

**REPLACEMENT PROCEDURE
FOR REFRIGERATOR
COOLING SYSTEMS**

Rev 4 - Effective 7/16/2014.

Replacement Refrigerator Effective Dates

- For refrigerators with date codes of Nov 15, 2012 thru the present date, in the event of a cooling system failure, they can use replacement cooling systems. For earlier refrigerators replace the entire cabinet.
- Date codes are embedded in the refrigerator serial number as follows:
 - The 6th and 7th digits form a 2-digit year
 - The 8th and 9th digits form a 2-digit month
 - The 10th and 11th digits form a 2-digit day

Example SN: 11002 130528 0182
Year: 2013
Month: May
Date: 28

Tools/Supplies Required:

- Nut-driver with M10 hex head or Screw-gun with M10 hex bit
- Phillips #3 Screwdriver or Screw-gun with 6" extension bit and Phillips #3 head
- Pry bar
- Card board surface (approx. 2ft x 4ft)
- Needle-nose pliers
- Small side cutter
- Packing Knife or Putty Knife
- Caulking gun and Caulk (Latex based with Silicone) recommended.

Remove Refrigerator from the vehicle's enclosure

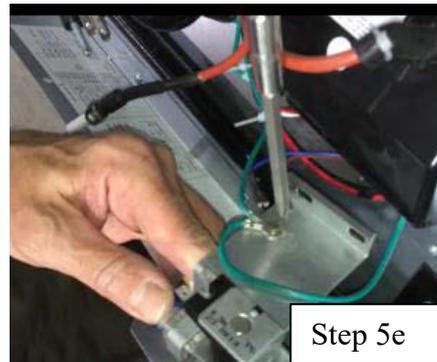
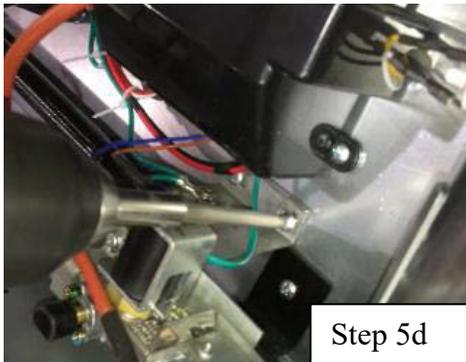
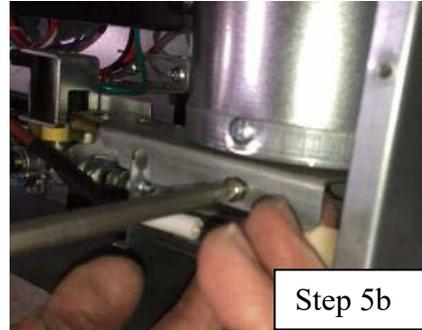
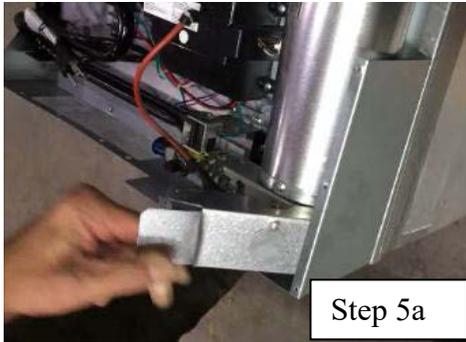
1. Open the freezer door and remove 2 mounting screws which secure the top flange of the refrigerator mounting frame to the cabinet's enclosure.
2. Open the larger cabinet door and remove 2 mounting screws which secure the bottom trim piece and the bottom flange of the refrigerator mounting frame to the cabinet's enclosure.
3. Open the bottom side vent on the exterior of the vehicle to expose the back portion of the refrigerator.
 - a. Shut off the gas supply line to the refrigerator at the LP tank.
 - b. Disconnect the gas supply line at the input to the gas control valve at rear of the refrigerator
 - c. Cap the gas supply line
 - d. Unplug the AC power cord from the receptacle in the back of the enclosure.
 - e. Disconnect the +12V and Ground DC input lines from the terminal strip on the back of the refrigerator cabinet. Protect the live +12V wiring from shorting together.
 - f. Remove the screws anchoring the refrigerator to the enclosure in the back of the cabinet.
4. Slide the refrigerator out of the vehicle's enclosure.
5. For some vehicles it is convenient to carry the refrigerator out of the vehicle and remove and replace the cooling system in the refrigerator outside of the vehicle. For other vehicles it is more convenient to remove and replace the cooling system with the refrigerator inside of the vehicle. In either case, care must be taken not to damage the doors, the metal frame, or the protruding cabinet hinges when removing and replacing the cooling systems.

