

Norcold 1200 1201 1210 1211

Hvac DC 12V

INSTALLATION MANUAL



SEE OUR DIGITAL VERSION

[HTTPS://JC-REFRIGERATION.COM/WP-CONTENT/UPLOADS/2021/04/1200-1210-HVAC-12V-
INSTALLATION-MANUAL.PDF?3F35FA&3F35FA](https://jc-refrigeration.com/wp-content/uploads/2021/04/1200-1210-hvac-12v-installation-manual.pdf?3f35fa&3f35fa)



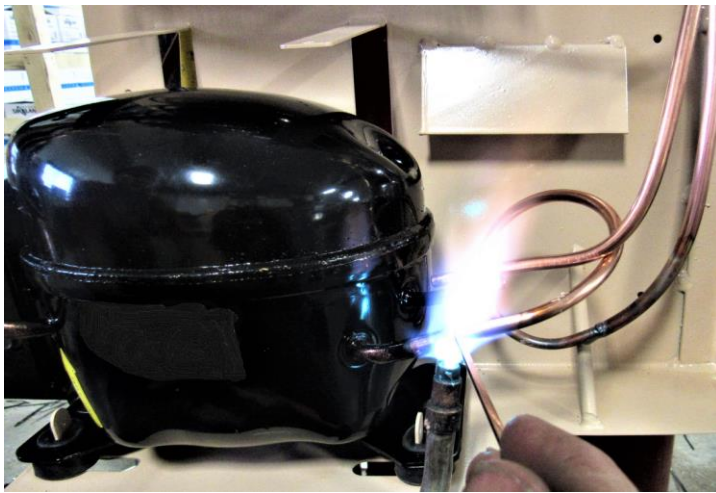
Jr and Jeremy Lambright

JCREF@CENTURYLINK.NET www.jc-refrigeration.com

Good Day Friends, this is how it all begins, hope you find this helpful thru your installation.



Units prepped for compressors



Brazed welded for strength



Tools needed to do the install:

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



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.

JR & Jeremy Lambright

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 so 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).



Cover 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.

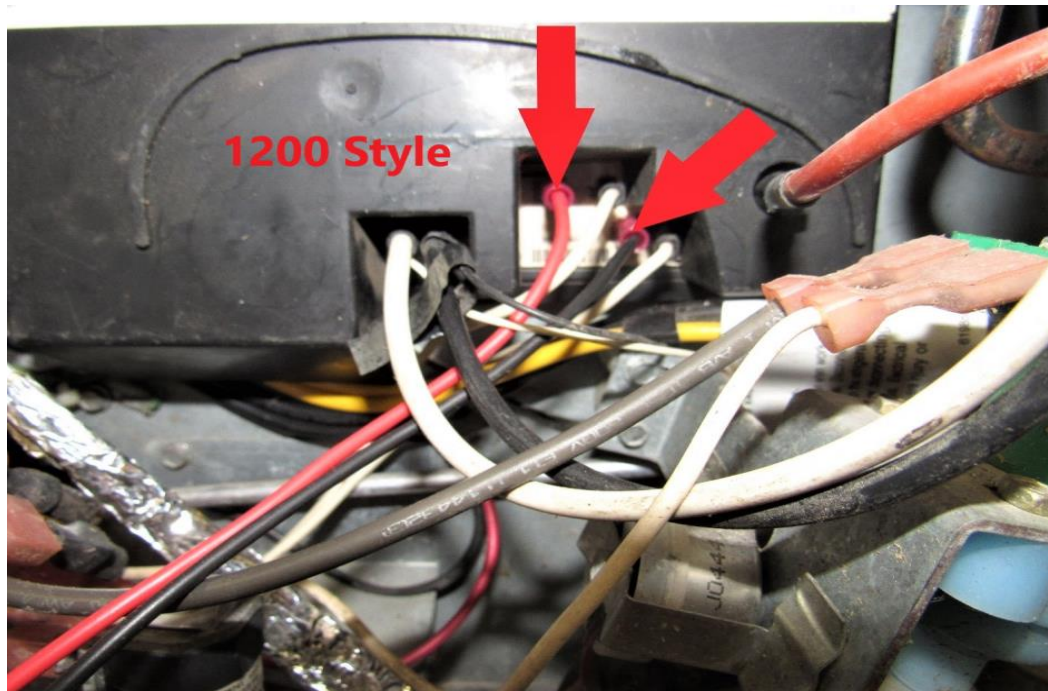


WARNING:

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



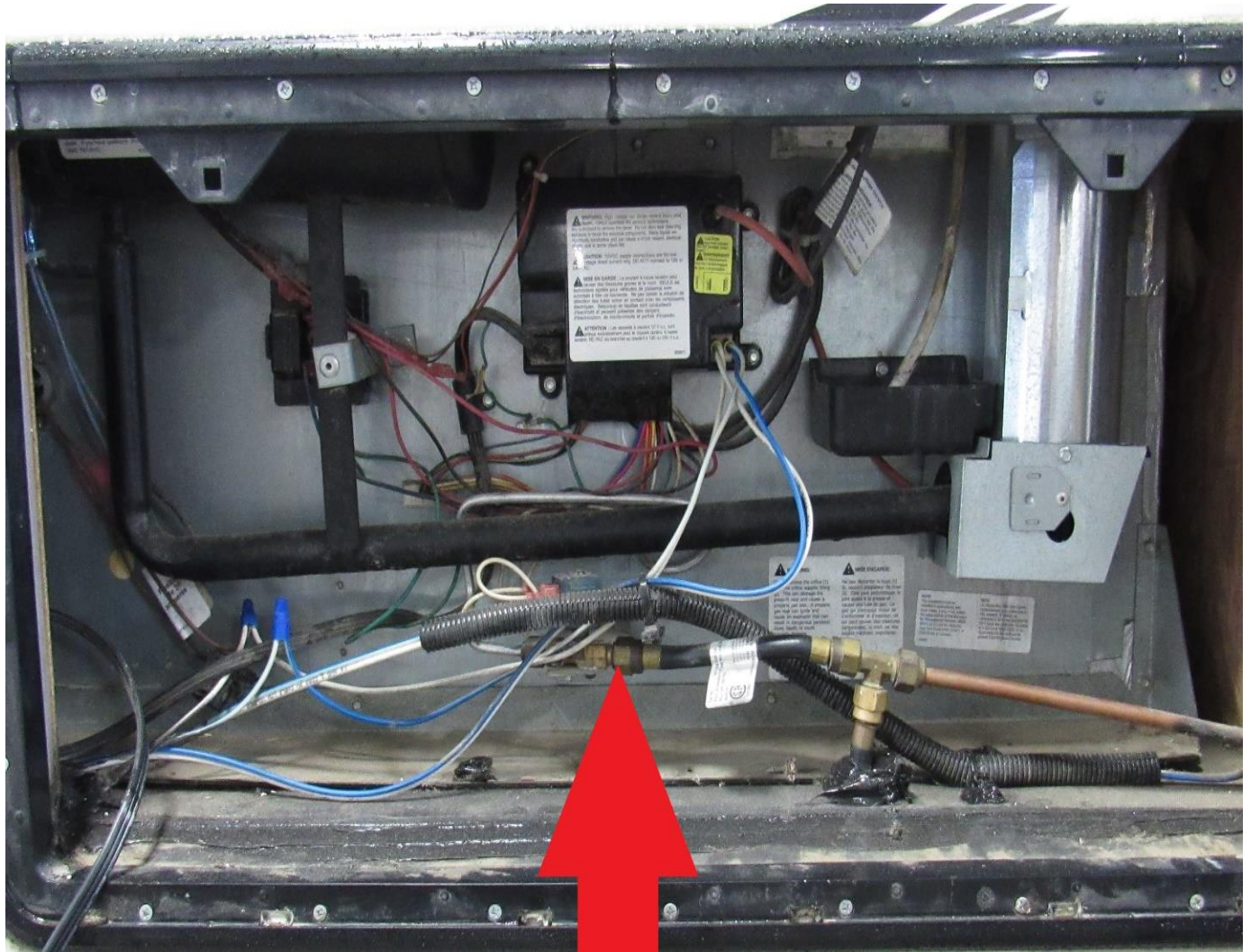
Locate the side vent to your refrigerator. Take the main 12V wires (**RA**) loose from your board. The wire colors will vary from coach to coach. **Note:** If your wire ends are not insulated, wrap the end in electrical tape so you don't blow the fuse.



Unplug your 120v plug (**RA**) from your RV. Location will vary from coach to coach, if you have an icemaker unplug its cord from wall socket, making sure water pump is turned off unscrew water supply line from solenoid (**RA**).



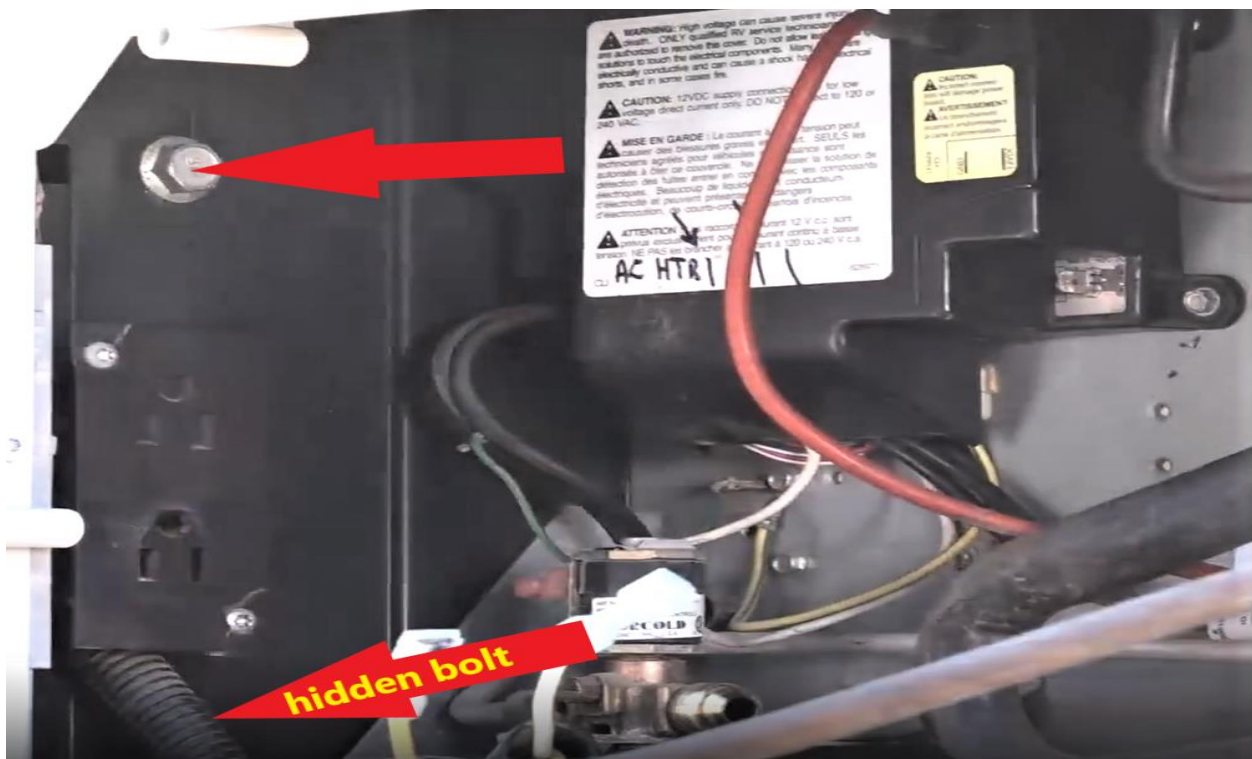
Using 2 wrenches remove the LP line (RA) off of the LP solenoid valve. **Make sure LP gas is turned off.**



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 these screws or bolts (RA).



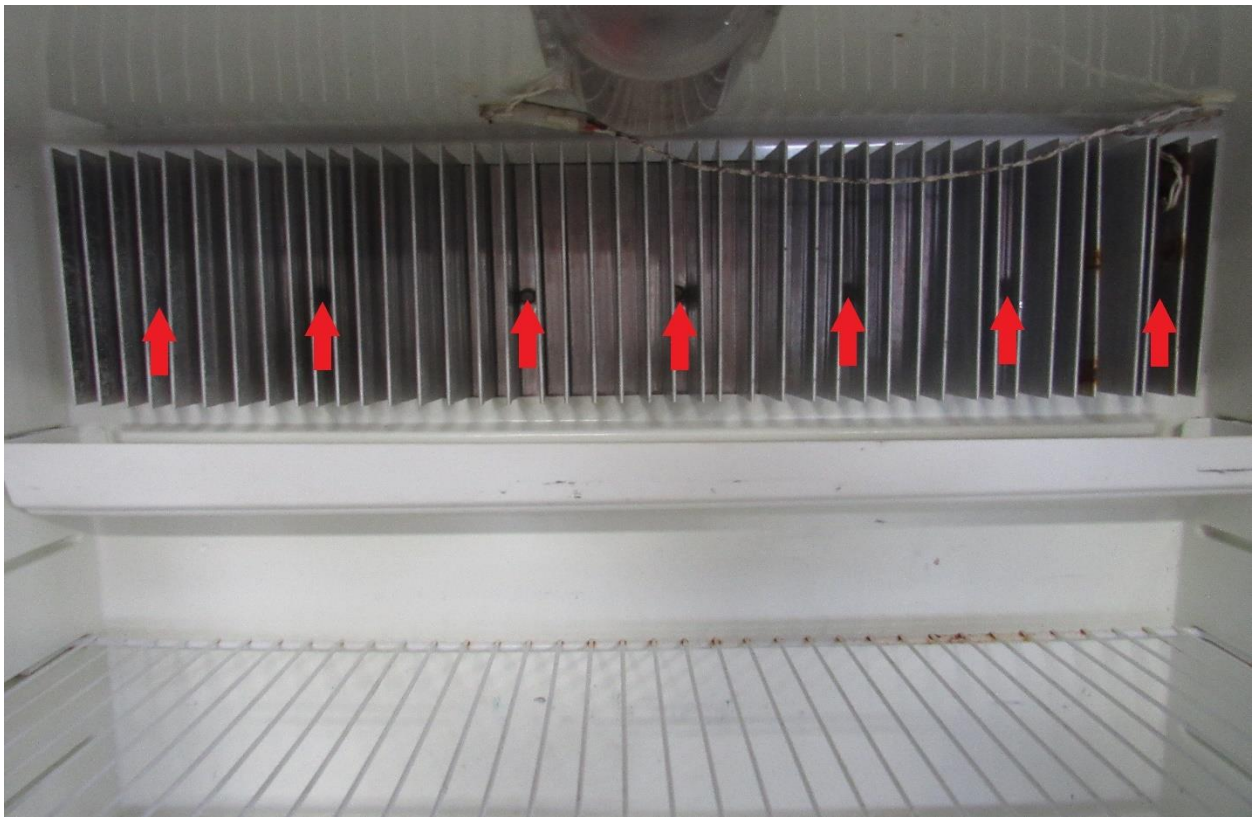
On Winnabago coaches you will have 4 bolts lagged to a steel side plate, 2 on each side of the fridge, also the top roof vent cap needs to be removed and 2 to 4 philips screws need to be loosened from the top of the fridge.



Going inside, remove all food items and start by removing the 4 black button covers on the top and bottom. (RA) Remove the 4 mounting screws on top and bottom (RA). Older style fridge trim might not have the external screw buttons but screws will still be underneath the trim after trim is removed. Screw size and bit needed will vary from coach to coach.

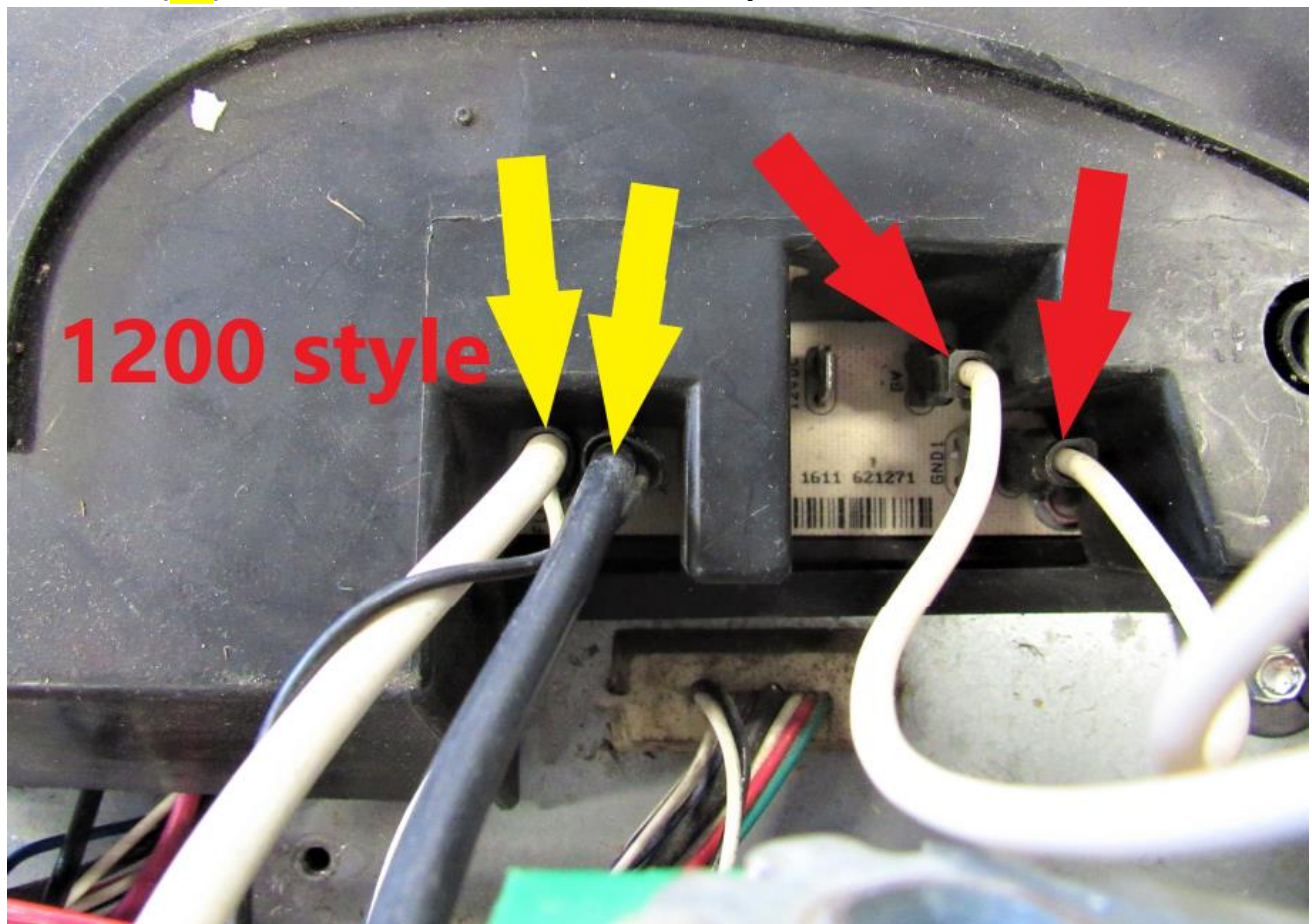


Take a 5/16" hex bit and cordless impact driver and proceed to remove all the screws (RA) in the freezer and the refrigerator.

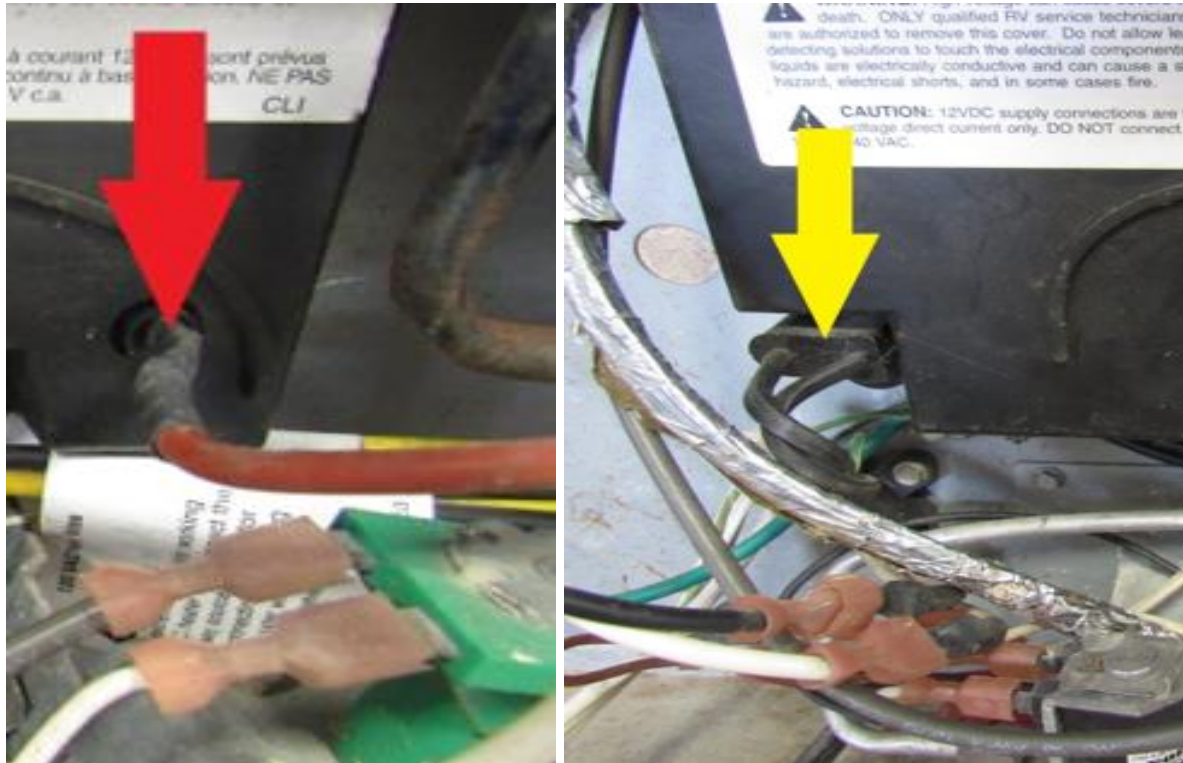


We do not show the fridge being slid out onto the floor, as the lay out of the coaches vary greatly and so it could be misleading to your scenario. But the object is to have 1 guy on each side of the fridge and as your fridge starts to exit lift up gently so when the rear end of the fridge fully exits 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 at an angle.

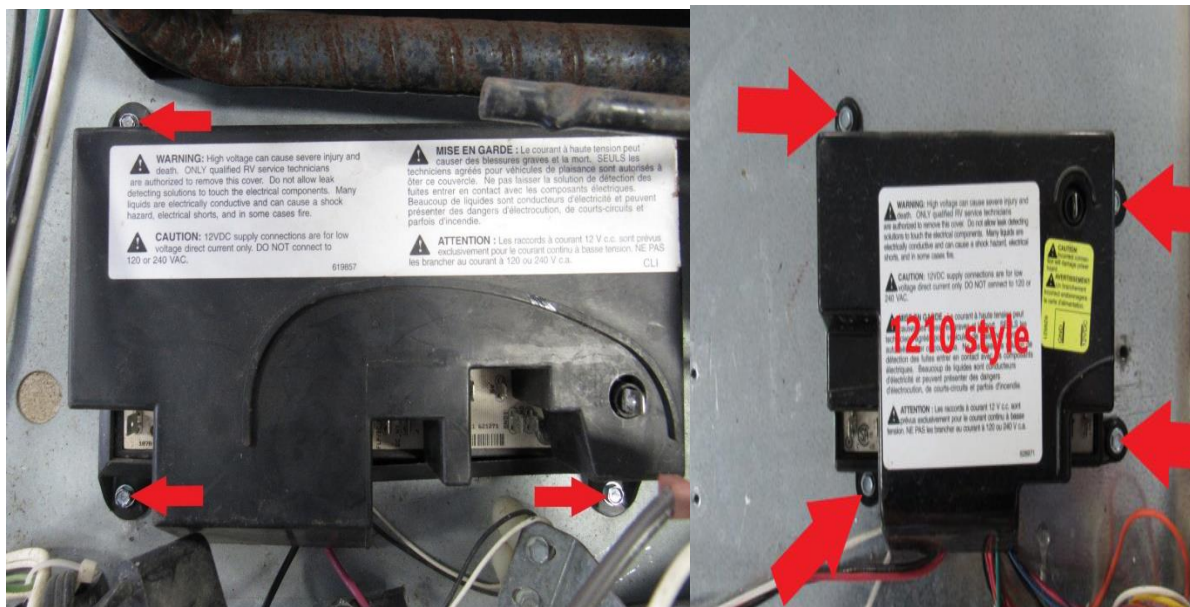
Start by taking the LP solenoid wires loose (save these for later) (RA) and 12v fan wires (YA) loose from the board. On 1210 style this will be shown later.



