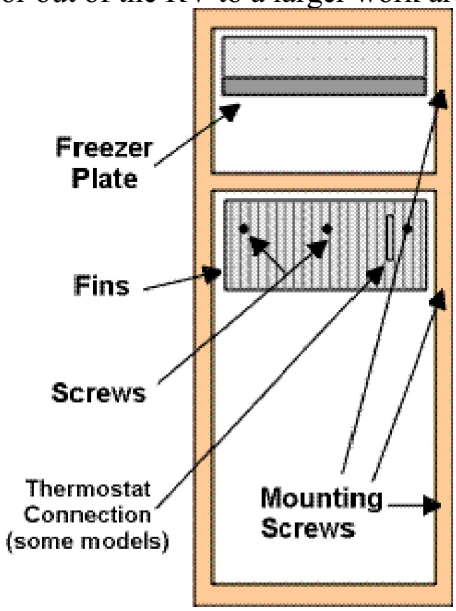
Changing a Cooling Unit

Note….before you read, this info is for the old style cooling units. If you do not have a freezer coil shelf then you need the new style info.

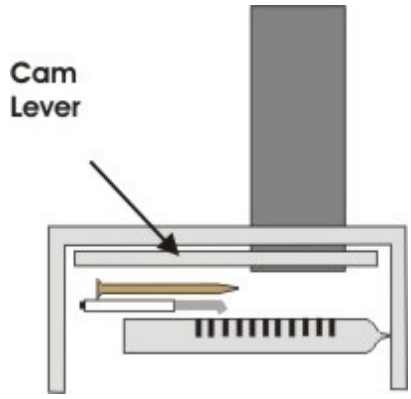
Pulling the Refrigerator. The first step in changing a cooling unit is to pull the refrigerator from its cabinet in the RV. Start by turning off the propane at the main bottle(s) and burning off any residual in the lines at a stovetop burner. Next, from the outside access door for the refrigerator, disconnect the propane line to the refrigerator, unplug the 120 volt cord, and disconnect the 12 volt wiring to the refrigerator. Tape up the ends of the 12 volt wires with electrical tape to prevent sparking. While back there locate two screws that are usually at the bottom outside edges of the refrigerator, securing it to the cabinet floor, and remove them.
Next (optional) remove the refrigerator doors (just be sure the slide travel latch is removed). After that, most models have four to six mounting screws on the face of the refrigerator, usually covered with plastic plugs. See graphic below. These need to be removed. Look for any other fasteners that might prevent removal of the refrigerator. Next, inside the RV, underneath the refrigerator, there is usually a bead of silicone that needs to be cut with a razor knife. The refrigerator should then be free and slid into the RV. If it doesn't move, look around for something else holding the refrigerator in. Sometimes RV manufacturers create their own ways of securing the refrigerator. If possible, take the refrigerator out of the RV to a larger work area.



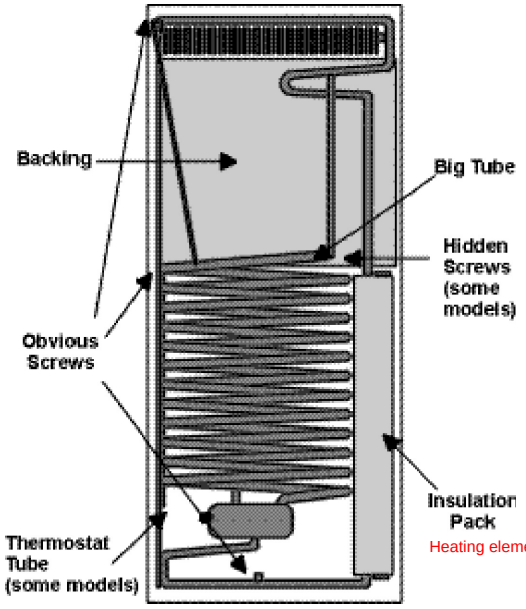
Removing the Cooling Unit Begin by removing the aluminum freezer plate from the freezer. These are usually held in by a few bolts or screws. Remove the fasteners and pull off the freezer plate. This will expose pipes from the cooling unit protruding into the freezer. In the lower box, on the aluminum fins, there may be one or two capillary tubes from thermostats held in place by a small plate. A capillary tube is the sensor from a thermostat and resembles a wire. The plate needs to be loosened and the capillary(ies)

Be careful with capillary tubes, don't bend or flex more than needed it may be brittle.

