7-10 CU FT Polar Series

N7V | N7X | N7LX-- N8V | N8X | N8LX | N10LX | NA10LX

INSTALLATION MANUAL



RV Cooling Unit Warehouse

Tools needed to do the install:

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





1 or 2

And enough time to think things thru at times, so don't give up and hang in there to the end it will be all worth it. A cold fridge is about to be had!!



We at JC Refrigeration try to build these as easy to install as possible, and so these are DIY cooling units but please be aware tho that our upgrades might not look quite the same, and brackets, frames, hole plates might not always line up perfectly as fridge boxes can vary at times, and so some modifications, foam shaving or tweaking might need to be done at times to install it. A thing to remember is these are made out of thick steel tube and plates so some twisting or pushing into place is very normal and nothing to be alarmed about. We offer videos for the gas/elect and install manuals for the Hvac units to help you thru this install and feel free to send us a picture along with your question, and we will help you to the best of our ability.

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 some DIY YouTube videos available. So, to avoid confusion, follow only the instructions in this manual.
- It a good idea to know where your fridge 12V DC fuse is located just in case you need to get to it in this process.
- **With this model this is very important:** This cooling unit covers multiple different models with multiple different boards. Before you take any wires apart it's always a great idea to take pics of how they were. That makes it easy to look back in case something is not quite clear. We cover only one of the most popular style boards, if yours does not look like this do not be alarmed, nothing you are installing will change the boards hook up, so how you take apart is how it goes back. This manual does not show this in a ice maker model as this can get misleading, here again if you do have a icemaker then nothing changes in the wiring, how you take apart will go back the same as before. If things are mentioned but not shown it is because of the great variations in box/unit style and almost impossible to show all styles but the idea or how to, remain the same.

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 and so the box can be beat up a bit and the unit is still not damaged. So, when you take the box apart you will notice a spray foam packing inside (RA) and so this needs to be removed some before and some after unit has been taken out of the box.



Install Parts Box (YA) and warranty form (BA)

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.**

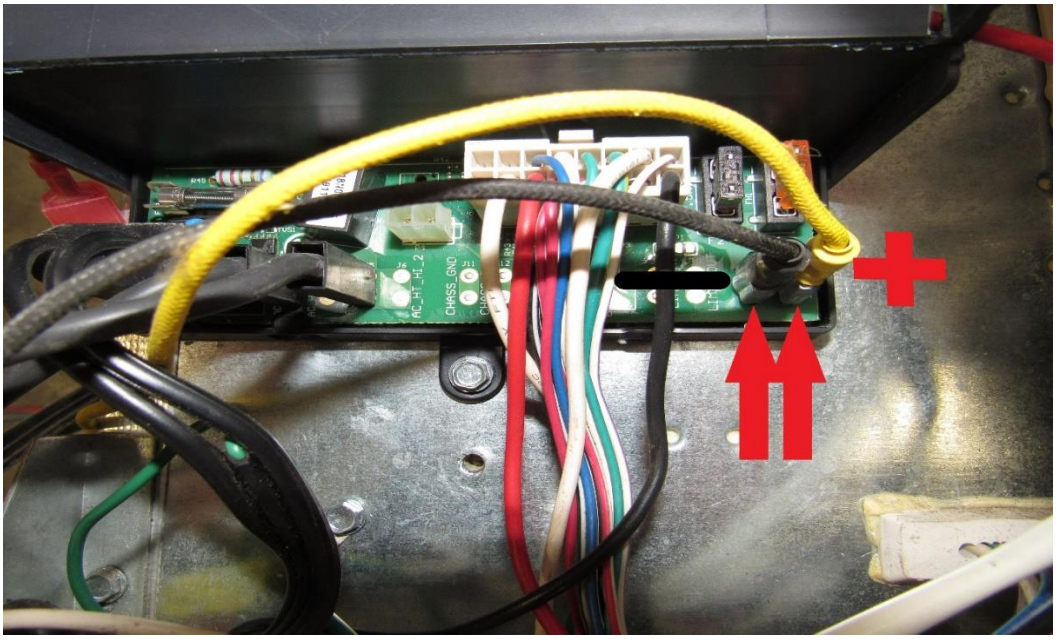


Locate your refrigerator side vent on the outside of your RV. Good idea to take a pic of these wires or label them so you know which goes where when done.
Take the board cover mounting screw (RA) loose.

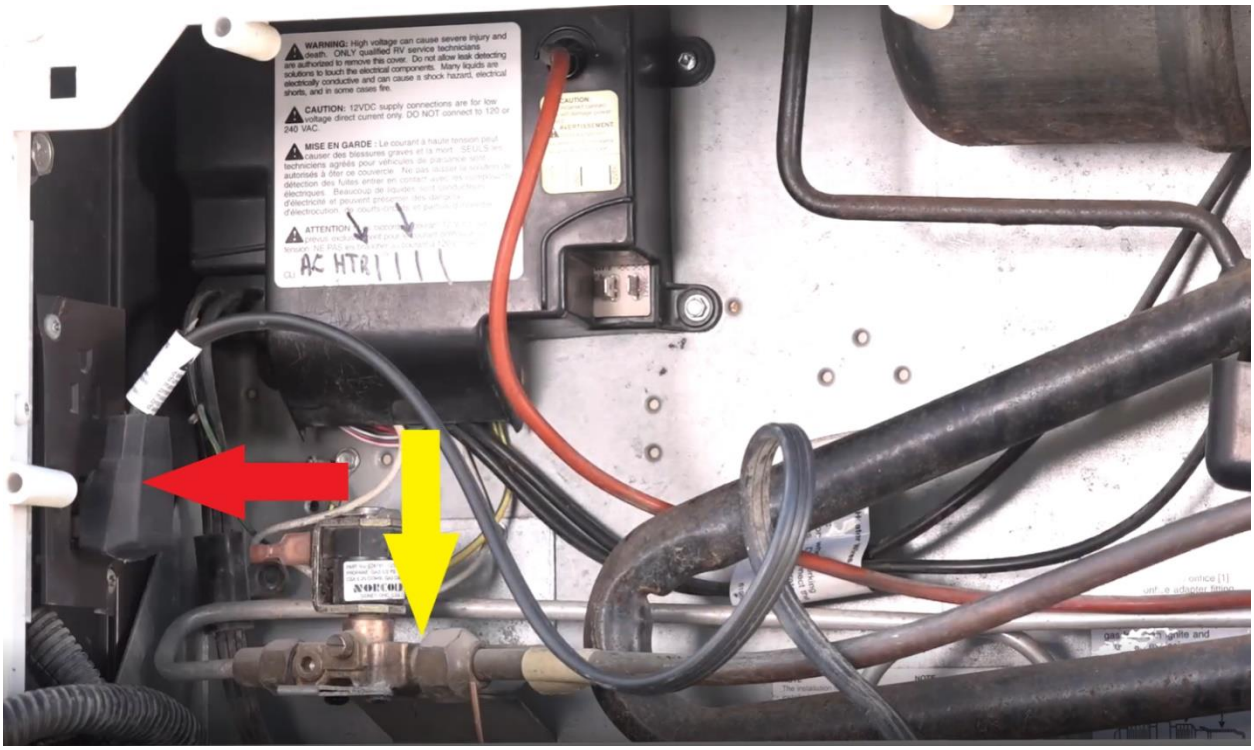


Take the main 12V wires (RA) loose from your board. The wire colors will vary from coach to coach.

Note: If your wire ends are not insulated, wrap the end in electrical tape so you don't blow the fuse.



Unplug your 120V plug (RA) from your RV receptacle. Take the LP line (YA) off of the LP solenoid valve. Make sure gas is turned off



There are many different styles out there but most have at least 2 mounting screws through the back plate holding the fridge to your RV floor. Screw size and bit needed will vary from coach to coach. Remove screws or Bolts (RA).



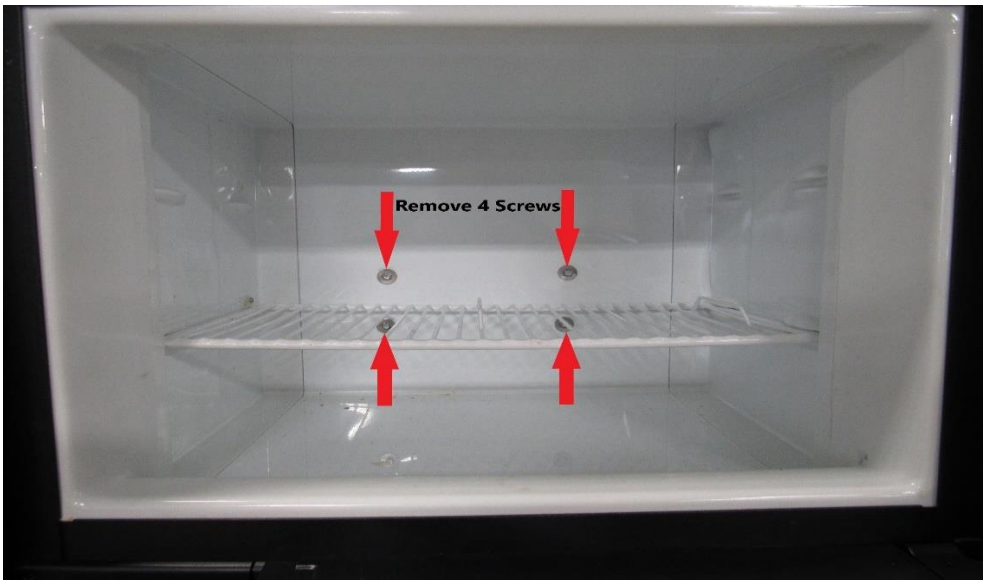
Only Winnabago coaches will have 4 bolts lagged to a steel side plate, 2 on each side of the fridge, also the top roof vent cap needs to be removed and 2 to 4 philips screws need to be loosened from the top of the fridge.

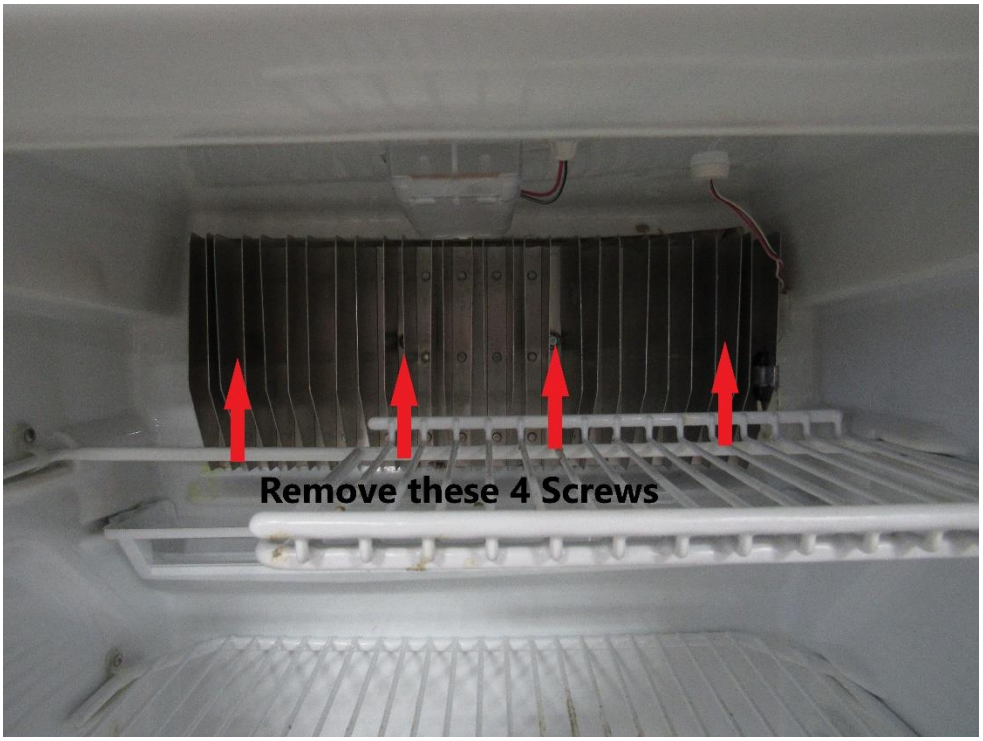


Going inside again start by removing the black trim covers on the top and bottom. Remove the two mounting screws on top and bottom (RA). Screw size and bit needed will vary from coach to coach.