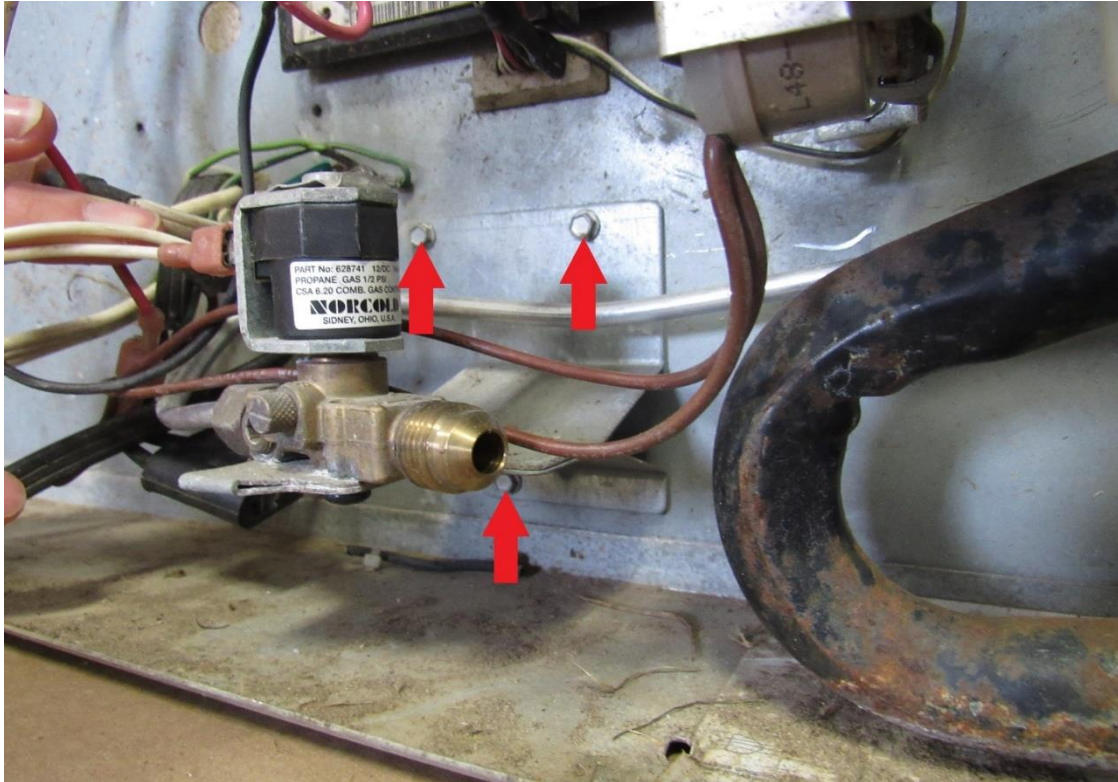
Take the igniter (RA) and the 120v plug (YA) loose from the board.



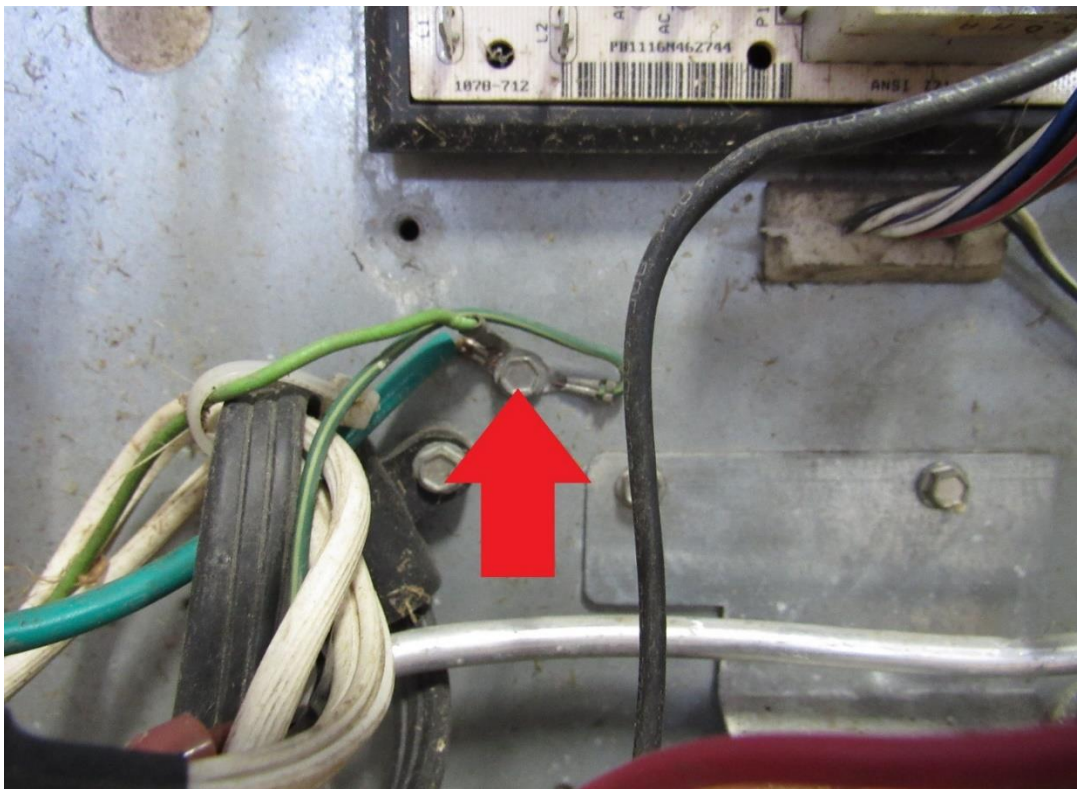
Remove ¼" Hex mounting screws on board (RA).



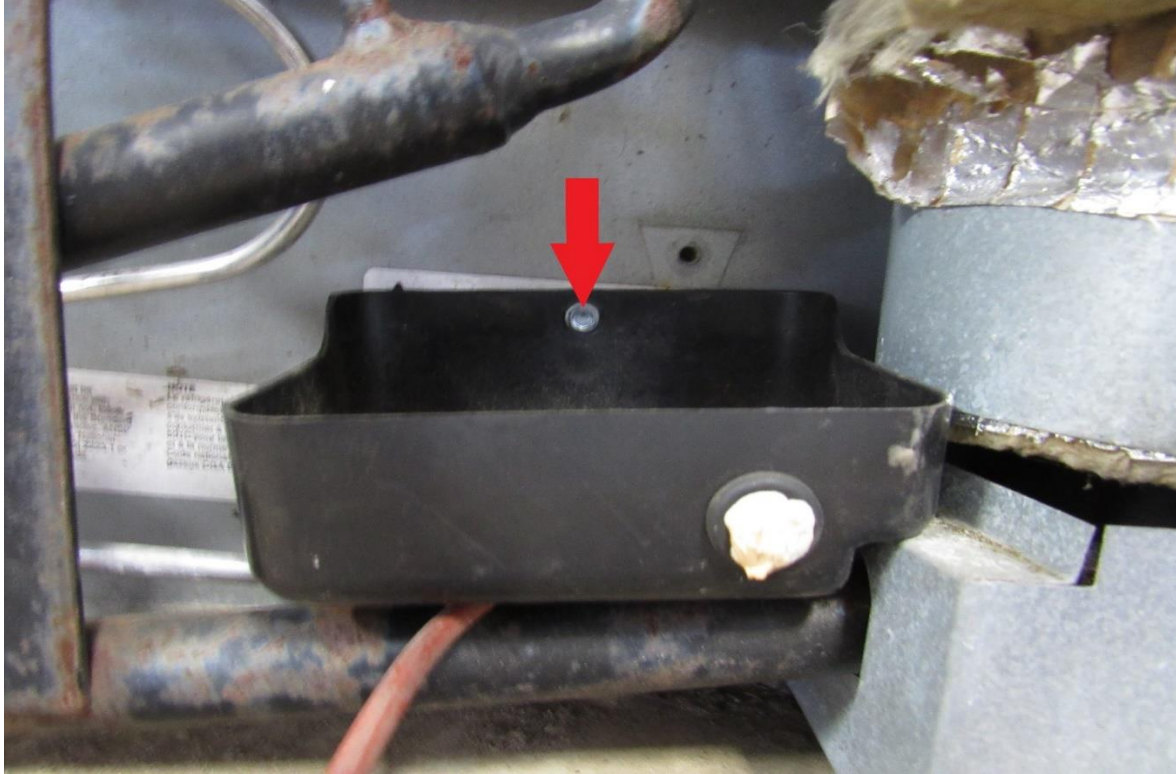
Remove ¼" mounting screws on LP bracket (RA).



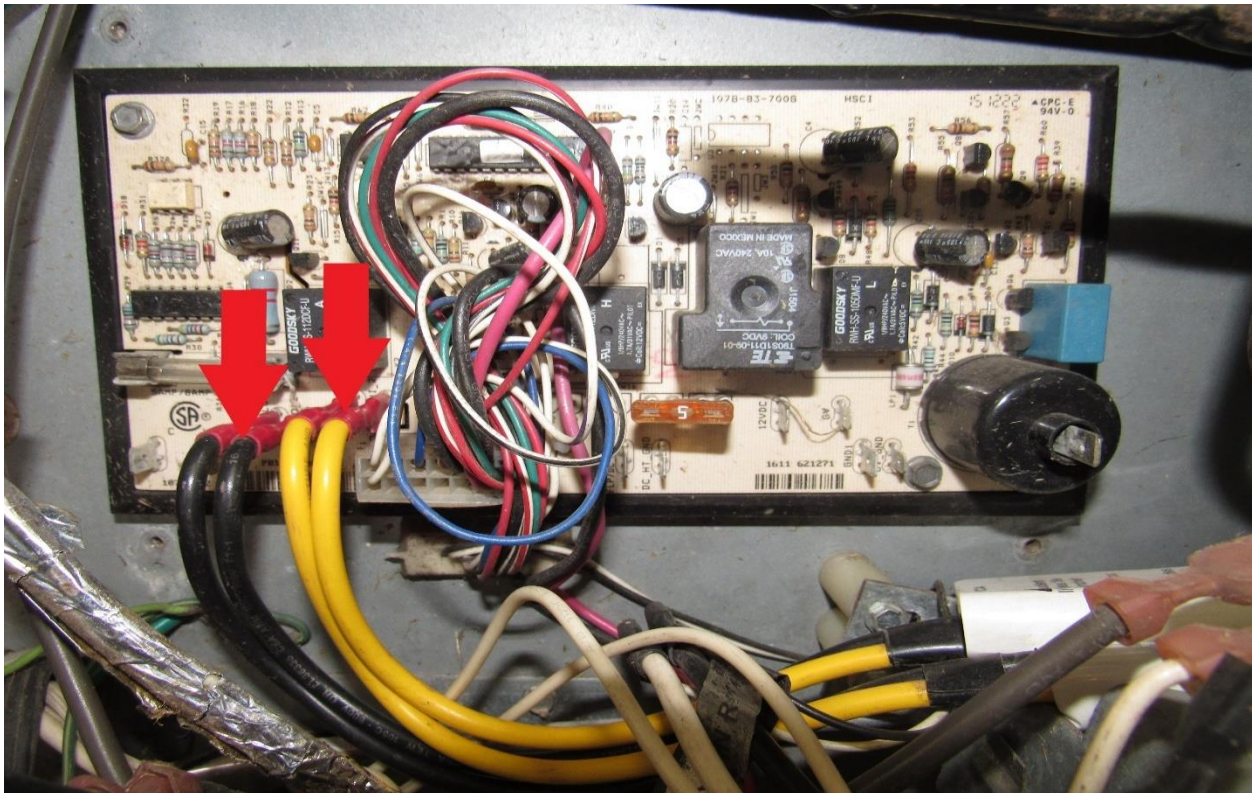
Remove ¼" ground screw (RA).



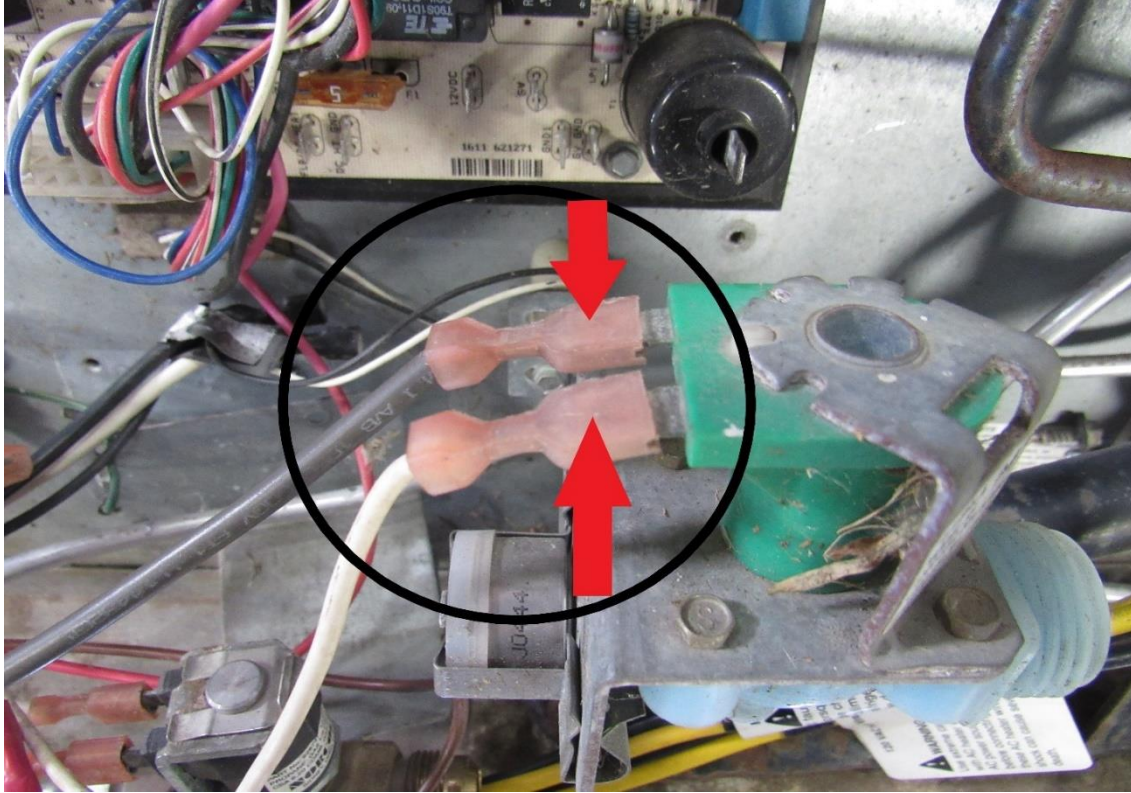
Remove ¼" defrost cup screw (RA) and set cup to the side.



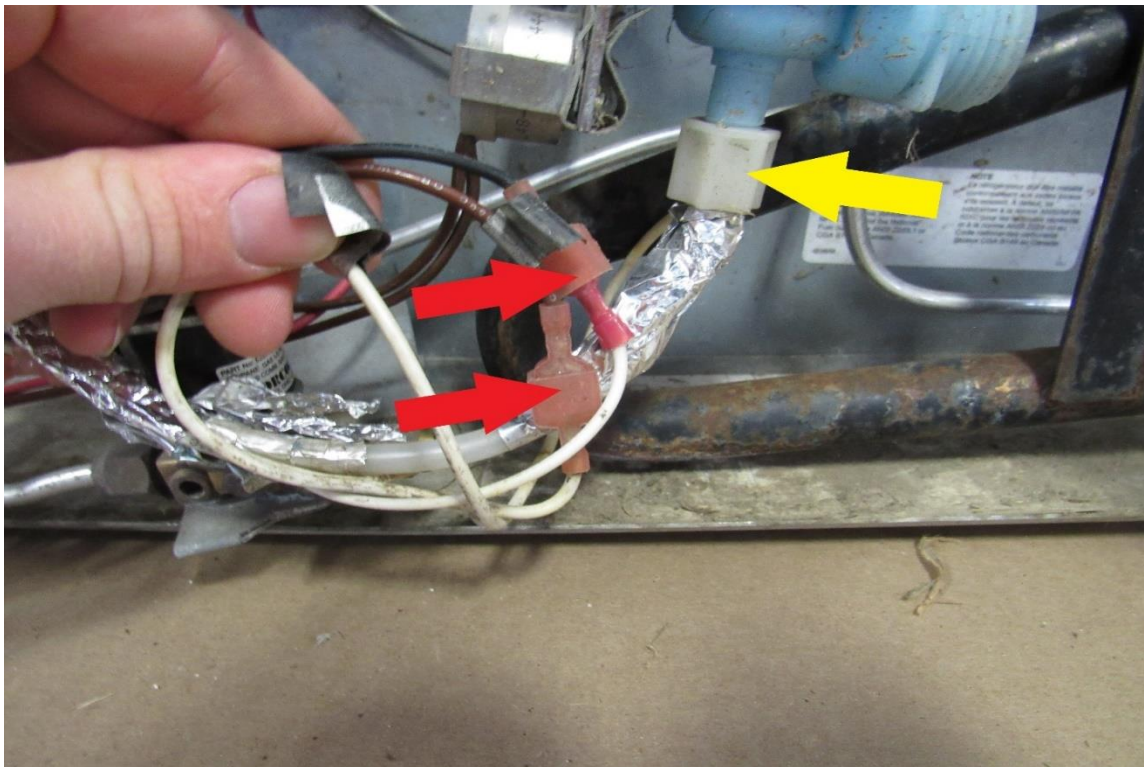
Remove the heating element wires from board (RA).



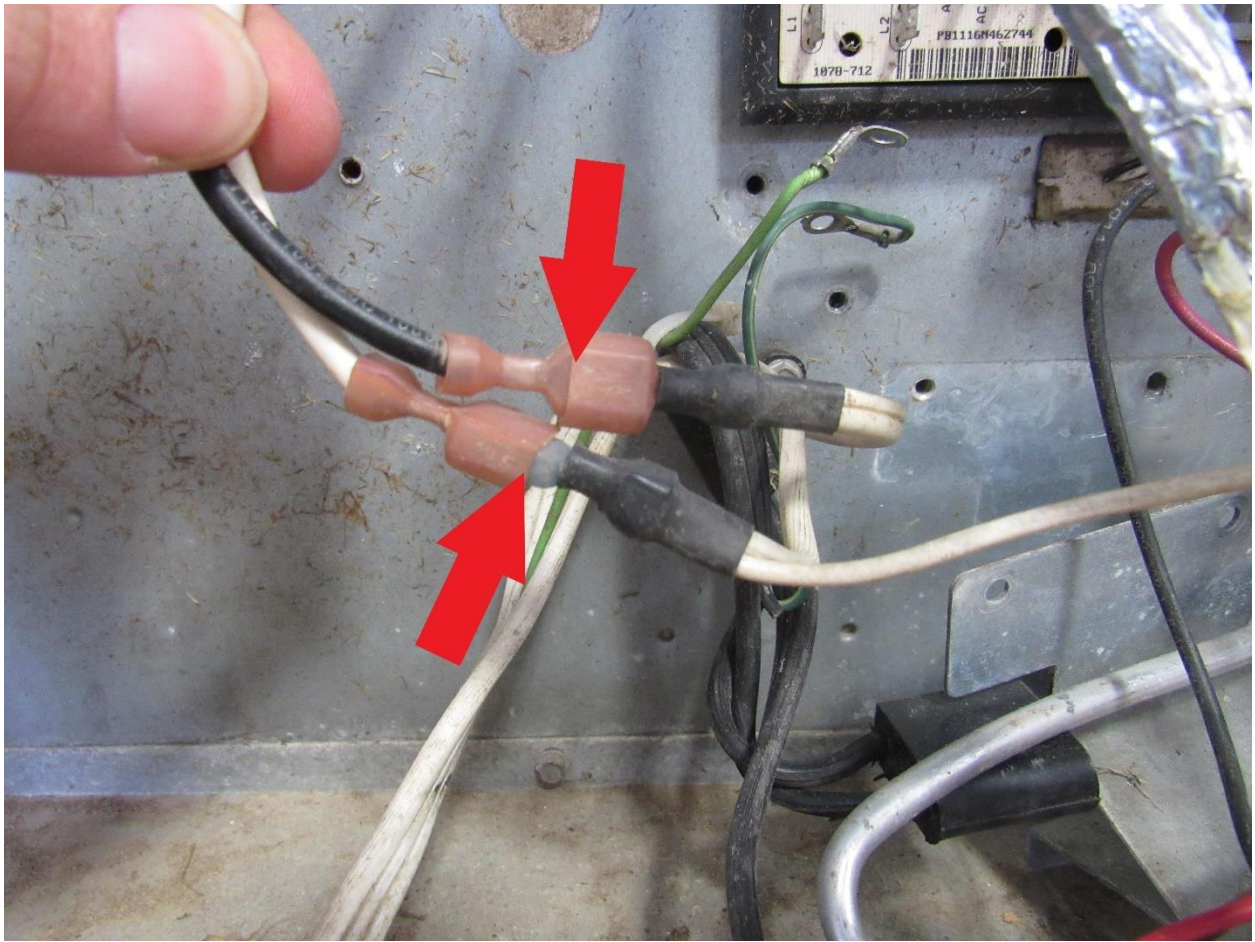
Remove the ice maker solenoid brown and white wires (**RA**).