Removed from the fins. Not all models have capillary tubes connected to the fins, so if they are not there, don't worry about it. Also, some of the newer models have a thermistor, instead of a capillary tube, clipped to the fins. Unclipped and let it hang. The fins will stay with the cooling unit until it is removed later. Once the work inside the refrigerator is done, lay the refrigerator on it's face. Depending on circumstance, it may be necessary to lay an old blanket down to protect the face of the refrigerator. The cooling unit is the set of coils on the back of the refrigerator, extending from the top to the bottom. This is what we're after. Obvious parts such as burner assemblies, heat elements, baffle, etc. need to be removed from the unit as well. The RM761, RM763, RM1300, RM1301, RM1302, and RM1303 have a cam holding the burner assembly to the bottom of the cooling unit chimney. Locate the cam and pull it's lever towards you (shown below). This will allow the burner to drop down. Anything else in the way of pulling the cooling unit needs to be removed. Other models have small short screws holding the burner assemly in place.

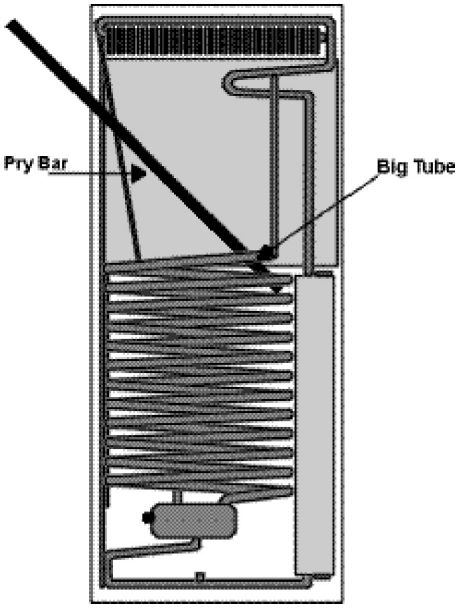


There are handful of obvious screws holding the cooling unit to the refrigerator that need to be removed. See graphic below. Some models, such as the RM763 and RM1303, also may have two hidden screws near the "big tube" at the bottom of the backing foam pack, underneath the backing cover. Some later models (RM3600, RM3800) may or may not have these screws. The RM761, RM763, RM1300, RM1301, RM1302, and RM1303 models have the thermostat capillary tube inserted into a tube that is a part of the cooling unit on the lower left bottom. See graphic below. This needs to be pulled out. A steady pressure on the capillary tube will usually break it free for removal. Sometimes, due to corrosion, the end of the capillary tube will break off. If this happens, you will need to replace the thermostat. If you're concerned about the capillary tube being stuck and breaking, standing the refrigerator on its head and squirting something like PB Blaster, WD-40 down the thermostat tube of the cooling unit may help. If you do this, you need to let it set for a few hours before pulling the capillary tube out.

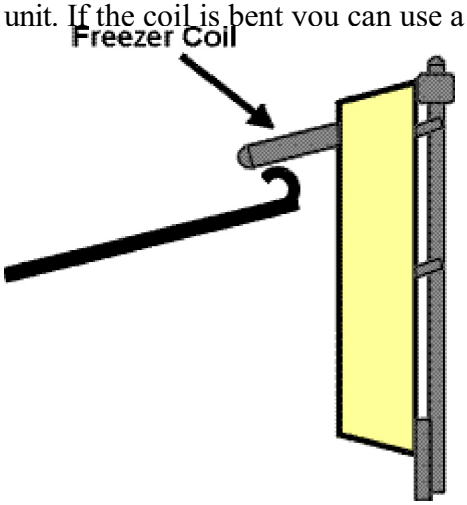


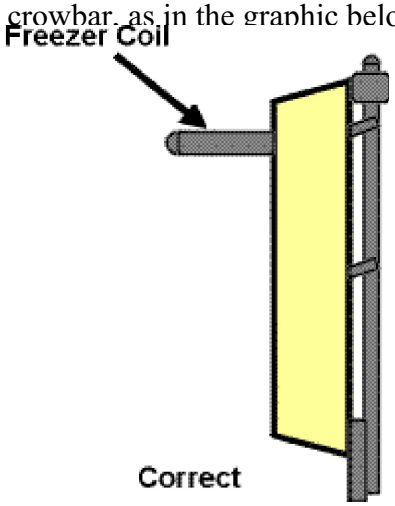
Heating elements located in the area (elements not shown)

