switch has two RED wires attached. Connect these to the two ends of the RED wires you just cut. Mount the switch in a panel or simply tie it to the wire bundle near the connector plugs on the control module. Use the spade lugs (included) to connect the switch.



4) OPERATOR TOUCHSCREEN WALL MOUNT

Using the template, enlarge the wall opening open so the back of the touchscreen fits inside the hollow wall.

NOTE: On some motor-homes, the hollow wall may not be thick enough to allow the touch screen to fit flush without the back of the touchscreen touching. In this case you'll need to build some type of frame to extend the touch screen out.

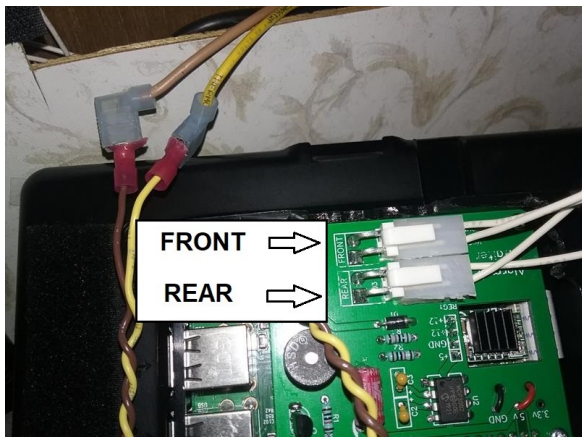
Install the optional Wall Mount Plate (if you purchased that option)

OR

Install the two Velcro strips to secure the touchscreen in place.



4) CONNECT SENSORS AND POWER TO TOUCHSCREEN



On the rear of the touchscreen, plug in the two temperature sensor connectors (note FRONT and REAR)

There are two wires, yellow (+) and brown (-), that come out of the rear of the touchscreen. Connect these to the yellow (or red) and brown (or white) wires that were removed from the old operator panel. (These were the old original IPX wires (yellow and brown) . NOTE – On some motor-homes, instead of Yellow and Brown wires, you'll find Red and White wires.

YELLOW (or RED) to YELLOW (12 volt +)

BROWN (or WHITE) to BROWN (ground)

WARNING – The Yellow and Brown wires have 12 volts on them. If these are reversed, you will damage the touchscreen.

NOTE – On some installations, the OEM temperature sensor is mounted above the operator panel. The Waiter ECC touchscreen generates a small amount of heat and could effect the

accuracy of that temperature sensor. To eliminate this potential error, consider re-locating the temperature sensor a couple inches below the touchscreen.

5) INSTALL NEW CIRCUIT BOARD IN ENCLOSURE

The new controller circuit board replaces the original circuit board inside the original control module enclosure. To remove the cover, use a sharp screwdriver blade and gently pry the halves apart near the four tabs on the side of the enclosure. Remove the old board, then clean the enclosure with warm soapy water.



The new circuit board will snap into place on the bottom part of the enclosure. Snap the top cover into place.

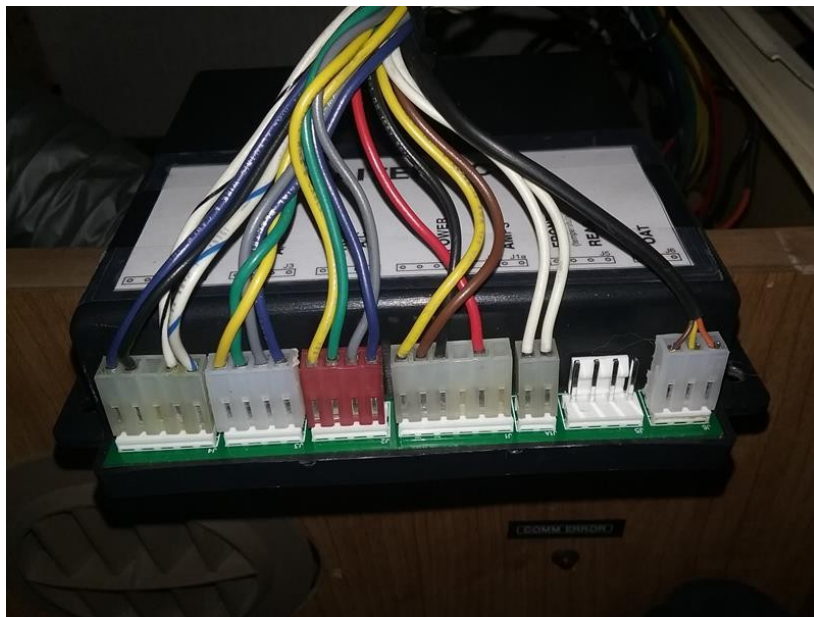
Place the new Waiter ECC sticker on the enclosure.