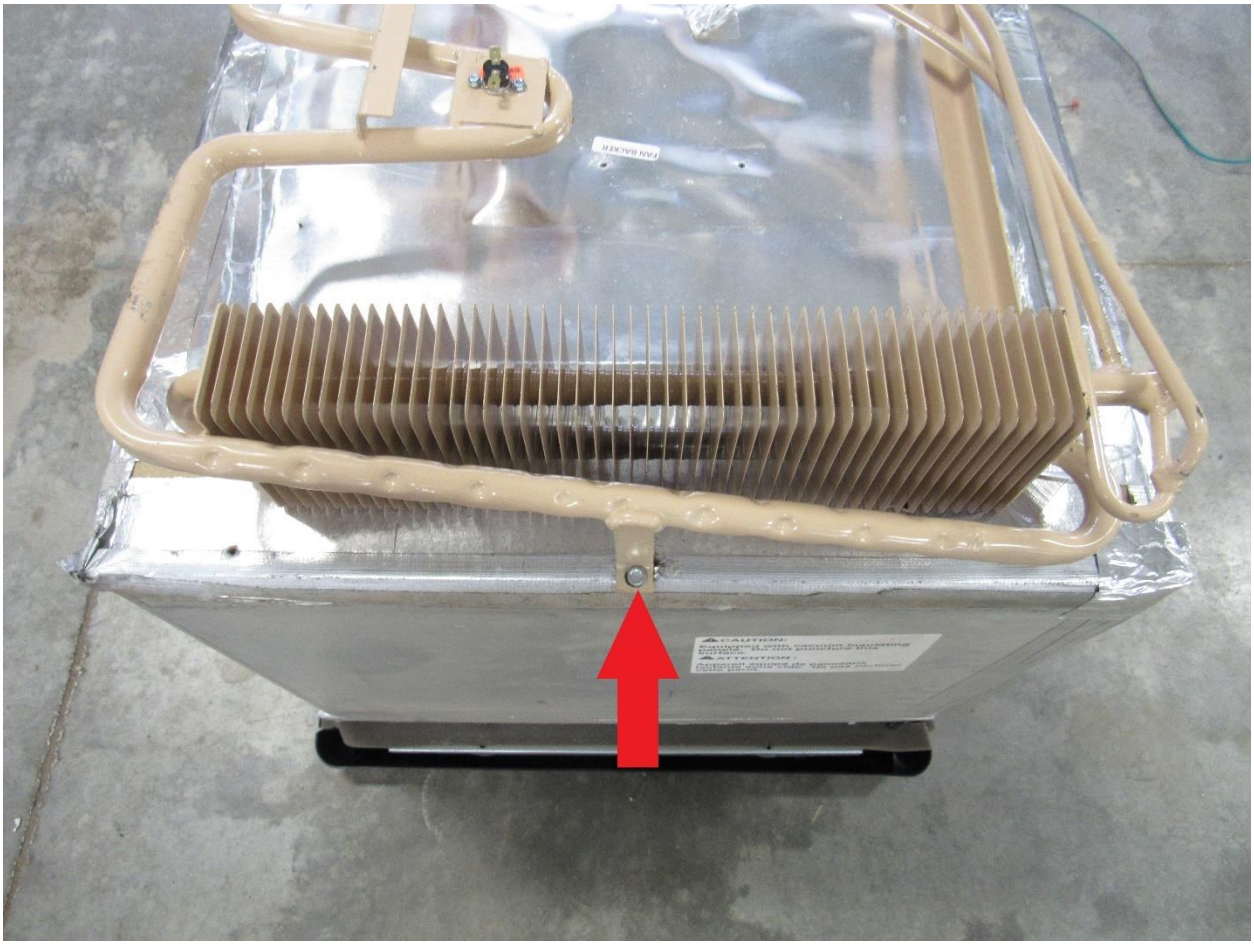
Take a 5/16” hex bit and cordless impact driver and proceed to loosen all the screws (RA) in the freezer and the refrigerator. Refrig fins will drop down so unclip thermistor and lay to the side, remove fins and set to the side for now. Removing your freezer shelve or top fridge shelve is optional.



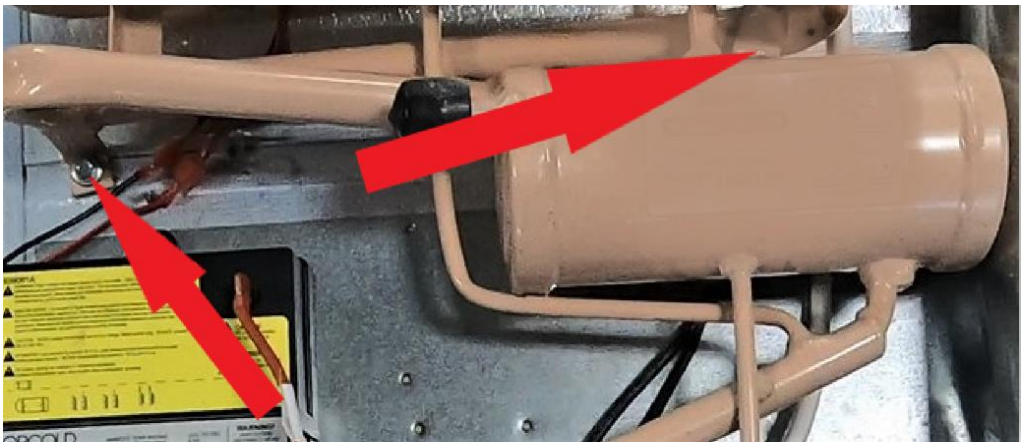


We do not show the fridge being slid out onto the floor, as the lay out of the coaches vary greatly and so it could be misleading to your scenario. But the object is to have 1 guy on each side of the fridge and as your fridge starts to exit lift up gently so when the rear end of the fridge fully exits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

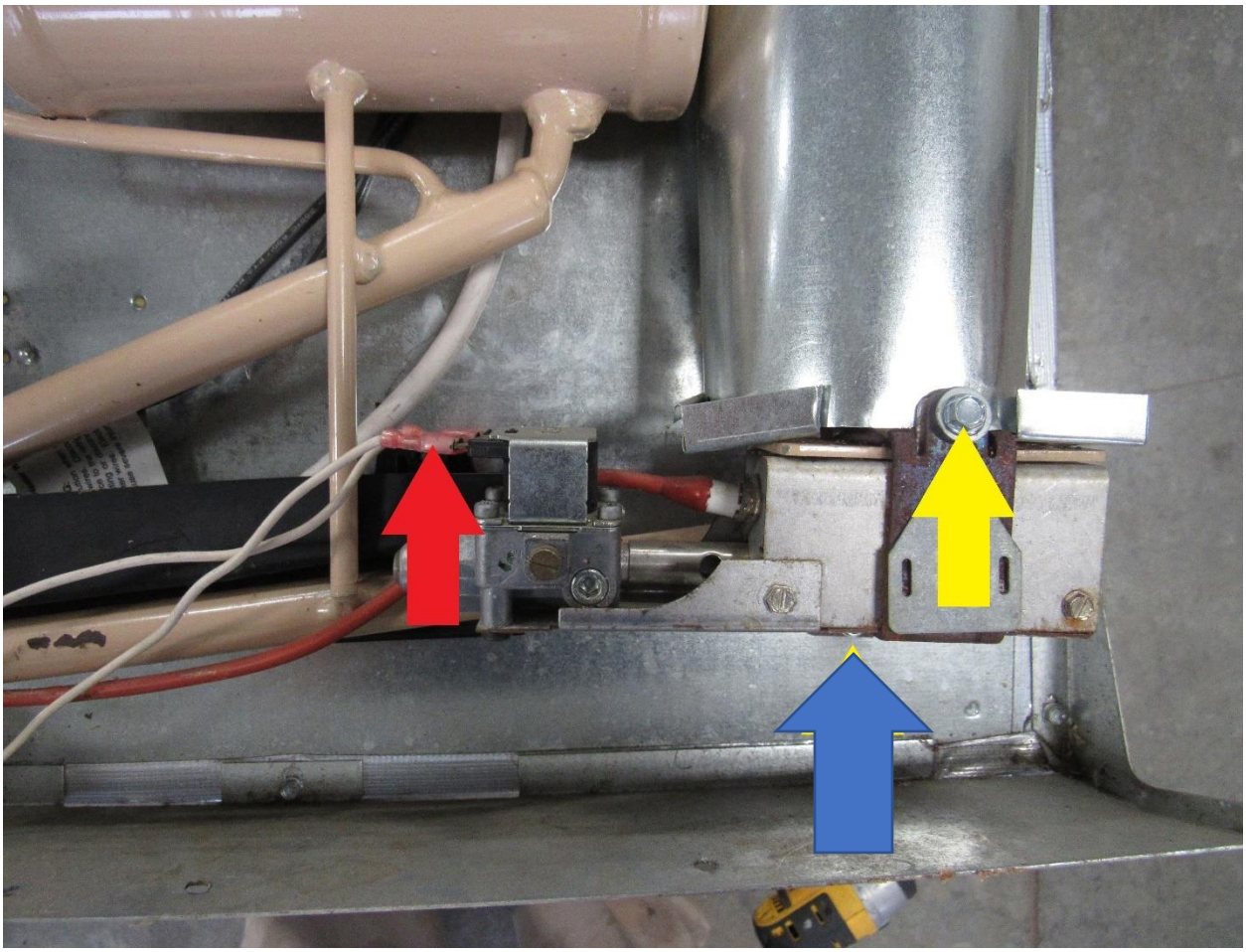
Take out mounting screw (RA) on top.



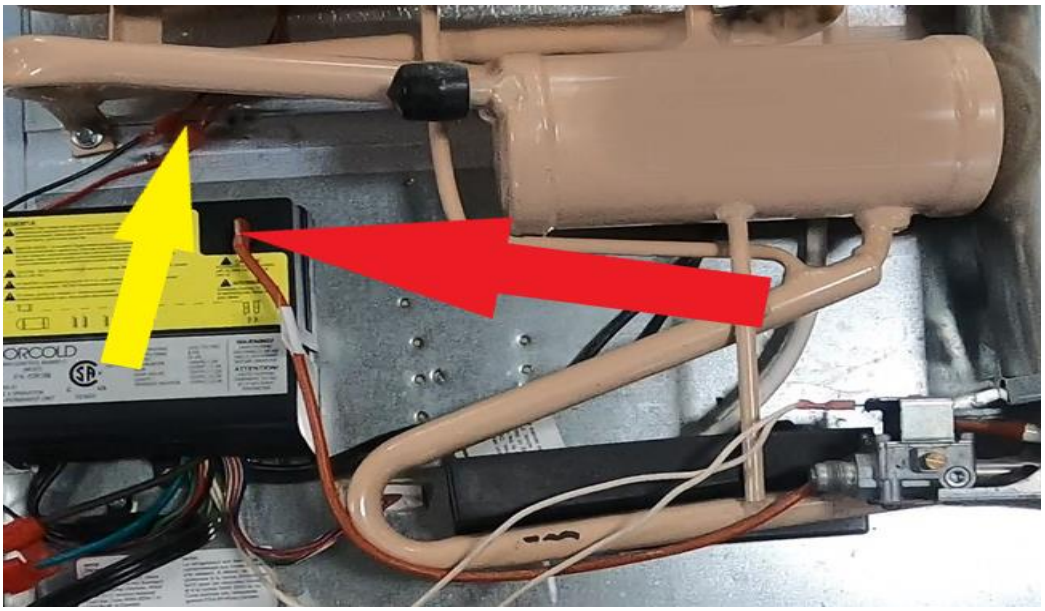
Remove bottom 2 mounting screws, may vary in location (RA).



