HVAC 120V Installation Manual

RM2852, RM2853, RM2862, RM4872, RM3862, RM3863, RM 3962, RM4873, NDR1062, RM2652, RM2653, RM2662, RM3662, RM3663, RM3762, RM4672, RM4673, DMR702

With Universal Controller

INSTALLATION MANUAL



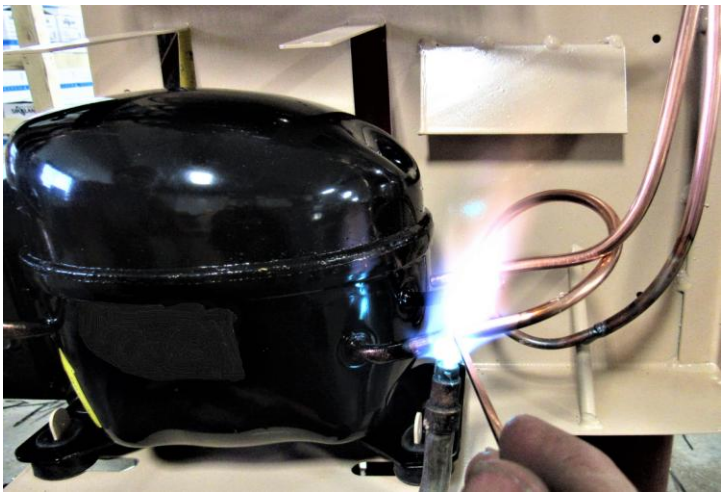
JR & Jeremy Lambright

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Good day friends, this is how it all begins, hope you find this helpful through your installation.



Units prepped for compressors.



Brazed welded for strength.



Tools needed to do the install:

Screw gun 5/16 ¼ Phillips's wrench putty knife knife caulk gun zip ties





1 or 2





And enough time to think things thru at times, so hang in there until the end and don't give up. It will all be worth it because you will have a cold fridge!!







We at JC Refrigeration try to build these cooling units so that the install is as easy as possible. Making them DIY friendly. But please be aware though, that our upgrades might not look quite the same as the original. The brackets, frames, and holes in the plates might not always line up perfectly as fridge boxes can vary at times. So, some modifications, such as shaving the foam or tweaking the cooling unit, might need to be done to complete the installation. But keep in mind, these cooling units are made out of thick steel tubes and plates so if some minor tweaking or bending is needed, you can do that without harming the cooling unit. We try to be as thorough with our install manuals as possible, but if you need help with something during the install, feel free to send us an email at info@jc-refrigeration.com with your question, along with a picture to help explain what you are facing, and we will help you to the best of our ability.

JR & Jeremy Lambright

Please read through these notes before starting:

- Throughout this manual, there will times when you see (RA), (YA), or (BA). These are referring to red arrow, yellow arrow, and blue arrow. We use these to point to a certain spot or part in the pictures.
- There are some differences between this install manual and the install videos on our website. So, to avoid confusion, **follow only the instructions in this manual.**
- This unit is for 120V AC hook up only so most times this will be plugged into inverter power so it can run while travelling, if a new power wire needs to be run the best time to do this is when the fridge is out of the cavity
- Remember your old rear or front control boards will no longer be used, they can be taken completely out or just left in and not used. Same with wires and fans, what you take off will no longer be used but can be saved for future use if needed or discarded.

PLEASE NOTE: Not all of our cooling units look exactly the same. So, to avoid confusion, only follow the instructions in this manual when installing the unit.

To start this process, begin by taking the cooling unit out of the box, if box appears to be damaged don't panic as we foam package them into the box (YA) and so the box can be practically destroyed and the unit is still not damaged. So, when you take the box apart you will notice a spray foam packing inside and this needs to be removed and then the unit will slide out. Inside the box you should have the cooling unit, and parts needed to do the install (RA)





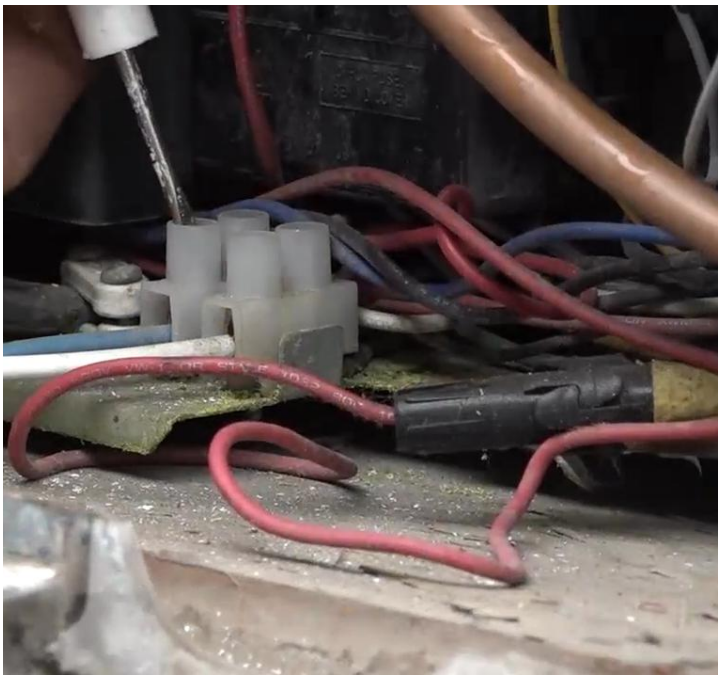
Begin by covering up your floor with blankets and removing any door handles or smoke alarms that might hinder the exit of your refrigerator from your cabinet. Turn off the water pump (if you have an ice maker in your fridge) and the refrigerator control panel.

: WARNING:

Make sure to turn off LP gas at the tank before starting the install.



Remove the 12V wires from the terminal block.



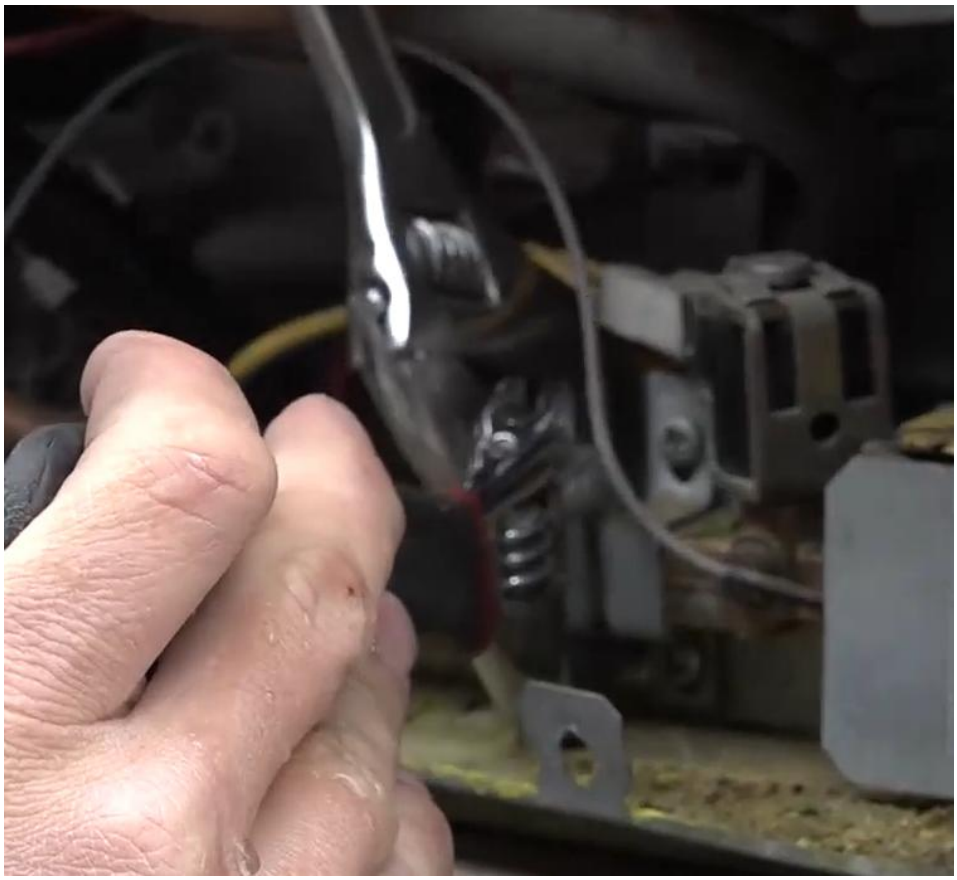
The wires ends are not insulated so use a piece of tape or a twist cap to protect the end of the 12V + wire. This will keep it from accidently touching a ground and blowing a fuse. It will also let you know which one is the 12V + wire once you go to hook everything back up at the end.



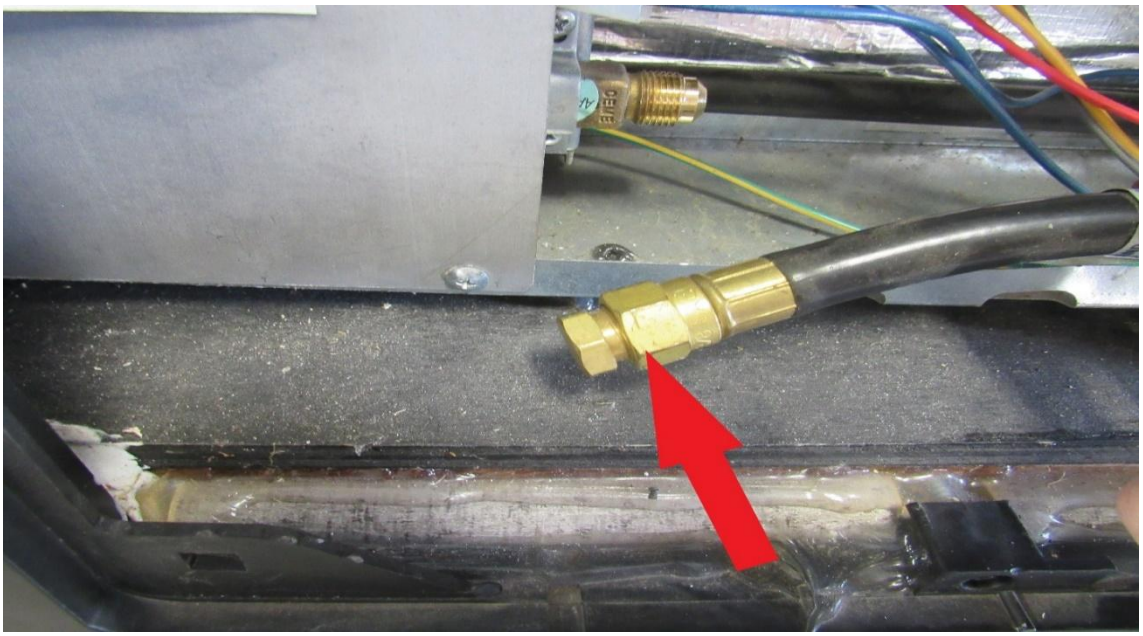
Next unplug the 120V power cord from the outlet.