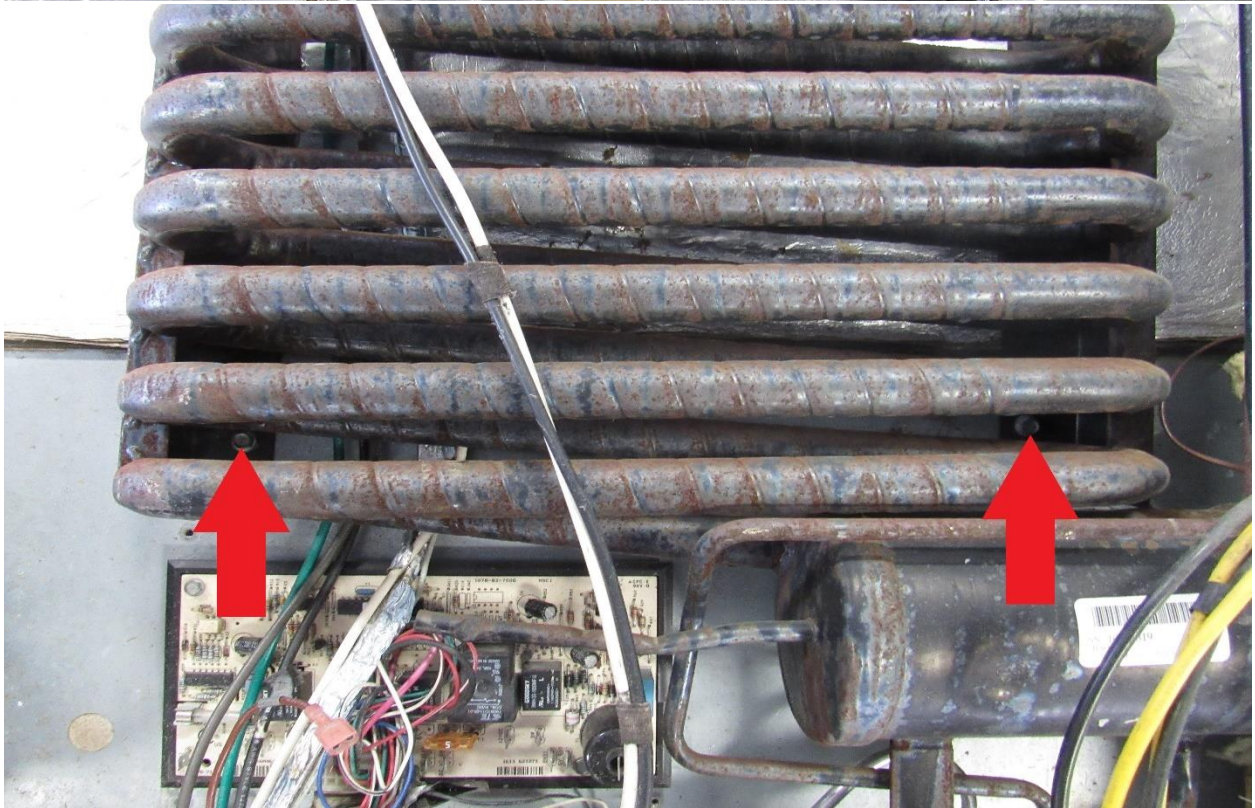
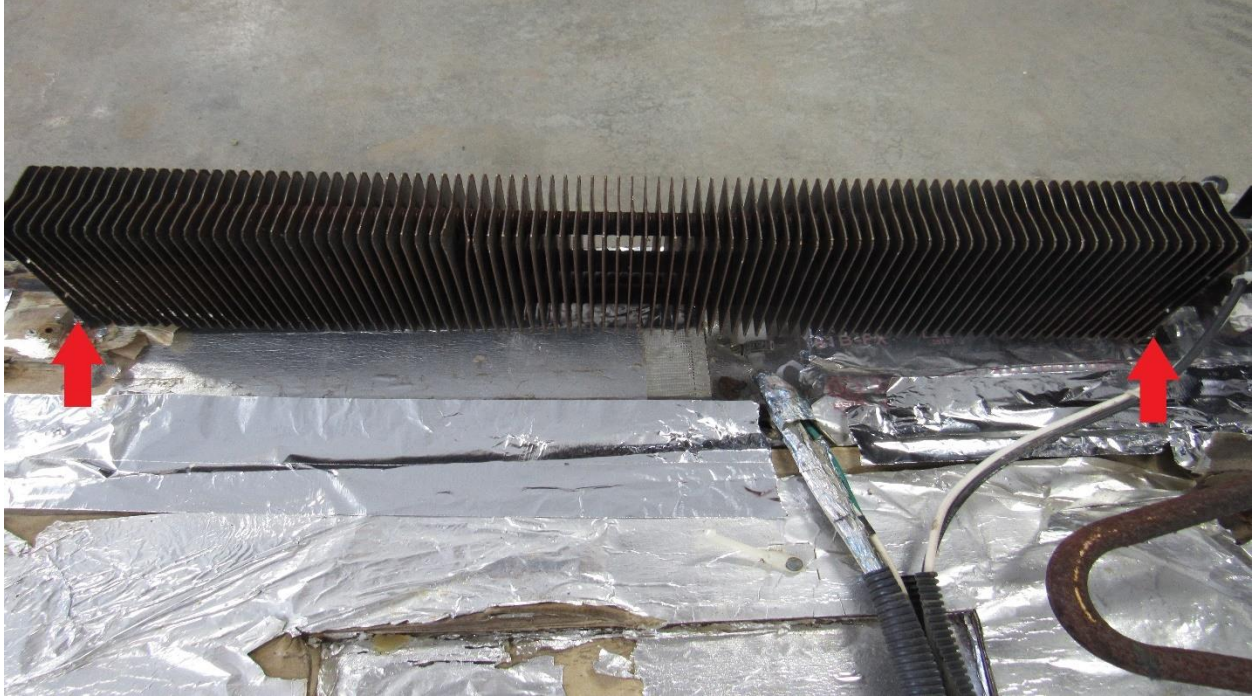
Disconnect the ice maker heater wires (**RA**) and water supply line (**YA**).



Disconnect the 120V ice maker wires, mark these to make sure you know which ones they are later, because these can be confused with the 12V fan wires (**RA**).



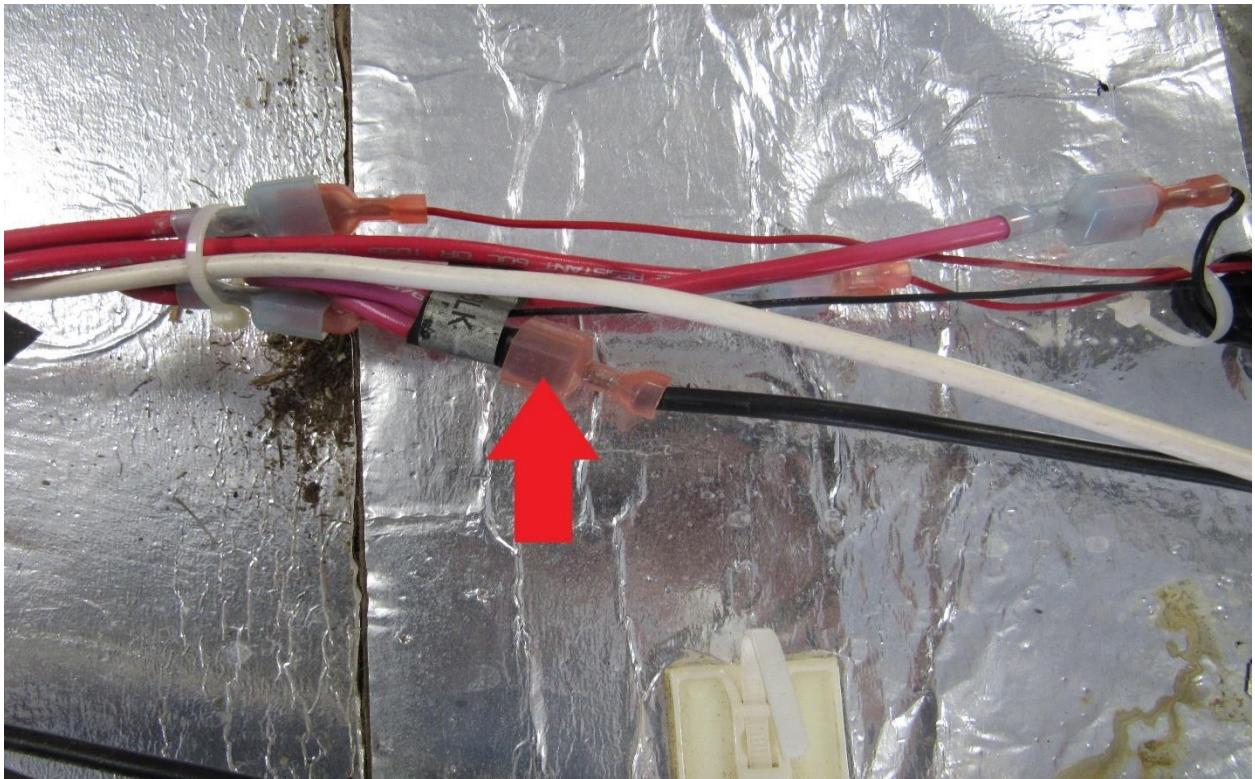
Remove the 5/16" mounting screws (RA) on the top and bottom of the unit.



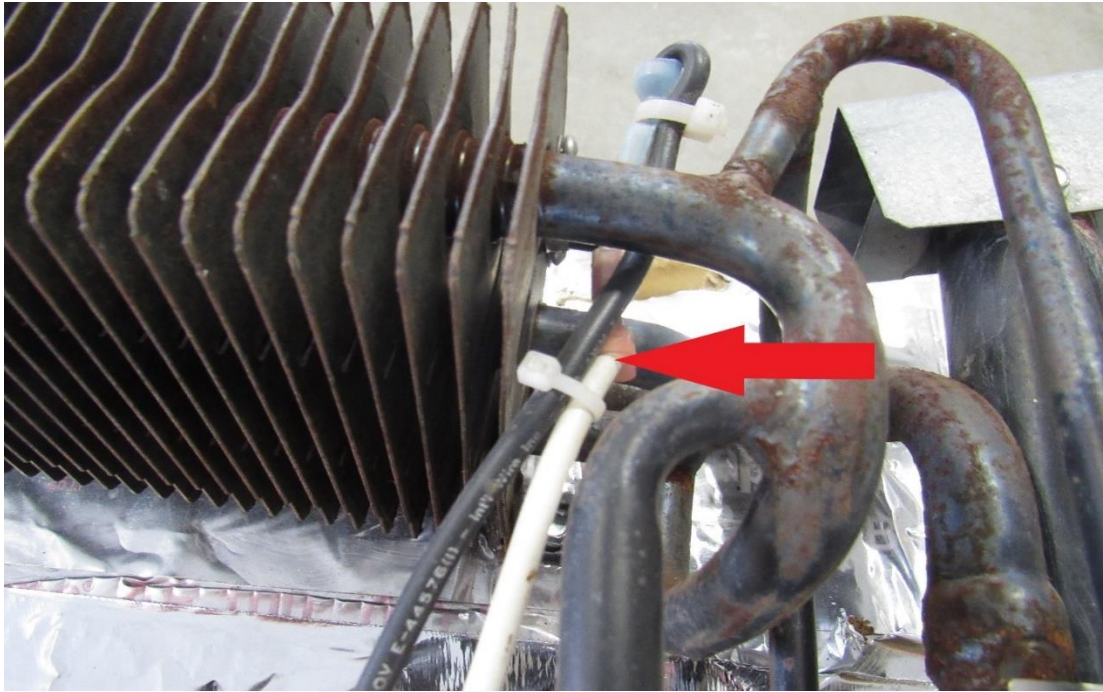
Remove the black wire loom (**RA**) and cut all zip ties holding the bundle of wires together.



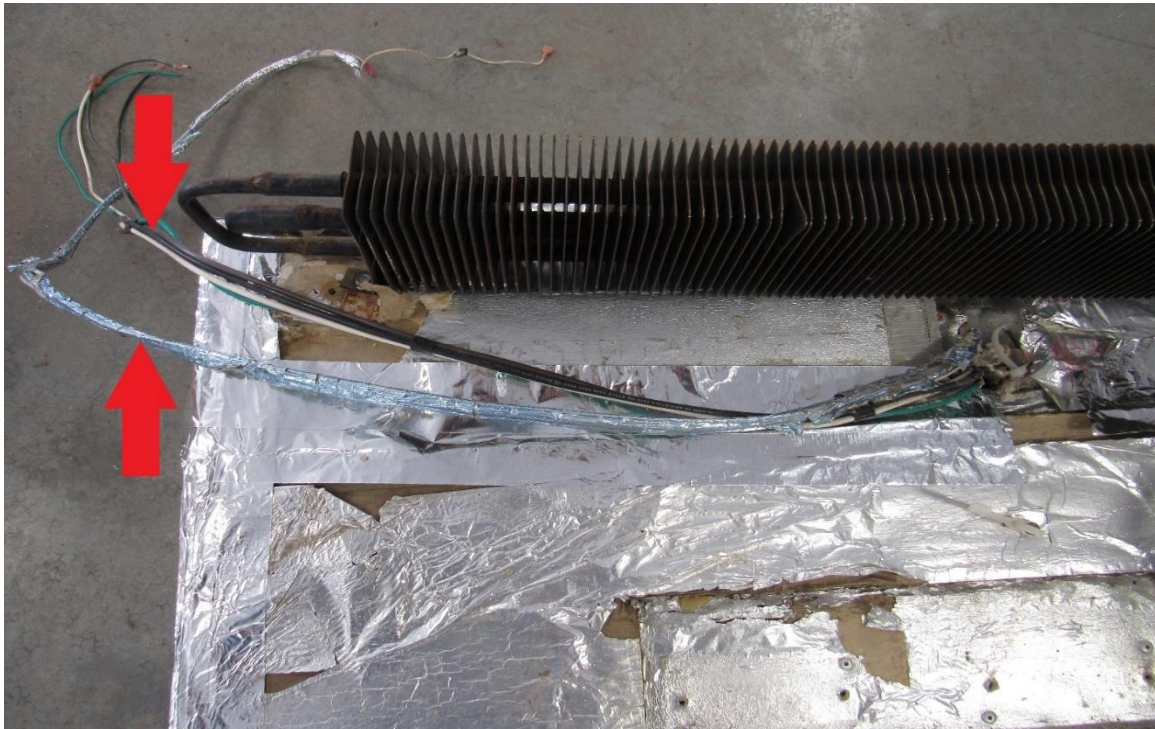
Disconnect the black 12V fan wire (**RA**).



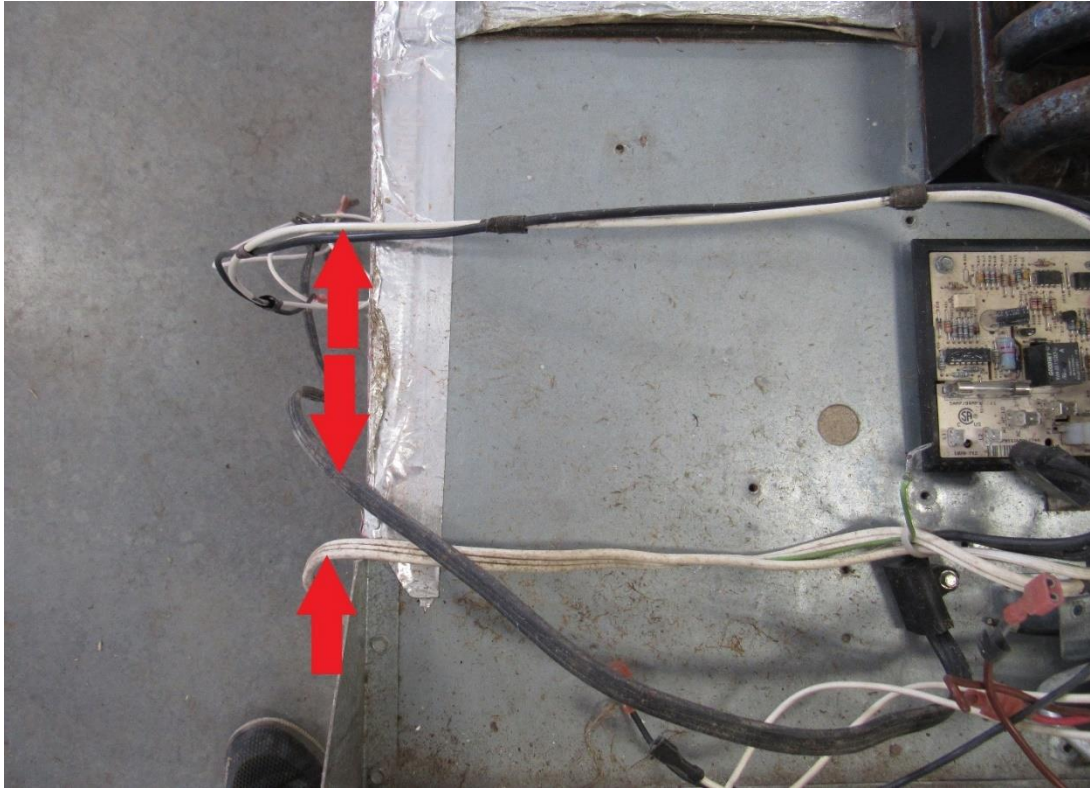
Disconnect the white wire (RA) from the thermal switch. This wire is red on newer models.



Pull wires and water line up and to the side as shown (RA). Be careful with the water line as it gets brittle with age. If you are removing the ice maker, these can be cut and completely eliminated.



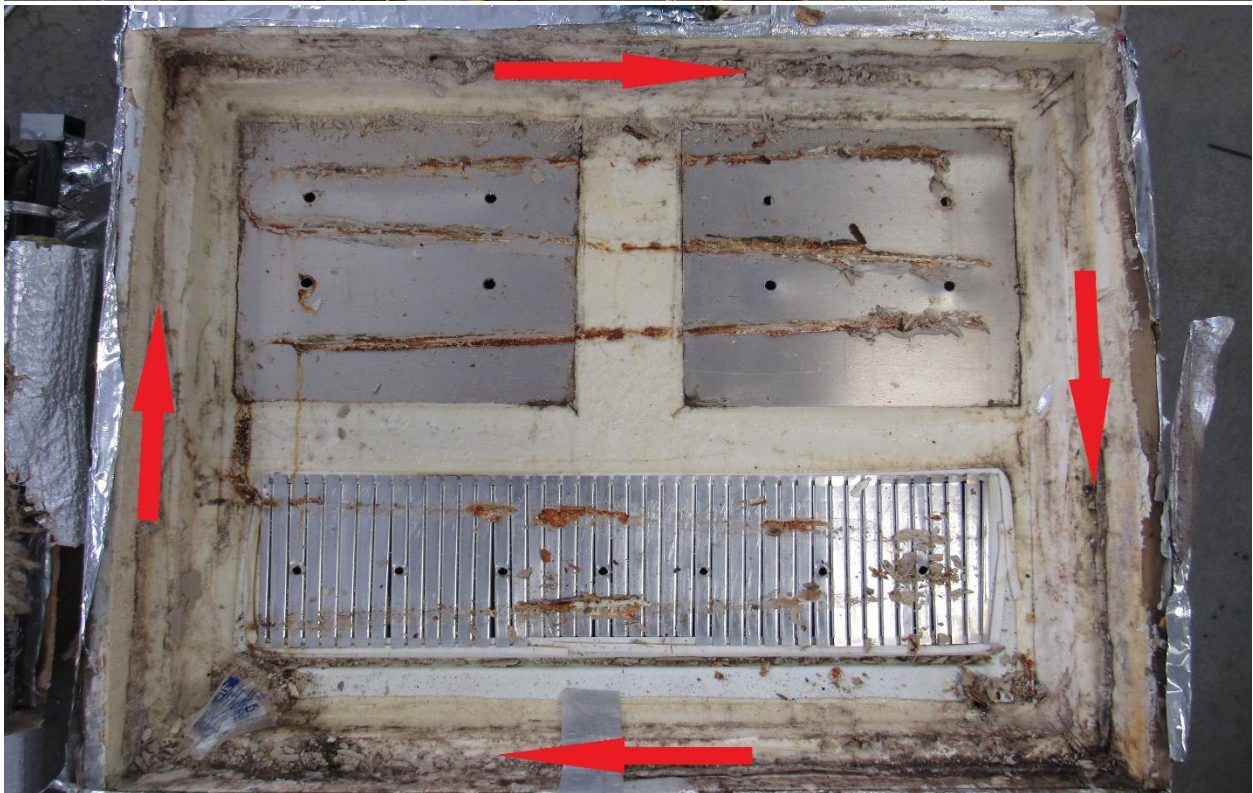
Leave fan wires and the black and white cords hanging over side as shown (RA).



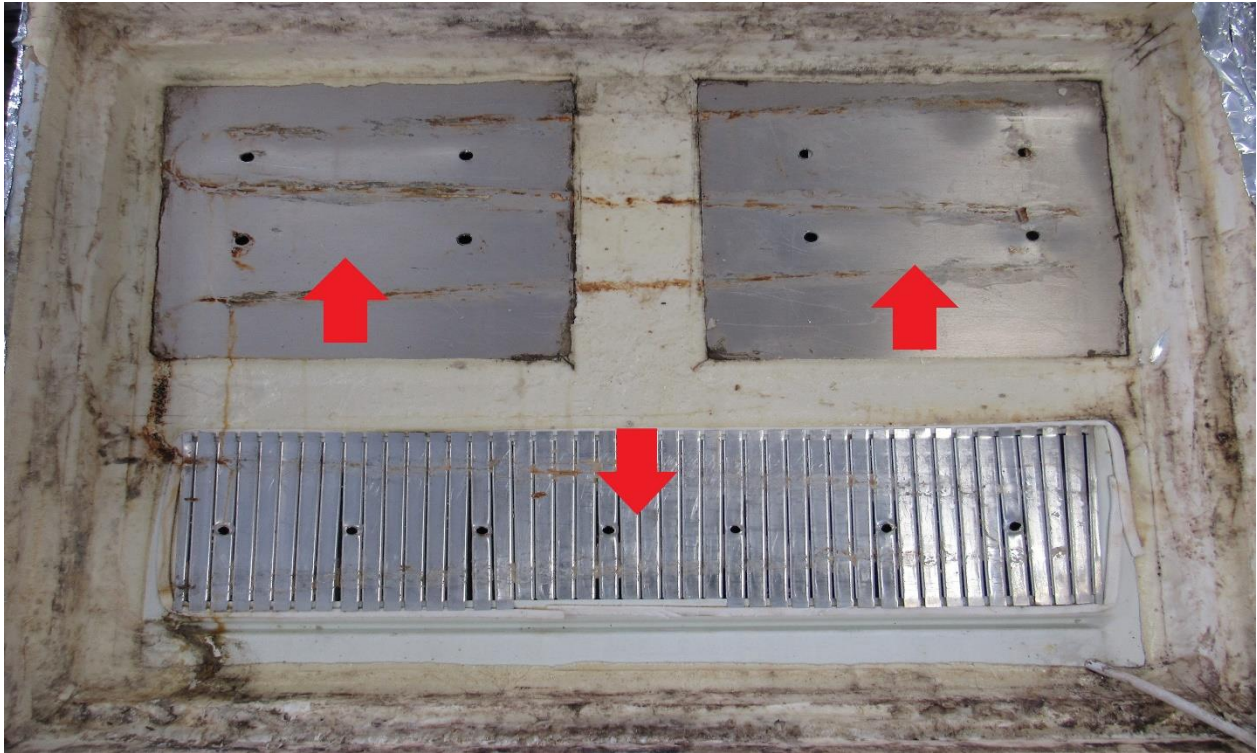
If old unit is taped along the sides cut tape with knife (RA).



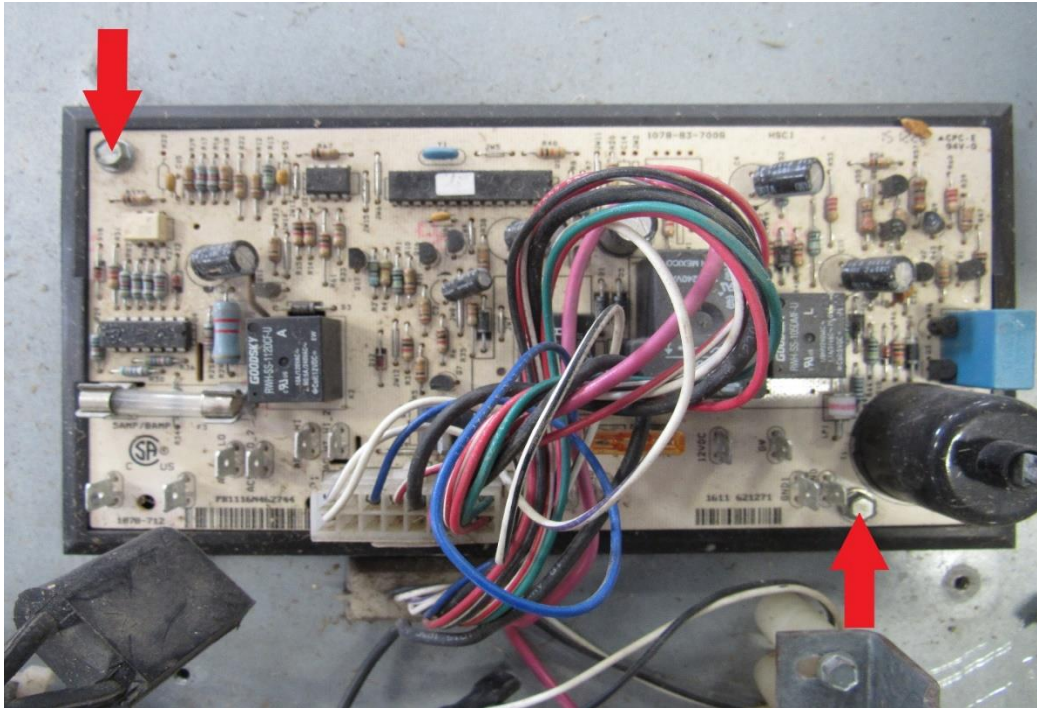
Take off the old cooling unit of your refrigerator by lifting straight up and out. Clean off any residual foam or thermal sealant around the edges (**RA**).