Once all fasteners have been removed, the cooling unit is ready to pull. A pry bar under the "big tube", as in the graphic below, will usually do the job. The "big tube" is the only pipe that should be pried on. Since you will be prying against the refrigerator body, a board or some other protection is necessary between the pry bar and the refrigerator to prevent poking a hole in the box. This is usually enough to pull a cooling unit, but not always. If yours is stubborn, peel up the edges of the aluminum backing paper to expose a line between the foam of the cooling unit head and the insulating foam of the refrigerator box. If the cooling unit has already been replaced before, the backing may or may not be a piece of sheet metal instead of paper. With some effort, the sheet metal can be removed and slid out from the cooling unit (discard). Running a long knife around the line between the two foams of the cooling unit and box (about 4" deep) and then prying as before will remove the more difficult units. If you're still having problems, go back and be sure you have removed all fasteners. Once the cooling unit is out, Mark the fin top remove the screws from the aluminum fins and pry them off the cooling unit.. Slide the baffle out of the Chimney it's located at the top of the chimney opening.
(inserted from the top of chimney down by thin wire) from inside cooling unit chimney and remove any other parts from the unit. These parts will be transferred to the replacement cooling unit. **Not transferring the baffle** from the old unit to the replacement unit is the most common mistake made by installers. Be sure you are familiar with what the baffle is. The **baffle is the flat twisted piece of metal attached to the 2 foot long wire that is clipped to the top and pulled from the flue (chimney) pipe.** Normally, the only thing left on the old cooling unit after it has been changed, is the insulation pack. You're now done with the removal. Note: there is usually a clear plastic sheeting between the foam of the cooling unit head and the foam of the box. This was there to keep the two foams separated when the foam of the cooling unit was injected by the OEM while the cooling unit were installed. This plastic can be discarded. This is also why there can be a little difference between the foam block of cooling units.



Installation Inspect the rebuilt unit that you are going to install for leak freight damage. Bends or flexing problem easier to fix after installation rather than before the install, even a bent freezer bar/shelf. The freezer coil should be perpendicular to the back of the cooling unit. If the coil is bent you can use a crowbar, as in the graphic below, to level the freezer

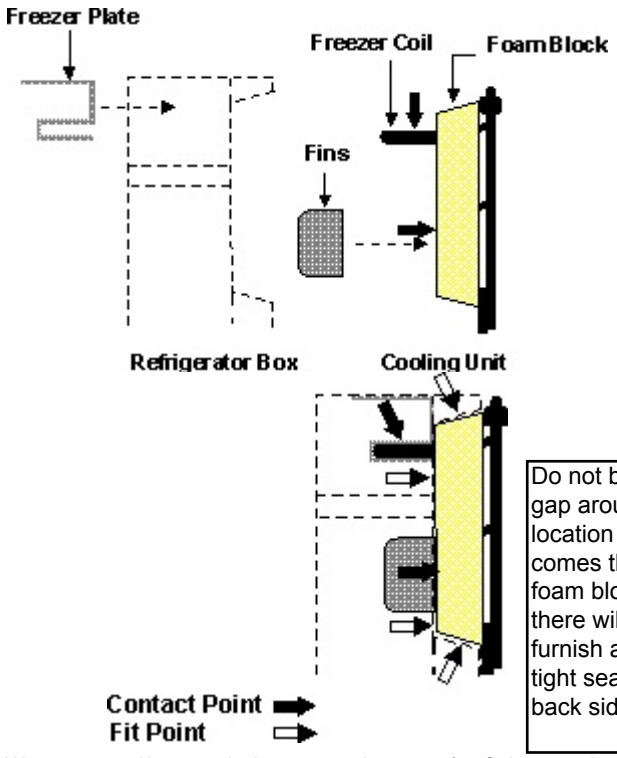




Some time you fine it easier wait till after cooling unit is stall to level freezer/coil bar.