Removing and Replacing the Refrigerator's Cooling System

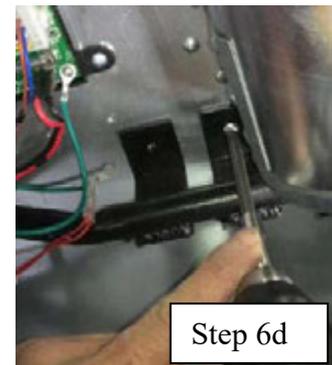
1. With the refrigerator standing upright, using either a nut-driver or a screw-gun remove the M10 hex bolts from the freezer. **Save these bolts to re-install the replacement cooling system later in the procedure.**



2. With the refrigerator standing upright, using either a #3 Phillips screwdriver or a screw-gun with 6" extension bit and Phillips #3 head, remove the Phillips screws from the cabinet fin assembly. **Save these screws and other screws in the following steps to re-install the replacement cooling system later in the procedure.**
3. Once the freezer bolts and the cabinet fin screws have been removed, the refrigerator cabinet doors should be closed and the cabinet should be laid, face-down on the cardboard surface. Care should be taken not to scratch or damage the cabinet door hinges which protrude out from the face of the cabinet.
4. Using a Phillips screwdriver or a screw-gun, remove the 4 screws and the metal windshield from the front of the burner box.
5. Using a Phillips screwdriver or a screw-gun, remove the gas valve assembly:
 - a. Remove 1 screw from the top of the burner box cover and then remove the burner box cover. Refer to picture Step 5a.
 - b. Remove the screw which is holding the burner bracket to the cooling system. It is in the front of the bracket, just below the insulation canister. Refer to picture Step 5b.
 - c. Remove the mounting screw for the spark electrode and then pull the spark electrode out of the assembly.
 - d. Remove 3 screws which hold the burner bracket to the cabinet back wall. After disconnecting the 2 wires attached to the solenoid, the burner bracket assembly can be removed and saved for reinstallation later in the procedure. Refer to picture Step 5d.
 - e. Remove ground wires from top of gas valve bracket. Refer to picture Step 5e.



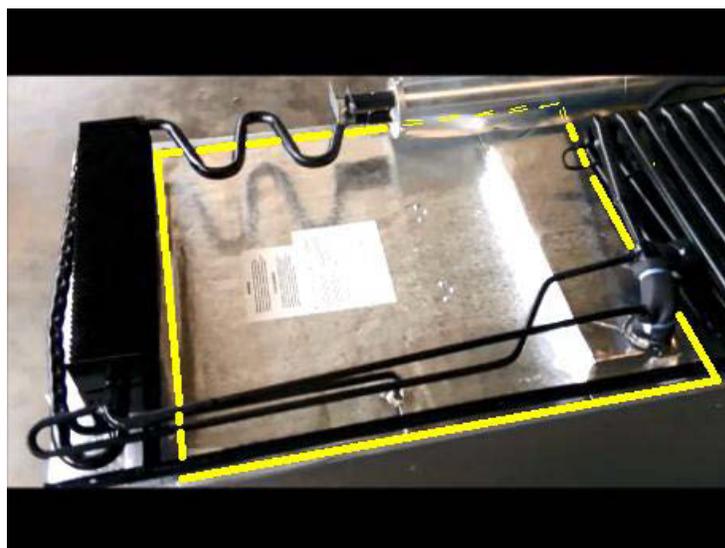
6. Using a Phillips screwdriver or a screw-gun, remove the following screws from the cooling system:
- a. 4 screws attaching the condenser assembly to the cabinet back wall
 - b. 2 screws attaching the left side frame section to the cabinet back wall
 - c. 4 screws attaching the absorber coil section to the cabinet back wall
 - d. 2 screws attaching the bottom of the cooling system to the cabinet back wall
 - e. 1 screw attaching the absorber leveling chamber to the cabinet back wall