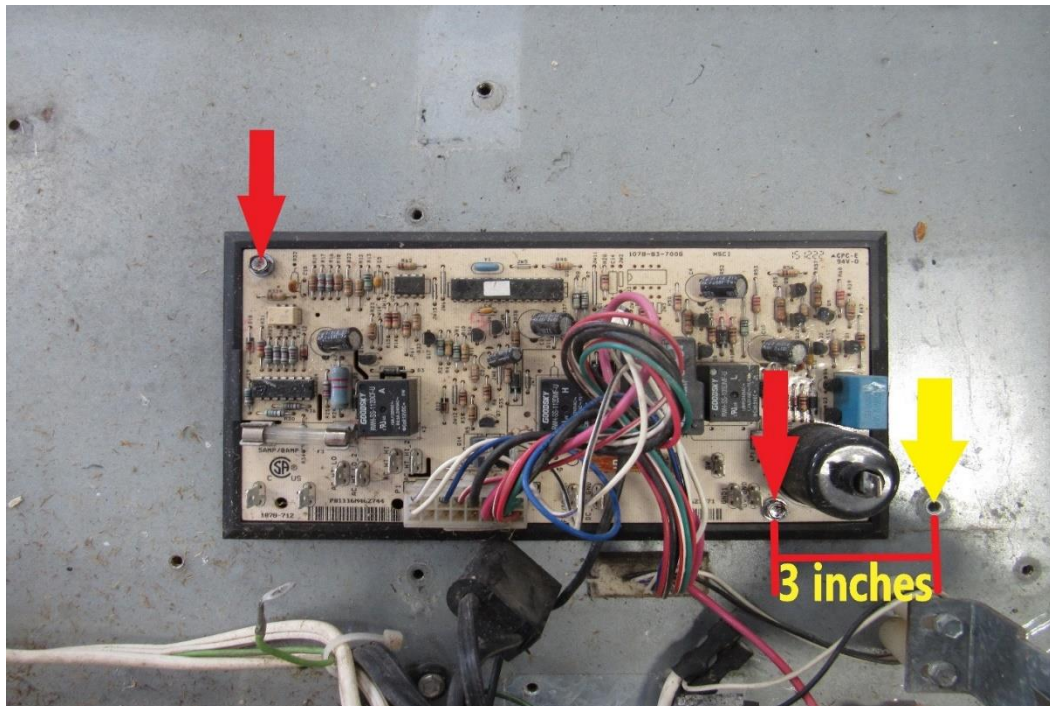
Clean off the old thermal mastic (**RA**) from the freezer plates and refrigerator fin. A large blade putty knife or scraper works well. A shop vac works well to remove any other debris or loose foam.



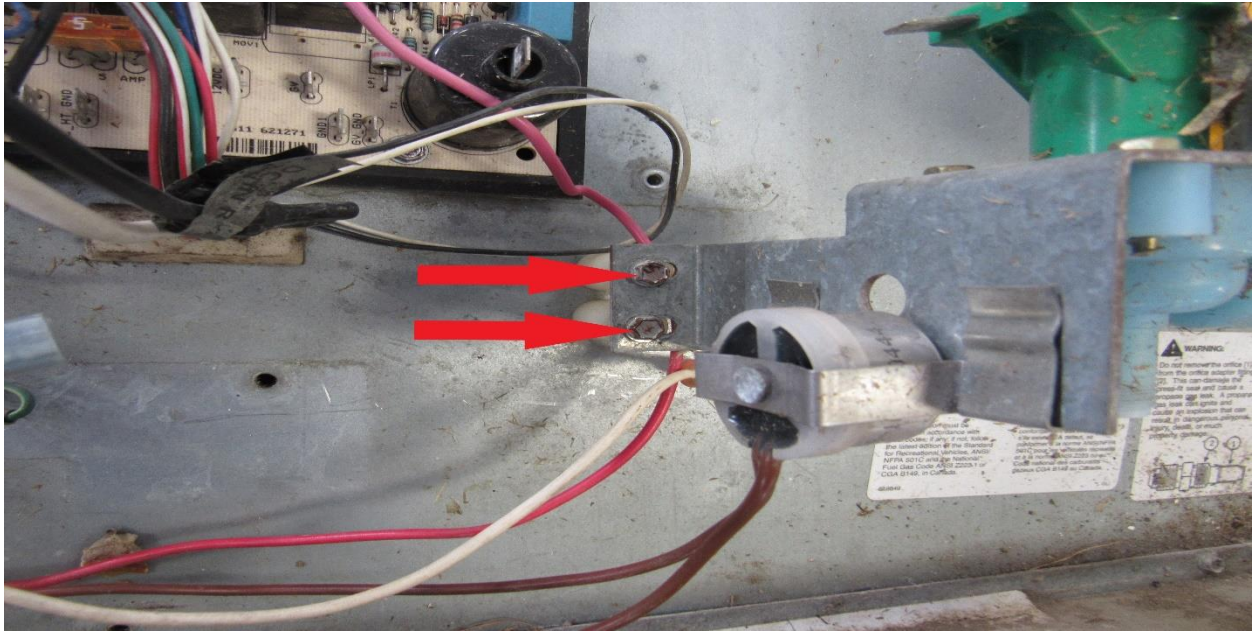
We will now need to shift the main control board to make room for the compressor. Remove $\frac{1}{4}$ " mounting screws from board (RA). 1210 style board does not need to be moved.



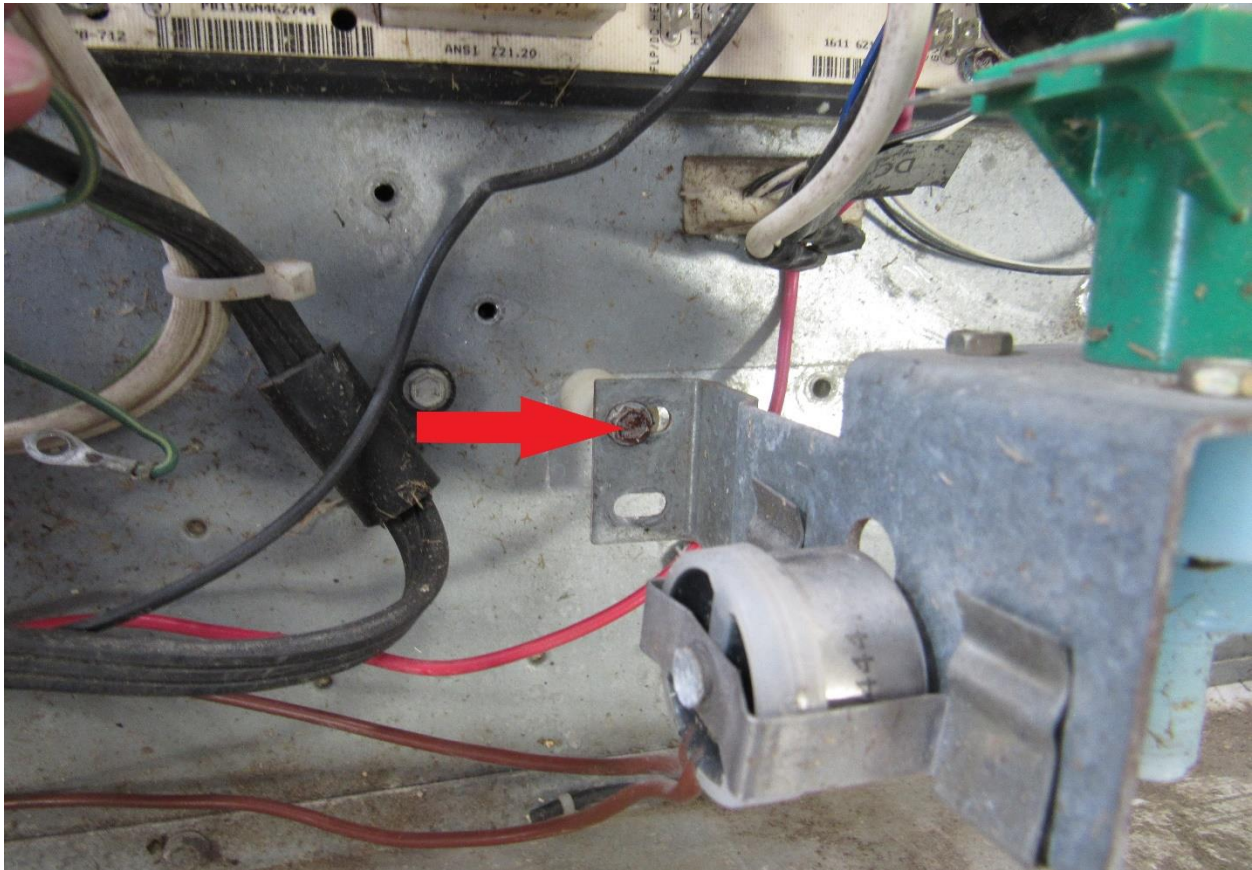
(YA) is original placement. Shift board left 3" as shown in picture, and secure board (RA) using the 2 supplied $\frac{1}{4}$ " self-tapping screws.



Remove ¼" water valve screws (RA). If you are removing the ice maker, this can be removed and left off.



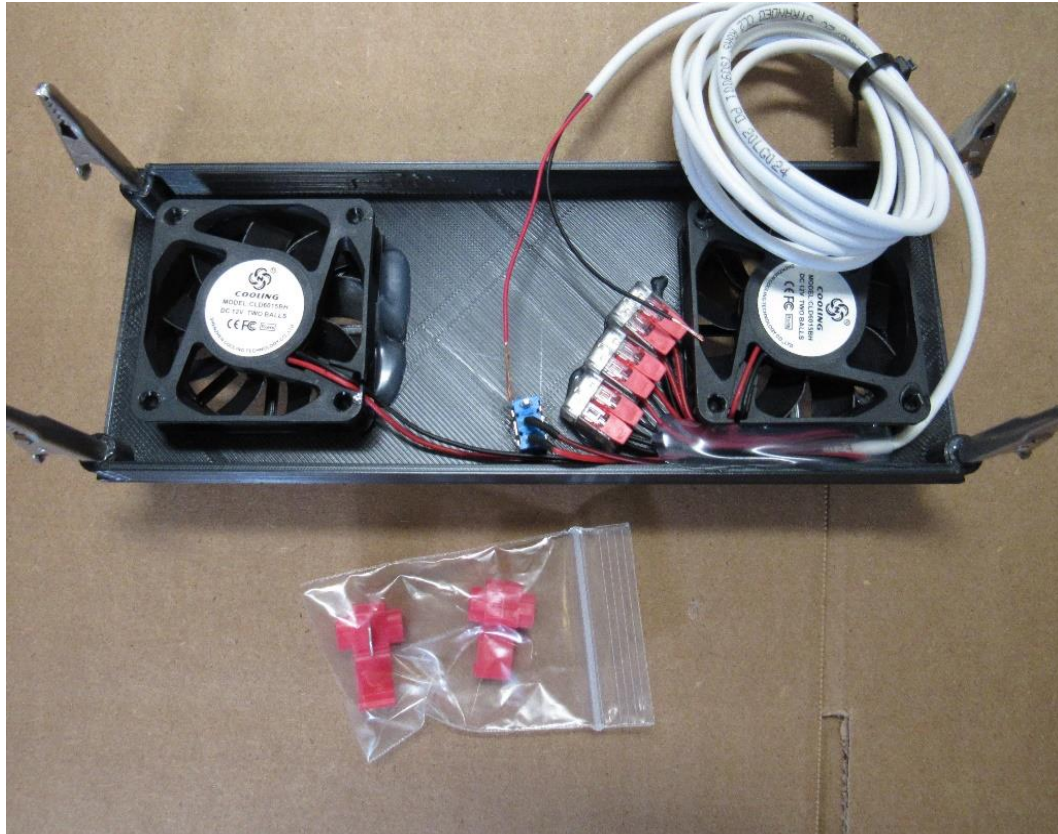
Shift left and reinstall the top screw (RA) in the pre-drilled hole as shown below.



This is how your board and wiring should look like before continuing the install. As mentioned before, if the ice maker is being removed, all ice maker wiring, water valve, and 120V ice maker cord can be removed and discarded. 1210 style will look similar but the board is different size.



Take the fin fan out of the plastic bag. It will include two scotch locks that we will use to hookup later.



Installing the fin fan has 2 options:

Option#1 Set the fin fan into the refrigerator fin opening, make sure it's somewhat secured to a shelf for now. Leave enough wire as shown inside and also enough on the bottom to hook up with later. The fin fan wire will remain in this position throughout the rest of the install.



Option #2 If you would rather install the fin fan wire thru the defrost hose later, please see our fin fan installation manual at <https://jc-refrigeration.com/wp-content/uploads/2021/04/fin-fan-installation-website.pdf?3f35fa&3f35fa>



Take a caulk gun and place a small bead of thermal mastic in this fashion. You will need to use the whole tube.



Lay unit into box being careful so as not to scrape off any thermal mastic on the box.

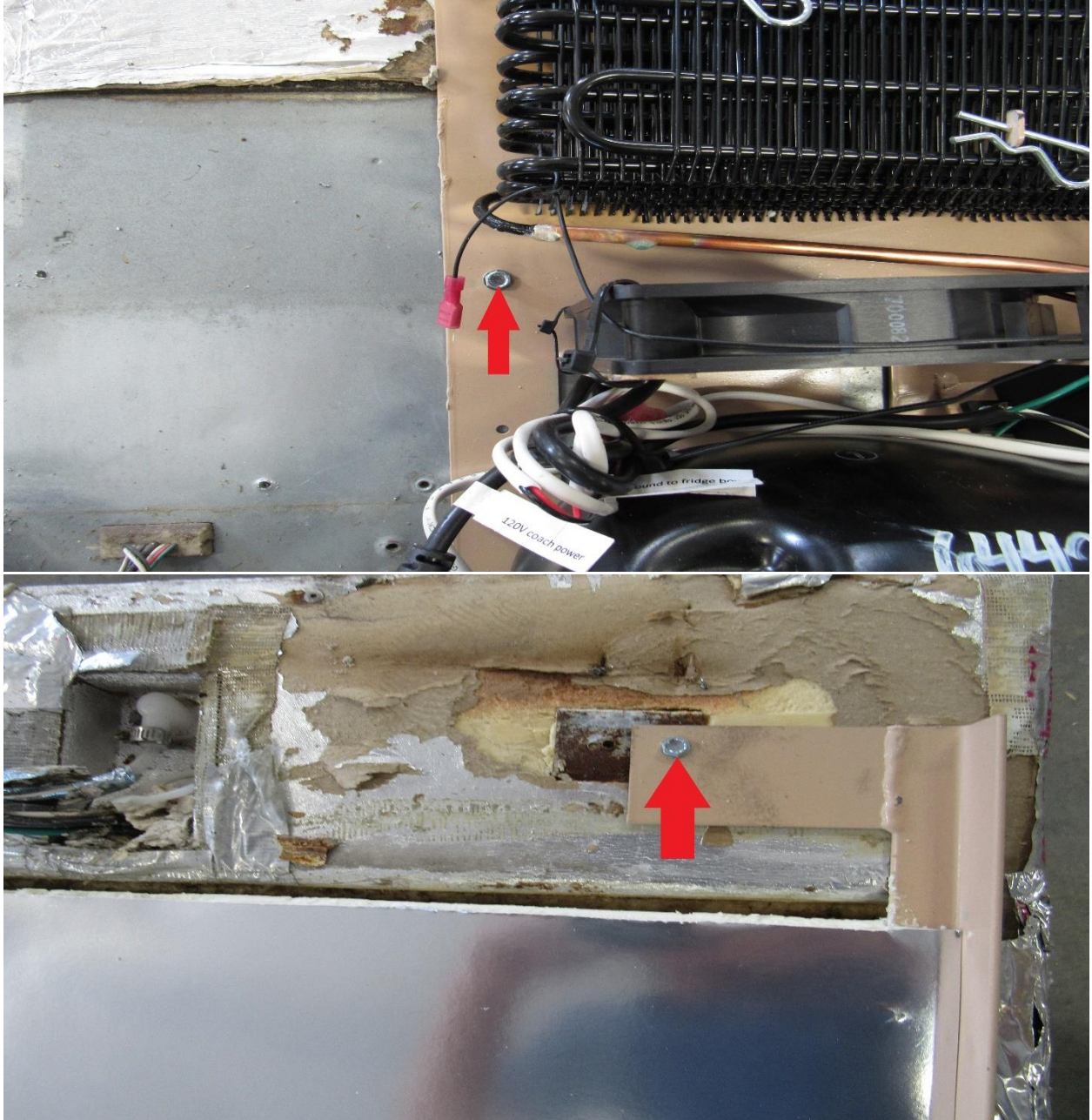
Insert defrost hose into the pre-drilled hole (**RA**) as shown, while lowering the unit into the box. Make sure to keep defrost hose snug so it does not kink while unit is being set down.





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.

Install two 5/16" self-taping mounting screws. One on the bottom and one on top as shown (**RA**). Top hole is not predrilled. This will hold the unit while its upright.



Set refrigerator in upright position.

If holes are not aligned have the rear person remove the top mounting screw and shift the unit side to side until holes are aligned, or if 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 side, 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.

⚠ Warning: The box holes can be redrilled 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.



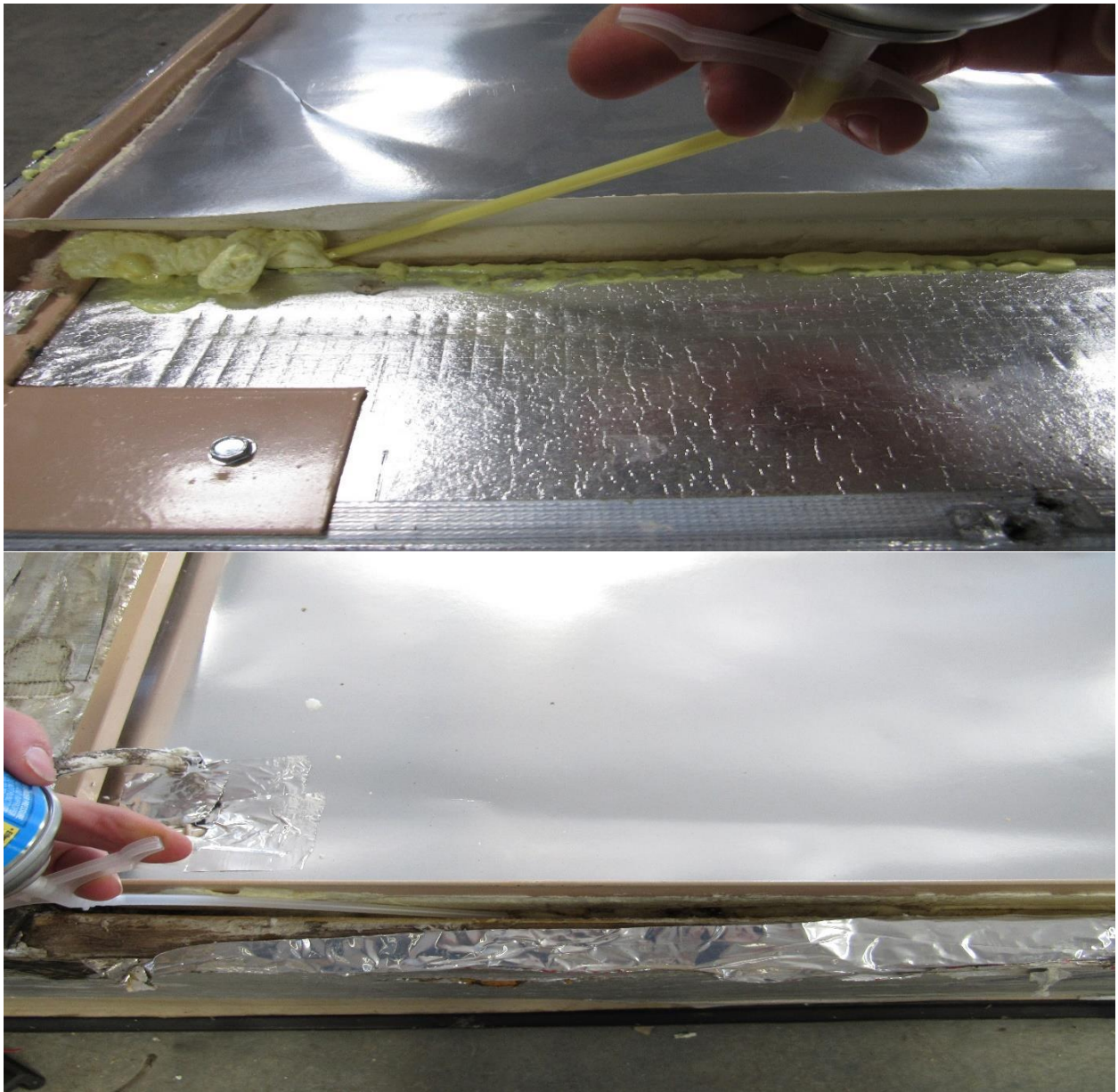
When holes are lined up, install all eight freezer screws (**RA**), using the supplied 5/16" screws in the parts bag, pulling the unit tight against the back. Do the same with the refrigerator section fin (**RA**). Install seven screws pulling it tight.