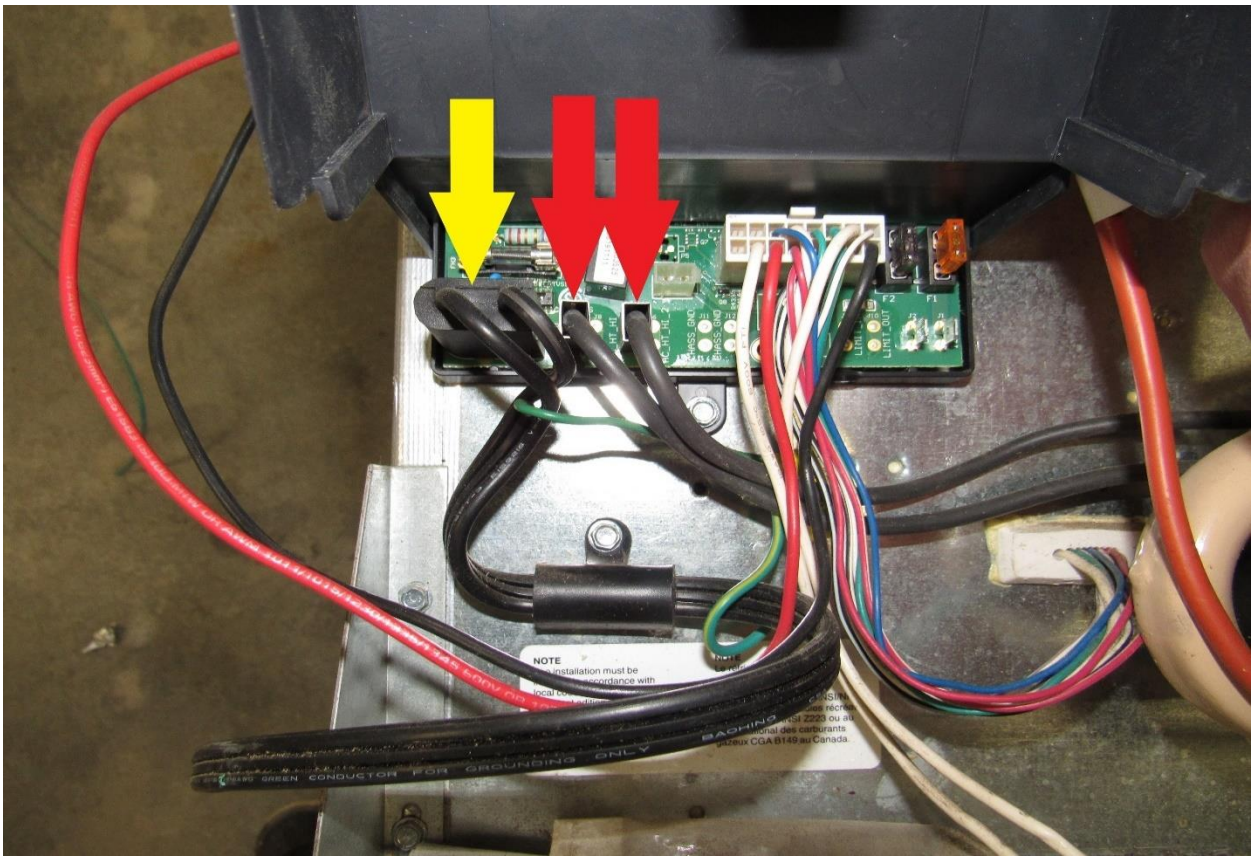
Leave burner 5/16” hex mounting screw for now (YA). Remove burner/box mounting screw (BA) Take off the 2 white LP valve wires (RA).



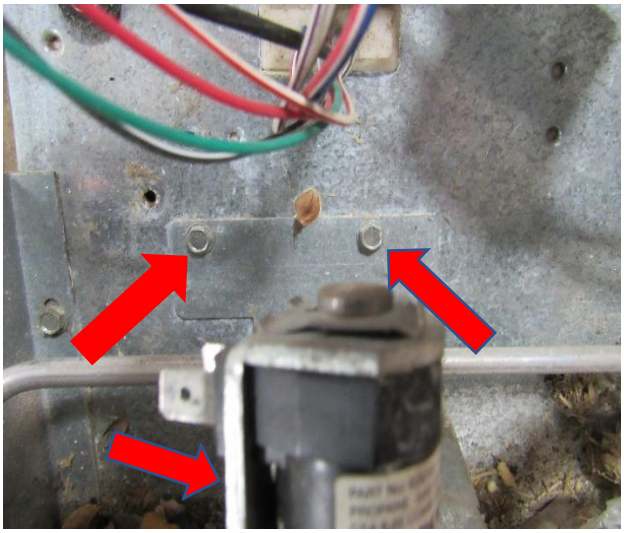
Unclip the igniter wire (RA) from the board. Also disconnect ventilation fan wires (YA).

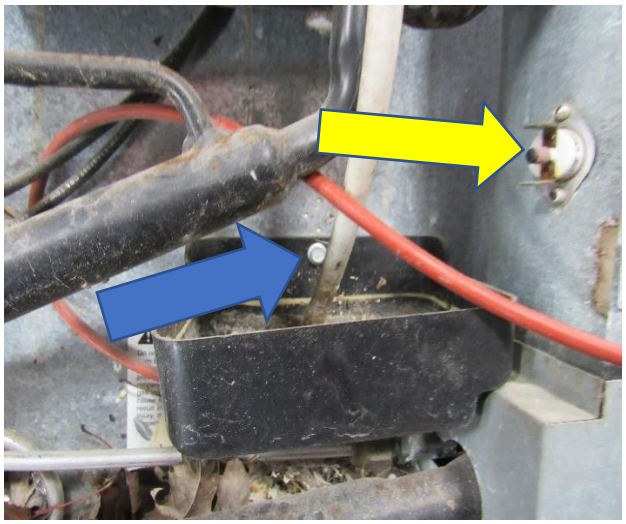


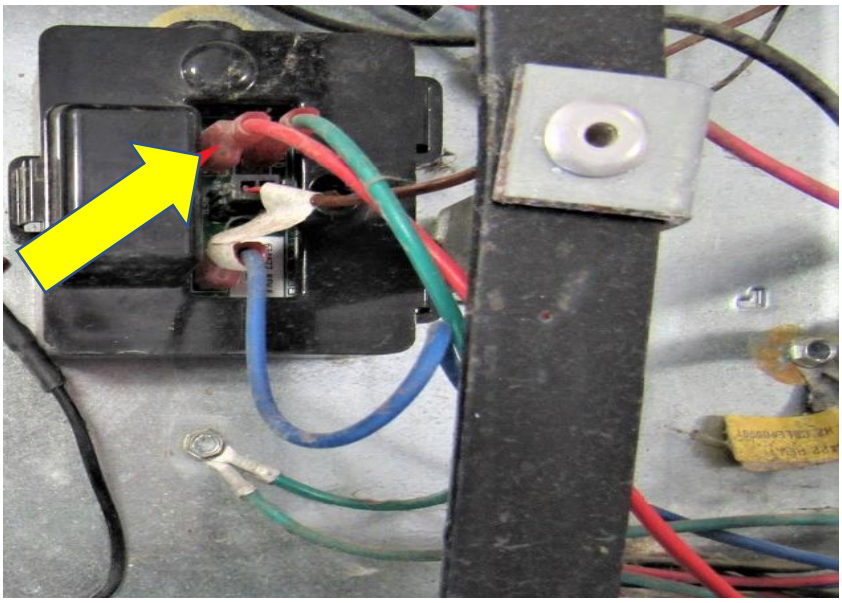
Take the heating element wires (RA) loose from the board. Leave the 120V plug (YA) on the board.



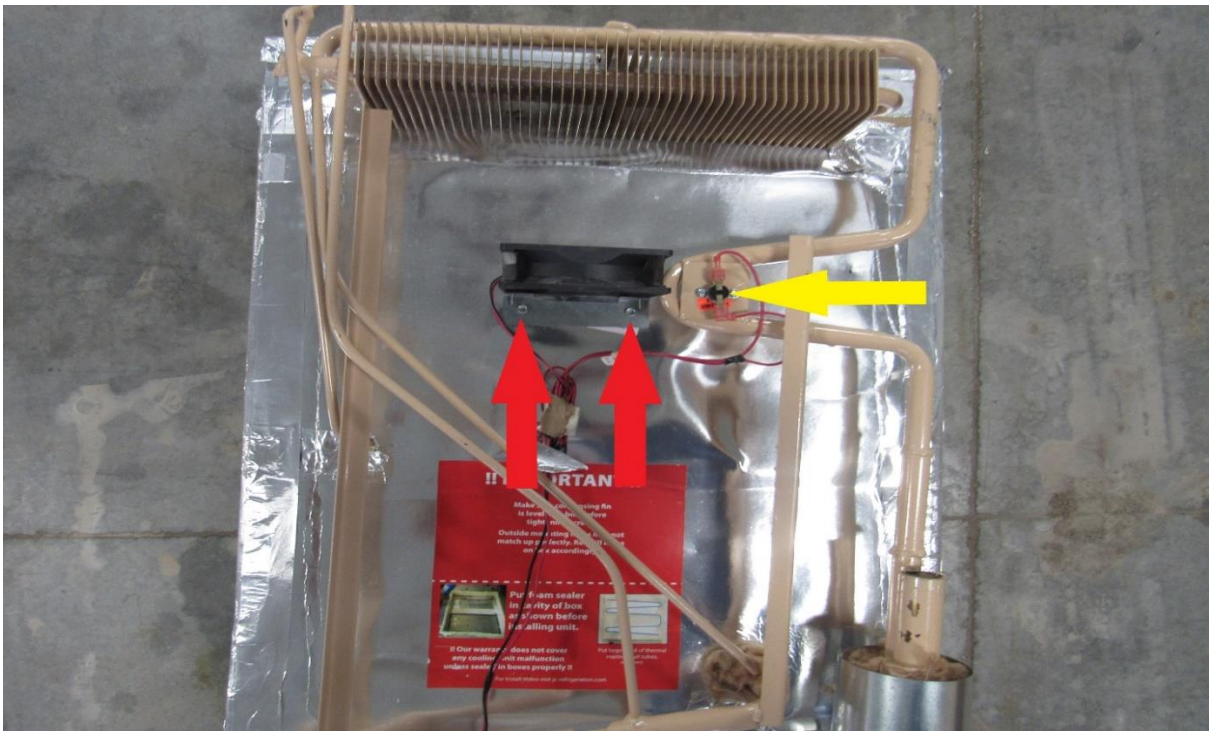
Also remove the 3-gas valve mounting screws (RA), and the defrost cup.(BA) most of these units come with a Norcold recall safety device (YA) these can vary in color and size/shape, these can be transferred to the new unit or left off. We leave this up to the customer, it's a kit Norcold designed for their unit and will still work on our new unit but we do not require it or show how to install it as these can vary from one to the next. If you do want a safety device, you have 3 options, #1 the original device shown here #2 a Halon Fire extinguisher w/h a solder fuse #3 ARP fridge defend. We do not sell any of these 3 but just a suggestion and whatever you use has to be installed and worked with the manufacture of the product.







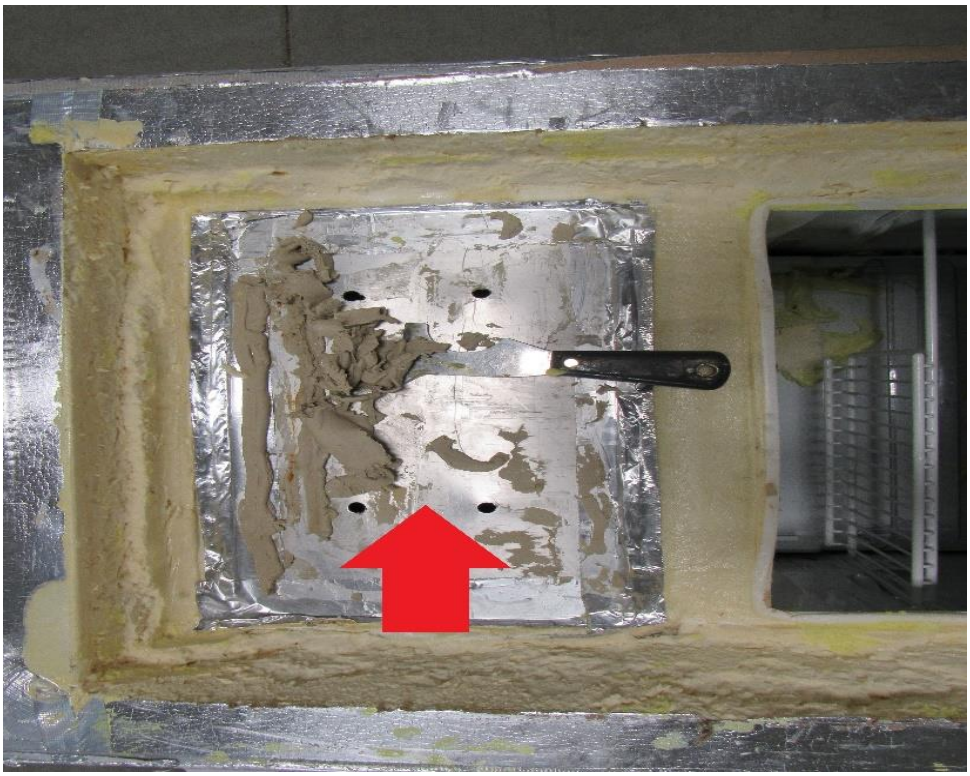
Take off fan mount (RA) and thermostat (YA). The fan bracket mounting style and thermostat location "may and/or vary".