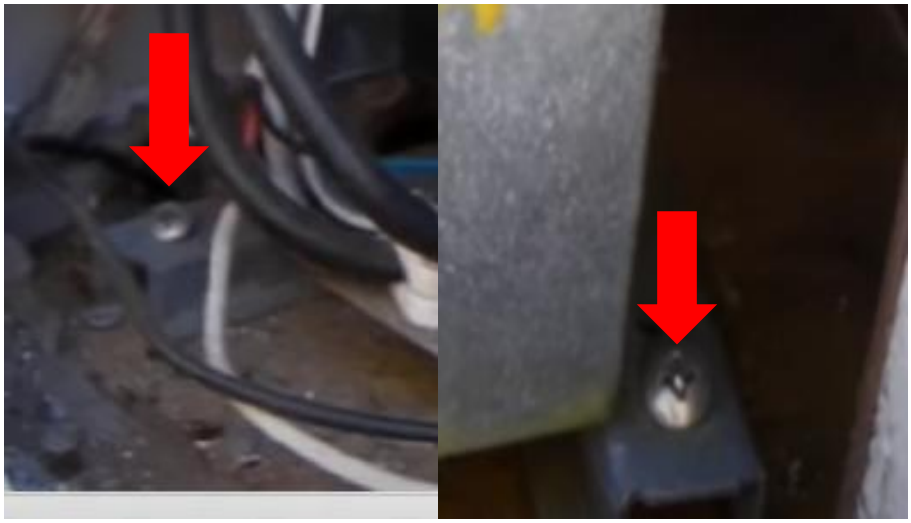
After you have made sure that your LP gas tank is shut off, remove the gas line from the burner assembly.



Cap off the LP line with the supplied cap in the parts bag (RA). Check this joint with soap and water once gas has been turned back on.



Next you will want to remove the mounting screws from the back side of the fridge. Usually there are two screws but sometimes there may be more.



Now you will go to the inside of the coach to remove the mounting screws from the front of the fridge. To remove the top cover, use a flat screw driver and insert it into the slot to release the cover. (Styles may vary)



You will then be able to see the top mounting screws so remove them.



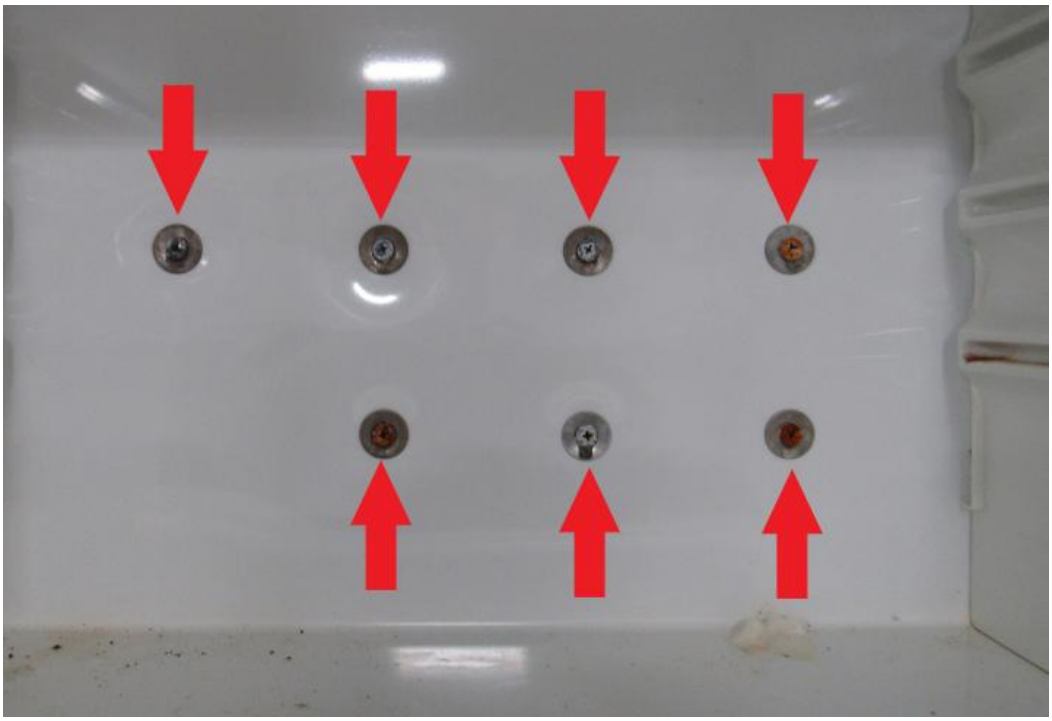


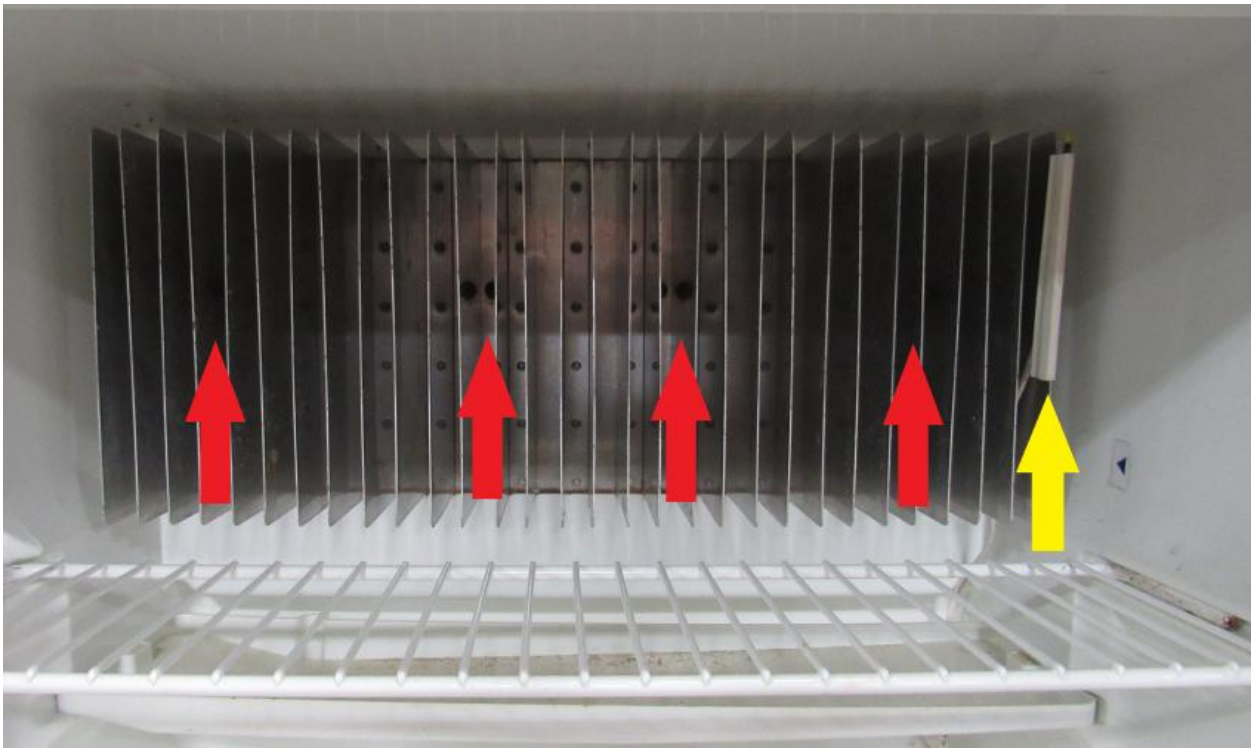
There will also be at least 2 mounting screws on the bottom of the fridge. These will need to be removed as well.





Take a phillips bit and cordless impact driver and proceed to loosen and remove all the screws (RA) in the freezer and the refrigerator. Also unclip thermistor (YA) and lay to the side for now. Removing your freezer shelve or top fridge shelve is optional.





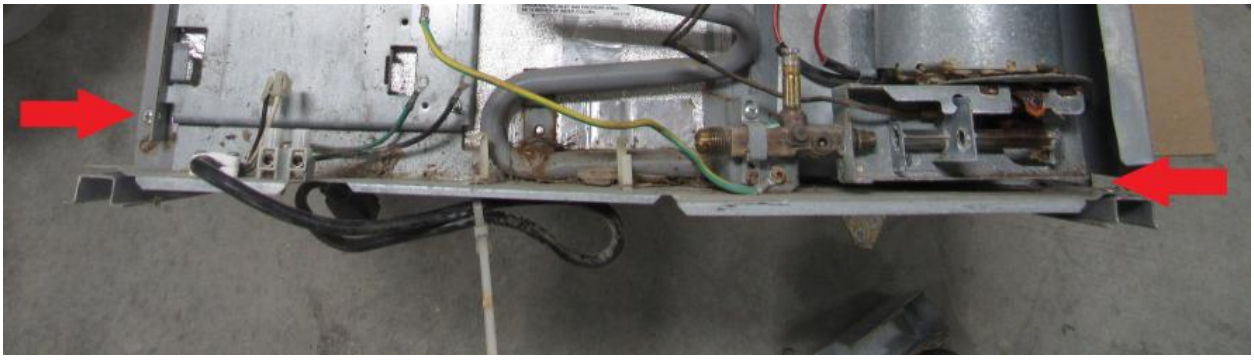
To get the fridge out of the cabinet, you can use a pry bar on each side to get it started and then pull on it from there.



We do not show the fridge being slid out onto the floor, as the lay out of the coaches vary greatly and it could be misleading to your scenario. But the object is to have 1 person on each side of the fridge and as your fridge starts to exit, lift up gently so that when the rear end of the fridge fully exits the cavity, it does not drop. It then needs to be, carefully and gently, set on the floor and pushed or carried to an open area in your coach. Then lay the fridge face down on the floor, making sure doors are latched shut so they don't swing open. We normally put a pile of blankets on the floor underneath the freezer door so that when the fridge is lying face down, the freezer section is higher than the fridge section.