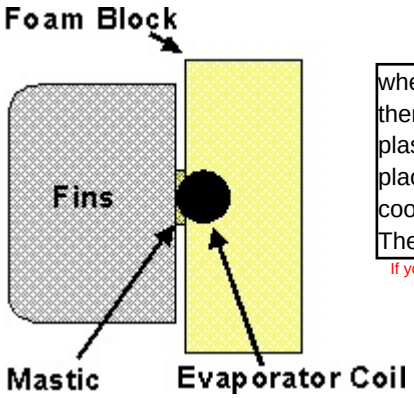
The key to a successful cooling unit installation is a air tight seal cooling unit (foam block) and the freeze bar/shelf can be flexed or bent if needed to level after refrigerator back in the cabinet with RV level. Bending is not a concern an most of the time is needed. During your install if you need to push the cooling unit deep I find The best way is to stand on the cooling unit foam pack backer and do light bounce to push the cooling unit coils deep into the cavity, all the way into the cavity; we're referring to the inside face of the foam block. Sometimes, because of refrigerator variations, the head is thicker than the cavity and protrudes a little out the back. This is OK, along as the front of the head is flush with the inside of the refrigerator.

In the graphics below, the ➡ is a metal to metal contact point that requires thermal mastic. A tube unit be included with cooling unit order. The ⇨ refers to a fit point -- a point where the cooling unit has to make good, snug contact with the refrigerator box.



Do not be concerned with a space or gap around the inner liner at the fins location or were the freezer bar comes through the liner. Since the foam block is not foamed in place there will always be a gap. We furnish a can of Spray Foam for air tight seal which can be used around back side opening if needed.

The first step in installing a cooling unit is to apply Bead of thermal mastic to the coils of the cooling unit that contact the aluminum fins of the refrigerator. Before doing that, be sure the cooling unit pipes are making contact with the fins, clean foam off tubes preventing that contact. See graphic below. After the mastic has been applied, install the aluminum fins to the cooling unit. Be sure to tighten the screws that mount the fins. There are Plates for the screws below the surface of the foam. On the rebuilt units the holes in these plates are drilled and threaded, so that your screws will get a good bite. You should see the screws slightly pull the area around them inward. Getting the fins snugged tight with mastic in place is critical. Failure to do so will cause cooling problems in the lower box. You should must put mastic on the freezer coils and the freezer plate later so you would save 1/2 tube for that.



when the cooling unit is in placed, do not be concerned if there is a gap between the fins and the refrigerator plastic liner. Since the original foam pack was foam in place it filled all voids. A replacement can not do this, no cooling will be lost unless around the pack is not sealed. There should not be air leaks around foam pack.

If you are concerned about this, use some of the spray foam furnished to correct this.

If spray foam used around all 4 sides of the cavity before the coils laided in place, there will be no air leaks.

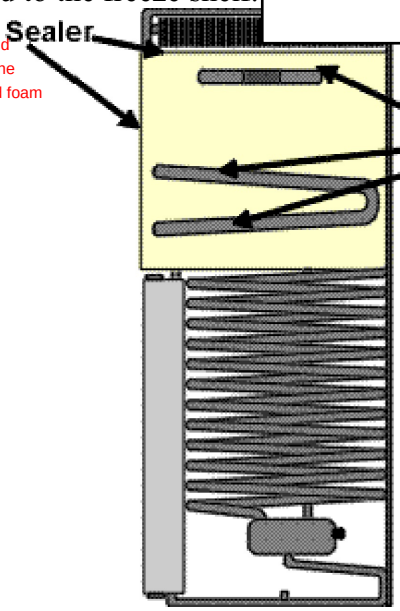
During a Dry dry fit foam block of the cooling unit before installing it into the refrigerator, you can trim any amount needed of the foam block off around all 4 sides cooling unit into the refrigerator to give you some working room. Sometimes the foam block is too big and needs to be trimmed. Getting carried away with trimming, not a concern or issue. We sent the spray foam for a good seal around the unit.

Once you spray foam to seal. Use the 1/2 save tube of

the mastic to be installed to the freeze shelf.