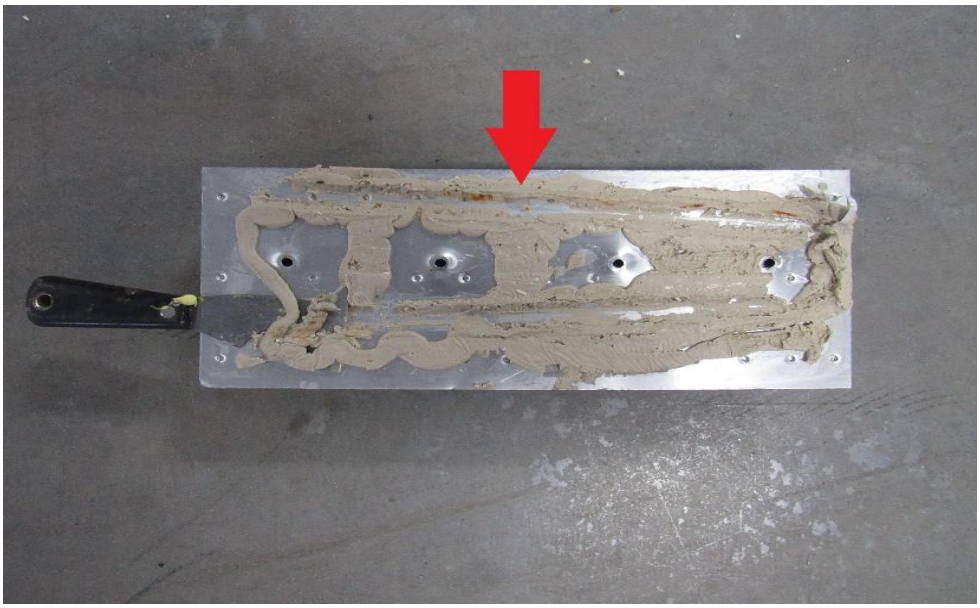
Take unit off the back of your refrigerator by lifting straight up and out. Clean off any residual foam or thermal sealant around the edges (RA).



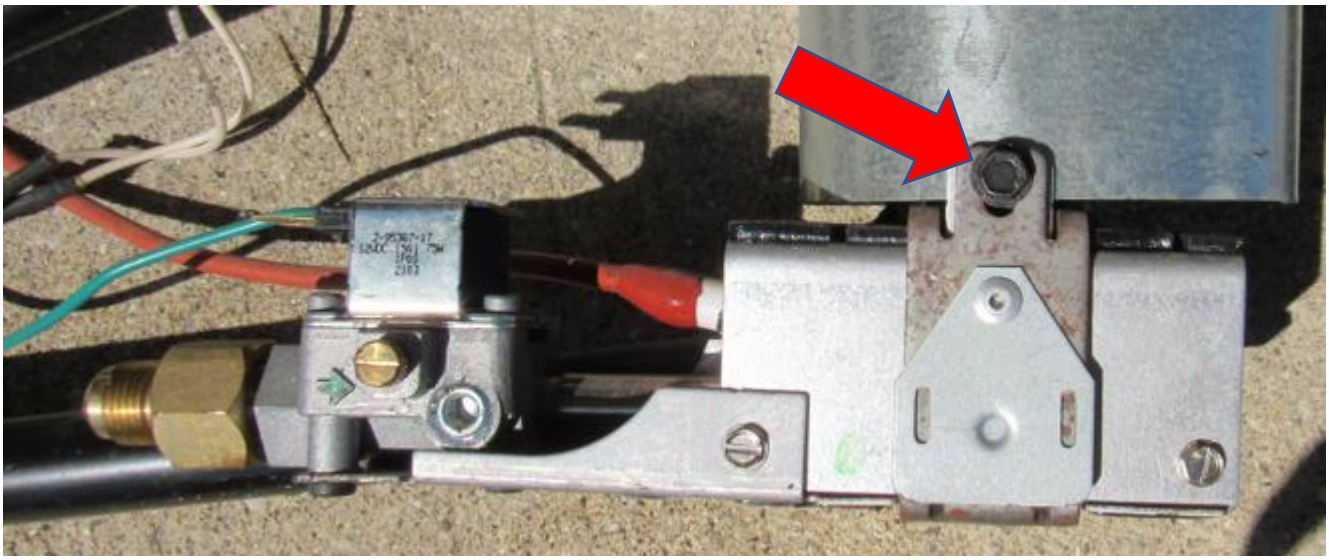
Clean off the old thermal mastic (RA) from the freezer section. A large blade putty knife or scraper works well.



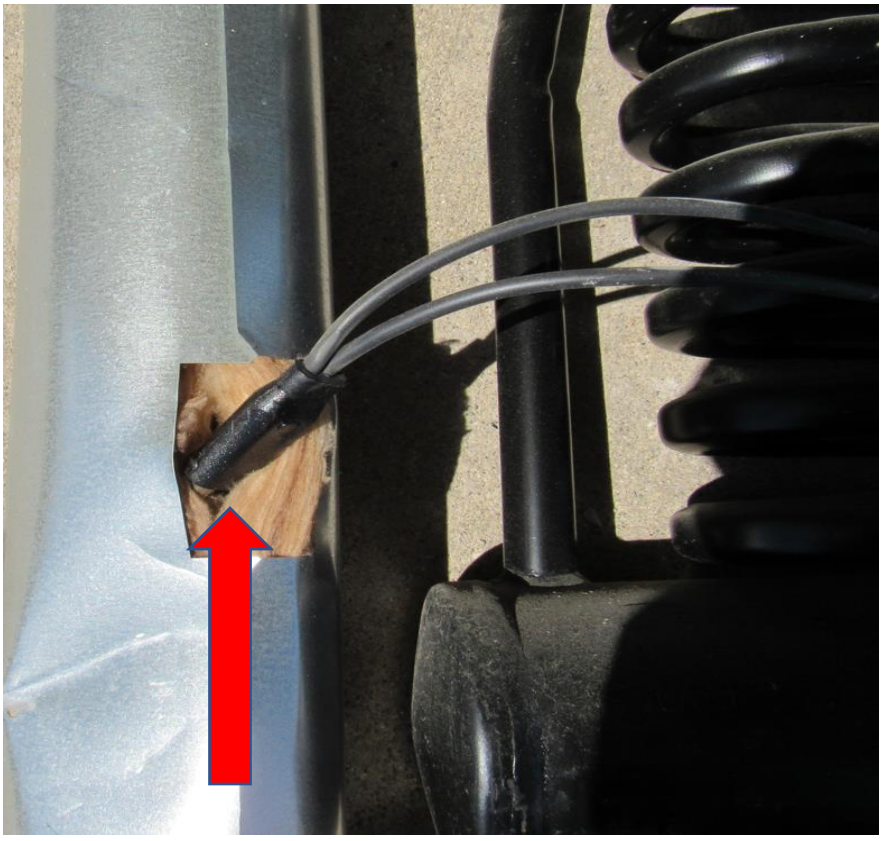
Clean off old thermal mastic from the refrigerator fin (RA).



Go back to the old unit & take off the LP burner and igniter assembly. Start by removing the 5/16” screw (RA). The igniter is attached to this bracket.



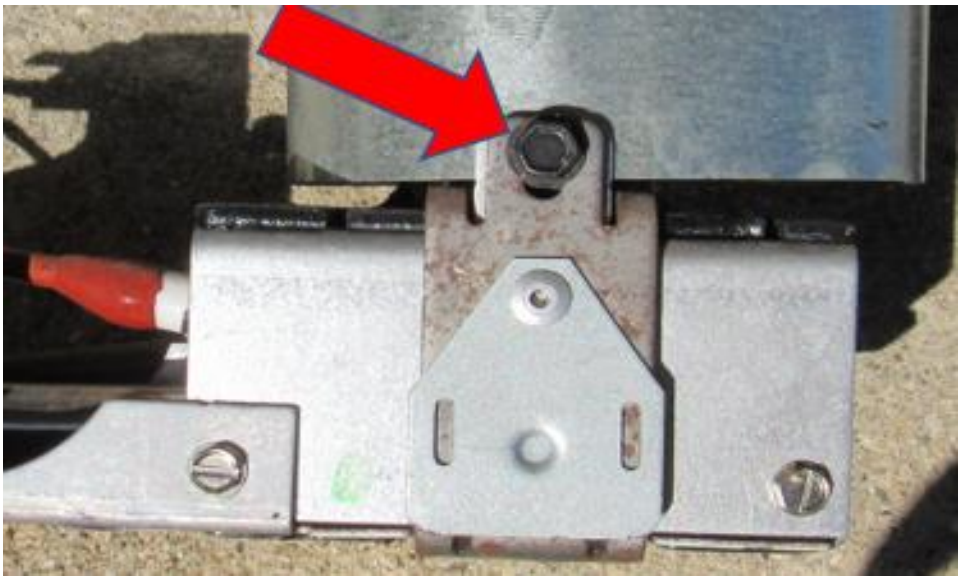
if you have purchased a new heating element with the new unit skip this step, if you are using the original heater unsnap the heater cover and slide heater up out of the heater socket. (RA)



lay the new unit on its back. Open the heater cover and push the insulation back so the heating element sockets are exposed, and slide the heating element into the socket. It does not matter which socket you choose. Make sure it's pushed all the way down to the stop point on the heating element. Push insulation back over the heaters and install the cover and tuck the heater wires out of the way for now. 1 extra socket is available should it be needed later



now return the unit on its front and install the LP Burner onto the new unit installed same as old one.



If you are installing a Evaporator Frost Guard fan, an want to install now. You can lay it in side a run wire now zip tie to hold it for later completing or after the cooling unit install slide the fan lead through the drain tube.



Installing the Evaporator Frost Guard fan has 2 options:

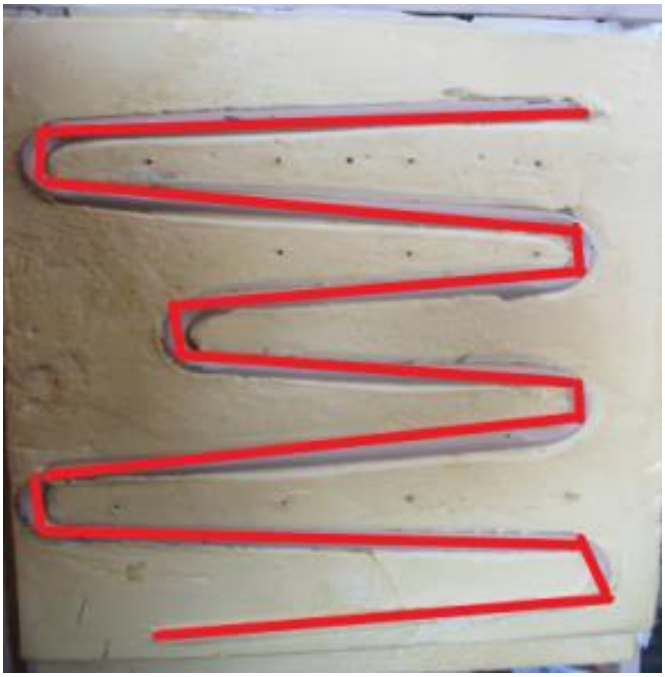
Option#1: Set the fin fan into the refrigerator fin opening. Make sure it's somewhat secured to a shelve for now. Leave enough wire, as shown, inside and also enough on the bottom to reach to the power supply. The Frost Guard fan wire will remain in this position throughout the rest of the install.

Option #2

If you would rather install the Frost Guard fan wire through the defrost tube later

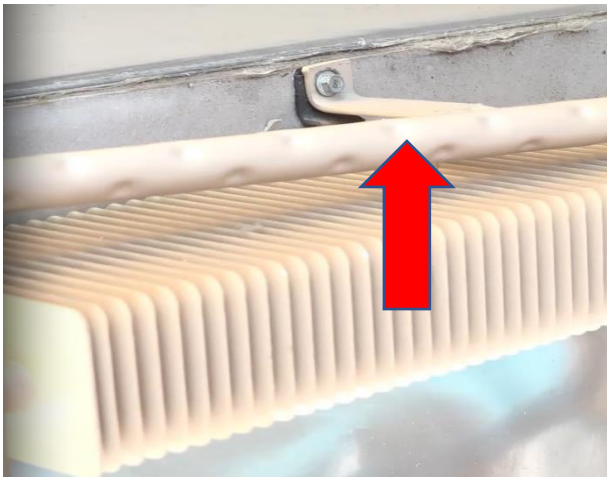


Stand unit up and place a Nice bead of thermal mastic as shown in red. You will need to use the entire tube on the exposed cooling unit in the foam block.