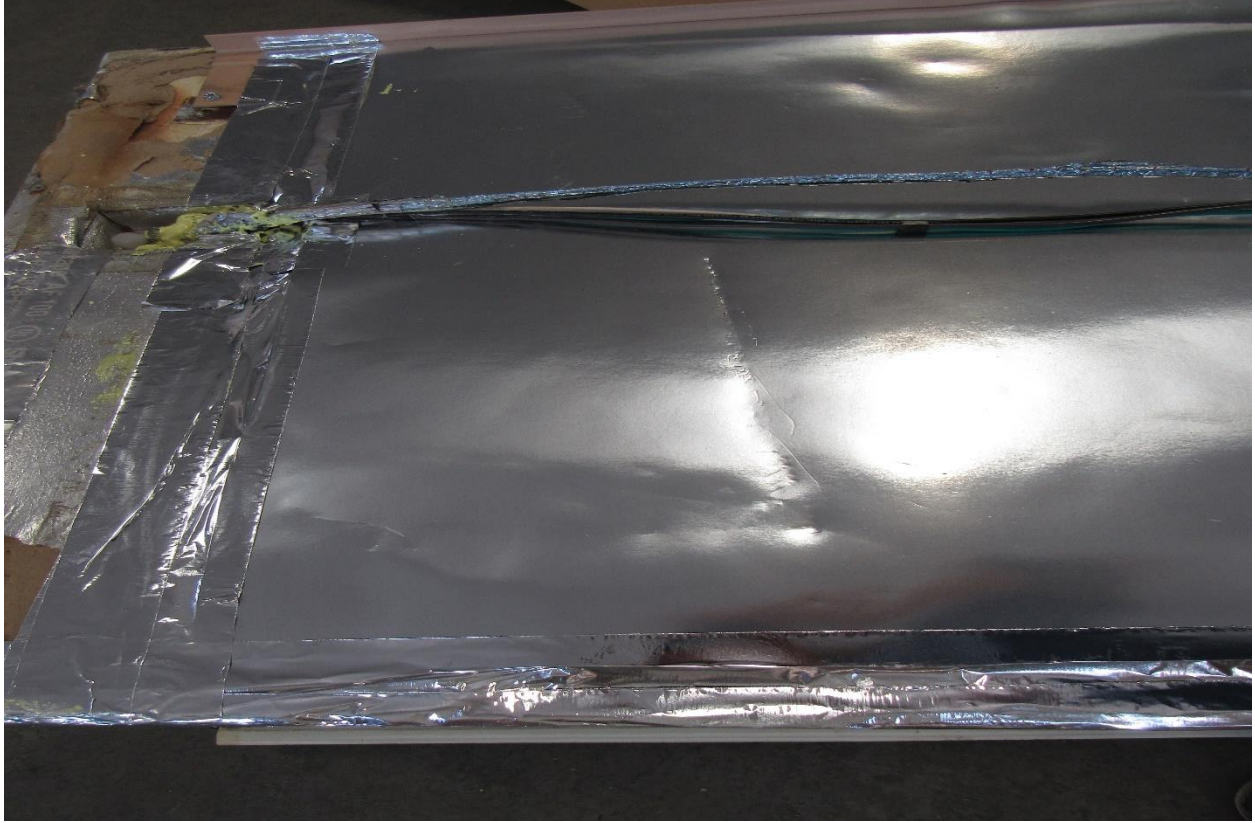


Warning: Make sure this step gets followed precisely, otherwise your fridge is unable to cool properly

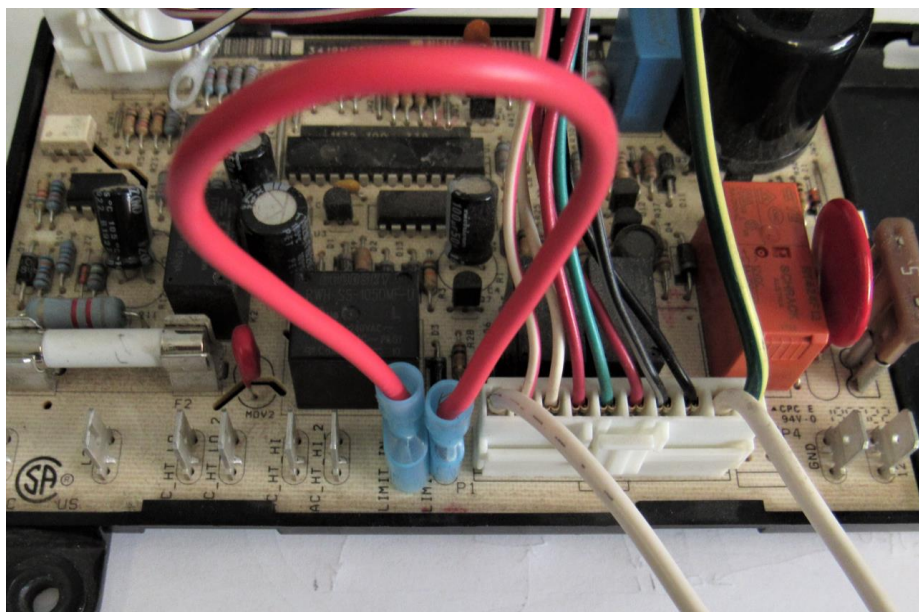
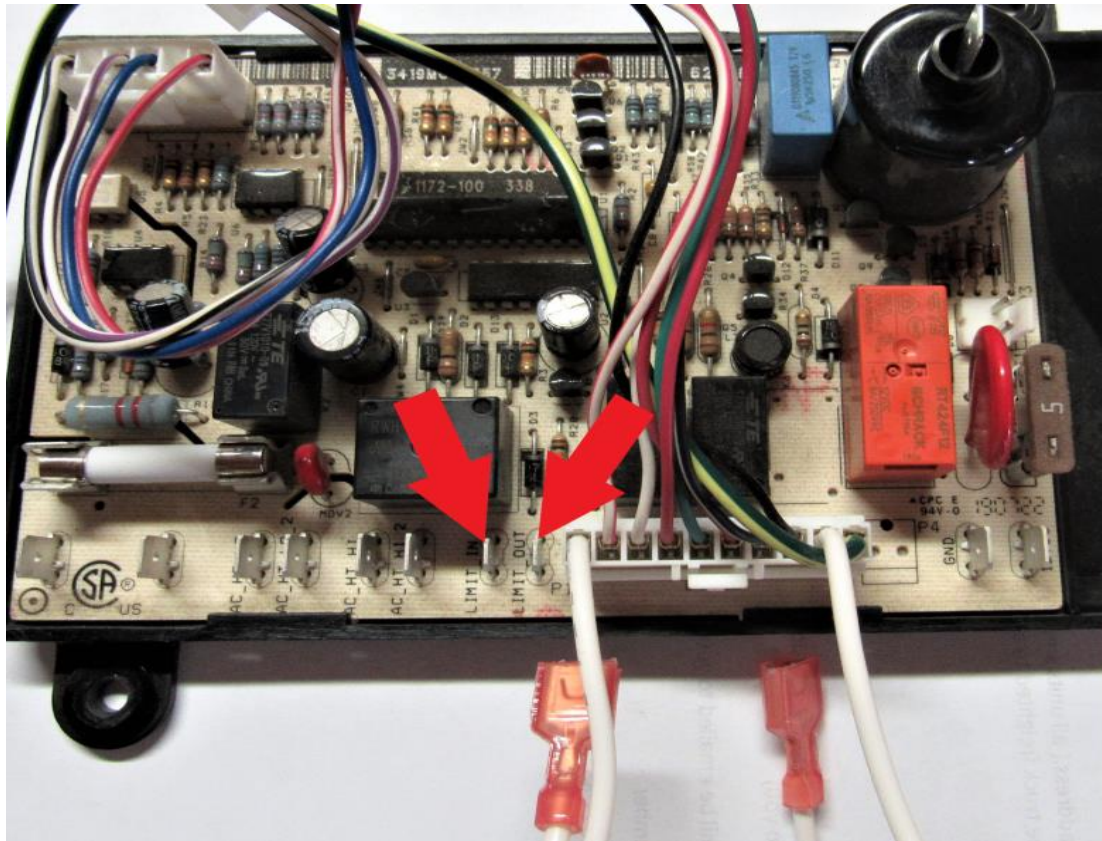
Lay fridge back down, take the can of Great Stuff foam (shake can for a few seconds) and apply a bead of foam around all four sides as shown below. Make sure and seal all cracks and gaps. This will help seal all air leaks while travelling down the road.



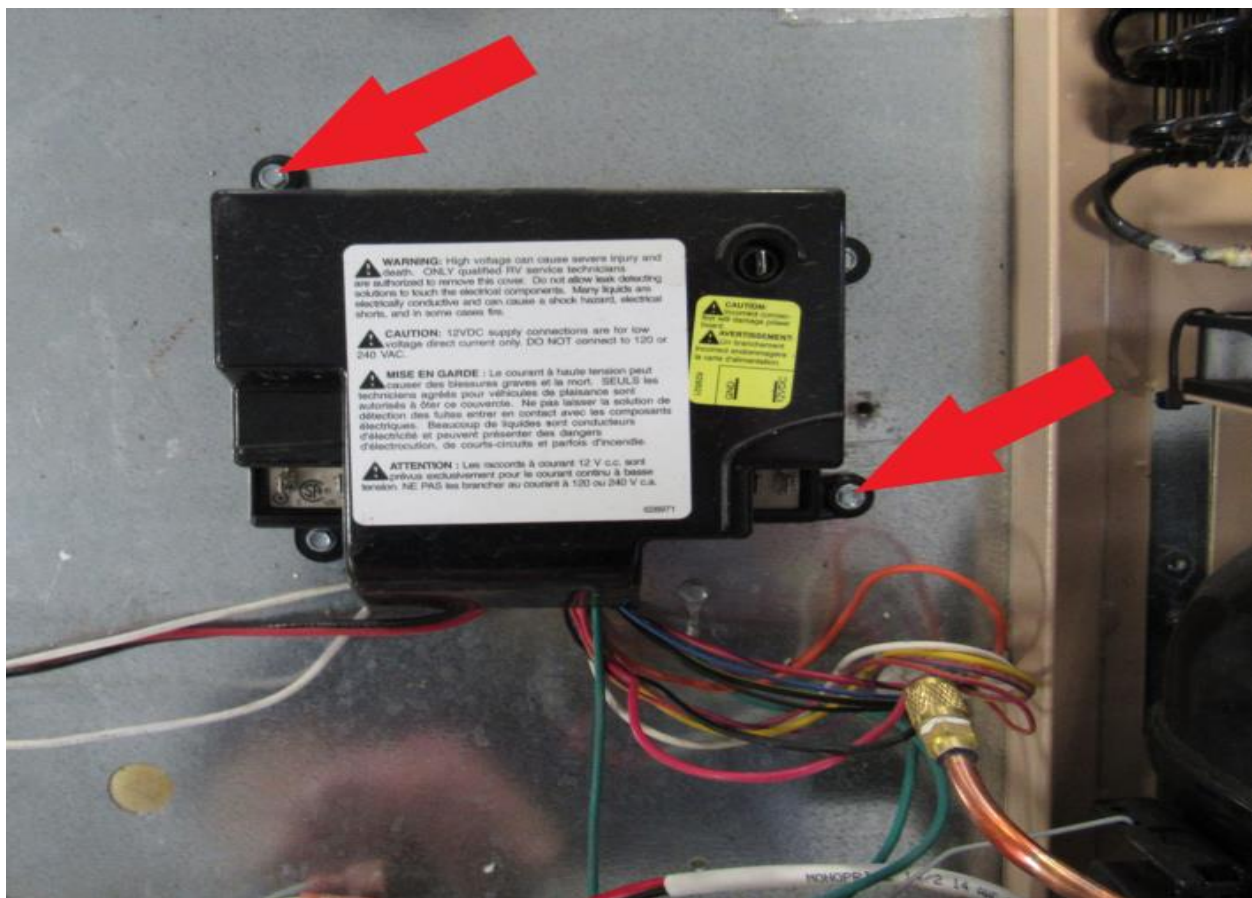
After filling all gaps with foam, follow up with covering the edges with the supplied aluminum tape as shown. This does not serve as a seal but for cosmetic purposes only.



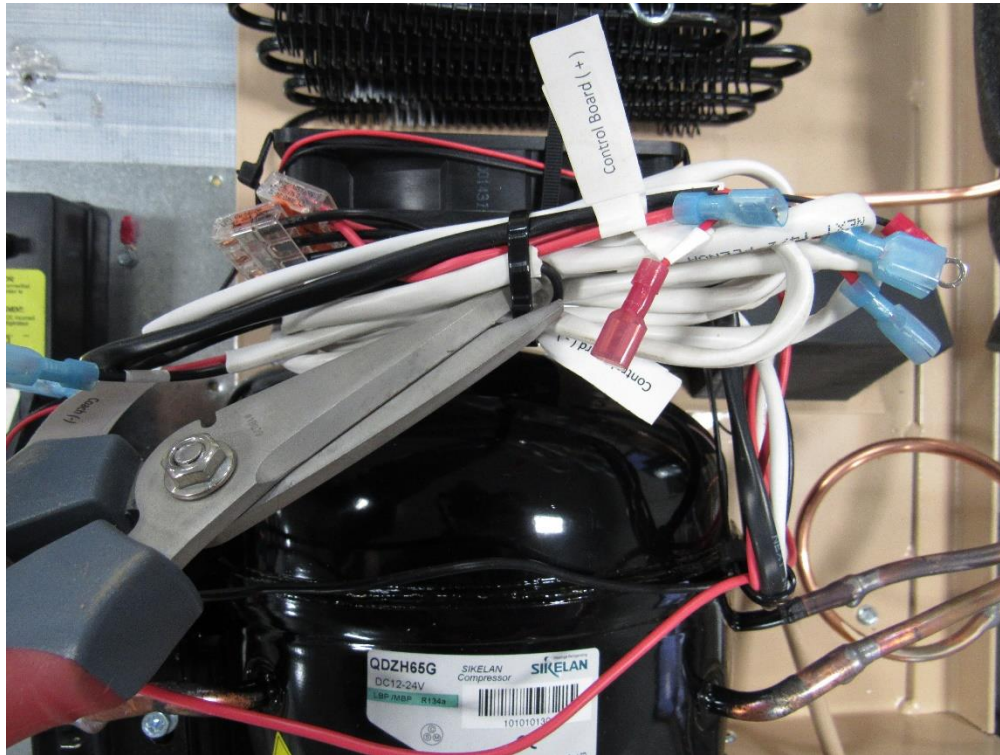
On 1210 Style board connect the “limit in” spade and the “limit out spade together using a short wire (any gauge) completing the circuit. This is where your safety temp switch was plugged into, you will no longer need it.



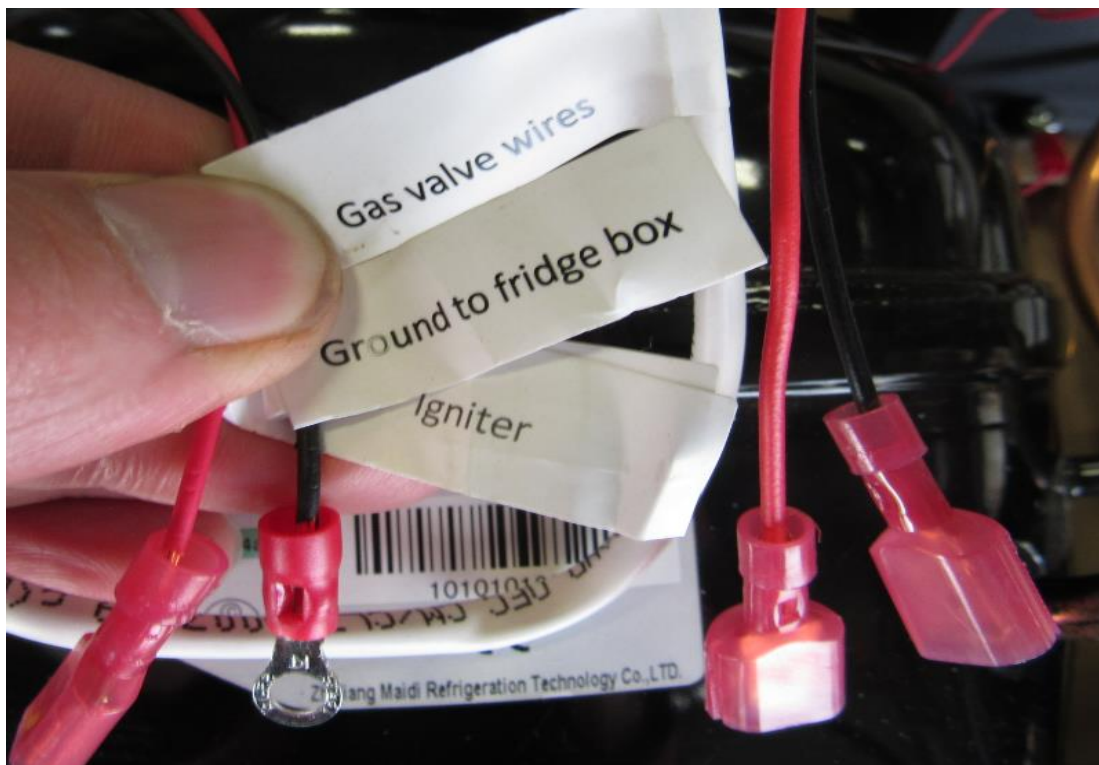
Reinstall board cover using self-drilling ¼" screws supplied,



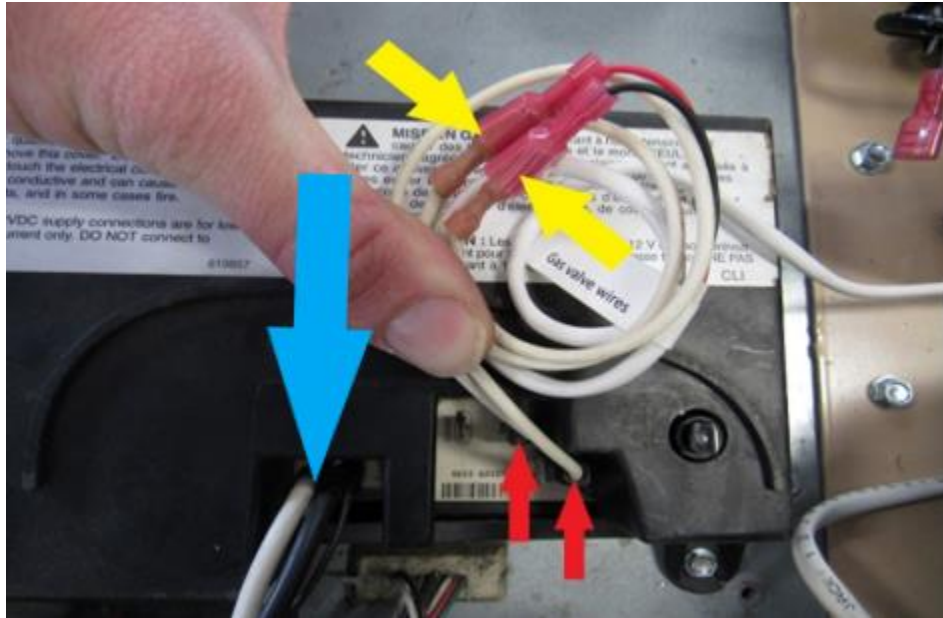
Snip the zip tie which holds the wiring that came with the unit.



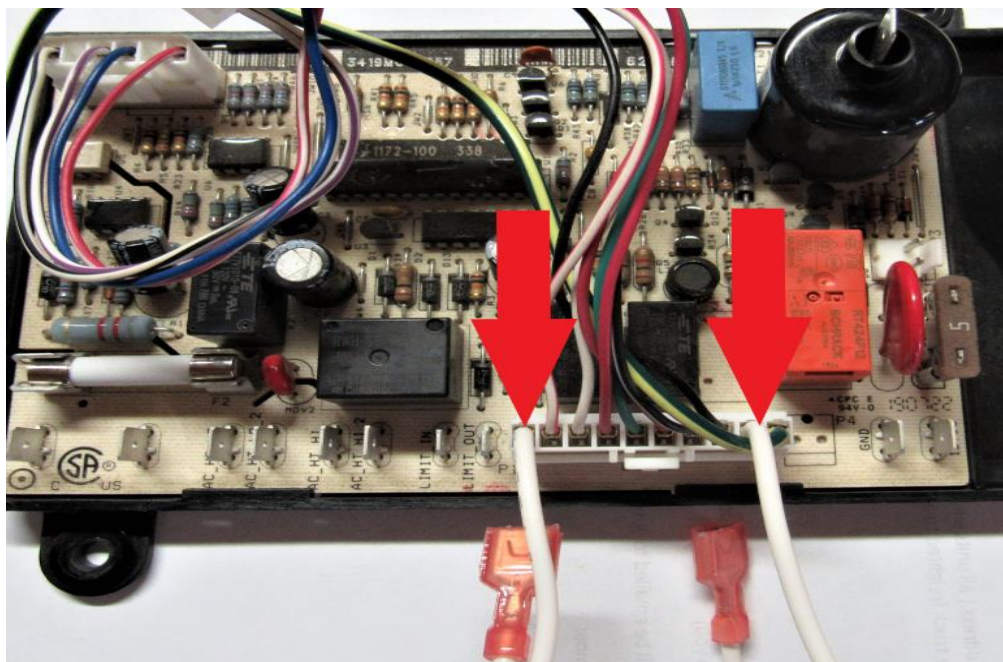
You will have 3 main wires coming from the control box that you will need to hook up. They have labeled tabs on where they need to go.



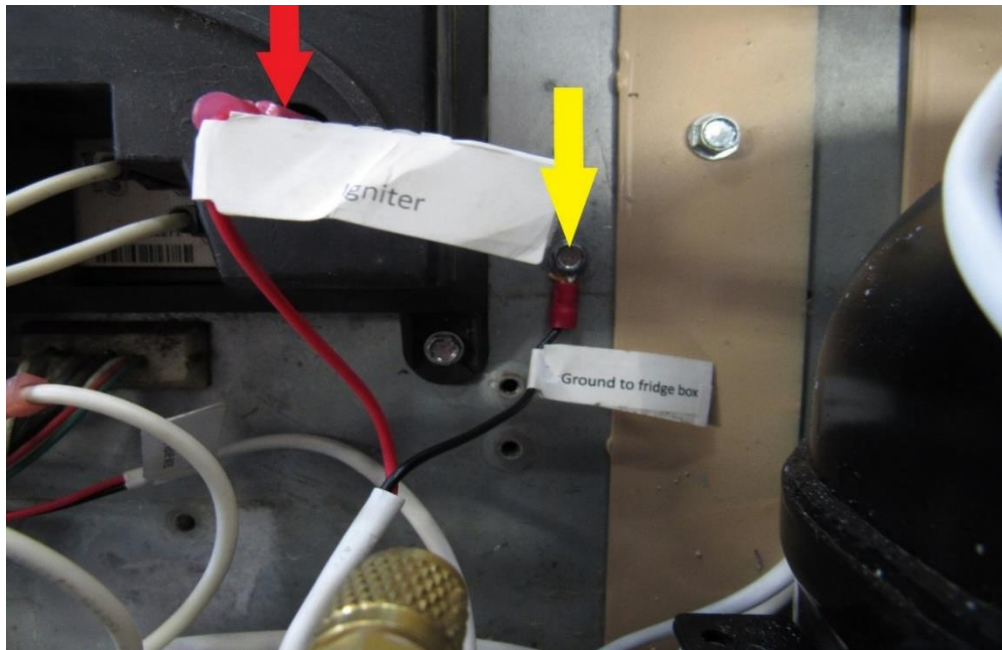
On 1200 Style board, take the two white wires that were removed prior (**RA**) coming from the main control board, and these need to be plugged into the wires labeled “Gas valve wires”. These 2 white wires used to go to the gas safety valve on the old unit (Female Ends). Our controller gas valve wires have male ends (**YA**). Reattach vent fan wires (**BA**) black on right white on left.



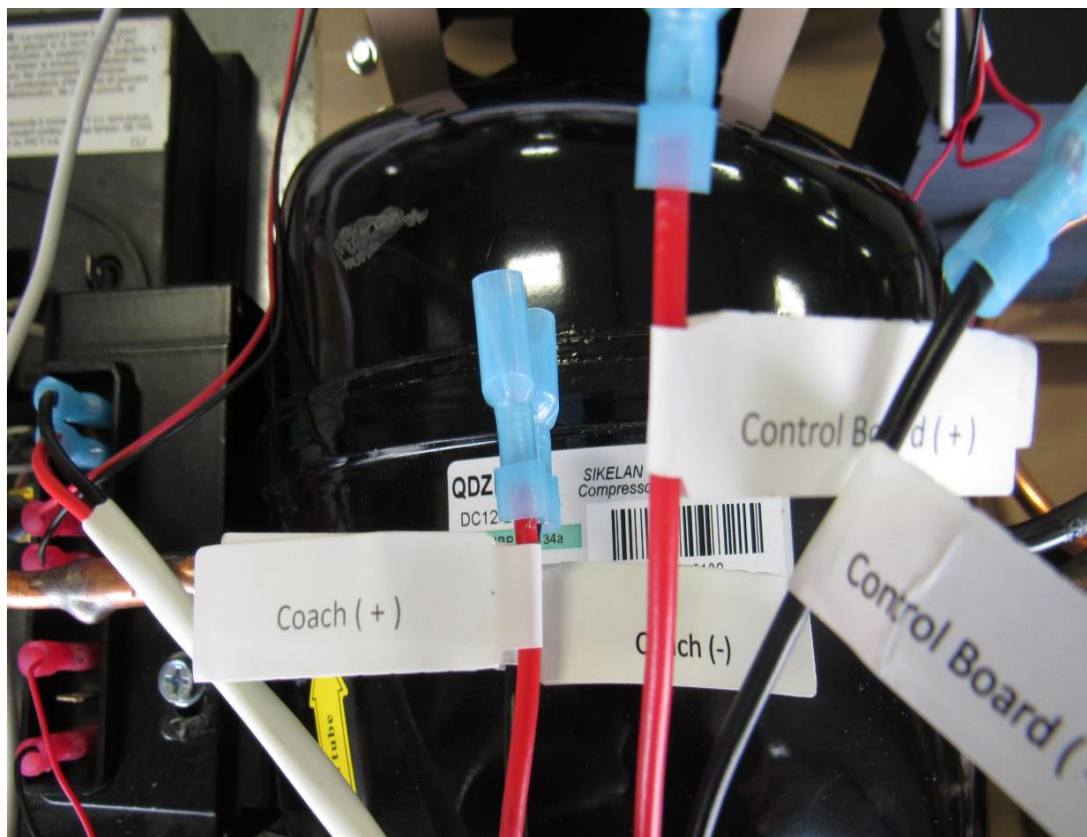
On 1210 Style board take the 2 white wires (**RA**) and connect to the 2 gas valve wires.