- **Take out the 4 mounting screws. 2 at the top and 2 at the bottom.**

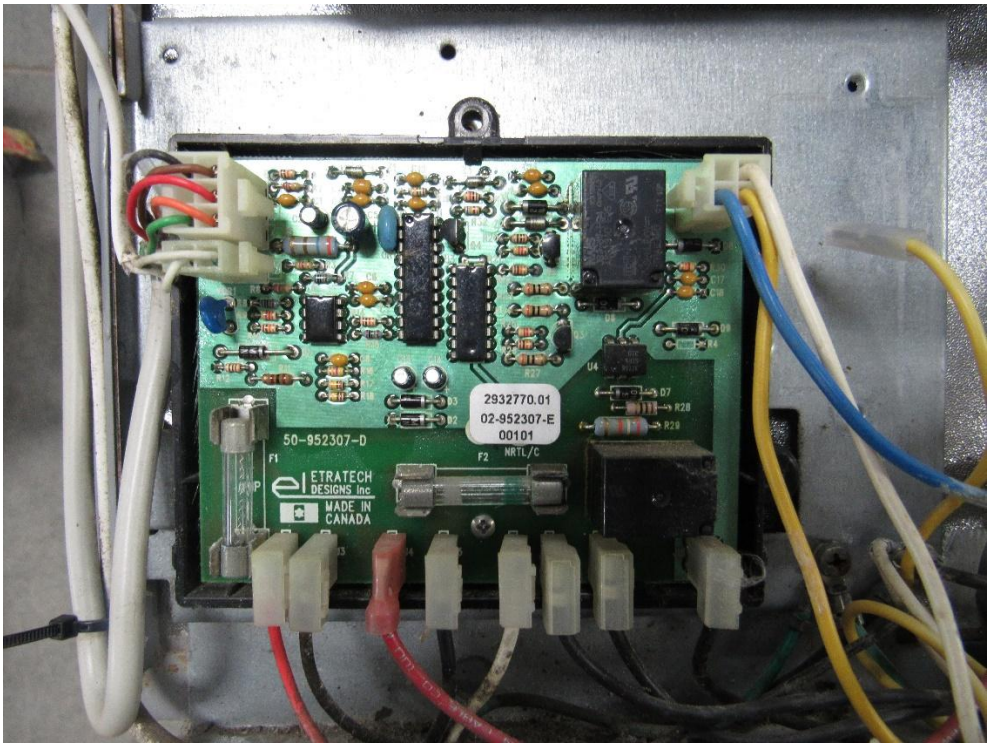




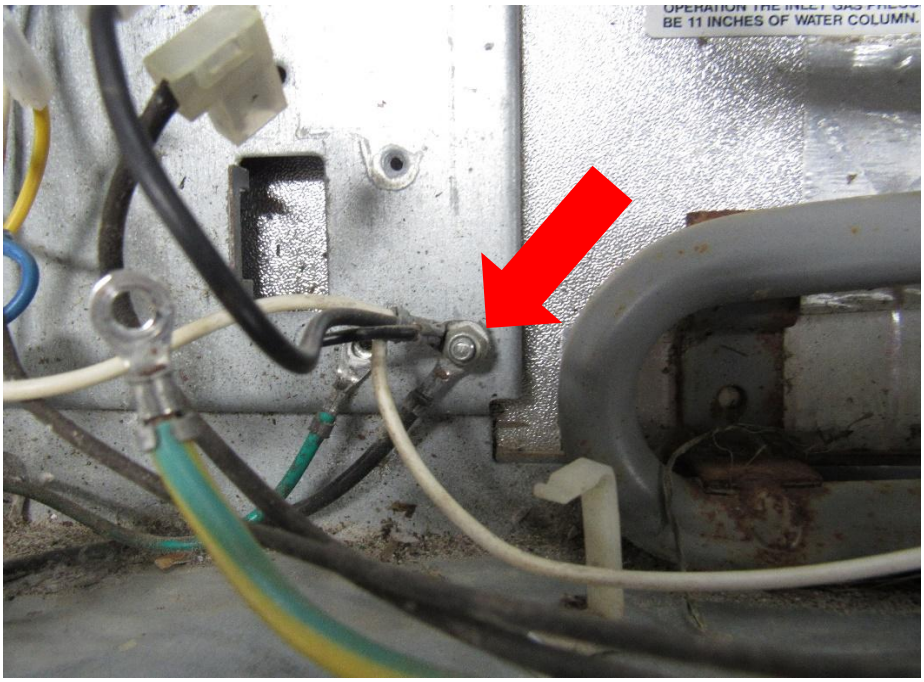
The drain hose is sometimes routed through the coil. If this is the case, pull it out so that it doesn't get caught when removing the cooling unit.

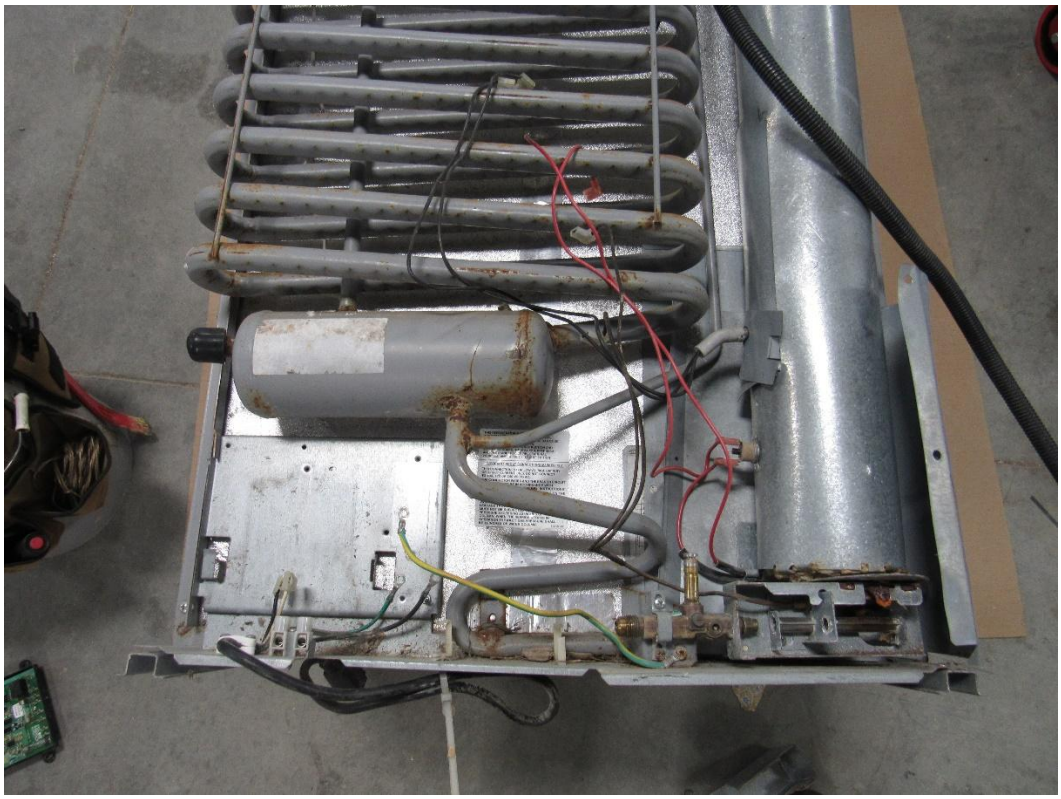


Next remove all wiring from the control board as the board will have to be moved, this board can be thrown away or kept for future use if needed

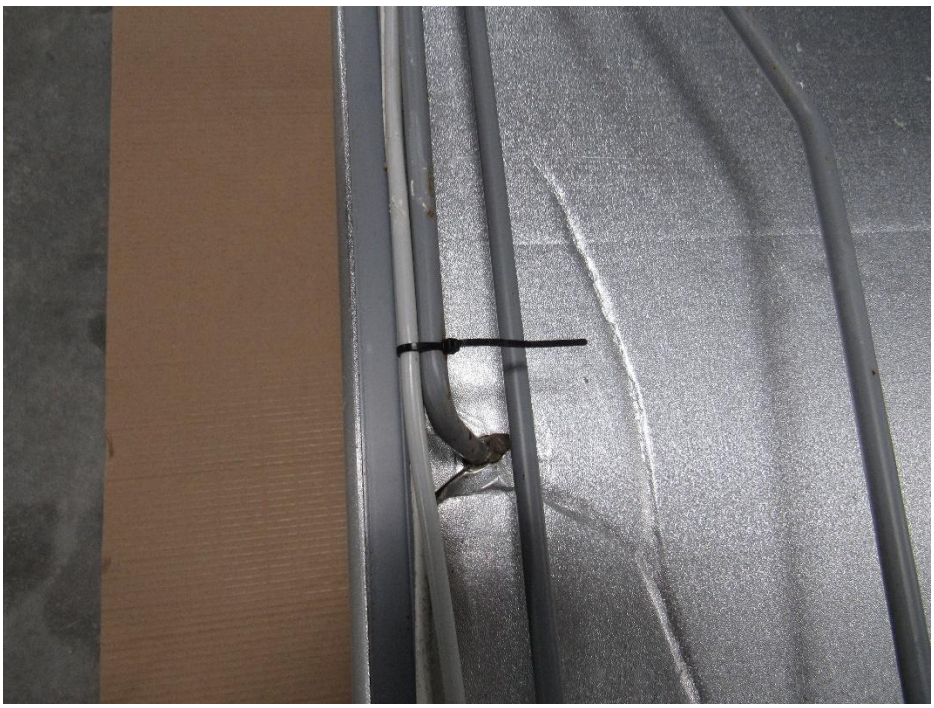


Also remove all the ground wires from the lug (RA) and then remove the control board.



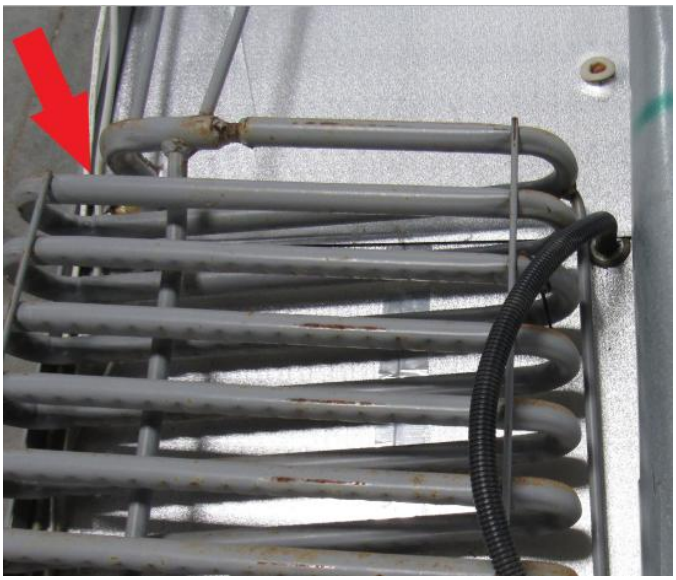


Cut the zip ties that hold the front display wire and the heater wire to the cooling unit and pull them out from under the coil so that they don't interfere when removing the cooling unit.

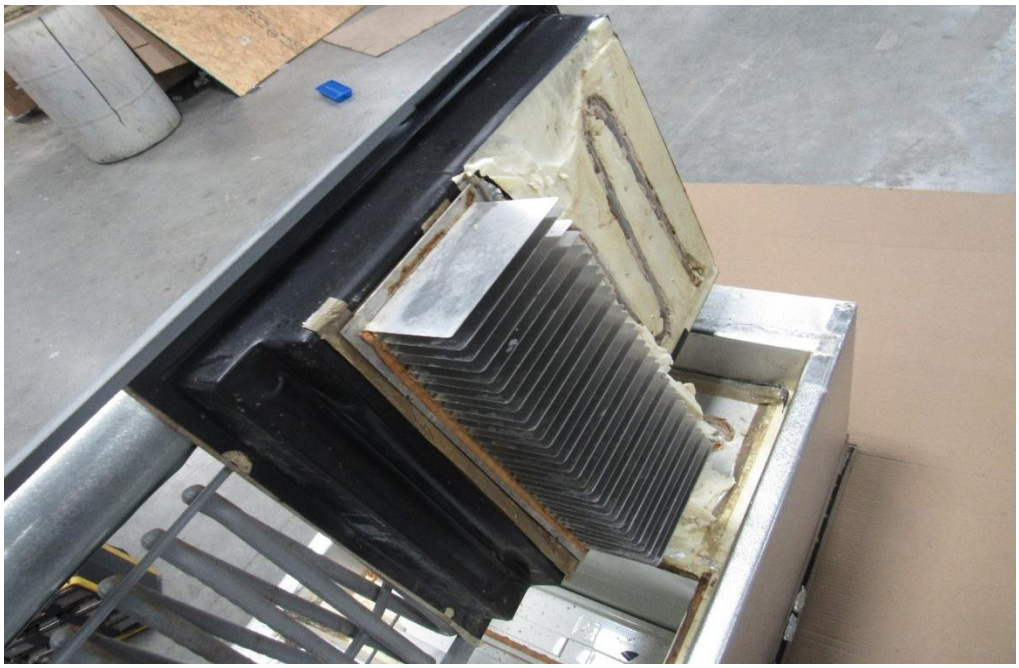




Remove the old cooling unit from the box. Start by lifting the bottom of the cooling unit. If it doesn't want to lift out, you can use a pry bar and get it between the coils and the fridge box and pry up. This should get it started. Then continue to pull on the cooling unit until it is completely out of the cavity.