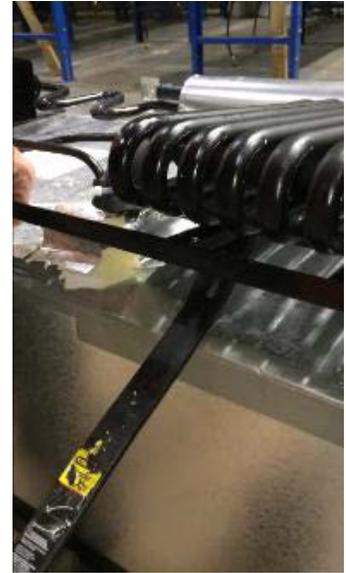
7. Remove 3 screws holding the canister side to the cabinet back and remove 3 other screws holding the canister top to the cabinet back wall.



8. Remove the control box cover by removing the screw in the upper right-hand corner and also the screw in the lower left-hand corner of the control box cover. The electrode must be unplugged from the control board.
9. Using the needle-nose pliers, disconnect the AC heater from the control board. Use the small side cutter to cut cable ties to enable the heater wires to be disconnected from the rest of the refrigerator wiring.
10. Using the Phillips screwdriver or the screw-gun, remove the screw holding the heater wires strain-relief to the cabinet back wall.
11. Using a knife, cut the tape around the outside of foamed plug portion of the cooling system as per the YELLOW box pictured below. You should see 1 or perhaps 2 layers of white plastic which defines the boundary of the foamed plug portion of the cooling system.



12. Once the tape has been cut and/or removed from around the foamed plug portion of the cooling system, the pry bar should be inserted as shown below. When force is applied, the cooling system will come free and can be removed from the cabinet.



13. The back surface of the freezer evaporator wall and the back surface of the cabinet fin assembly should be flat and free of any debris and/or urethane foam. Any irregular pieces of foam which might interfere with the tubes making good contact with these back surfaces should be removed.



14. Before proceeding the cabinet fin assembly must be removed and replaced with the replacement fin assembly enclosed in the box along with the replacement cooling system. To remove the cabinet fin cut the foil tape around the fin assembly and lift it out of the cabinet.

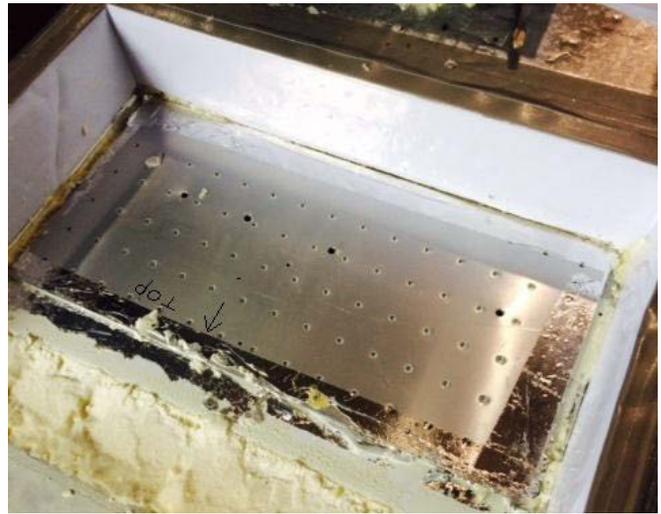


15. The replacement cabinet fin assembly has a sticky adhesive tape which seals against the cabinet liner as the fin is dropped into place. There is a brown paper strip which protects the adhesive and must first be removed.



16. Before dropping the replacement cabinet fin assembly into place – notice that the fin assembly must be oriented so the words “TOP” and the arrow point to the top of the refrigerator cabinet. Once properly oriented, push down on the sides of the fin assembly to help the adhesive tape hold the fin in place.

The cabinet is now ready for the replacement cooling system to be installed.



17. The replacement cooling system has two bands of foam tape applied to the side walls of the foam plug. The purpose of this foam tape is to prevent air leakage from entering the cabinet around the foam plug of the replacement cooling system. Should this foam tape be damaged, it must be replaced before proceeding with the installation. An alternate method of providing this seal is thru the use of a latex-based caulk with silicone additives which is available at most hardware and home improvement stores. This alternate method is outlined below.