Lay unit into box, being careful not to scrape off thermal mastic. There are many different models, so your exterior mounting screws might not line up perfectly which is normal. Install 1 mounting screw on the bottom and 1 on top, these need to stay loose, only to hold till Freezer screws in place and tighten..





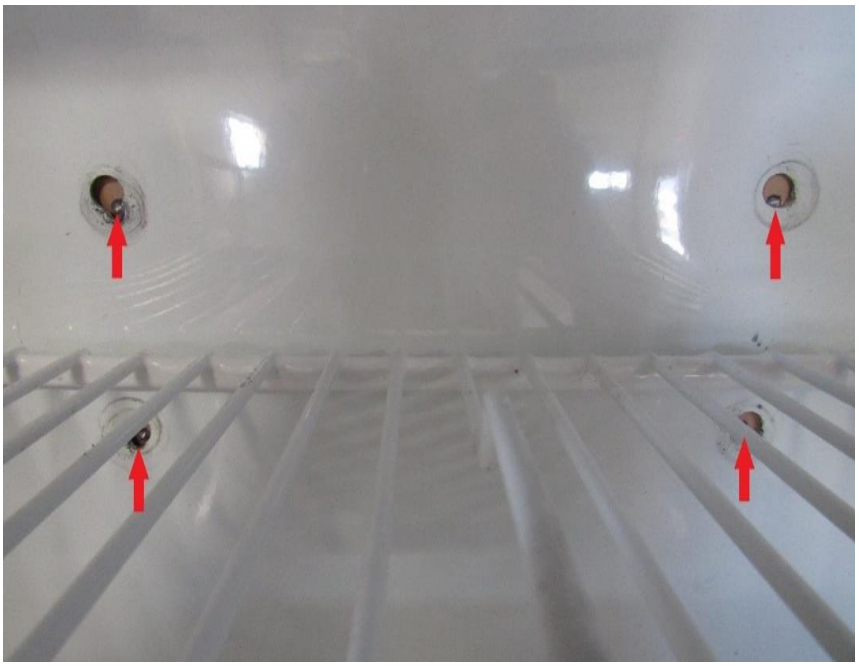
Set refrigerator in upright position. This procedure works best with 2 persons

If holes are not aligned in the freezer have the rear person remove the bottom/ top mounting screws and shift the unit side to side or up and down, until holes are aligned, if the loose rear screws do not allow enough movement you may need to set fridge back down, take out rear mounting screws, and adjust the unit to where the Freezer 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 side, top or bottom to let the unit slide the way it needs to go to line up the freezer screws. We make the units all alike but there can be a slight variation in box styles. Pictured below is an example with the holes just visible.

Varning: The box wall holes can be re drilled or enlarged to make holes line up and then the washers can cover the hole. "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 holes are visible you can either leave them as is since unit will be sealed in the back or you can use white silicone caulk to cover the holes.



When holes are lined up, install 4 freezer screws (RA), new 2” X #10 screws provided, pull the unit tight against the back. If holes do not line up exactly you can easily angle the screw up/down side/side to get to the hole as these holes are set in approx. 1” from the front of the foam pack.



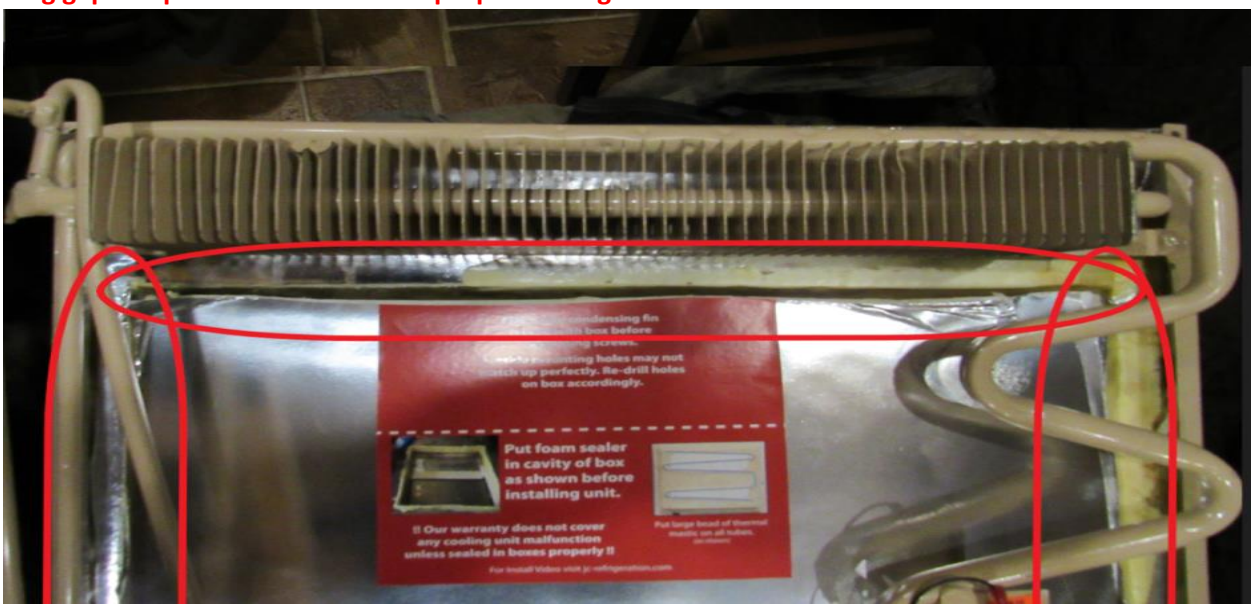
Do the same with the refrigerator fin. Install screws pulling it tight. Frost Guard fan can now be attached to the Evaporator fin



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

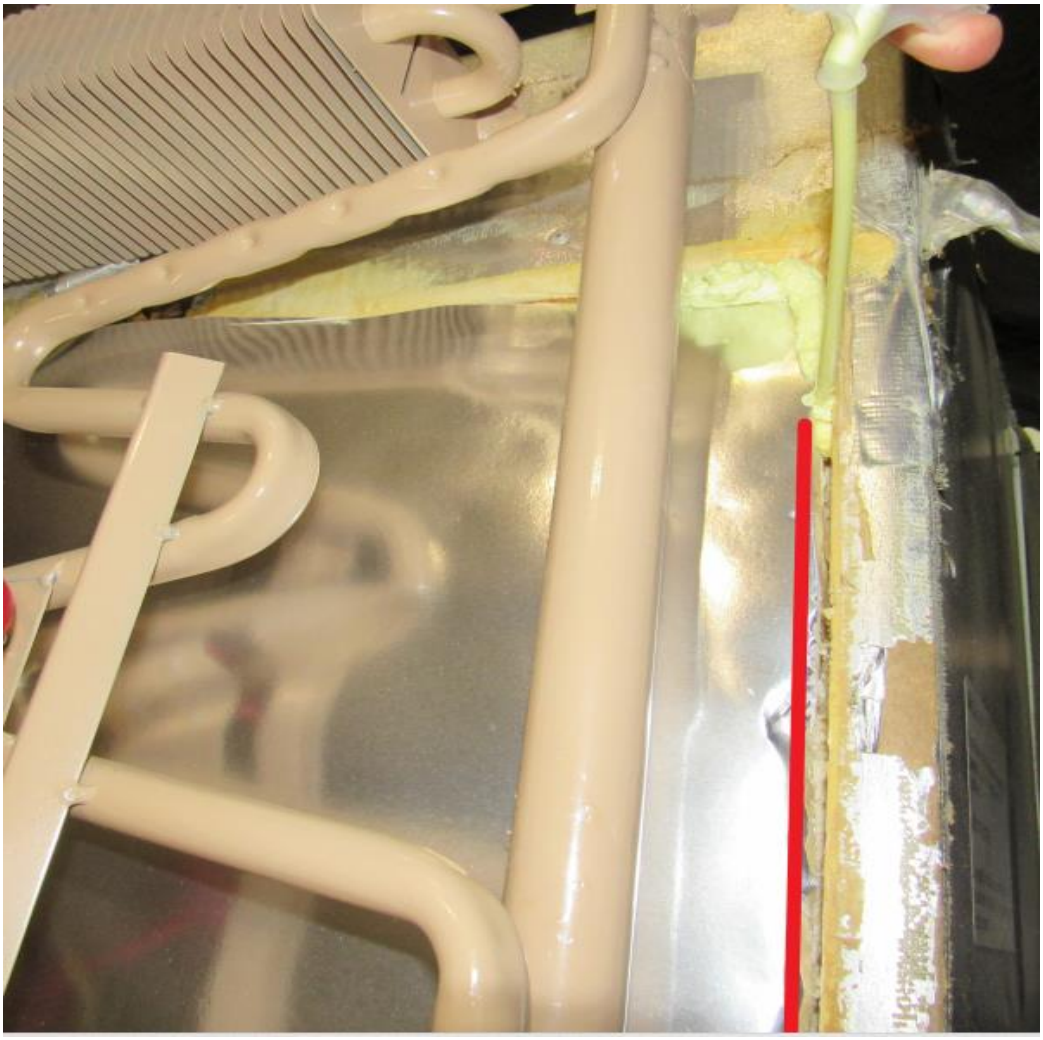
Lay fridge back down. Take the can of Great Stuff foam (shake can for a few seconds and make sure it's at least 70F before using) and apply a bead of foam around all four sides as shown below.

Make sure and seal all cracks and gaps on all four sides. This will help seal all air leaks while travelling down the road. We cannot over stress this process as this is our worst cooling failure, either foam is not used or not enough is used, a thing to remember is even a small 2" long gap will prevent the unit from proper cooling.





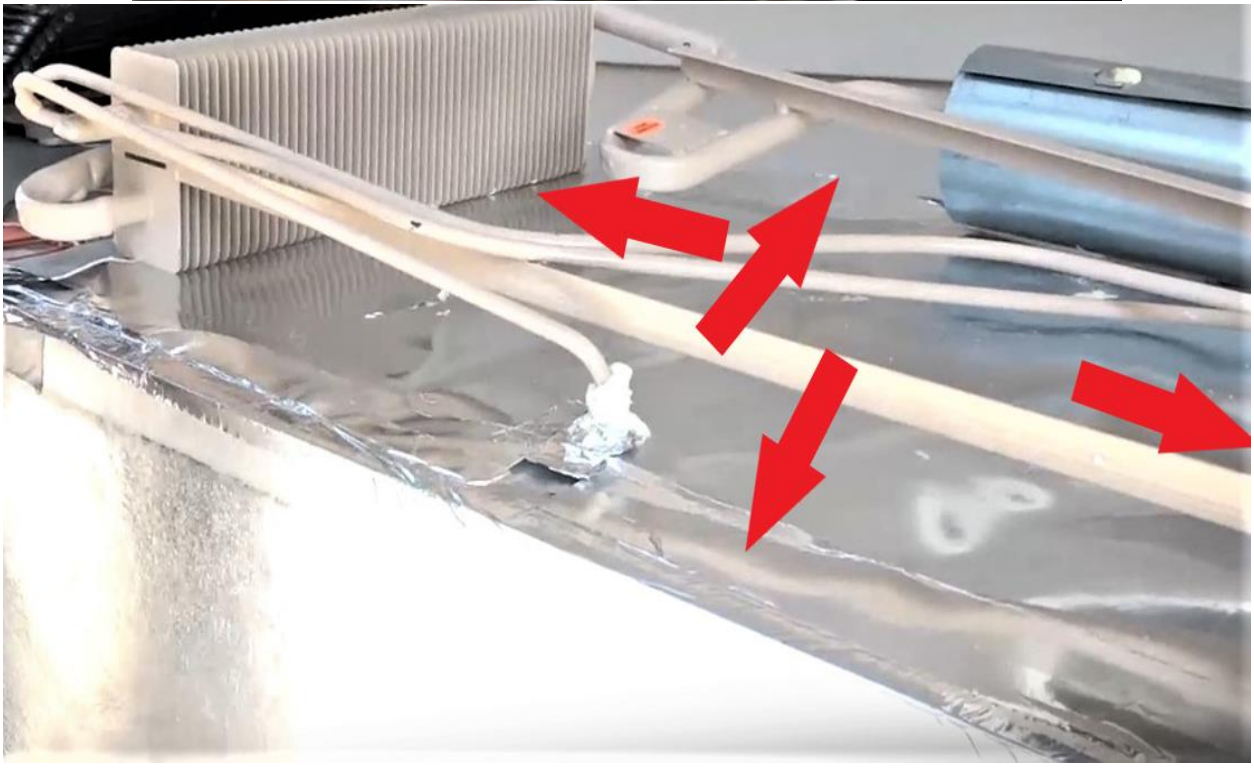
In some areas it might seem to be tight against the box, and in this area cut back enough foam on a angle to create a small gap off the unit so you can get your foam straw in to fill the void further down.