6) CONNECT THE PLUGS TO THE NEW CIRCUIT CARD / MODULE

The 4 pin connector (J5 - second from right) is not used and may not be present on version 1.8 (and above) control module circuit boards.

The 3 pin connector on the right is the external temperature probe. Plug the probe in, it will be used to verify the calibration of the two OEM thermistors in the next step.

NOTE: If your motor-home has an A/C FAN BYPASS MODULE plugged into the old Intellitec control module, this bypass module is not used and must not be connected. See APPENDIX A for instructions.



7) RE-INSTALL THE ECC FUSE, TURN POWER SWITCH ON

The control module and touchscreen should boot up and connect. This process can take up to 45 seconds. At this point, the unit should be operational.

The OEM temperature sensors are reasonably accurate. You can verify / adjust the calibration on the FRONT and REAR temperature sensors by following the **CALIBRATE THERMISTORS** procedure at the end of this document.

8) INSTALL EXTERNAL TEMPERATURE SENSOR

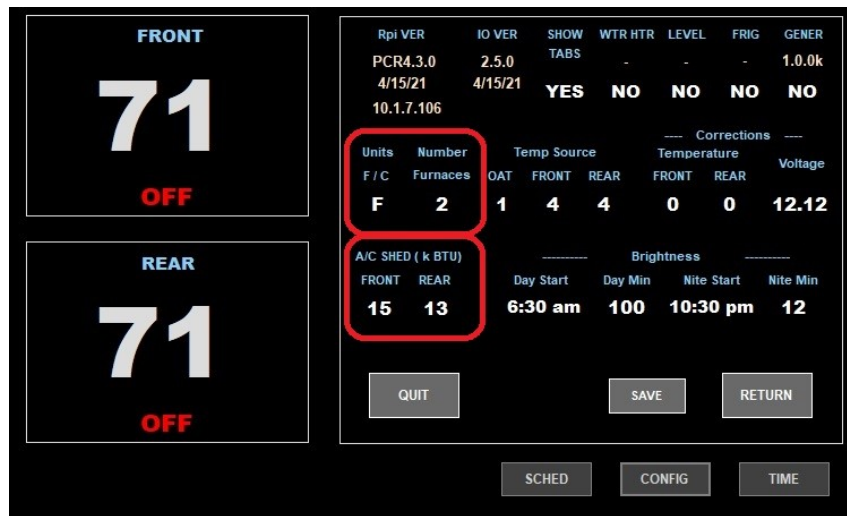
The outside air temperature (OAT) sensor is a highly accurate electronic sensor probe.

The ideal location is somewhere on the bottom of the motor-home that has open air flow and doesn't get hit by direct sunlight. You should also locate it so it doesn't get hit by water or debris when traveling down the road. On the prototype installation, the sensor was located in the propane tank compartment.

The OAT sensor comes pre-wired with a 10 or 15 ft long cable to allow routing to the motor-home exterior. There's no need to shorten the cable, simply wind up any excess and tie it neatly out of the way.



9) Verify CONFIG is correct for your motor home installation.



Go to the CONFIG screen.

- a) Set your display units to C or F (Celsius or Fahrenheit).
- b) Set the number of furnaces your system has to either 1 or 2.

This determines how your system interacts and displays on the MODE screen. (where you select HEAT, A/C, FANS, etc.)

- c) Set the approximate A/C sizes for your motor-home. This is only used for the Pre-shed feature to estimate amps needed.

TROUBLESHOOTING

The touchscreen boots up with a desert mountain display:

Reboot the touchscreen. If you installed the 12 volt power switch , turn it off, wait 5 seconds, then turn it back on.

If you didn't install the switch, Remove the ECC fuse, wait 5 seconds, then re-install the ECC fuse.