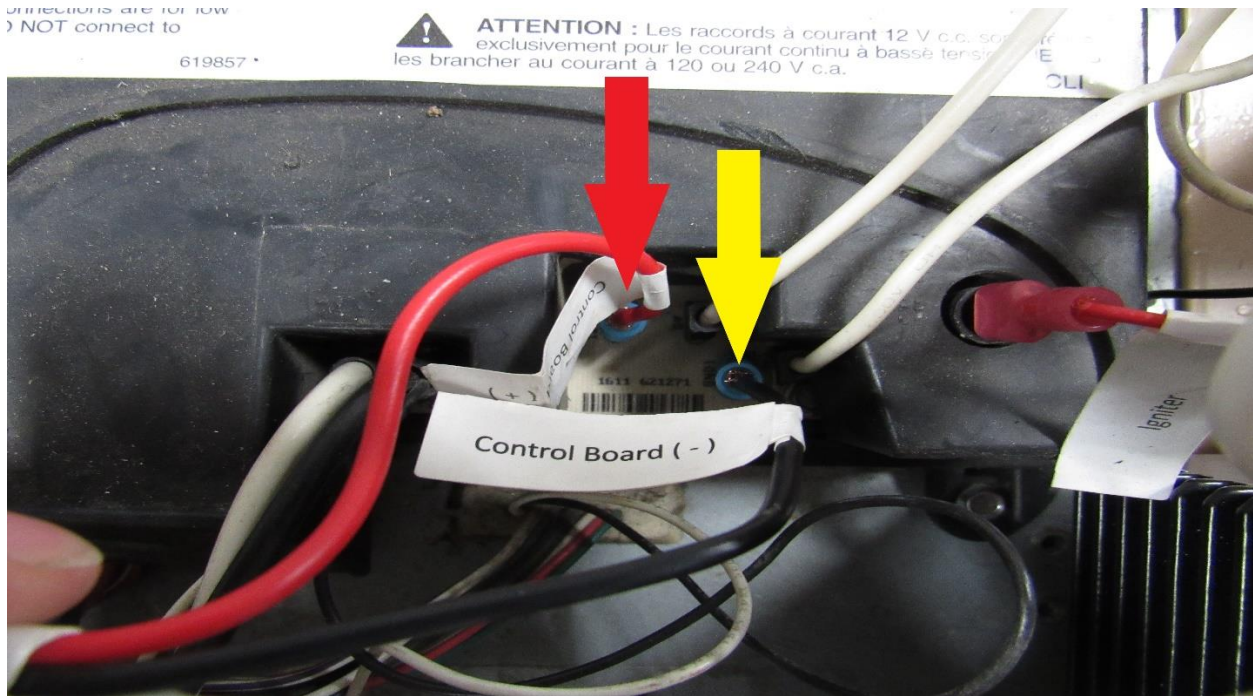
Take the wire marked “Ground to fridge box” and “Igniter” and place them as shown. Igniter simply plugs into the igniter terminal (RA) on the main control board and the black wire ground terminal gets grounded out to the box (YA).



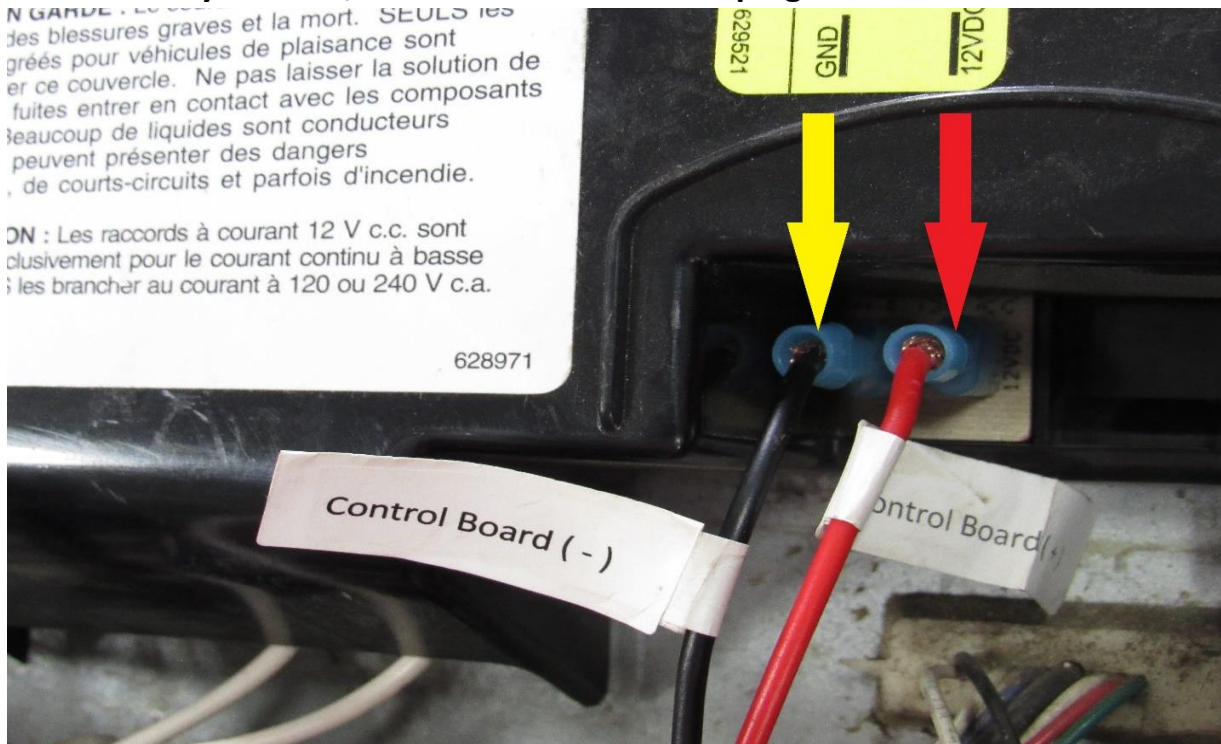
You have 4 main 12V power wires that will power the compressor and board



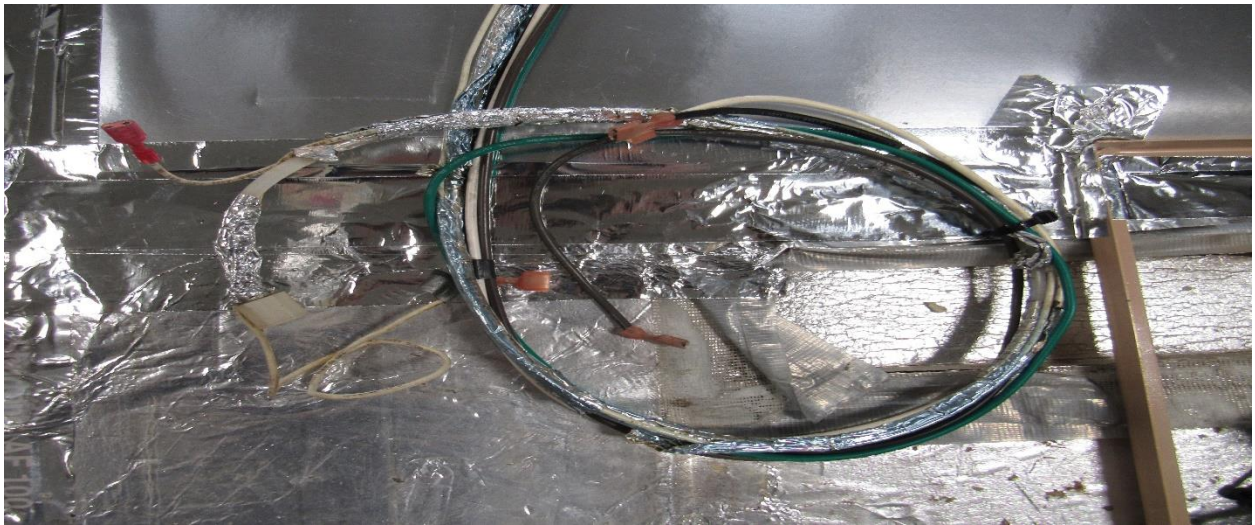
Take the wire marked “Control Board” and plug the red wire into the positive spade (RA) and the black wire into the negative spade (YA).



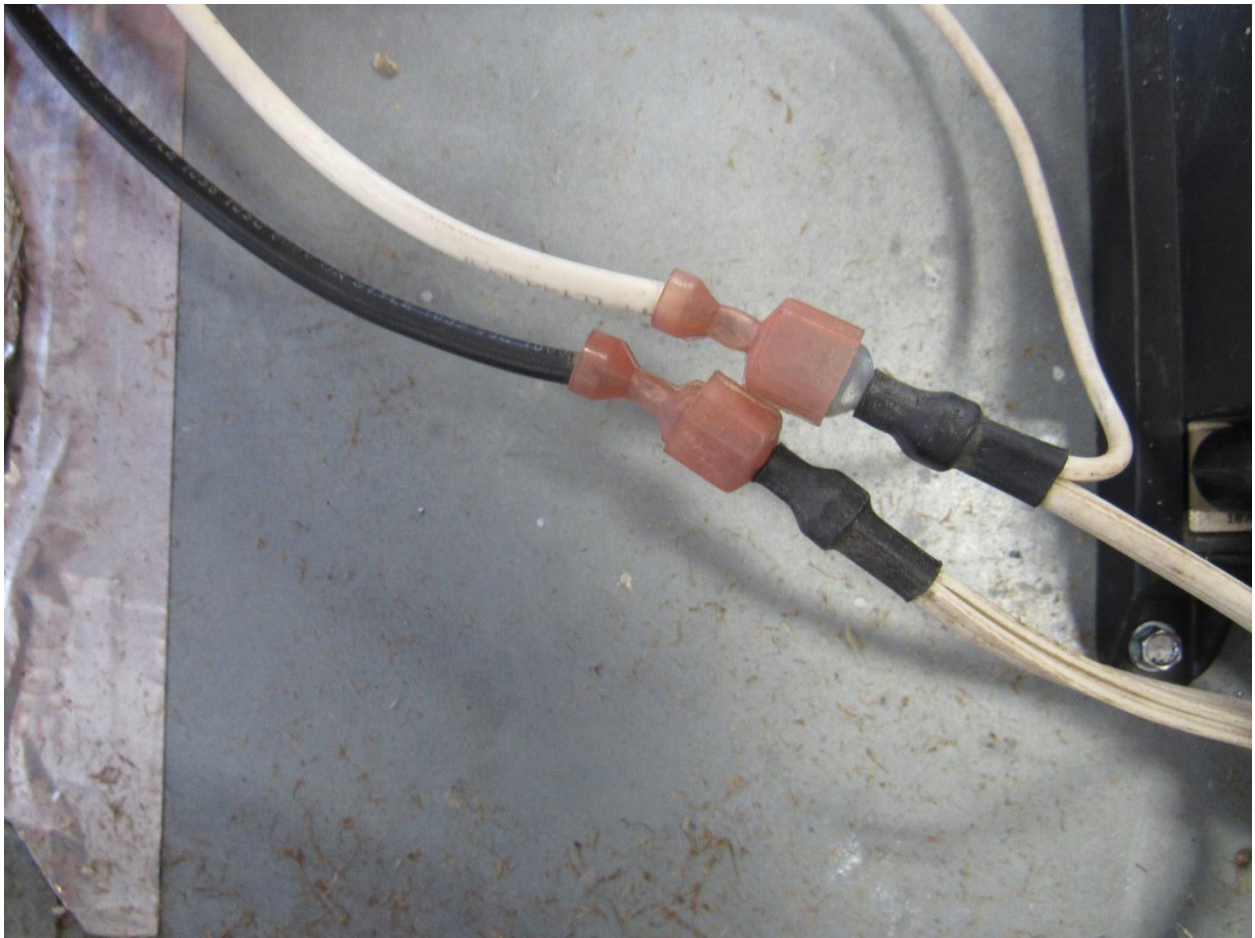
On a 1210 style board, the control board wires plug into the board like this.



Next, we will hook up the ice maker water line and AC 120V wires. Skip to page 47 if ice maker was removed.



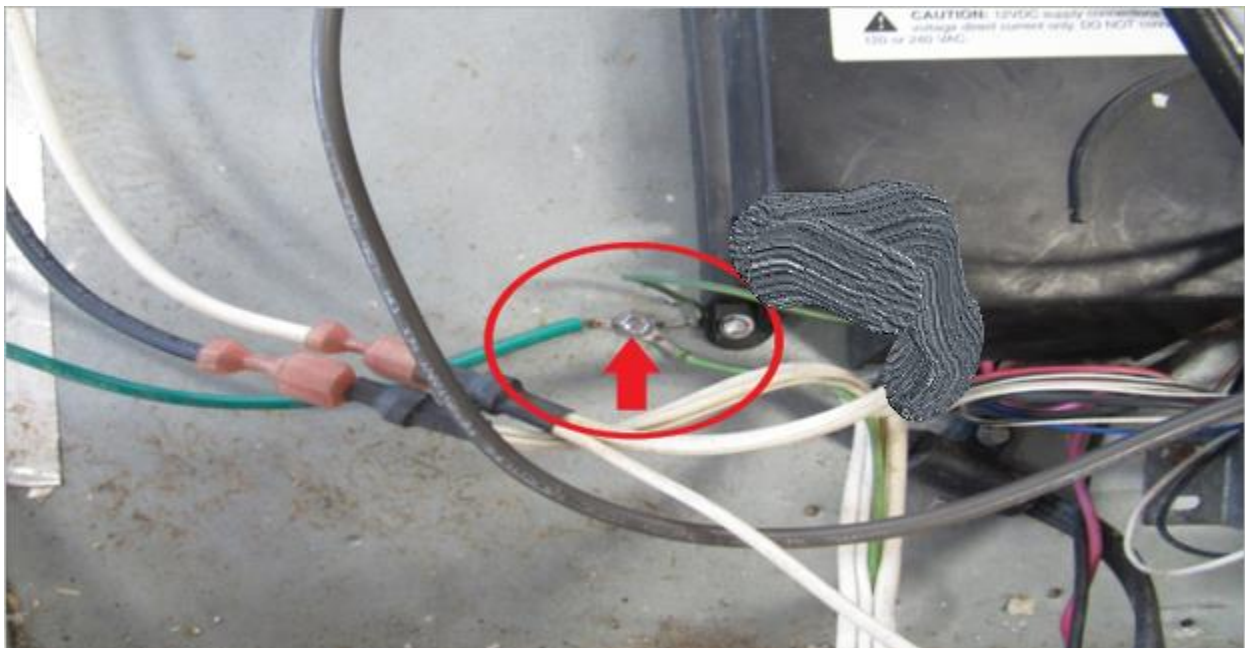
The black and white coming from the ice maker go to the main 120V plug as before.



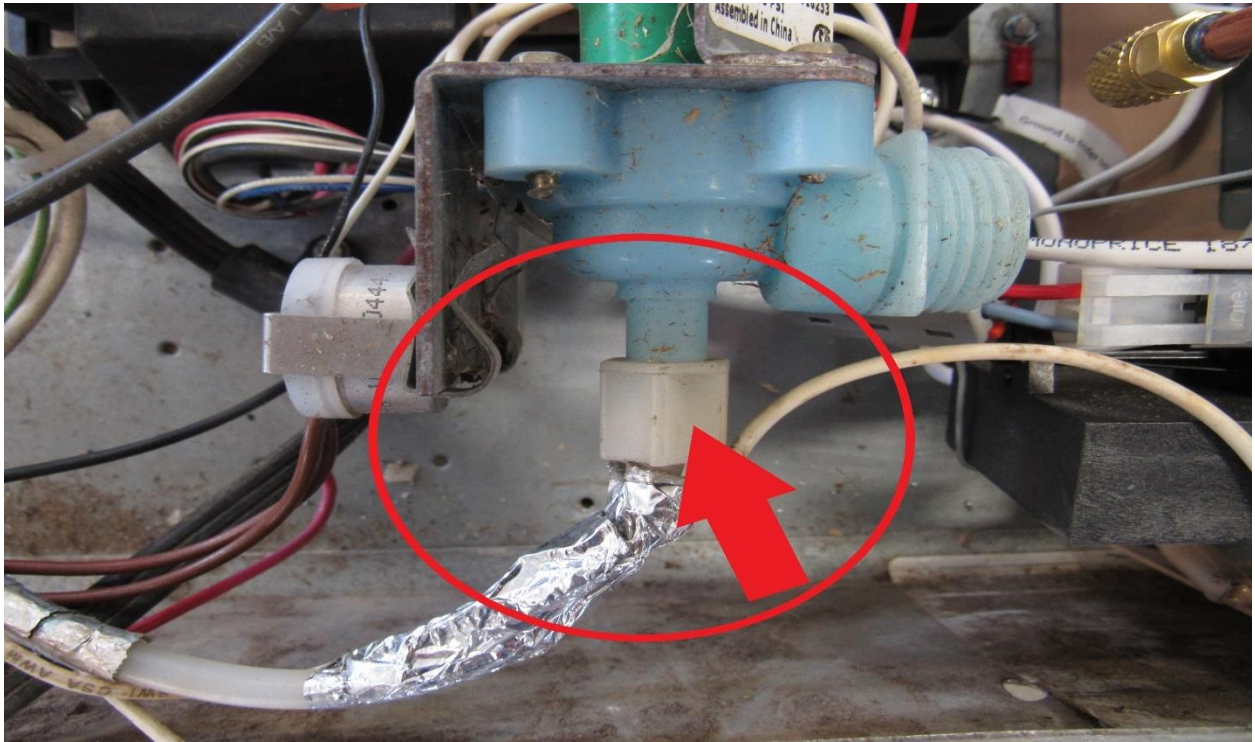
The brown wire goes to ice maker water valve (**RA**). The white wire splits off of the main 120V plug and plugs into the ice maker water valve (**YA**).



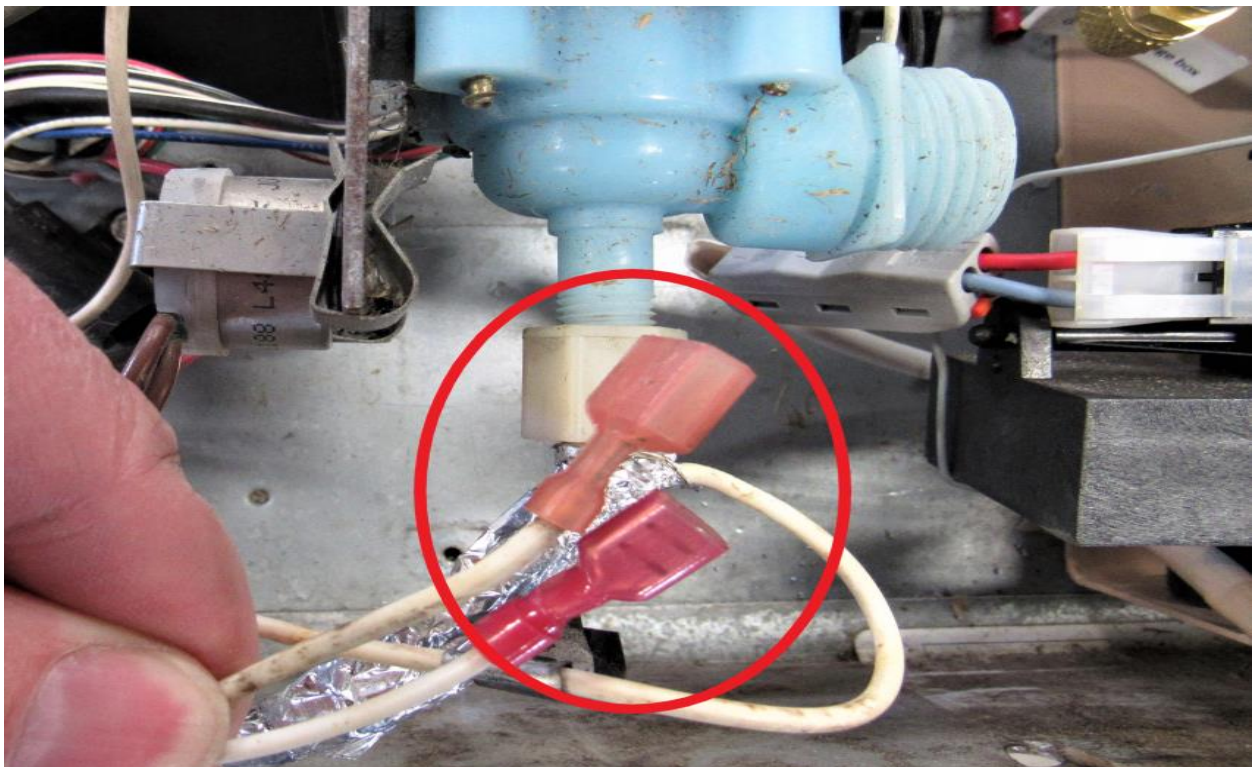
You will have three ground wires coming from the main black plug, the main white plug, and the ice maker wiring. Install a 1/4" self-taping screw shown (**RA**).



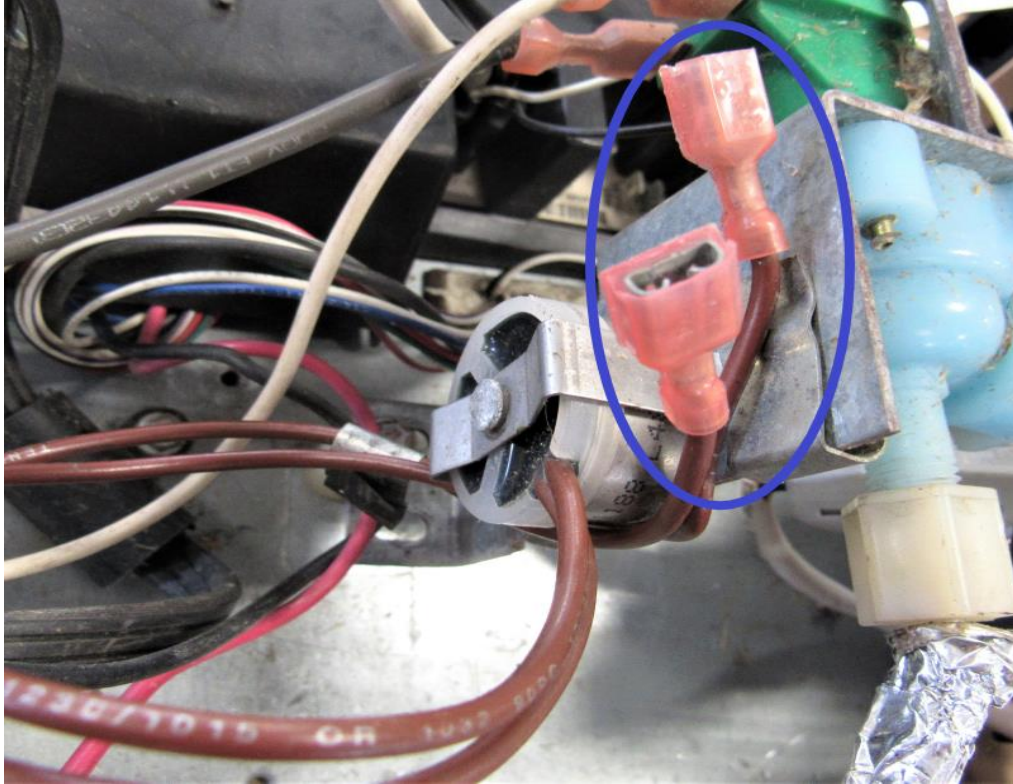
Connect the water line to the ice maker water valve (RA).