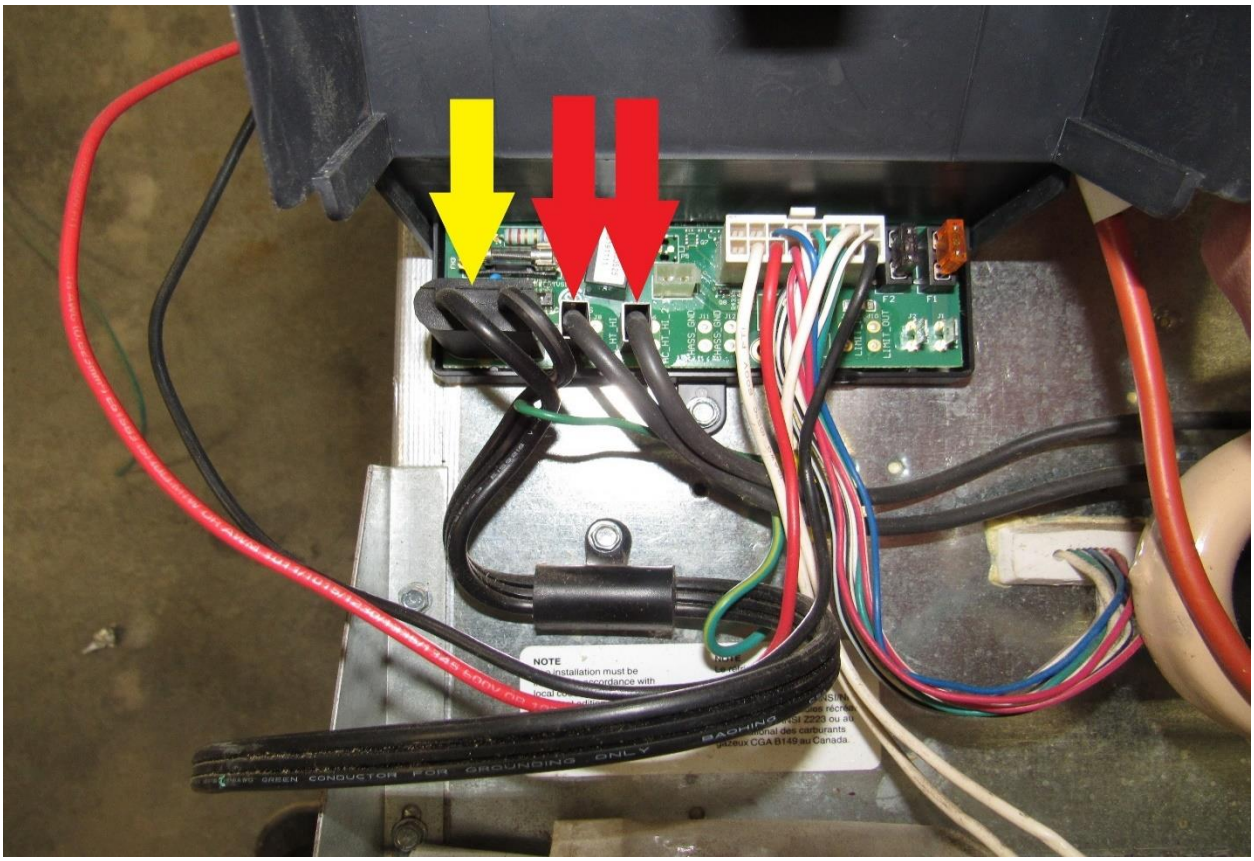
If the Spray foam not used to seal air leaks, it voids the Unit warranty

After filling the gaps with foam, follow up with the supplied aluminum foil tape on all 4 sides. This foil tape is for cosmetic purposes only, it does not help the seal between unit and box.

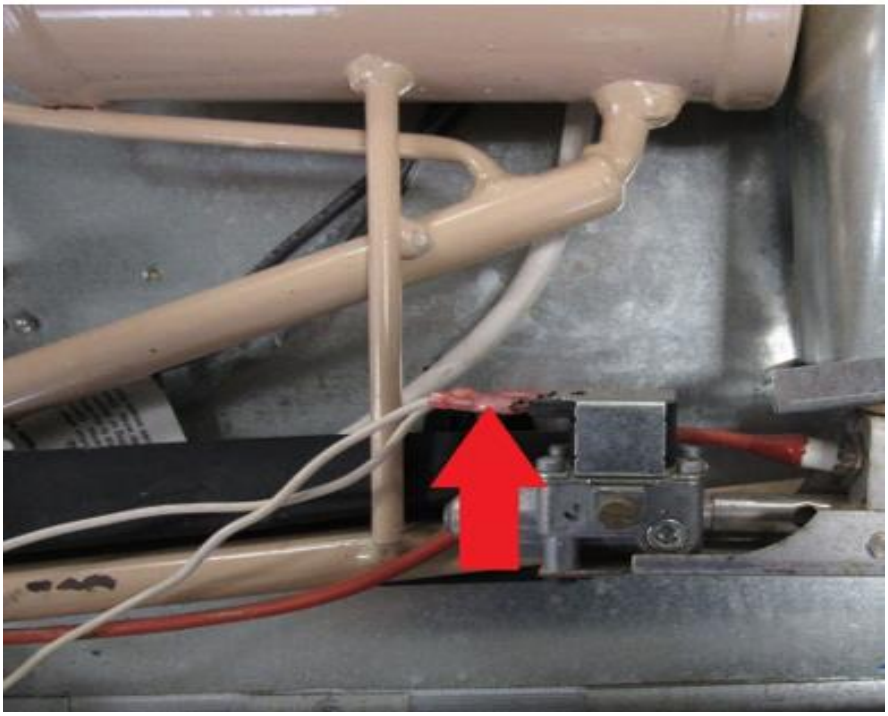




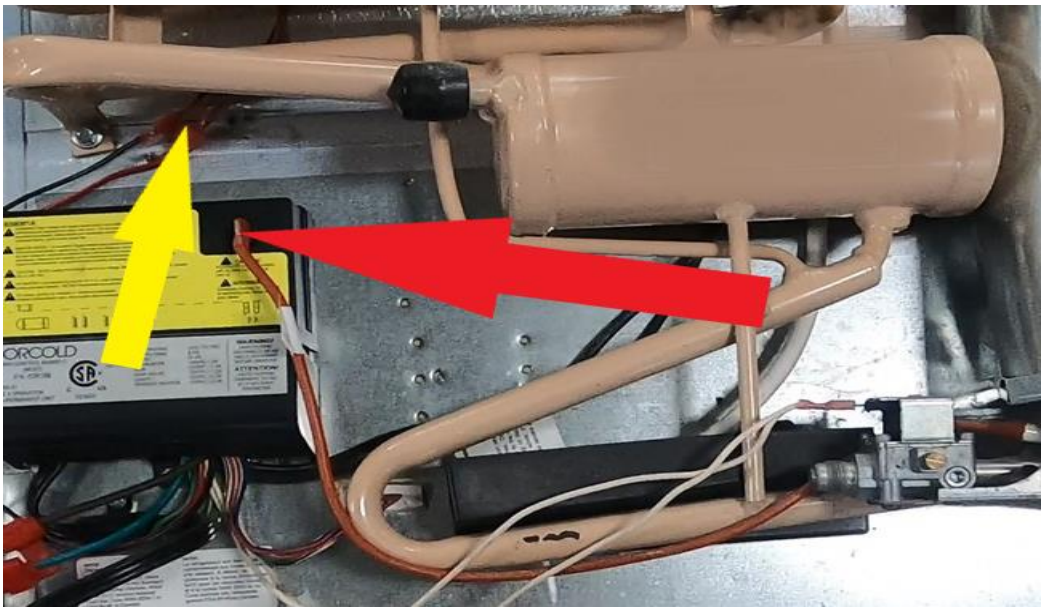
Plug heating element into the board (RA) make sure 120V plug is intact (YA)



Plug the 2 gas valve wires back into the gas valve (RA)



Clip the igniter wire back on the board (RA) Also reconnect ventilation fan wires (YA).

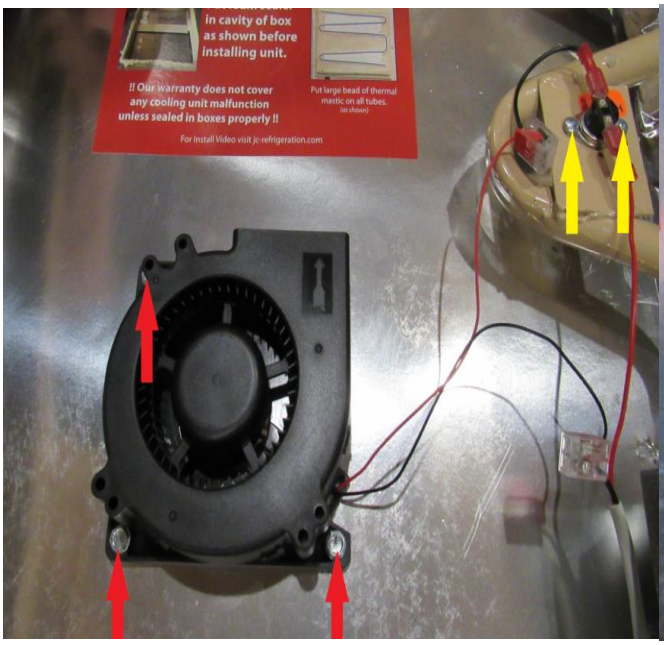


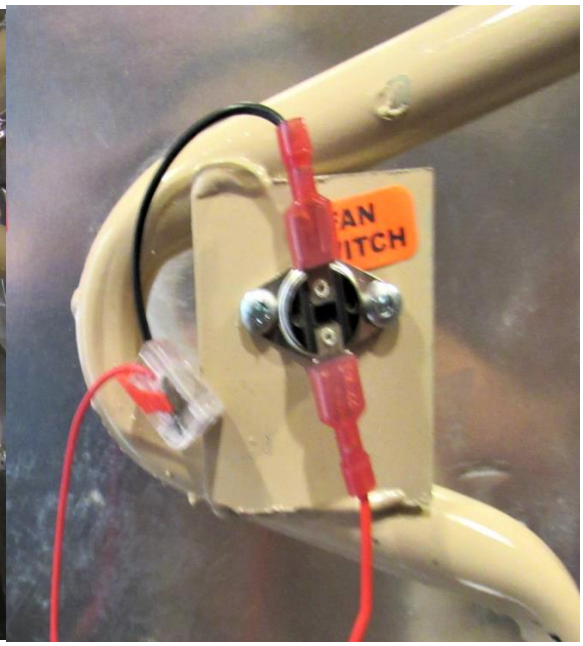
Install the ventilation Fan Kit. This is required for warranty purposes if you don't already have a vent fan.