The fridge fins will sometimes separate from the cooling unit when you pull it off but they also sometimes remain attached to the cooling unit, as seen in the picture below. You can pull them off after you have the cooling unit completely out of the cavity if they remain attached.



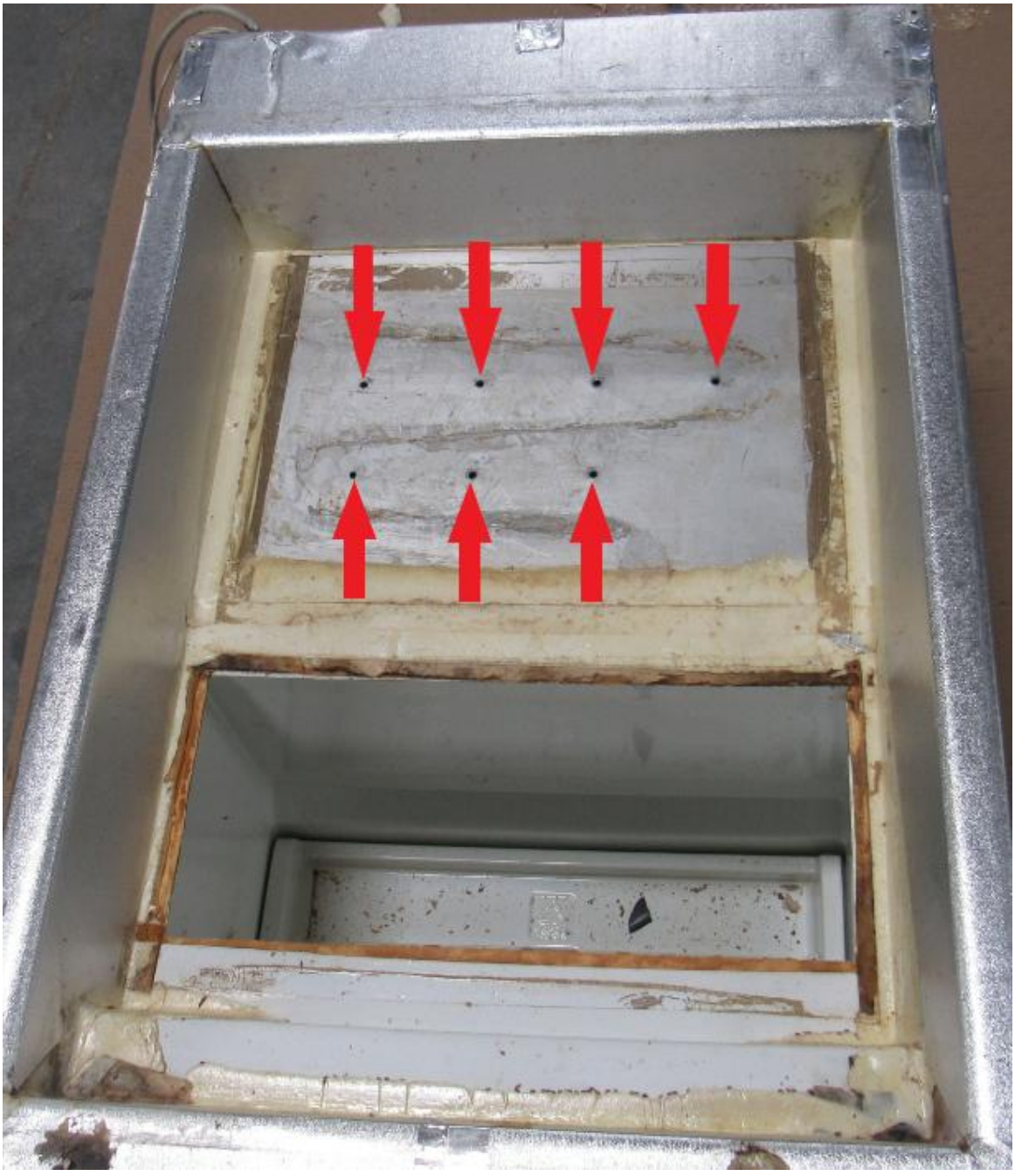
Clean off all the old mastic and remove any tape (RA).







If the original cooling unit pulled the freezer plate inward at the holes for the screws, you want to flatten the area around the hole or you won't have a good connection between the freezer plate of the new cooling unit and the fridge box. These can be tapped down using a hammer. NOTE: if the fin was removed make double sure to put this back in right side up as it was, otherwise your holes will not line up once the new unit gets installed.

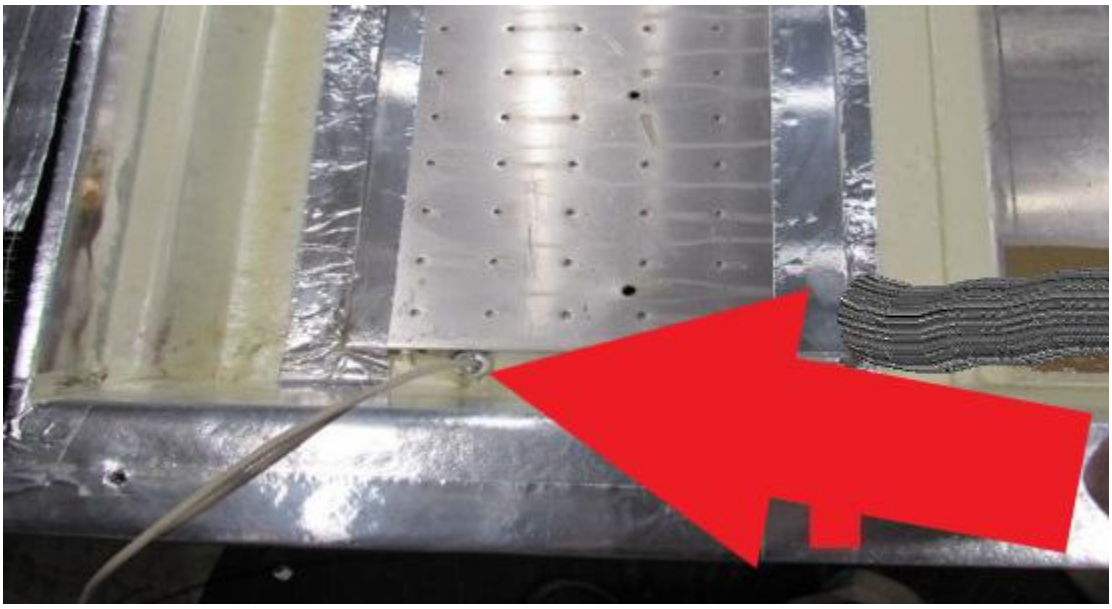


Get your controller, and open the packaging you might need to stand the fridge back up to get this controller wire thru the wire service port, this port is found either on the left or right side of the fins. Clip the controller to the wire shelf for now so its not loose





Position controller wire into whichever corner you have it

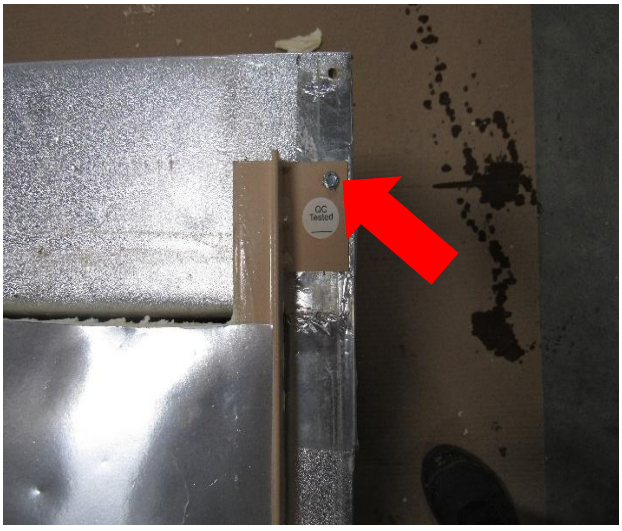


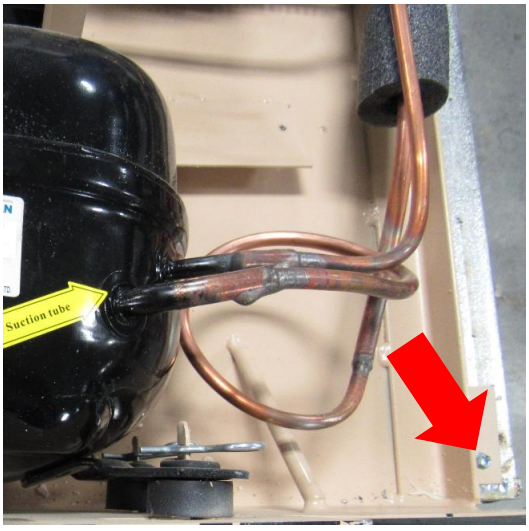
Warning: The next few steps are very important. If done incorrectly, the cooling unit freezer and fin screws might not line up the best. If possible, have someone to help you with the next steps as it will make everything much easier.

First, we will do a "dry fit". Set the unit in the box as shown in picture.



If you are alone, screw two self-drilling #10X1" hex mounting screws (RA) that are included in the parts bag. Your exterior mounting holes will not line up to the original holes. This will hold the unit in place for the next step. If you have another person with you, leave these screws out and have the second person hold the unit while you set the refrigerator upright into the standing position now open freezer door and make sure mounting holes in the freezer are aligned with the cooling unit holes.