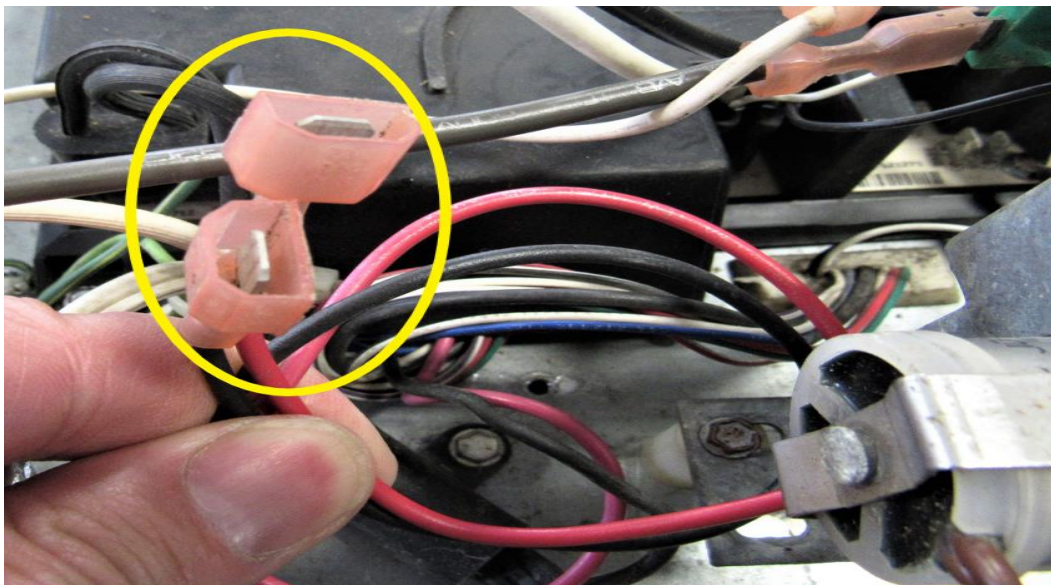
To connect the ice maker 12V DC water line heater, start with finding these 6 wires shown in the next 3 pictures, 2 white, water valve heater wires Red Circle.



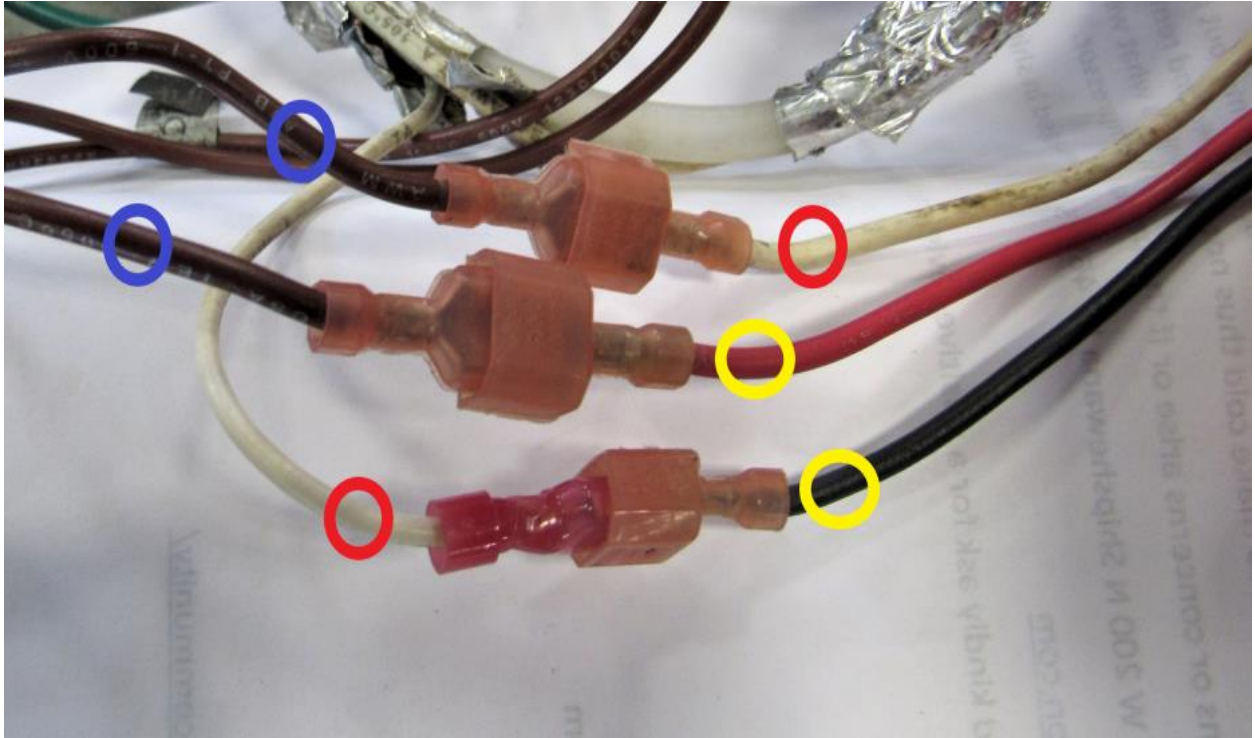
2 brown thermostat wires blue circle.



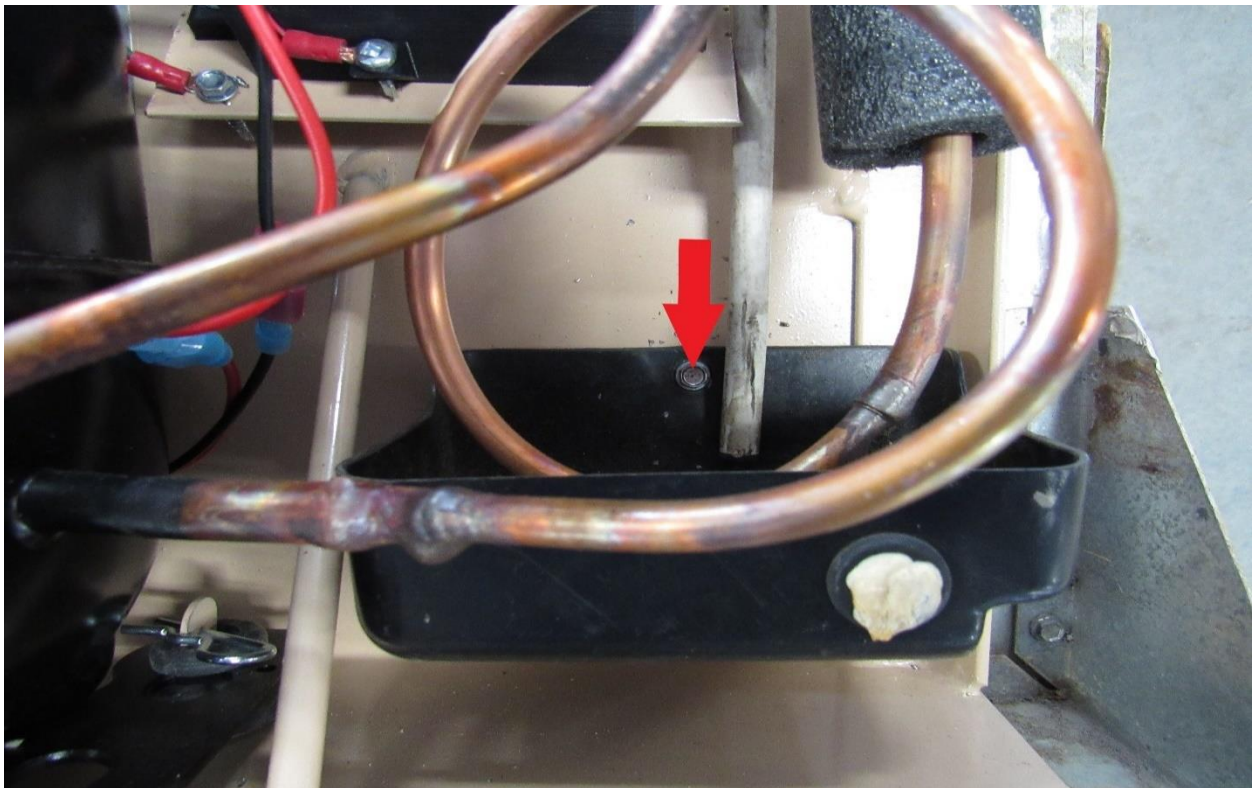
2 red and black 12V DC power wires coming from the board. Yellow circle, on 1210 style these are the same wires that took power to the 12V vent fans that you just use to take power to the compressor fan, originally these had a T on them to use for this purpose, if its missing go to your old unit and take them off as you will need these.



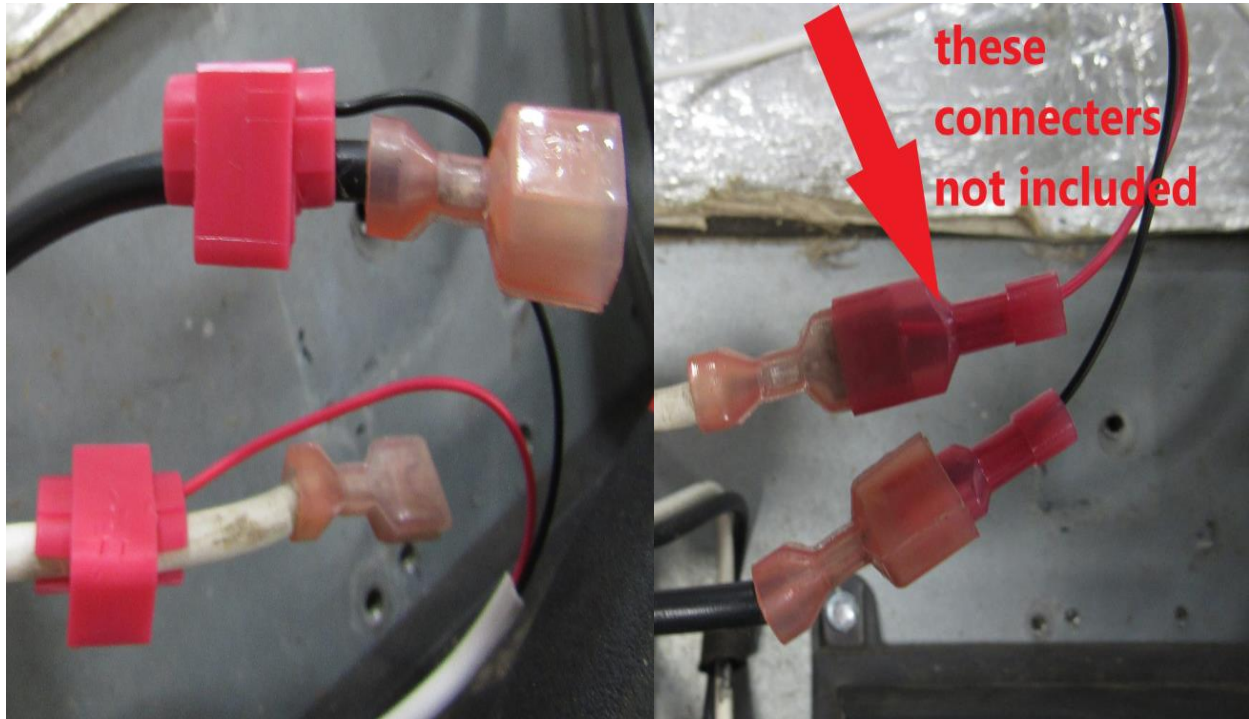
These 6 wires need to interconnect, wires are color coded to previous pics.



Install the defrost cup as shown (RA) using a 5/16" self-taping screw.



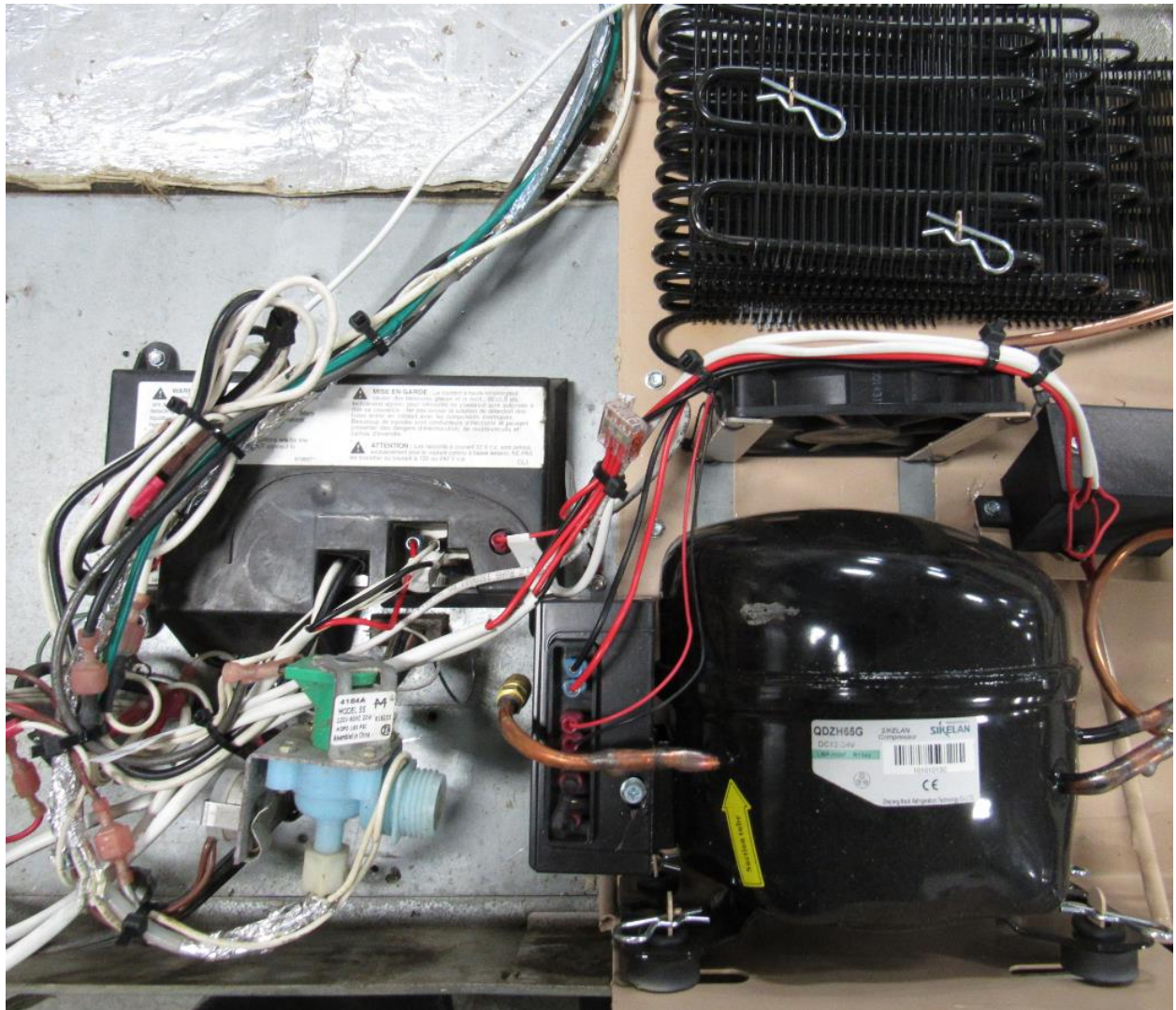
On 1200 Style board use the existing fan wires to power interior fin fan, red fin fan wire goes to white and black to black. You can use the red scotch locks (included) or you can use your own wire connectors to attach the wires together.



On 1210 style use the red and black that were used to power vent fans, red will go to red and black to black.



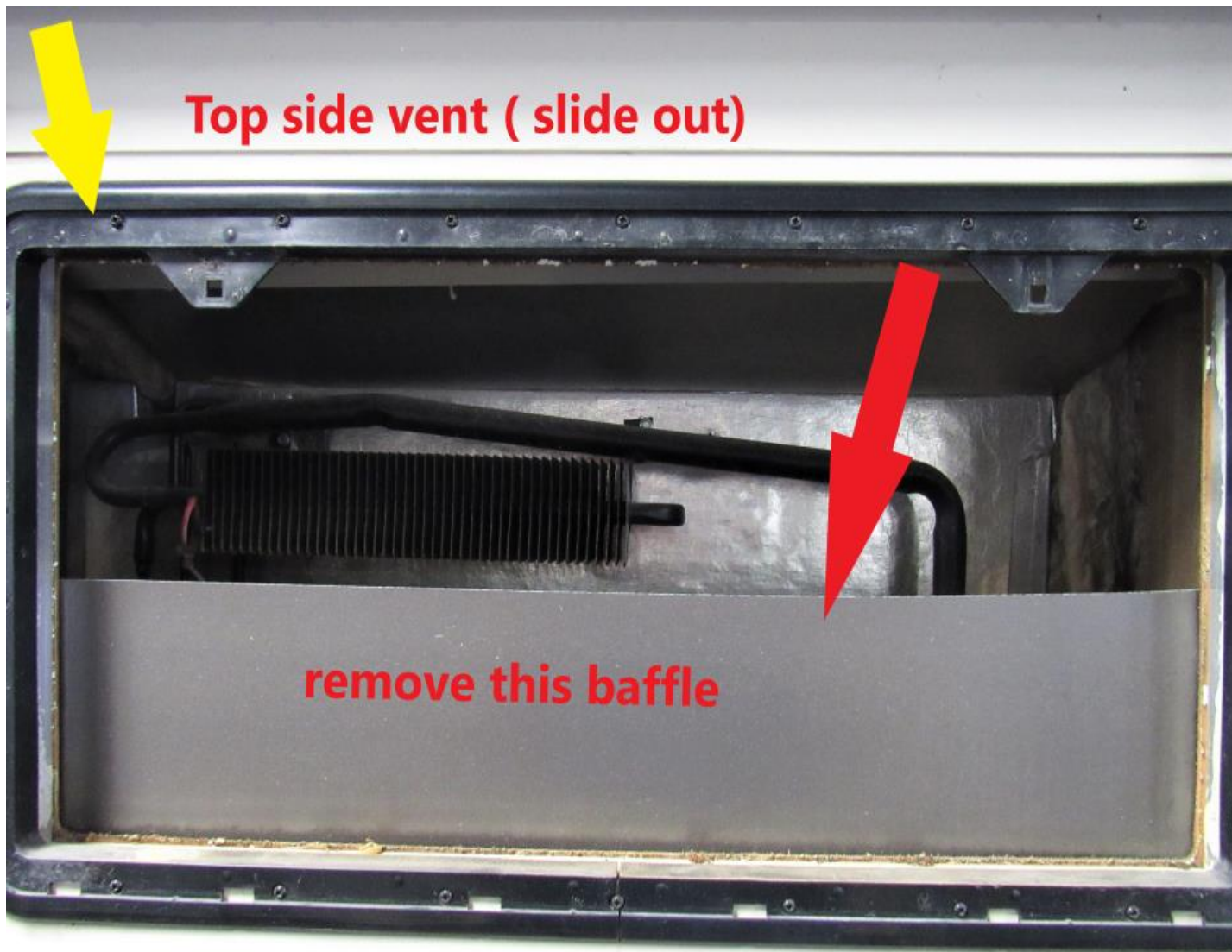
Using zip ties, clean up the wiring as shown. Your wiring should look like this when done.





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

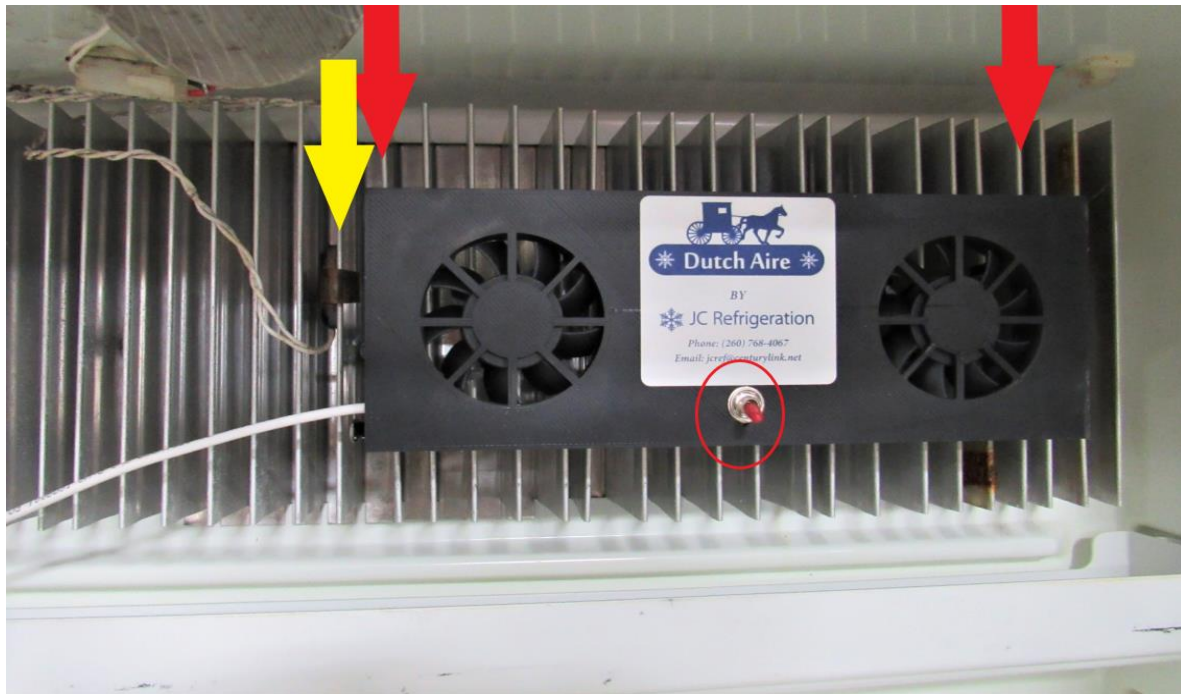
Before installing the fridge back into the cavity, check to make sure wall insulation is secured and this is a good time to sweep or vacuum any loose debris. If this fridge is installed into a slide out then make sure and remove the top side vent (YA) baffling (RA), as you will no longer need this and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



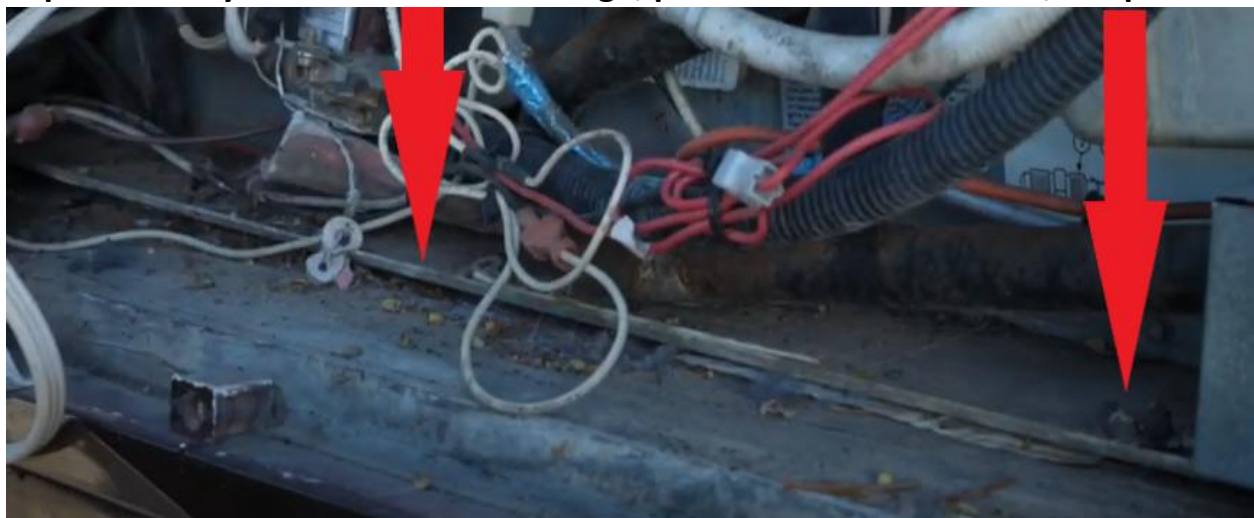
Now you're ready to slide the refrigerator back into the cavity. Once it's started it helps to have someone outside to watch as you slowly push the fridge back into place, making sure the gas line is out of the way. Attach black trim pieces on top and bottom. Install mounting screws (**RA**) on the top and bottom.