Using the supplied 5/16” hex head screws, fasten the fan as shown (RA) make sure fan is pointing up. Use the small screws to fasten the temp fan switch as shown (YA). A sheet metal plate will be marked where the fan goes, the fan wire gets hooked to 12VDC power later. If you are using your original fans then mount them back on as before

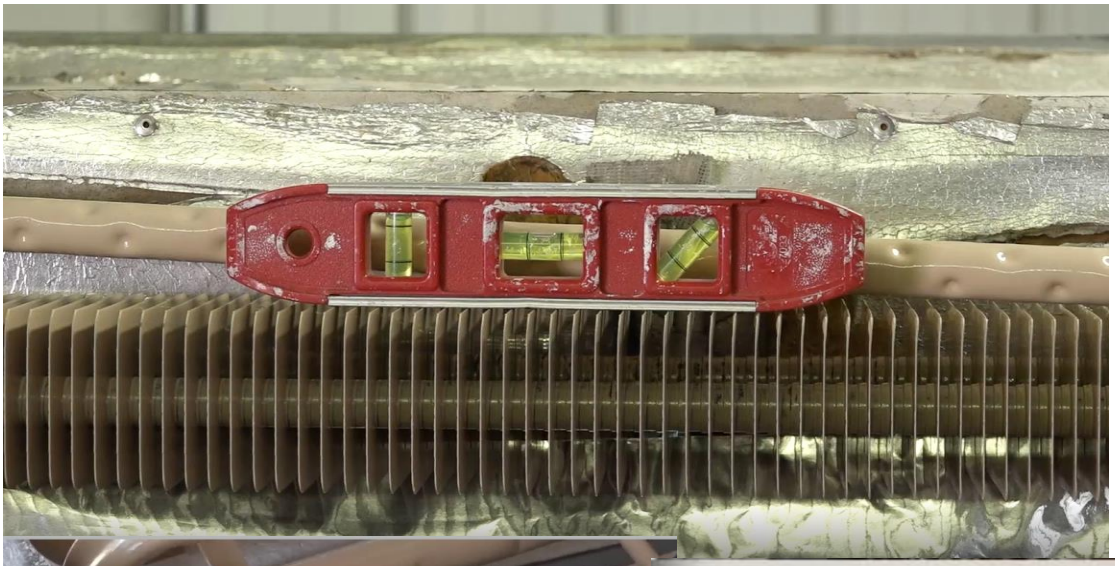




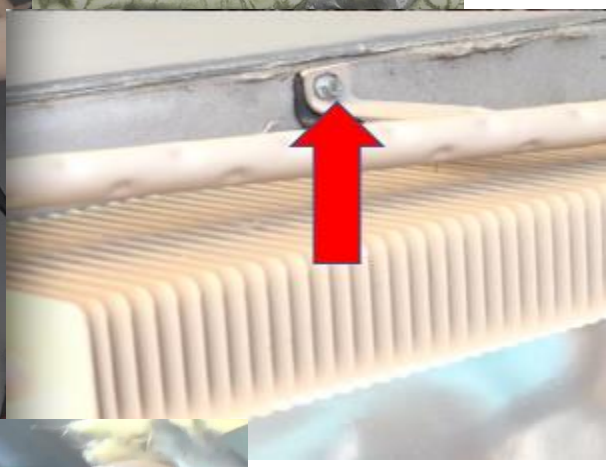


Now is a good time to zip tie all loose wiring, and tuck everything in to get it ready to install back into the cavity

Stand the fridge back up and level the top fin with the top of the box, if its off then you will need to remove the 2 mounting screws you can push the unit to the side it needs to go to make it level with the box, normally it will not take much to get it close, it does not have to be perfectly level to the box, as long as the bubble of the level is within the lines you are good. Do not remove freezer or fridge screws to move the unit as these screws need to stay tight, and pushing the unit to the side will not put extra pressure on the tubing, remember these units are made with thick steel tubing. Then reattach all 3 rear mounting screws.



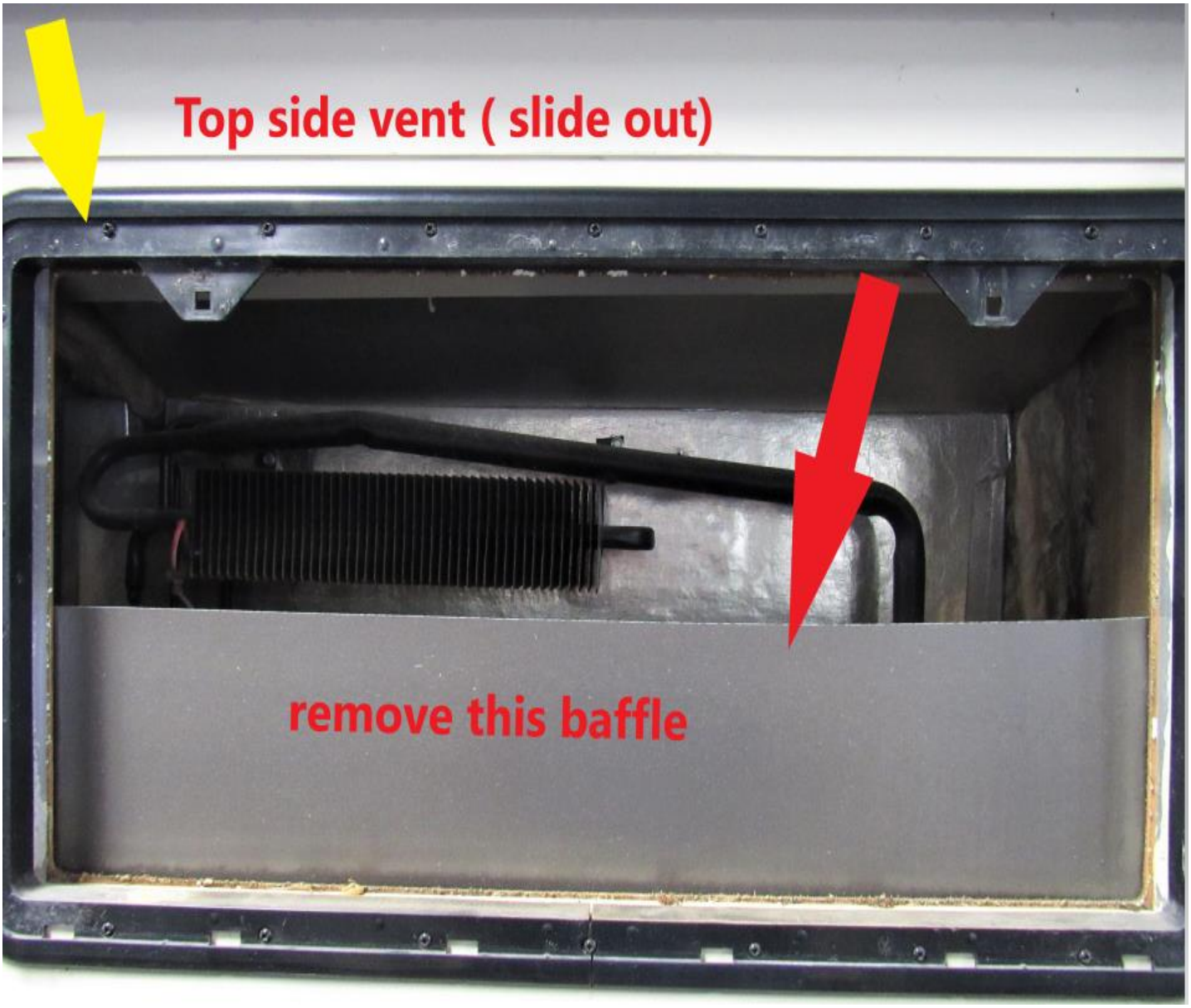




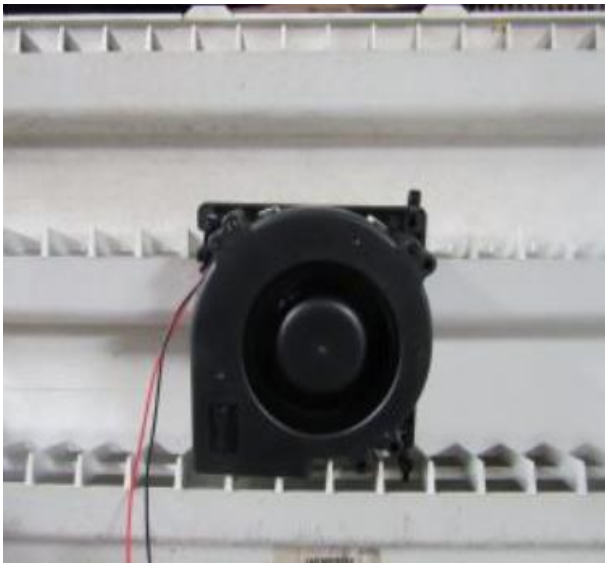


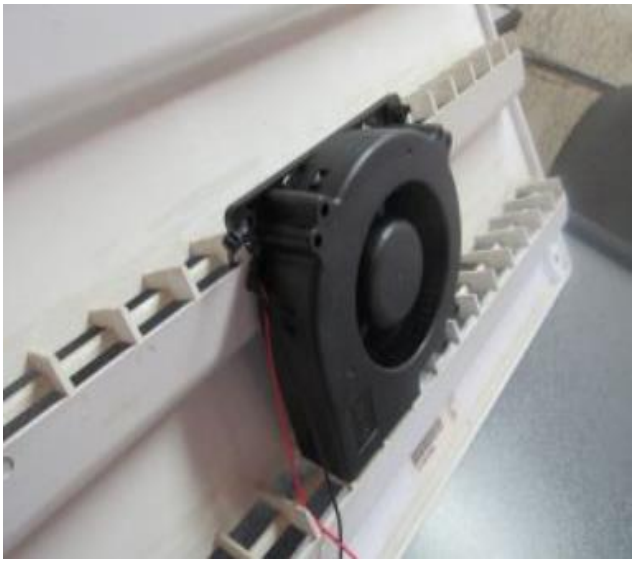
Warning: Please make sure and follow this thru this step, otherwise unit could over heat causing damage to the unit.

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.

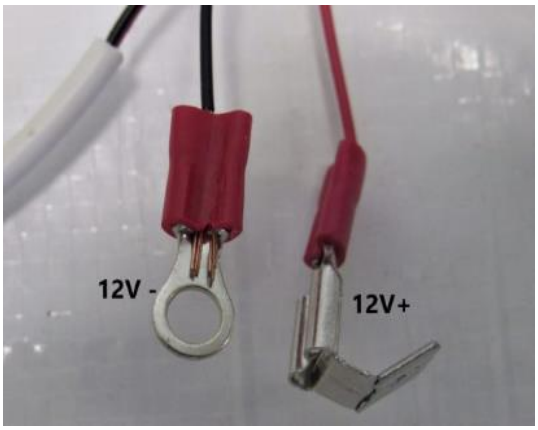


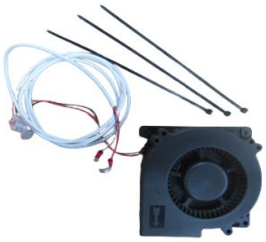
You will then be required to add a slideout fan to your top side vent to force the hot air out that's being pushed up from the fans below the vent, (this is required on all slide out models to be covered in our warranty)





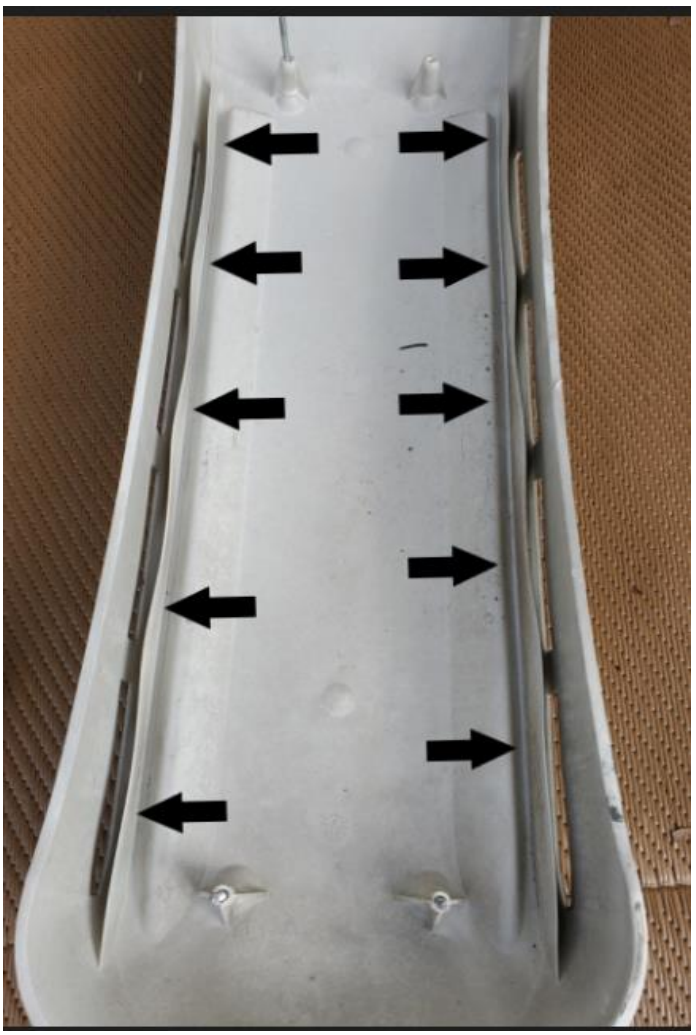
The eyelet can be screwed at any ground, connect female + to the fan switch wire, so it comes on when the lower fans come on

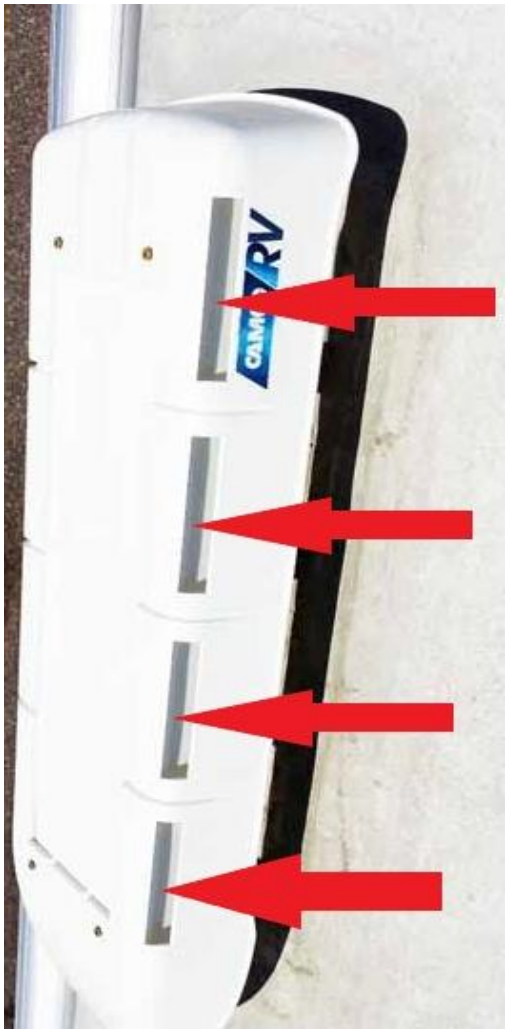




https://jc-refrigeration.com/product/slide-out-fan-kit-u/
this does not have to be our fan, any 12032 fan will work. We have them listed on our web site.