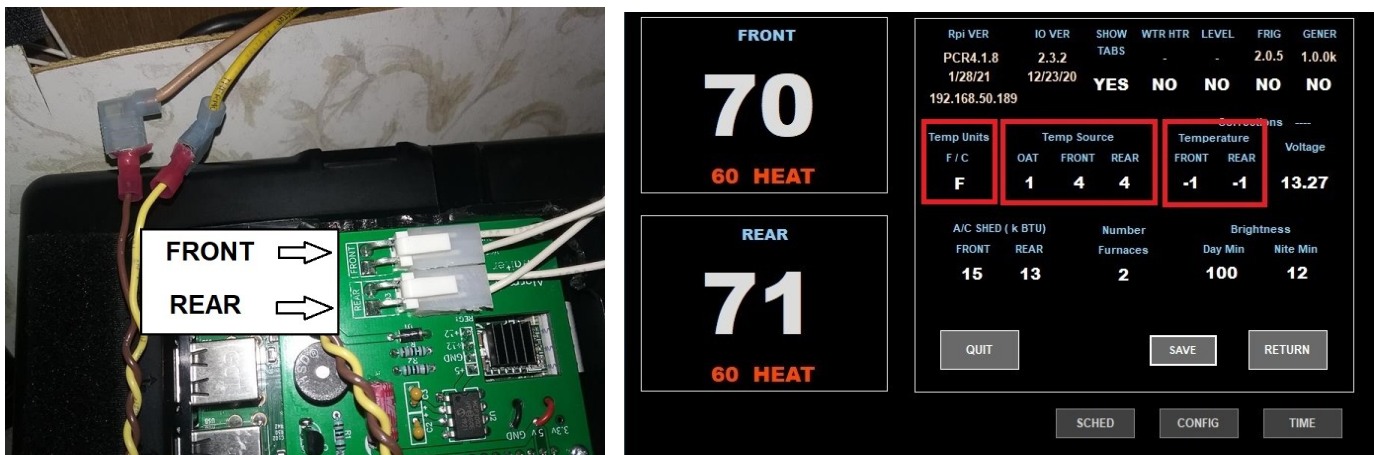
Touchscreen doesn't boot up:

Verify the yellow and brown wires that power the touchscreen are connected properly (yellow to yellow, brown to brown)

Verify 12 volts is being supplied to the touchscreen via the yellow and brown wires. Meter PLUS on the yellow wire, Meter MINUS on the brown wire. (The yellow supplies the 12 volts, the brown supplies the ground.

Verify 12 volts on the control modules J1 connector. Meter PLUS on the red wire, Meter MINUS on the black wire. Version 1.6 and 1.7 control boards had a 3 amp fuse on the control board for touchscreen power. Check this fuse on the control board. On later version boards, the ECC 5 amp fuse provides protection for the entire ECC system

Front / Rear temperature displays are way off or display a -99:



Swap FRONT and REAR plugs to see if problem follows the plug. Possible bad thermistor or wiring.

Verify the CONFIG screen is set properly:

Temperature Units set to F (Fahrenheit) or C (Celsius) as appropriate.

Temperature Source set to “1 – 4 – 4”.

OAT=1 > Use the external electronic probe.

FRONT=4 > Use the OEM thermistor plugged into the touchscreen.

REAR=4 > Use the OEM thermistor plugged into the touchscreen.

Correction FRONT / REAR (-10 to +10)

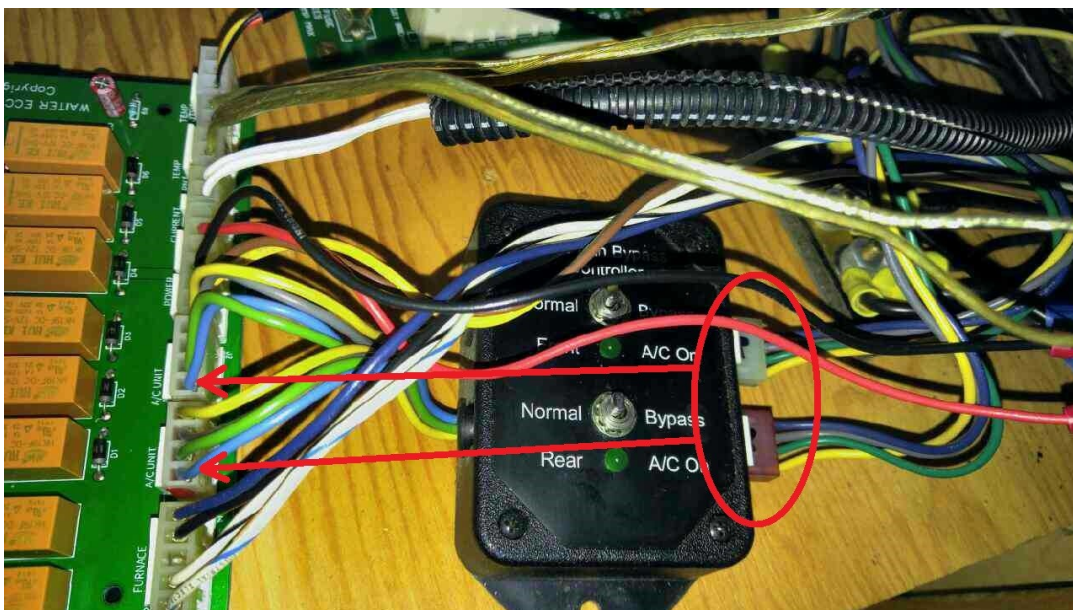
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APPENDIX A

A/C FAN BYPASS MODULE

Some motor homes (Discovery) may have an A/C Fan Bypass Controller module installed. This module is not used in the Waiter ECC system and must be disconnected or it'll interfere with the operation of the Waiter ECC .