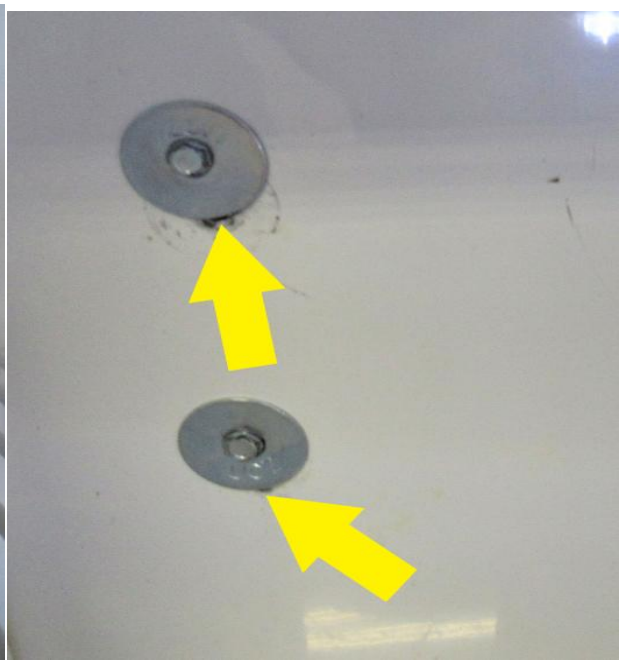




If holes are not aligned have the rear person lift the unit up or down or side to side until holes are aligned. If you are alone, you have to set fridge back down, take out mounting screws, and adjust the unit to where the holes line up. It does not have to be perfect, just close enough where you can see the edge of them. Don't be afraid to sand or shave foam off the sides, top, or bottom to let the unit slide the way it needs to go to line up the freezer screws. Pictured below is an example with the holes just visible on the bottom corner (RA).

Warning: The box holes can be redrilled or enlarged to make holes line up and then the washers can cover the hole, (YA) but do not *ever* drill new holes into the cooling unit plates as you will hit the cooling tubes causing a rupture. If part of the holes are visible, you can either leave them as is, since the cooling unit will be sealed from the back, or you can use white silicone caulk to cover the holes.



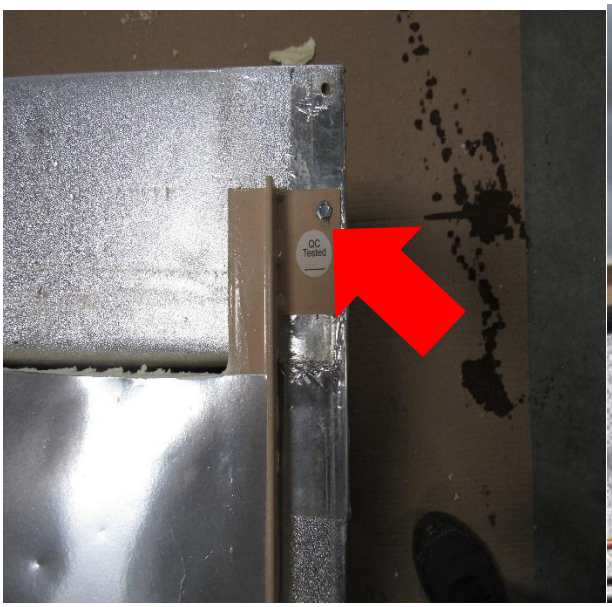


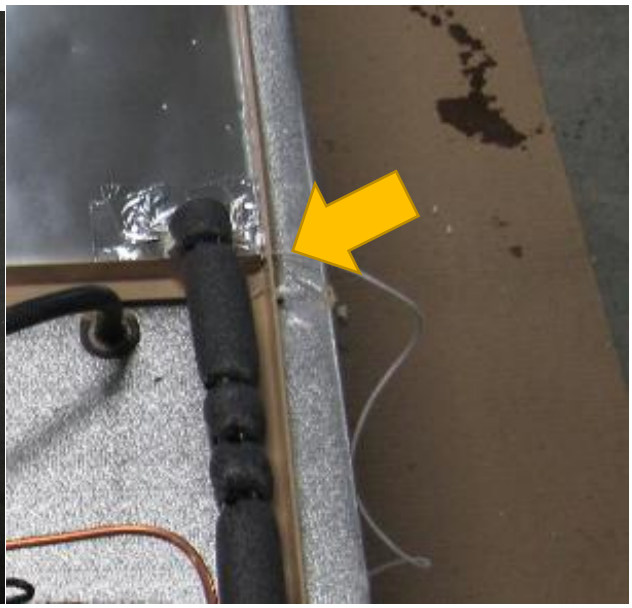
Take the unit completely off the box again. We will install the thermal mastic next. Take a caulk gun and place a small bead in this fashion. You will need to use the whole tube.

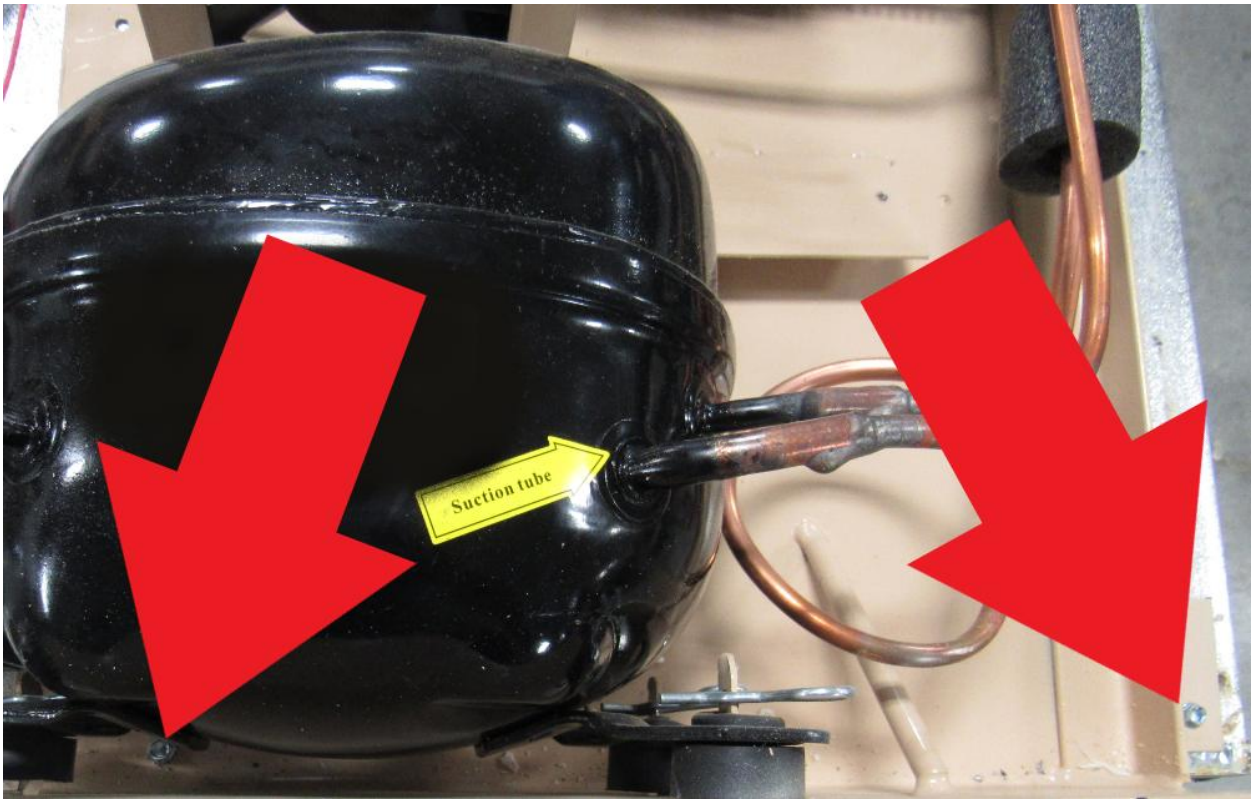




Lay unit back into box being careful so as not to scrape off any thermal mastic on the box, and make sure unit is in position where you had it last so freezer holes line up. Now screw the unit to the back of the fridge (RA) using the #10X1" screws provided. Your control wire will exit out the side of the fridge box cavity. (YA)



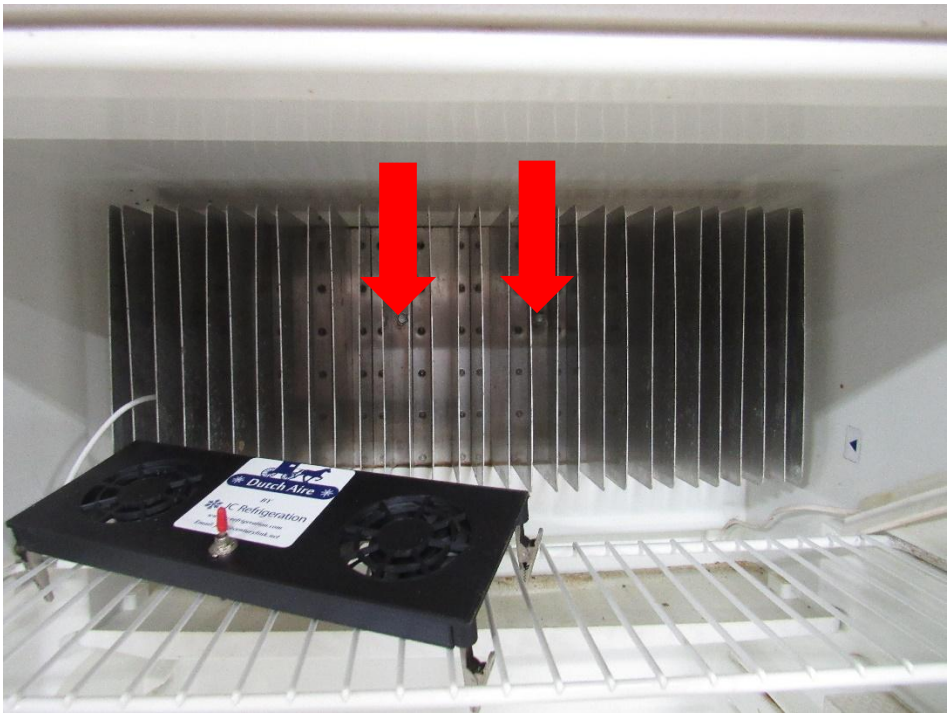




Set the refrigerator upright into the standing position and install all 7 freezer screws, using the supplied #10X2" screws in the parts bag. You want to pull the cooling unit in tight against the fridge box but don't overtighten the screws to avoid stripping the screws.



Only the two middle screws in the fin will be attached.



Clip your controller onto the fin close to center left/right



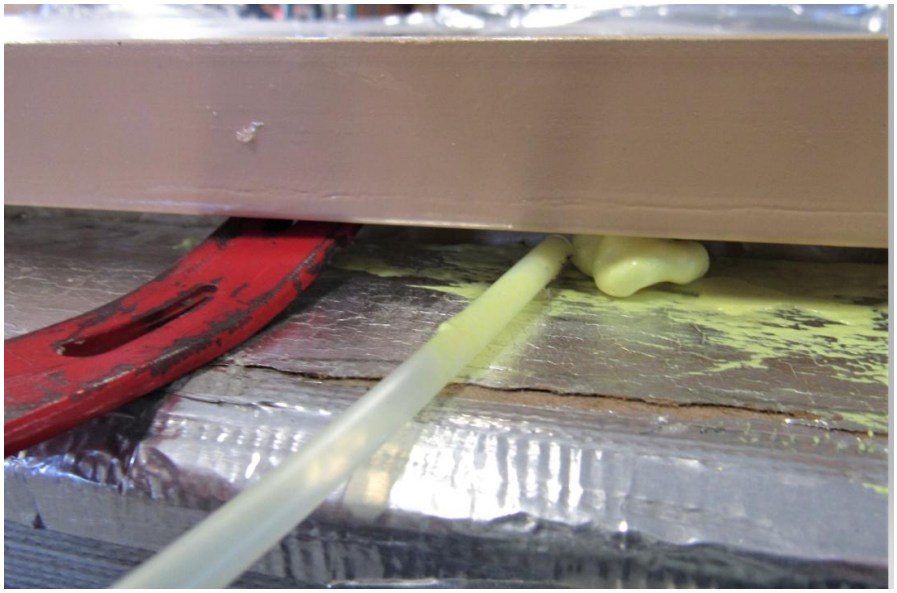
Warning: Make sure this step gets followed precisely, otherwise your fridge is unable to cool properly

Lay fridge back down. Take the can of sealant foam (shake can for a few seconds) and apply a bead of foam around all four sides as shown below. Make sure 100% of the perimeter of the cooling unit foam pack is sealed to the fridge box and seal all cracks and gaps. This will help seal all air leaks while travelling down the road.