Unclip the thermistor from its far-right position, and clip onto fin #21 counting from right to left (YA), this placement is not so crucial up and down. The fin fan needs to be attached so the fans are centered over the points of cooling which are fin # 4 and # 20. (RA) The fin fan has a simple on/off switch in the center (RC). Your unit will run more efficiently, and ice will not form on the fins with the fans running at all times, if ice does accumulate to the right or left of the fan with time the fan might need to be unclipped and moved so it's centered over the ice area.



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, see pic #8.



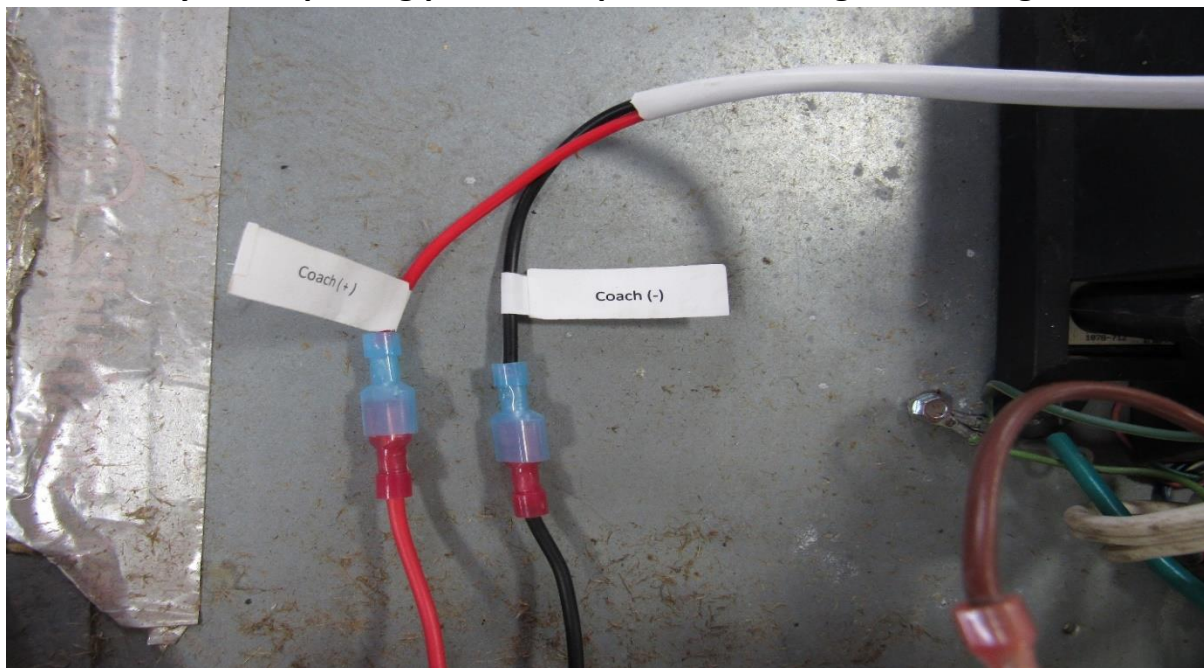


WARNING: Make sure this step is properly followed and leak checked so you don't have a gas leak.

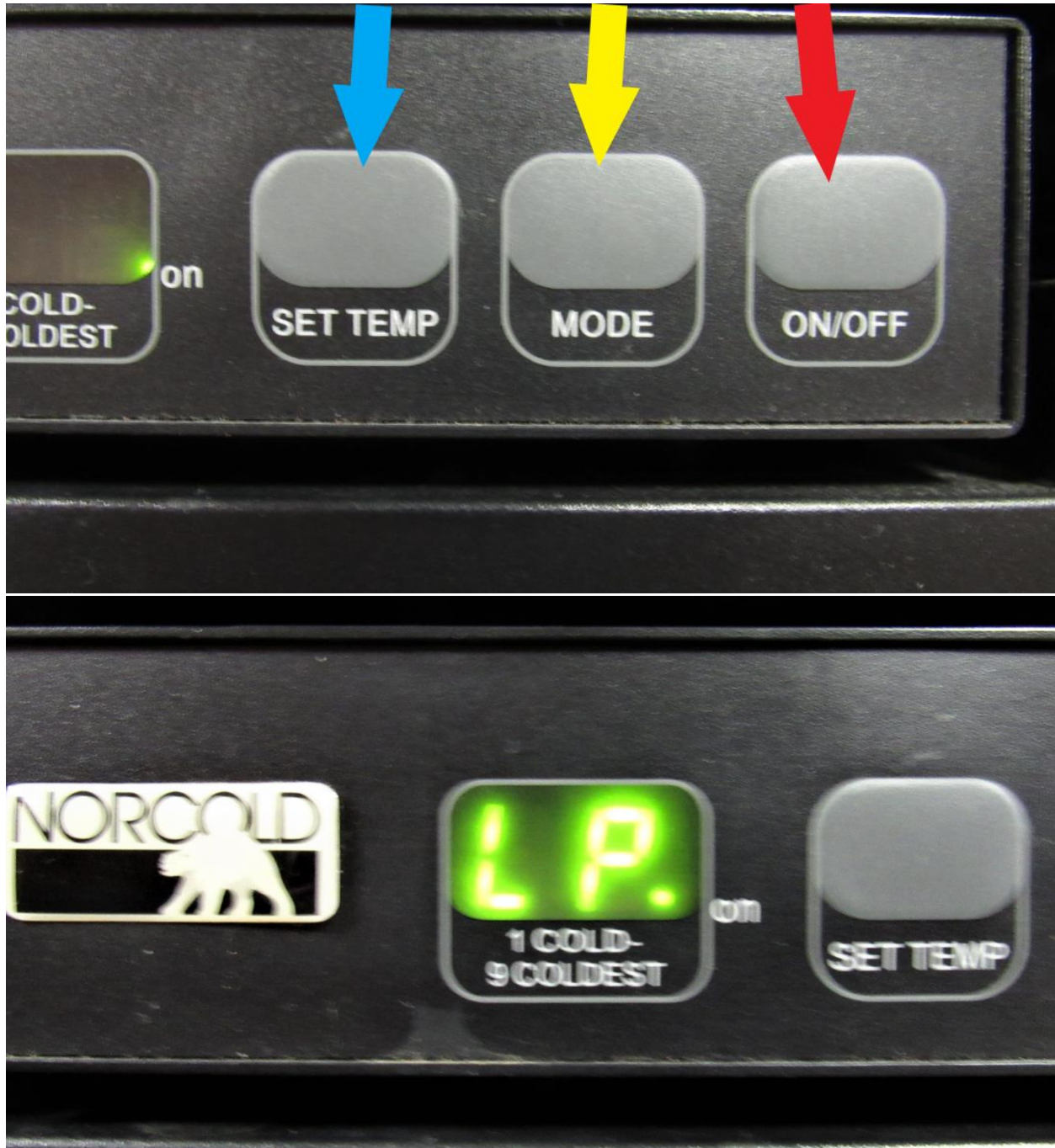
Thread gas plug into gas line (plug included) use wrenches to tighten in, after its tight, gas tank is ready to turn back on and using a soap water mixture, check for leaks. (RA) This copper tube can be bent carefully and tucked out of the way once the fridge is back in place.



Make sure you are putting positive to positive and negative to negative.



Go to the inside of your RV and turn your refrigerator control "ON" (RA) now push the mode button (YA) and set it onto LP mode. After a few seconds your compressor should start up and run, you can now adjust your temp setting (BA) to your desired temp, we recommend setting it onto 4 and then after approx. 6 hrs. adjust up or down to your desired temp inside the fridge. A thing to remember is food zone is 38F to 42F, but most times you will want this fridge to run between 34F to 36F and in the freezer 0F to 10F.



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 like this type.

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

Use digital wireless



DO NOT USE



Clip fridge sensor underneath second shelf down or first shelf beneath the fin, place it center front to back and center side to side (**RA**), if its clipped underneath it will be out of food containers way.



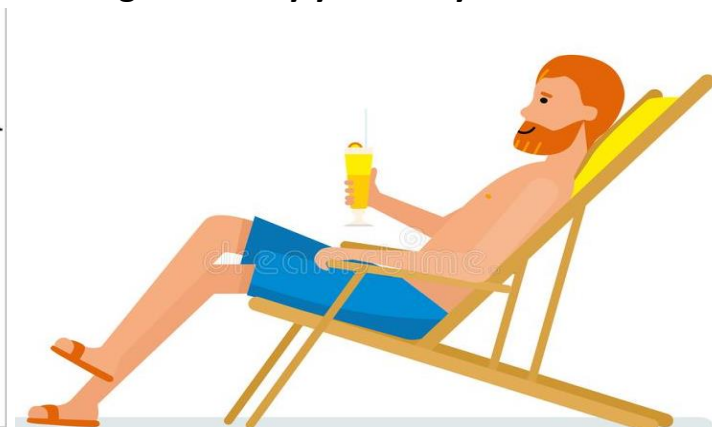
Same with freezer, clip underneath bottom shelves center side to side but have this one more towards the back of the freezer.



You are all done and ready to hit the road and do some serious camping 😊

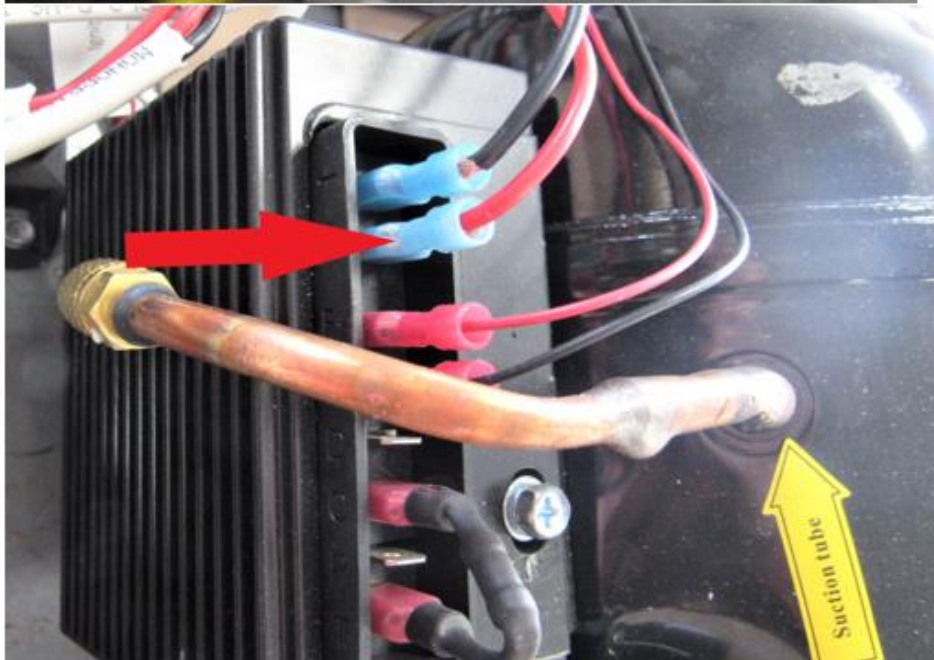
Let us know if you see any areas we missed or that should be made clearer, since we do installs practically every day, we get blind at times to things that should be mentioned or be made clear.

dahvac@outlook.com **Thanks for hanging in there to the end, give yourself a fair pat on the back and enjoy your cold fridge for many years on your travels.**



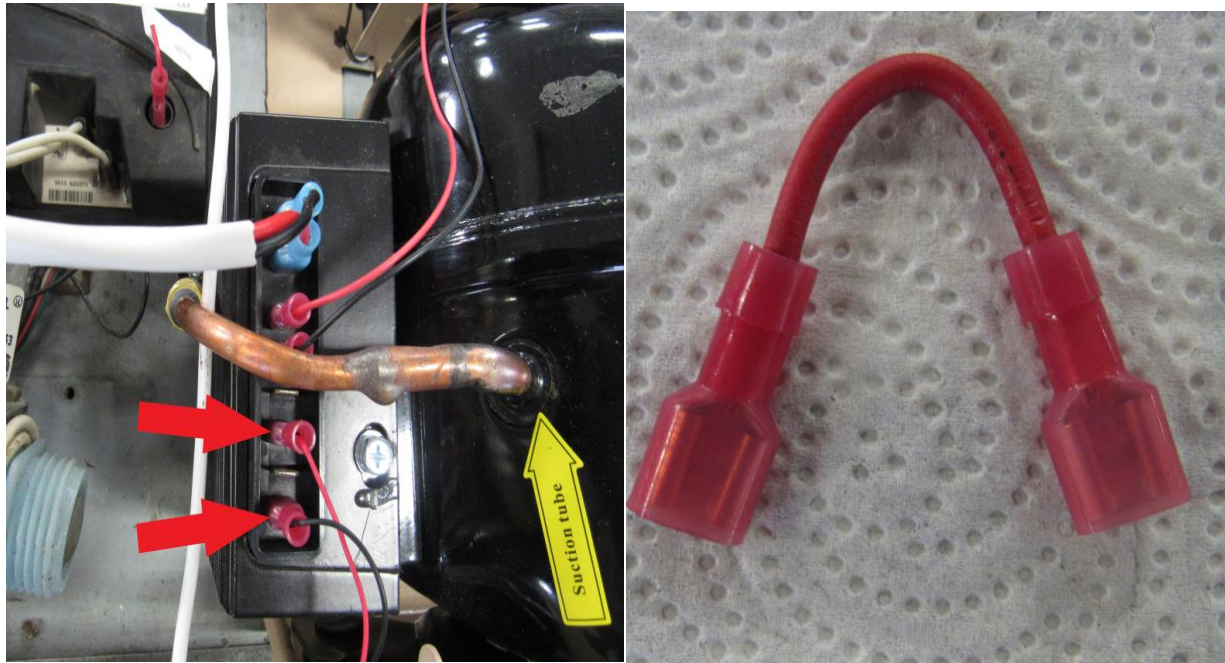
There are 2 style units, use the guideline that looks like your compressor controller (OPTION #1)

Remove coach 12V + lead wire (RA) from wire marked "coach (+)" and remove 12V + lead from compressor (RA). This could be a black or red wire, but it's the 2nd down from top wire. Push DC 12V + from your coach directly into compressor marked 12V power, this will make compressor run continuously until your board or other issue is resolved. The Ground wire can be left intact.

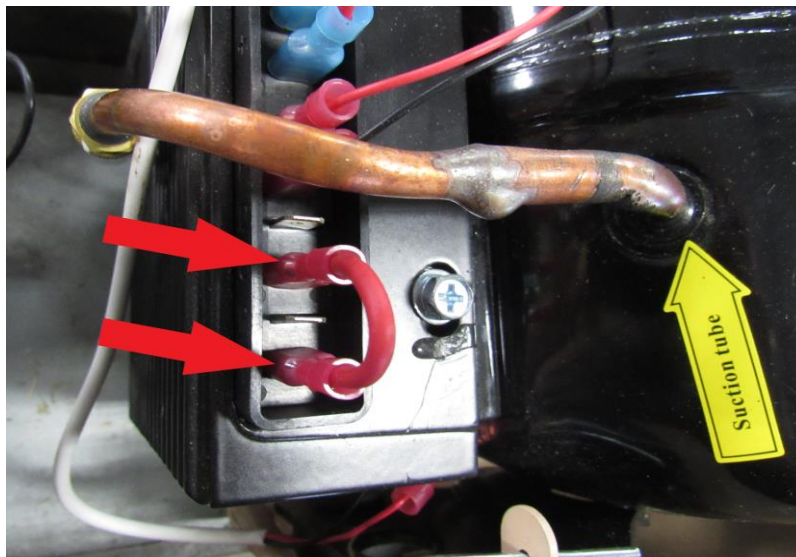


(OPTION #2)

Disconnect these 2 wires (RA) from the compressor controller, these will come from the controller on the right side of the compressor make up a small wire with female ends (any gauge)



Insert small wire into place where black and red wire were located, this will now run direct, if your board will give a beeping alarm you can unplug your power going to the board. Just make sure you still have 12V going to the compressor fan and interior fin fan.



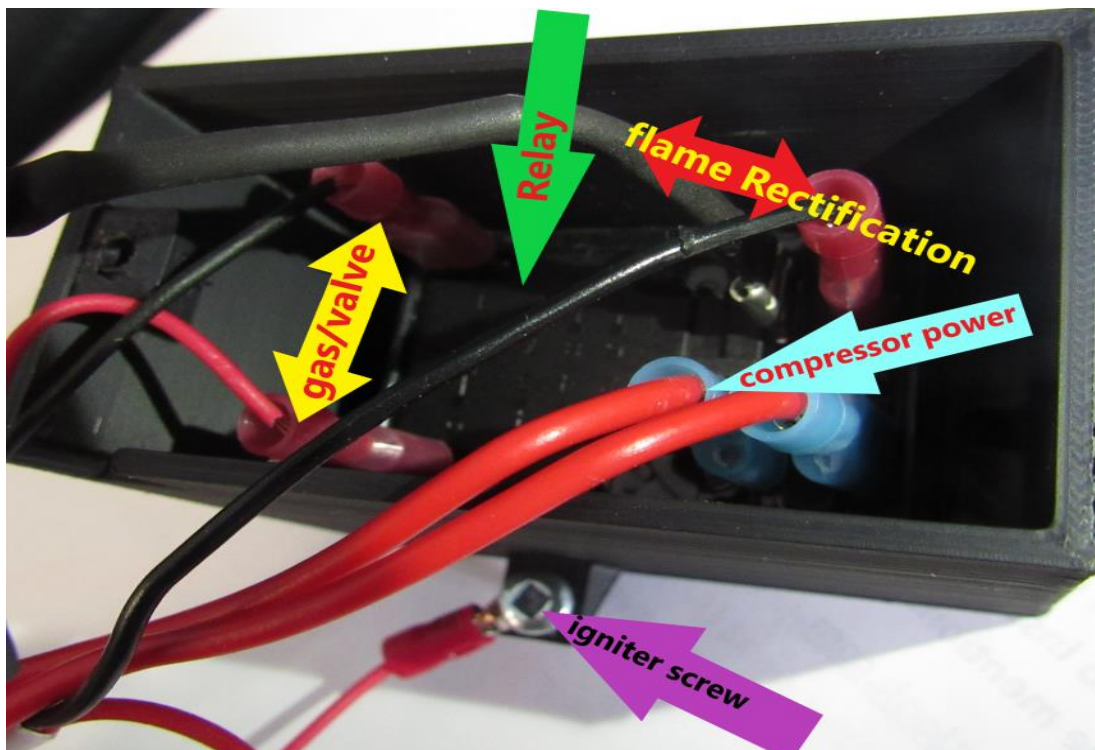
*Troubleshooting *

Warning Codes:

“SR”: Check your fridge ground wires and try grounding a wire from the fridge box to your gas line.

“NO FLO” **#1** Check fridge ground wires. **#2** Open controller cover and make sure wires are all intact and not broken **#3** make sure the relay makes a “CLICK” after it’s turned on. **#4** Make sure igniter screw is not touching ground or wet, turn out 1 full round. **#5** Flame rectification wire may need to be changed. See Controller below.

If compressor starts but shuts back down after 15 seconds, check your voltage at the compressor at the time it tries to start. Compressor has a built-in low voltage shut off set at 10.4V, so when the compressor starts is when it will use the most amp draw, if voltage drops below 10.4V it cannot start and a new 10ga wire will have to be run from the fridge to the battery. The higher the voltage the lower the amperage, or vice versus, so in order to have compressor running the most efficient the voltage needs to stay above 12V while running.



“NO CO” Code

This code will shut down the control board and a restart is needed, see diagram below how to restart

Make sure your thermistor has been moved to the proper location on the fin as shown in Page 50

Make sure left hand door flapper is swinging shut and sealing to the right-hand door

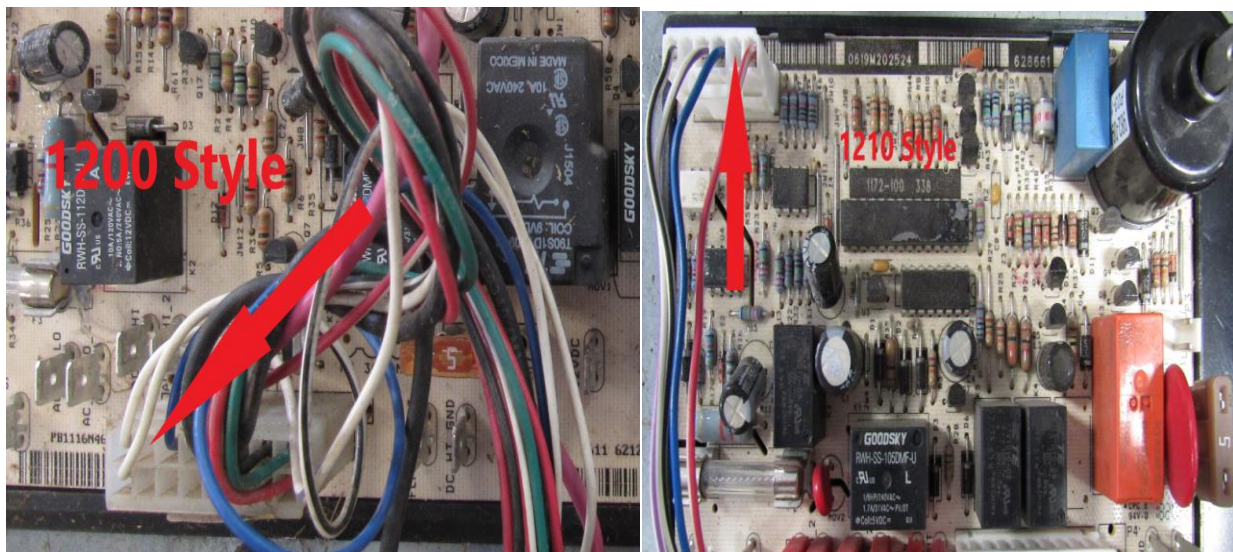
Makes sure fin fan is running at all times, and compressor fan is running while the compressor is running

If this code continues to come back wire compressor direct as seen in earlier page, this will bypass all controls, if the fridge cools down in bypass mode the rear control needs to be changed, if it still does not cool in the bypass mode other compressor diagnostics will have to be done.

Restart control board

Remove board cover and remove all wires except the 12V power wires and the gas valve wires going to the controller.

Take a 18ga or smaller wire and strip back both ends at least 1 “, make sure 12V power and gas valve wires are hooked up, then push one end of wire in empty slot (**RA**) and hold other end of wire onto a ground, either back of fridge box or ground from coach, after approx. 5 seconds you will hear a click and you can take wire back out and put cover back on as well as other wires and your fridge should function as normal again.



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 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 vice versus, unclip the thermistor from the fin and leave it hang into the box for approx. 1 hr 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 giving fits, 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 in till a “CL” shows, let it set like this for a least 5 minutes, then shut fridge off and turn back on and the fridge should be ready to operate again.