There are two 4 wire connectors plugged into the bypass unit (right). Remove these two connectors and plug them directly into the A/C plugs on the new Waiter ECC control module. You can remove the module or leave it screwed in place, but it is no longer needed and will interfere with the Waiter ECC if connected.



So why did Fleetwood add this module?

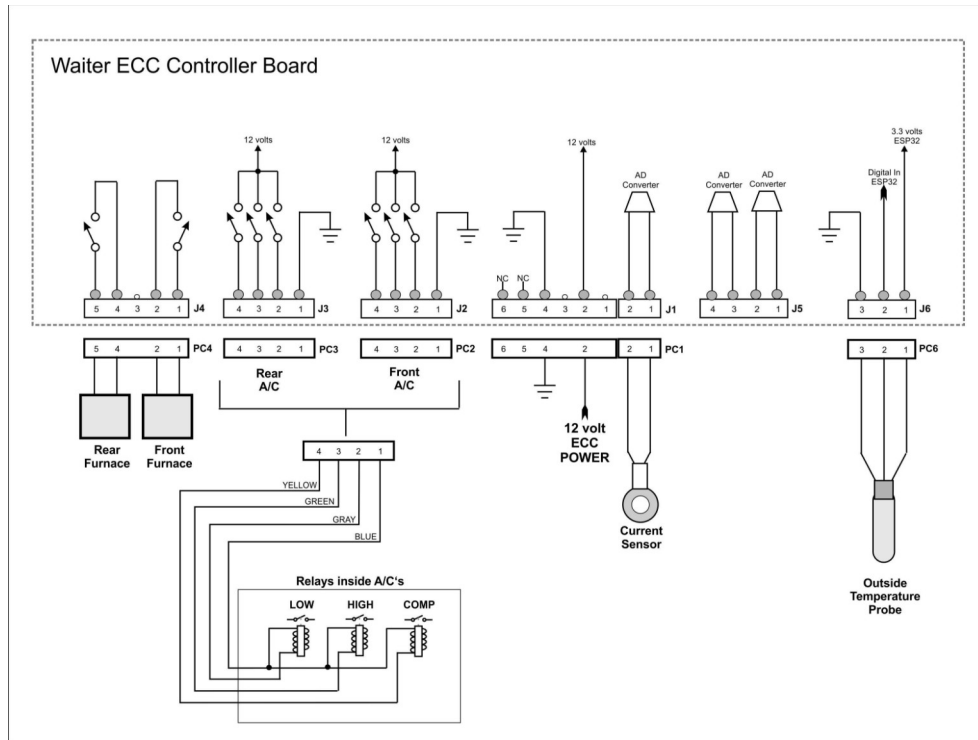
This module only allows the blowers to run if the compressor is running. The problem with this is that the FAN HI and FAN LO (no air conditioner running) are disabled, because the blowers don't run unless the compressor is running.

The main reason behind this was that in the AC-AUTO mode, the fan would keep running even after the temperature was low and the compressor was no longer needed.