Spray foam furnished

Use the spray foam furnished to go around the side wall of the refrigerator cavity so the cooling unit will set in to the fresh sprayed foam to give an air tight seal,



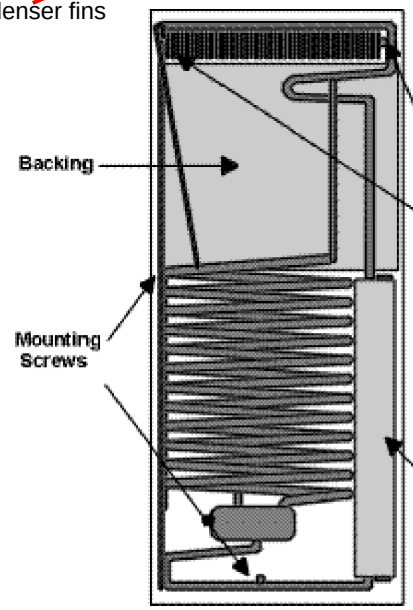
bead about the size of pencil on all exposed tubes

Next, install the stabilizing screws for the cooling unit. It is important that the two top mounting screws in the refrigerator levels condenser. Do not be concern if the OEM screw do not line up. Although all the Stabilizing holes of the cooling unit should line up with the refrigerator, the top two are the important because they set the level of the condenser. Also, it is not unusual for this part of the cooling unit to get bent in shipping or out of square. If the cooling unit is not square in such a way, it can usually be straightened by running a pry bar through the top pipe of the cooling unit and over the edge of the refrigerator box and prying or bending as needed. Failure to get the top two screws to position the condenser level may cause the cooling unit not to work. The cooling unit tubing will flex more than you think.

condenser fins

The 2 original holes are to be used if possible, if not be sure condenser is level. Level is the important part, not he screw location

Stand on the unit if needed to pushed deep.

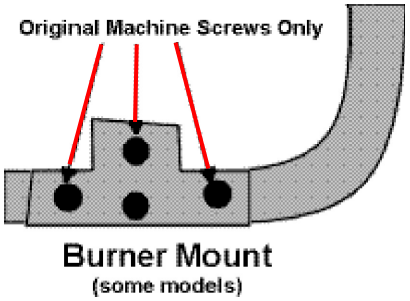


do not be over concerned if the coils are not flush with the back

During shipping it is not uncommon for the coils to be out of square. Flex or pry the coils back to shape. The original screw holes on the back are only to stabilize the coils, if it lines up great, if not, make your on holes to mount for stabilizing coils.

Bending, flexing the tubing does not hurt anything. Do what is needed, there is no perfect fit for any cooling unit to match from unit to unit.

The lower half of the cooling unit should be fastened to the refrigerator in such a way that the boiler (the pipe inside the insulation pack) is parallel to the side of the refrigerator. Normally lining up the cooling unit holes with the holes of the refrigerator accomplishes this. But if it doesn't, it is permissible to move the lower half of the cooling unit (after the top half has been secured) so that the boiler is parallel to the edge of the refrigerator and start new mounting holes if necessary . Once the cooling unit body is fastened down, use screws and foil back tape to secure the sheet backing of the cooling unit in such a way that it is virtually impossible for air to get into the refrigerator from the back. If the head (foam block) protrudes above the surface of the refrigerator box, this is the time to take care of it. this part is not a big issue, foil tape around the backer good for sealing Install all the peripherals that you had removed earlier (heat elements, baffle, burners etc.). If the mounting bracket on the cooling unit for the burner is like the one in the graphic below, it is **very important that you use the original short machine screws** that were removed from these holes when replacing the burner. Using other screws may actually "drill" a hole into the cooling unit, discharging the coolant. In other words, making a dangerous, nasty mess and ruining the cooling unit, which is not a warranty item.



Pay attention to this location. THE SHORT SCREWS GO HERE!!!!! I have about 6 to 10 RV Tech's each year use a drill to install all screws and will install long screws in this area which will go to far and a hole in tubing with ammonia leak....

Once everything on the back of the cooling unit has been installed, set the refrigerator upright. Put the remaining mastic on the freezer coils in the freezer and install the freezer plate. Top and bottom of the freezer plate work great. One side or the other is a must. Reinstall the thermostat capillary tube(s) or thermistor to the fins in the lower box, if appropriate.

Installing the Refrigerator Install the refrigerator back into the RV and make the necessary connections for the electrical and gas. Test for propane leaks at the connections you have made and all gas parts on the refrigerator. The refrigerator should set upright about long enough to check LP leaks before being put into operation. Always, test the refrigerator on 120 volt first, only because there are less variables on the electrical side than on propane. You should see signs of cooling in the freezer in an hour or hour and a half, and an empty box should come down to temperature in six to eight hours.

Note! The Spray Foam furnished will not bond the cooling unit in place, it will only seal. If ever the cooling must be removed it will be not problem to fit out.