If a fan is installed into a roof vent style, then it's a good idea to remove the top cap once done to remove any debris or just to make sure its wide open. Also check the top cap rain guards (BA), these can swell out with time and heat and cause serious air flow restriction, you can cut off ½" of these rain guards to give more air flow if they are restricted. If your cap is a aftermarket "Camco" cap then the rain guards have to be cut completely off as these caps are not made for your fridge vent.





Now is a good time to clean your fridge cavity and remove all debris, 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 mounting screws on the inside (RA)on the top and bottom first before finishing outside. Attach black trim pieces on top and bottom.

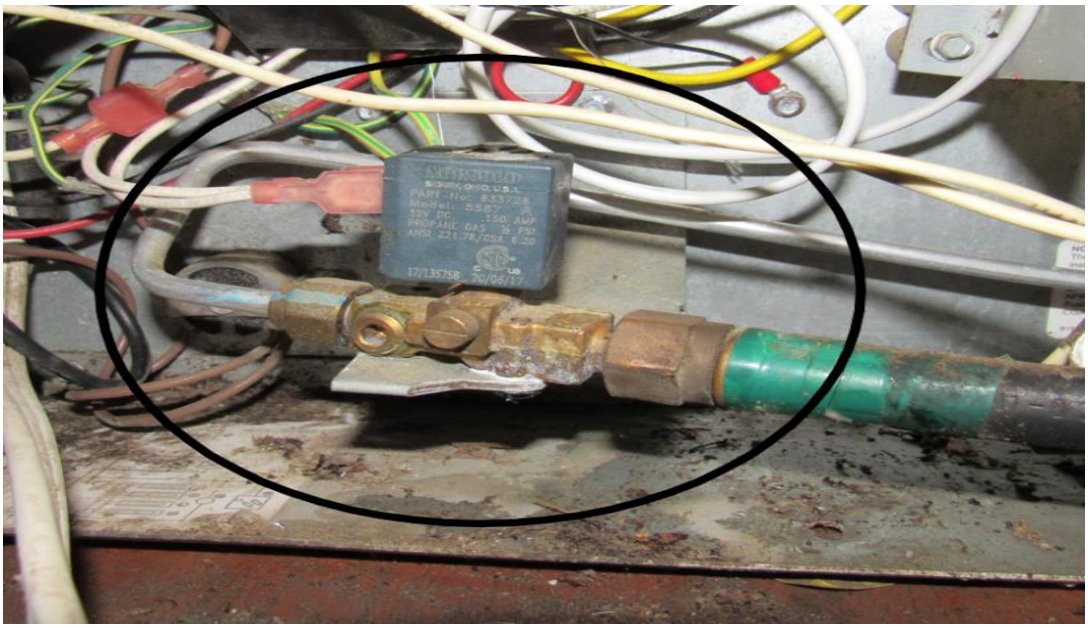


Now we are ready to finish the outside. Put the two mounting screws (RA) back in place. Or if your coach is a Winnebago, put the four bolts back in.

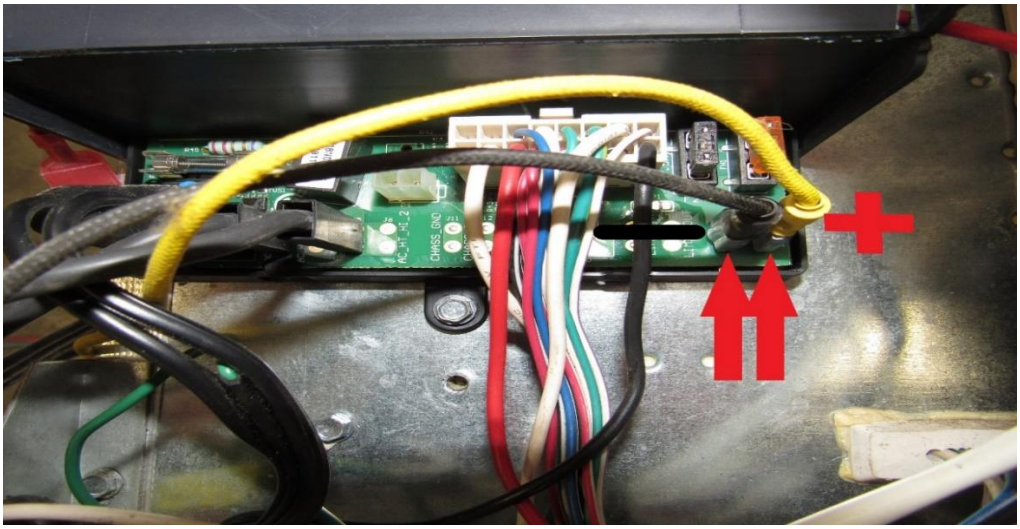


WARNING: Make sure this step is properly followed and leak checked so you don't have a gas leak.

Connect the LP gas line to the LP solenoid, turn on the LP at the tank and leak check with soap and water. MAKE SURE YOU DO NOT HAVE A LEAK before continuing.



This is where you will want to connect your interior and rear vent fan to, you can splice connect or use whatever works best for you, fan red is positive and black is negative. Plug the 12V wires from your coach into the board, Negative (GND) is on the left and Positive (12VDC) is on the right.



Go to the inside of your RV and turn your refrigerator control “ON” (RA) now push the mode button (YA) and set it onto Auto mode. You can now adjust your temp setting (BA) to your desired temp, we recommend setting it onto 4 and then after approx. 24 hrs. adjust up or down to your desired temp inside the fridge. Food zone is 38F to 40F, and in the freezer 0F to 10F, if you have it colder then 38F your ice on the fin will accumulate very fast. Board styles can vary



Keep the electric cord unplugged for now, once the LP burner is lit go back out and check for a gas leaks on all LP Gas fittings

Now plug the electric cord into your plug in, and the eyebrow board should switch over to AC, if you have a amp clamp the total amps on the heater should be 2.2A to 2.8A. After its been running for ½ to 1 hr you need to make sure you here the rear vent fans turn on. Which can be heard either thru the front fridge door or thru the rear side vent.

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



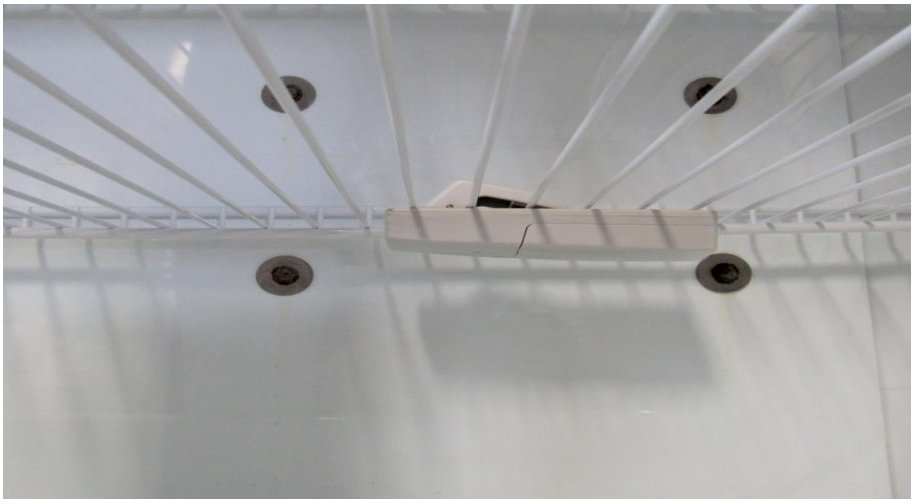
DO NOT USE



Clip the sensor for the fridge on the bottom side of the first shelf 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 the with freezer. Clip the sensor underneath the shelf, centered from side to side, but have this one more towards the back of the freezer.



Fin fan Operation

If you installed the fin fan, it should remain running whenever the fridge is powered on. If it is not, try flipping the switch on the fan to the opposite position to see if it will operate then. The normal position for the fin fan is to have it centered on the fin (left to right) However, if you have frost starting to build up on one side or the other of the fin fan, move the fin fan over so that one of the small fans is positioned directly above where the frost buildup is.

The thermistor should be located on the 2nd fin from the right side.
(See above picture, yellow arrow)



Note: If you installed an adjustable thermistor, https://jc-refrigeration.com/product/norcold-adjustable-replacement-thermistor-free-shipping/ your temp setting on the front display panel will still be in effect as well. A good starting point is to set the front display to 4. Then set the adjustable thermistor to the middle setting (12:00) and let the fridge run for at least 24 hours then make changes on the adjustable thermistor inside to dial it in to your desired temp.

Thermistor check

Push and hold the “set temp” and “mode” button in at the same time. After 5 seconds you will see a 1 or 88. Now push the “mode” and scroll up to 3, this will then flash you your thermistor temp. This temp should be 25 – 28 for normal food zone depending where it’s located on the fin, but it’s very important that the door has been closed for at least 1 hr. before doing this test. To come back out of this mode, turn fridge off and then back on again. If you want to check the accuracy of your thermistor or your thermometer inside the fridge, unclip the thermistor from the fin and leave it hang into the box for approx. 1 hour with the door closed, then do this test and the thermistor and your thermometer should match up or be close the same.

If your controls are not operating correctly or the eyebrow seems to not be working, do this to reset all codes and this will refresh both rear and front board. Push and hold the “set temp” and “mode” button in at the same time after 5 seconds you will see a 1 or 88, now push the “mode” and scroll up to 6 this will then show a “ER”, then push and hold the mode button until a “CL” shows. Let the refrigerator set like this for a least 5 minutes, then shut fridge off and turn back on and the fridge will be ready to operate again.

TEMP CHART

To do a self-diagnostic test on this unit we will need to know temp off of:

A: ambient temp

B: coil Temp

C: Tank Temp



FAQs

What is covered under warranty?

Our warranty covers the cooling unit and shipping for 3 years free and labor for 90 days. An additional 3 yrs. can be bought off our website, which can be found on the warranty form attached to the unit. It does not cover any original Norcold 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 by us 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 burner assembly. This can be done maybe once or twice per year.

What makes our unit better than the original: We use much thicker tubing for one and our boilers are all hand welded which will prevent stress cracks (leakers) and we attach another coil which makes it double cooling capacity.

What is the best method to reach us for questions or concerns: email will be the fastest responds, a phone call without pictures of what you have will most times only delay the proper answer to your question. Emailing us a picture with the question will get you the fastest answer info@jc-refrigeration.com

How long have you been manufacturing these: we started servicing in 1991 and manufacturing in 1994

Is it true that these should be perfectly level: Yes, these can be off by 3 deg max in order to work, if they get off level more than 3 deg they will shut down and the boiler will create damage very quickly by over heat. This is a gravity flow system, so while travelling it's not a problem and it will slosh enough to keep going, it's while parked that it