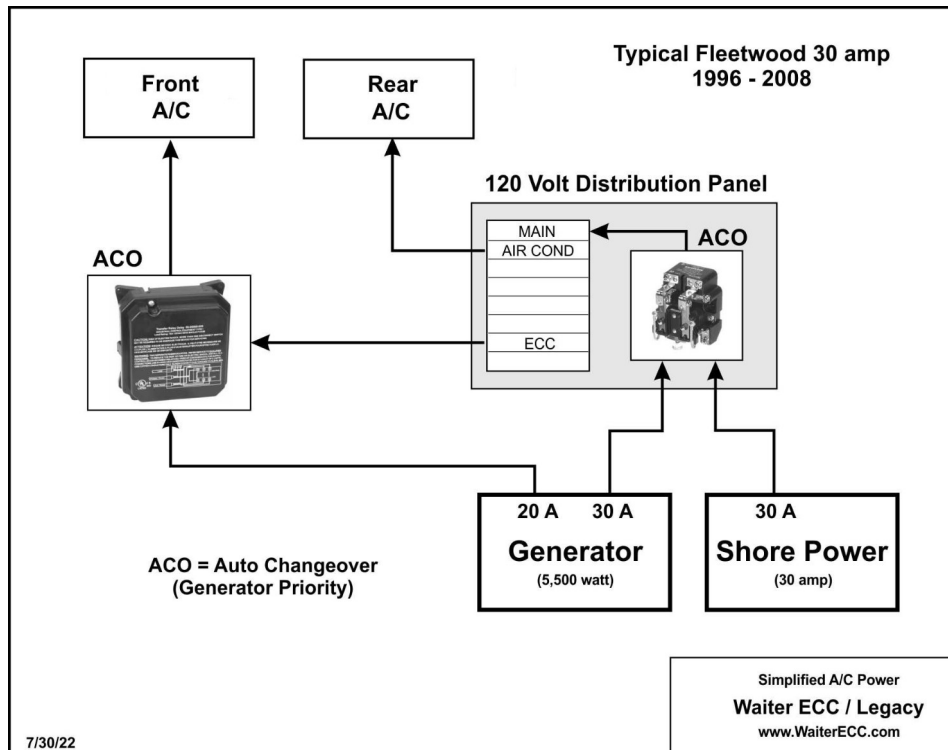
In the Waiter ECC system, when operating in the A/C AUTO mode, the blower only runs when the compressor is running, blower speed is set by temperature. When the temperature drops below the set point, the compressor will turn off, and approximately 30 seconds later, the blower is commanded off.

APPENDIX B

SIMPLIFIED CONTROL MODULE INTERCONNECT



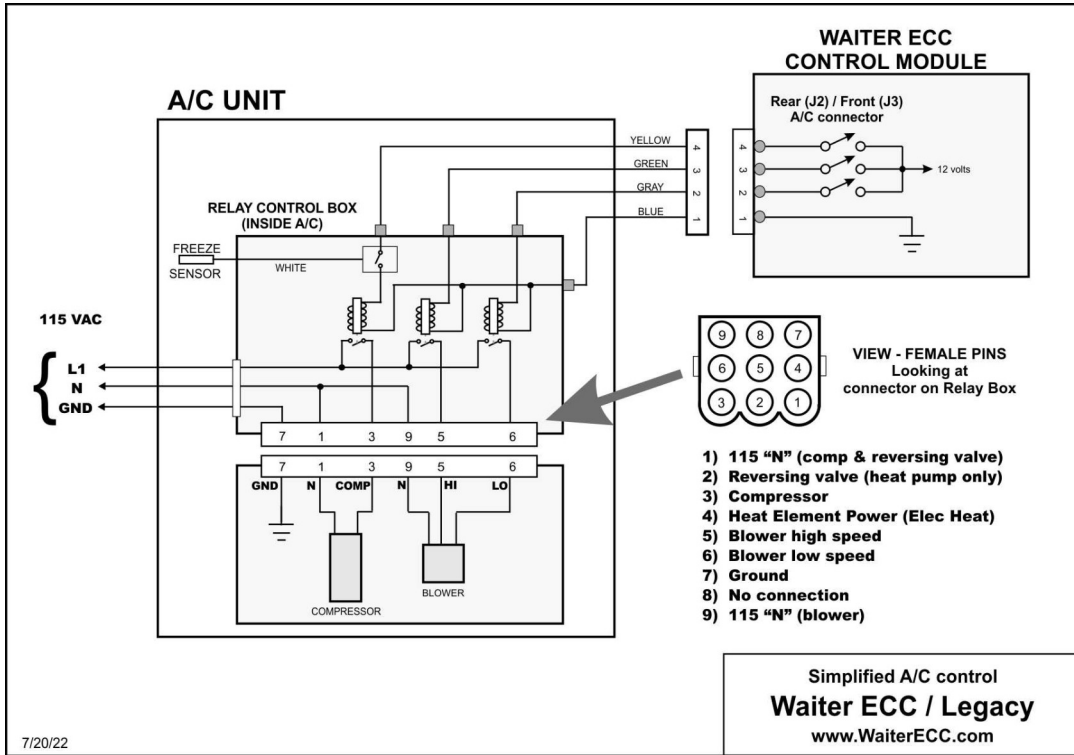
SIMPLIFIED 120 VOLT DISTRIBUTION



7/30/22

Simplified A/C Power
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SIMPLIFIED A/C CONTROL DIAGRAM



SIMPLIFIED FURNACE CONTROL DIAGRAM