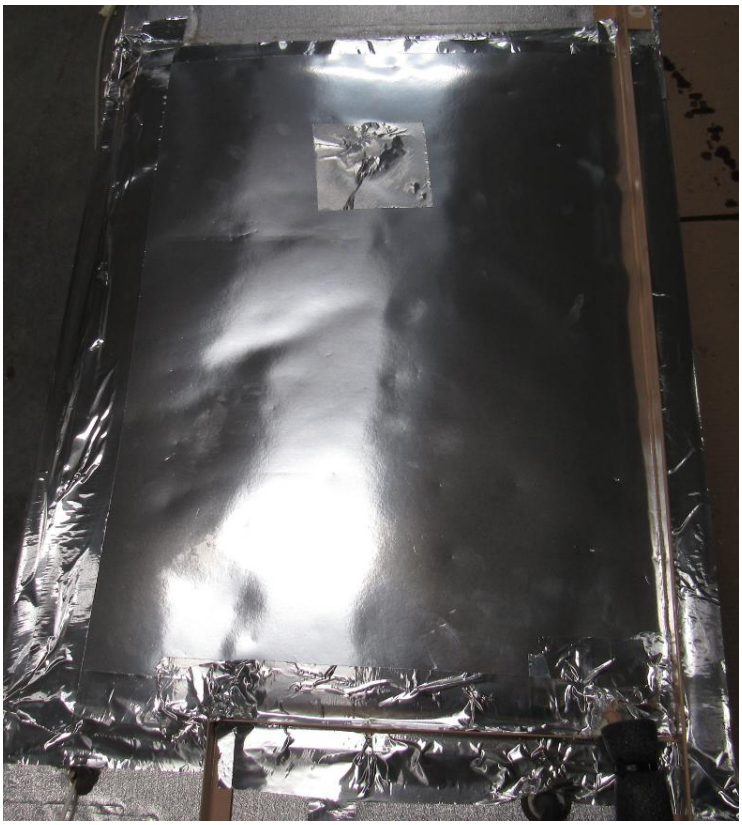




On areas where the steel frame is tight against the box, take a small pry bar or flat bar and lift up enough to get in there to fill up the gap between unit and fridge box. Make sure all gaps and cracks are sealed off, very important!!



After filling the gaps with foam, follow up with the supplied aluminum foil tape as shown.



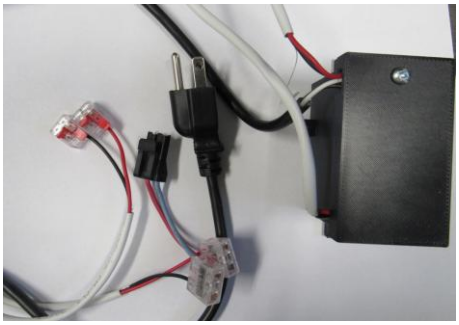
120V Hvac Universal Controller installation

This controller eliminates all of your existing Dometic controls. So that means that your front display panel, your interior light, and your rear control board will no longer work and can be taken out if need be. This new controller has its own on/off switch, temp control thermostat, as well as a light bulb that is motion activated. Long Life roller bearing fans to give you frost free satisfaction for years to come

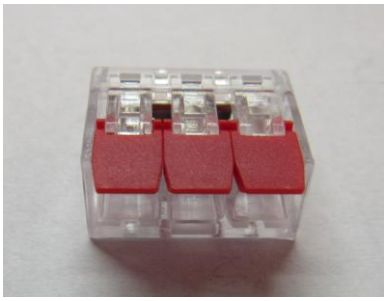


Included in Package:

1- Control Assembly (Pic above)
2- Compressor Relay control (pic below) will be zip tied to the unit



2- 3-slot wago



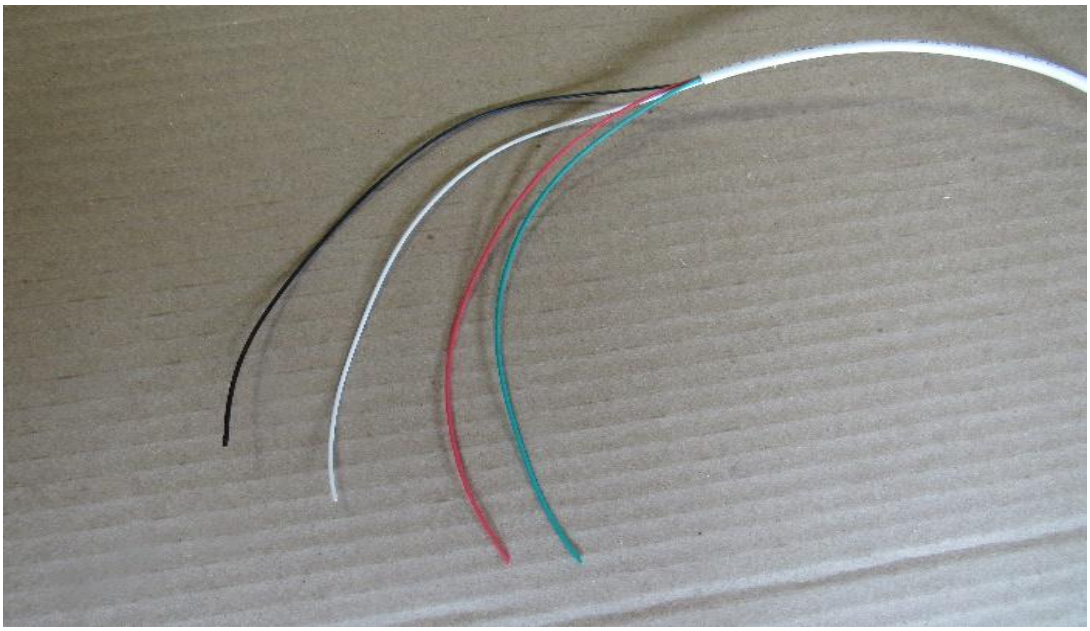
Installation

Make sure controller is set to "Off" before starting the install.

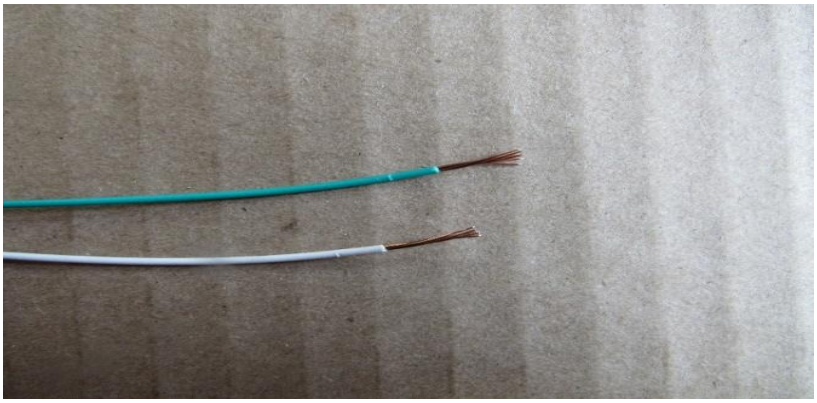
Step 1: If you have an existing fin fan on your fins unclip those and move them towards the left so you have room to clip this new controller onto the right side of the fin. The existing fin fan wires can be twisted in with the new control wires and inserted into the wago. Shown later

Step 2: Strip about 6 inches of the white coating off of the end of the wire. Inside there will be 4 smaller wires, red, black, green and white.

Note: Your controller might have blue and yellow wires instead of the green and white. Blue will be your green and Yellow your white.

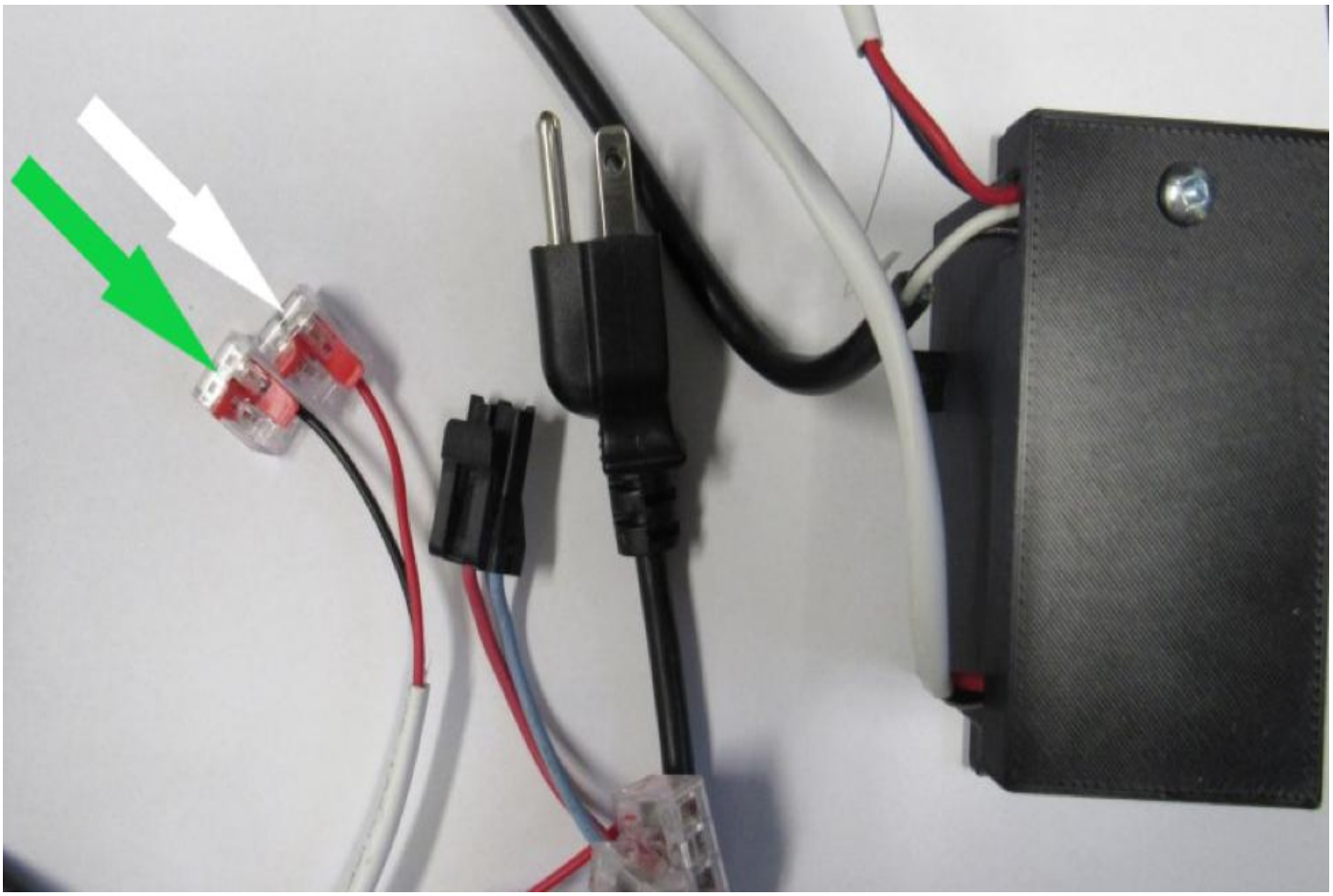


Step 3: Strip about ¼ inch off the end of each wire.



Step 4: The white wire connects to the red wire from the relay control box (WA) The green wire connects to the black wire from the relay control box (GA) The

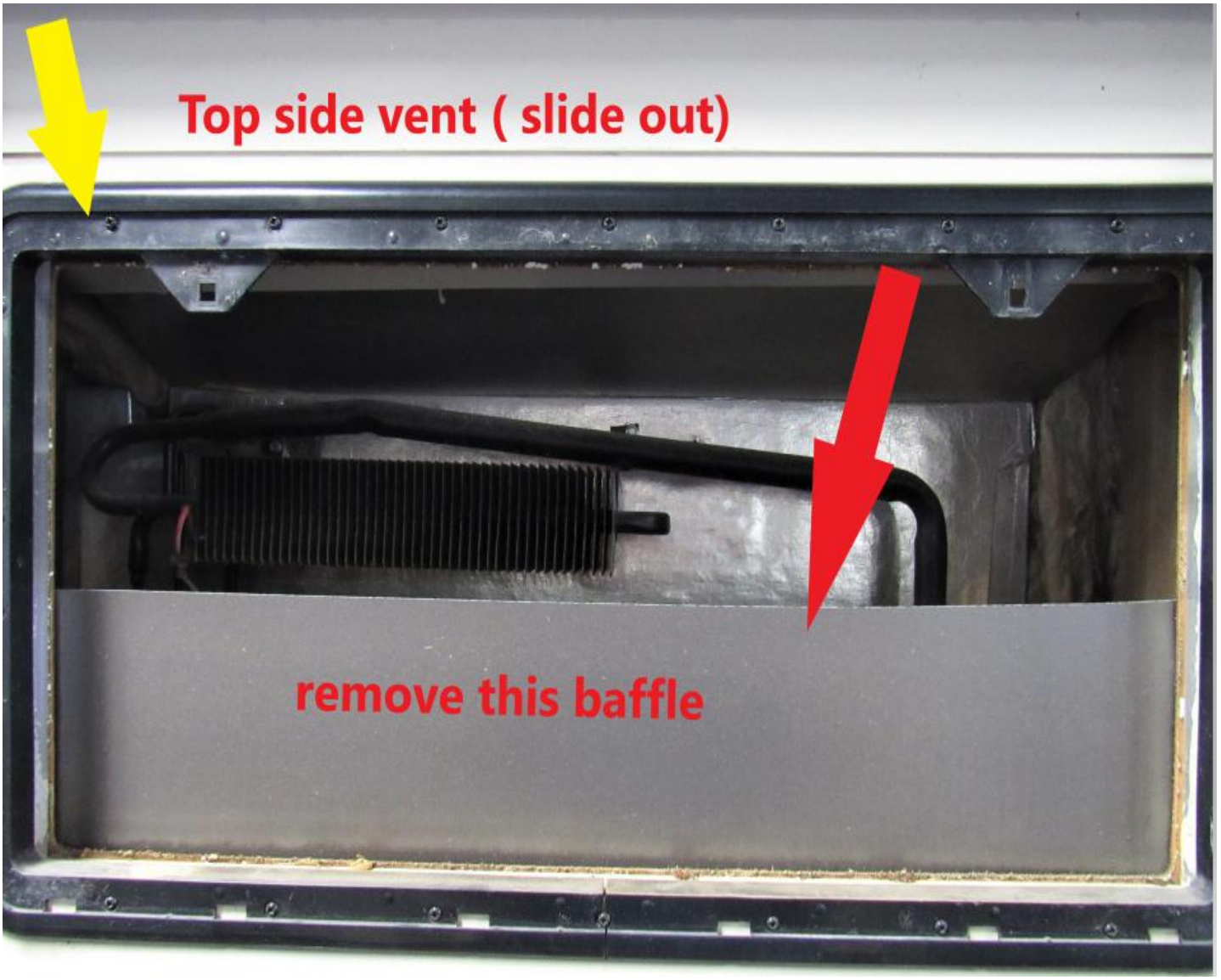
Red/Black wires coming from the inside controller will be hooked up later



Step 5: Attach the relay box to the back of the unit or fridge box to your preference. Or it can simply just be attached to the floor board of the coach later. **Now is a good time to zip tie all loose wiring and defrost hose into place, also a good time to inspect the fridge cavity to make sure it's clean. Fridge can now be stood up to get ready to insert into the cavity. You can attach the drain tube to the copper line with cable ties to hold it in place. Most of these models will drain out of the side vent**

Warning: Please make sure and follow this thru this step, otherwise unit could over heat causing damage to the unit.

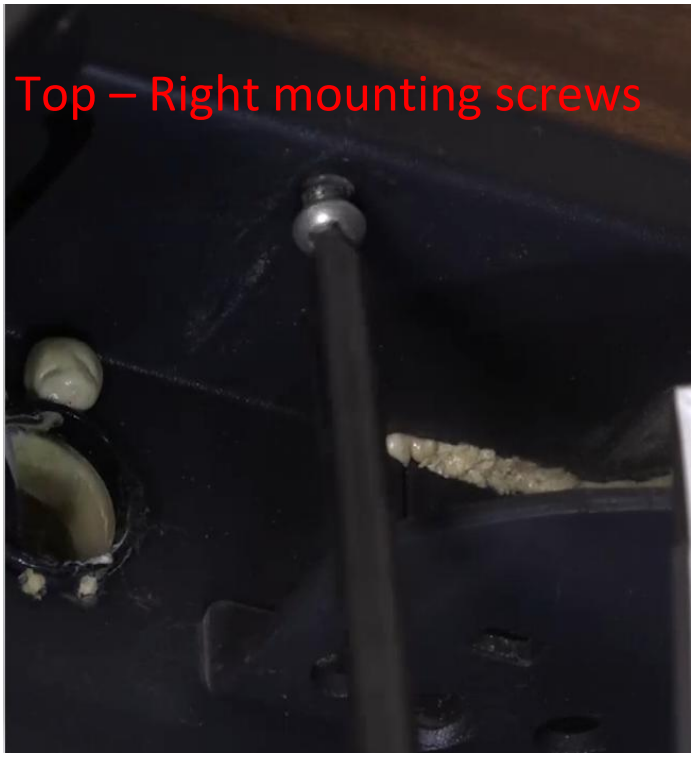
Before installing the fridge back into the cavity, check to make sure wall insulation is secured and this is a good time to sweep or vacuum any loose debris. If this fridge is installed into a slide out then make sure and remove the top side vent (YA) baffling (RA), as you will no longer need this and all it will do is slow air flow. If it's installed into a fixed cabinet with a roof vent, then nothing has to be changed, but make sure and leave both vents open, as this unit will still have to breathe



Now you're ready to slide the refrigerator back into the cavity. Once it's started it helps to have someone outside to watch as you slowly push the fridge back

into place, making sure the gas line is out of the way. Install the mounting screws on the front of the refrigerator.





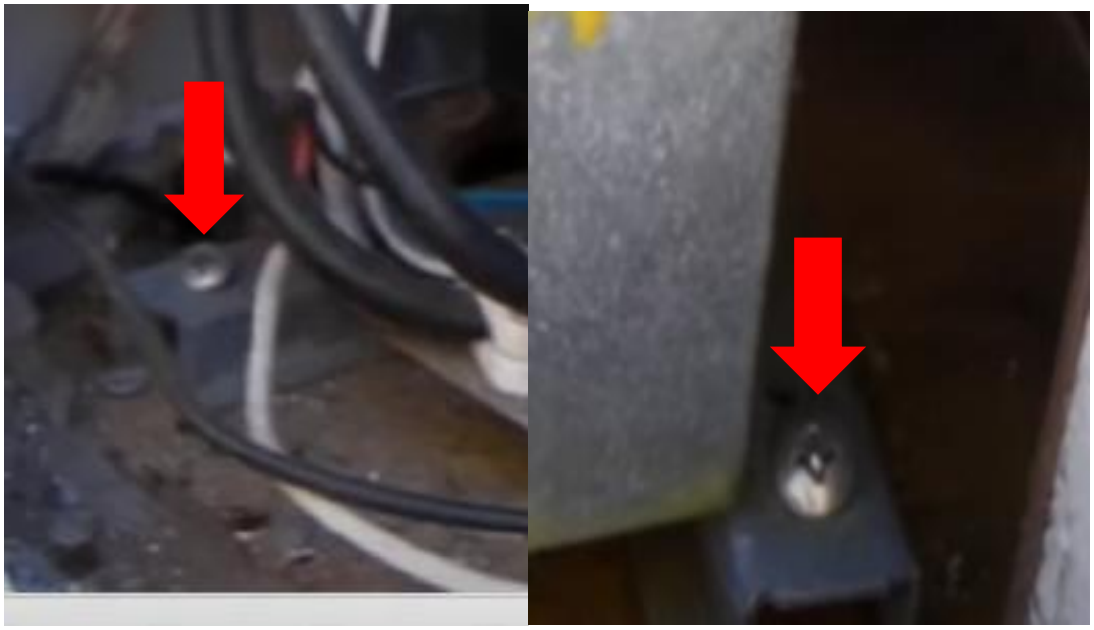

Bottom-left
screw


Bottom - right
screw

Then snap the control panel at the top back into place.



Now go to the outside of the coach and install the mounting screws on the back of the refrigerator.

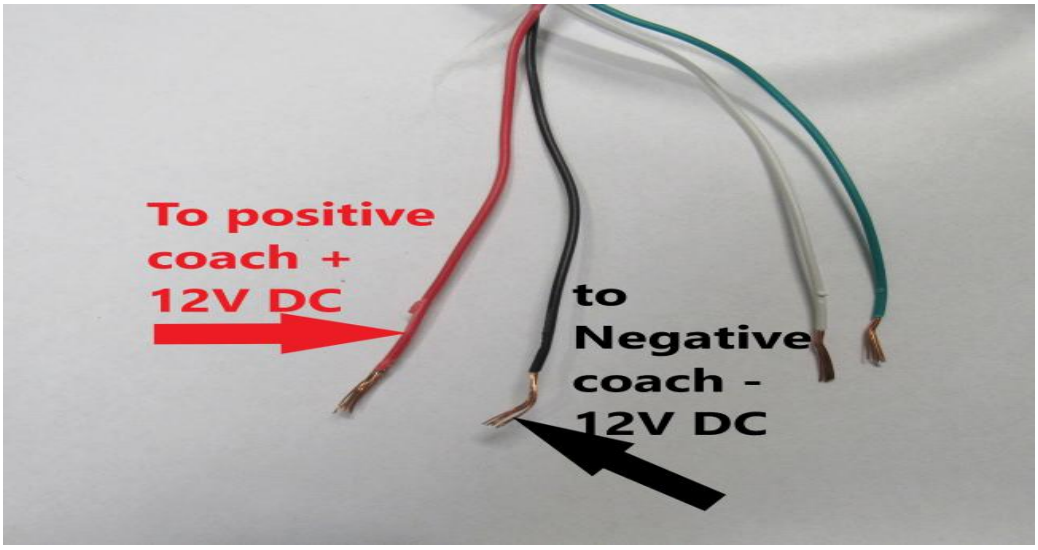


Step 6: Now find your 12V DC wires coming from your coach batteries. Which will be powering your inside universal control. The pic below shows these wires being blue/white from the coach, but these can be any color or size, (dependent on the coach manufacture)



Step 6A The 12V DC wires on most coaches come up through the floor behind the fridge, make sure to not get these 2 together as this will blow your 12V fuse. Make sure you know which one is positive.

Step 7 Take the small red/black wire from the inside controller and add the 3-slot Wago to each one Then make sure you know which is the 12V + wire from the batteries and connect it into the red wire from the controller using one of the 3-slot Wago included. Next take the black wire from the controller and connect to the negative from your battery using the other 3-slot Wago included. This is where you add your existing fin fan if you have one, red to red black to black.



Now plug your 120V cord from the relay box into the outlet behind the fridge.



WARNING: Make sure to leak check so you don't have a gas leak



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Operating the Controller:



The switch on the front is to turn your fridge on or off. Once you flip the switch to the on position to turn on the fridge, the temp controller will light up, the fans will turn on and the light will turn on as the motion sensor will detect your movement. (After 30 seconds of no movement, the motion sensor will shut the light off.) The blue number (bottom) on the temp controller is what the temp is set to and the red number (top) is the actual temp inside the fridge. The temp is preset to 34F to 38F, this temp may need to be tweaked to your desired temp, food zone is 0F to 10F Freezer/38F to 41F Fridge. But you can adjust it up or down using the directions on the next page. After you have the temp controller set to your desired settings, there is nothing more you need to do as this controller will tell the compressor when to turn on or off. If you are using another temp sensor, just be aware the controller temp and your other source of temp reading might not always be the same, and this is ok, just rely on the temp sensor read out you are used to, but make sure yours is either digital wired or wireless.

Hvac Universal Controller Introduction

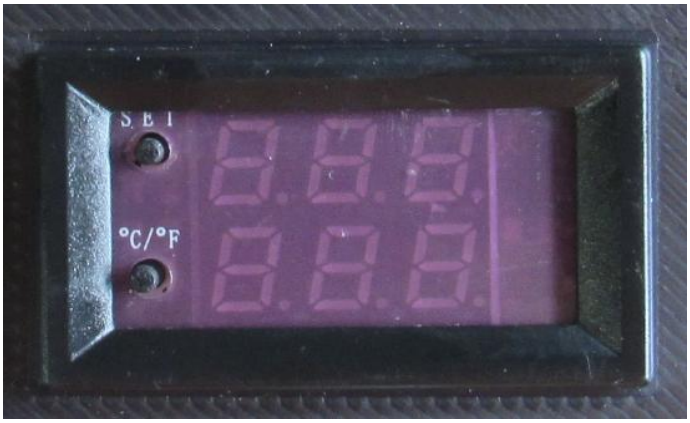
This controller eliminates all of your existing Dometic controls. So that means that your front display panel, your interior light, and your rear control board will no longer work and can be taken out if need be. This new controller has its own on/off switch, temp control thermostat, as well as a light bulb that is motion activated. Long Life roller bearing fans to give you frost free satisfaction for years to come



Low Ambient Heat Lamp:

On the back side of the control assembly there is a little switch. By flipping this switch to the up position, it bypasses the motion sensor and keeps the light bulb turned on constantly. If you are using your fridge in cold weather (Usually 40 F or lower), your compressor doesn't have to run very long in order to cool the fridge box down and this will cause the freezer to only stay around 25-30 degrees. Turning the light bulb on constantly will give off a little bit of heat into the fridge box which will cause the compressor to run longer and bring your freezer temp down to 0 to 10 degrees. Once the weather warms up or you move to a warmer climate, flip this switch back to the down position so that the light bulb is motion activated again. If this switch is in the up position while you are in warm/hot weather, you will cause the compressor to run longer and work harder than it needs to.





Set Temp

Press “SET” (top button) briefly, bottom blue number starts flashing. While it is flashing you can adjust temp up using top (SET) button or down using bottom (*C/*F) button.

Enter Diagnostic and Mode settings: **We highly recommend not changing any codes unless it’s absolutely required, as this can change other things as well.** Press and hold top (SET) button for approx. 4 seconds. P0 will flash first. You can then scroll through code settings using (SET) button to the setting needed. Once the desired code is reached, press both (SET)(*C/*F) buttons in at the same time, then the bottom blue letter or number will start to flash. Then use top or bottom button to adjust up or down in order to achieve desired setting. Once reaching desired setting, press both the (SET) button and the (*C/*F) button at the same time and the setting will be saved.

Code meaning:

P0 = Lets you switch between heating (H) or cooling (C). You want to make sure it is set to cooling (C)

P1 = This setting determines how far above the set temp the actual temp in the fridge can rise to before the compressor turns on, preset for 2.5

P2= Not needed or used

P3 = Not needed or used

P4 = If actual temp inside the fridge box does not match the top number on the thermostat, this setting can be used to calibrate up or down to make the thermostat temp match your actual box temp. This setting rarely needs adjusting. (Note: One number adjusts the actual calibration by 2 degrees. So if you set it to 1, the actual temp will be calibrated 2 degrees warmer.)

P5 = This setting can be used to set a delay for turning on the compressor. This setting should not need to be adjusted.

P6 = This setting can be used to set a high temp alarm.

P7 = This setting is used to switch between Celsius (CH) or Fahrenheit (FH). It is preset to Fahrenheit.

P8 = This setting can be used to reset the controller to factory settings. Not recommended to use this setting.

We highly recommend using a digital wireless thermometer to monitor your inside fridge temps. Many phone calls or temp misleading's can be avoided by making sure the thermometers you are using are accurate. You do not have to use our brand but we do recommend using something similar to this type.

https://jc-refrigeration.com/product/refrigerator-freezer-digital-wireless-thermometer-free-shipping/

Use digital wireless



DO NOT USE



Clip the sensor for the fridge on the bottom side of the first shelve beneath the fin. Place it so the sensor is centered, front to back and side to side (RA). If its clipped underneath it will be out of the way and shouldn't interfere with storage.



The same applies with freezer, clip underneath the shelf, centered from side to side, but have this one more towards the back of the freezer.



FAQs

How much will the compressor actually run?

From our testing in 80 degrees, with the fridge and freezer empty, and the doors remaining closed for a 24-hour period, the 120V AC compressor will run approx. 56% of the time. However, keep in mind that this can be very easily affected by a number of variables such as ambient temp, how often the doors are opened, and how much food is in the fridge/freezer.

What is covered under warranty? Our warranty covers the cooling unit and any of our controls that came with the cooling unit. It does not cover any original Dometic parts such as the control board, the front display, thermistor, etc.

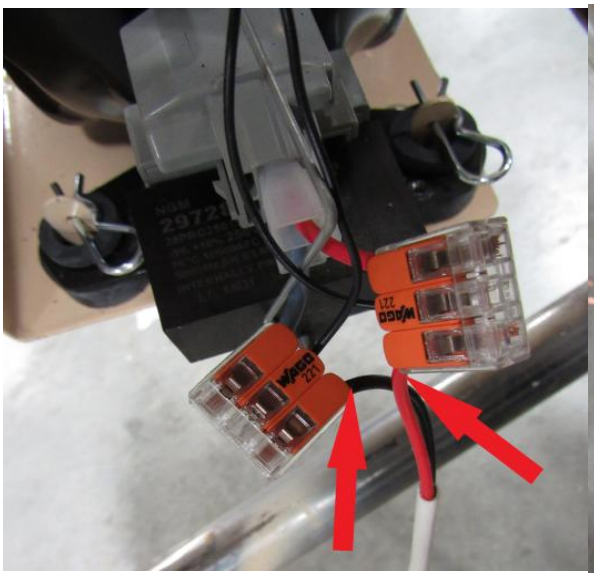
What if the cooling unit needs to be worked on and I'm not close to your location (Shipshewana, IN)? Contact us first and we will try to help you get the issue resolved. Most problems can be fixed through email or phone but if more work, or hands on work is needed, we have a list of dealers/service centers in almost every state that have purchased cooling units from us before and could possibly help you out.

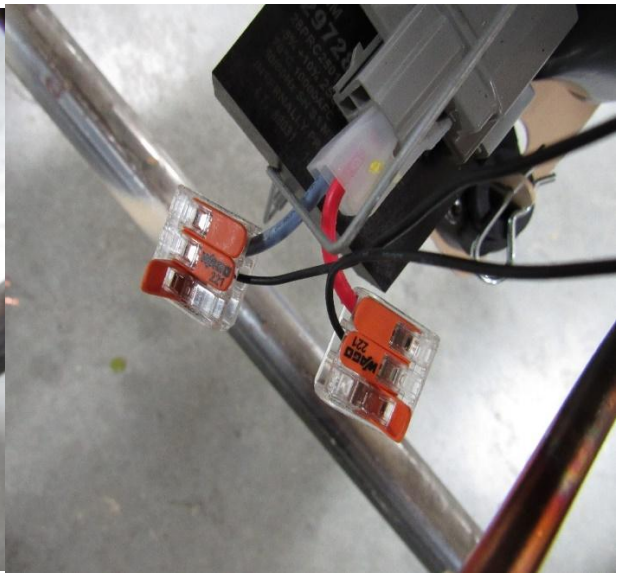
Is there any regular maintenance to perform on these cooling units?

The only thing that needs to be done on these cooling units is to take compressed air and blow any dust or debris out of the condenser fin. This can be done maybe once or twice per year.

To do a diagnostic test if cooling questions arise use chart below to do a direct wire with the compressor in question.

Step 1: Unplug the 120V cord from the outlet. Open tab on the Wago to the wire that goes to the small controller. Leave the wire going to the compressor and fan wire intact.





Step 2: Make a 120V pigtail and plug the wires into the empty slot on the Wago where the red and black wires used to be. Then plug the pigtail into a 120V outlet. The cooling unit will now run continuously until the cord is unplugged or the power to the outlet is cut. Make sure vent fan, and compressor runs when power is plugged in.