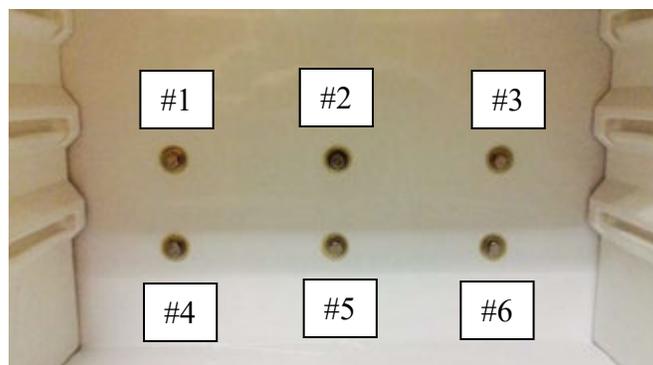
Alternate method - Place a continuous bead of caulk all around the 4 walls of the cavity in the back of the cabinet so that when the replacement cooling system is installed the caulk will form an airtight seal around the foam plug. The bead of caulk should be approximately $\frac{1}{4}$ " thick and placed about halfway up each of the 4 walls as shown in red on the picture below. The caulk is effective at providing a seal however it is more difficult to align the foam plug when securing the mounting screws in step 19. NOTE: If the foam tape around the foam plug of the replacement cooling system is intact, the caulk is not required. Use of the foam tape to prevent air leakage is the preferred method.



18. The replacement cooling system can then be inserted in place of the removed cooling system. **It is important that the replacement cooling system fits completely down inside cavity of the back wall so that the evaporator tubes make contact with the back walls of the freezer and the cabinet fin assembly. Failure of the tubes to make contact will result in poor cooling performance.**



19. Before re-attaching the cooling system with all of the screws to the cabinet back wall, the cabinet should be set upright and the freezer bolts should be used to locate the holes in the cooling system. In some cases, a person positioned in the back of the cabinet may have to re-position the cooling system inside the cabinet to align the holes in the freezer back wall with the holes in the replacement cooling system. Once all of the bolts have been started in the mounting holes, each bolt should be loosely tightened in the following sequence #2, #5, #3, #4, #6, and #1 as shown below. Then the bolts should be sequentially tightened using the same sequence until all bolts are securely tightened. **As these bolts are tightened, the freezer evaporator tubes are drawn into contact with the back of the freezer evaporator wall.**



20. After re-attaching the freezer bolts, the refrigerator fin screws should be used to locate their mounting holes in the cooling system and then be drawn tight. **As these screws are tightened, the cabinet evaporator tubes are drawn into contact with the back of the cabinet fin assembly.**
21. After the freezer bolts and the cabinet fin screws have been secured and tightened, both refrigerator doors should be closed and the refrigerator cabinet should be again laid, face-down on the cardboard surface.
22. The joint around the foam plug of the replacement cooling system should be caulked (if necessary) to prevent air from leaking from the back into the refrigerator cabinet. Then the back of the replaced cooling system should be re-taped over each joint of the cooling system's foam plug as a final step to prevent air leaks.
23. The cooling system should be secured to the cabinet back wall with screws – reversing steps 6 and 7.
24. The gas control valve should be reattached to the cabinet back wall – reversing steps 5a – 5e.
25. The AC heater wires should be reconnected to the control board terminals – reversing steps 9 and 10.
26. The control box cover should be re-attached with the spark electrode - reversing step 8.
27. The windshield should be reattached – reversing step 4.
28. The refrigerator is now ready to be re-installed into the original enclosure.

Reinstall Refrigerator into the enclosure

1. Slide the refrigerator back into the enclosure. Ensure that the front mounting flange of the refrigerator fully compresses the combustion seal all around the perimeter of the mounting flange before securing the mounting screws.
2. Open the freezer door and drive the two mounting screws into place, securing the top flange of the refrigerator mounting frame to the enclosure.
3. Open the larger cabinet door and drive the two mounting screws into place, securing the bottom trim piece and the bottom flange of the refrigerator mounting frame to the enclosure.
4. From the open bottom side vent on the exterior of the vehicle, do the following:
 - a. Secure the screws anchoring the refrigerator to the enclosure thru the back mounting bracket.
 - b. Reconnect the +12V and Ground DC input lines from the terminal strip on the back of the refrigerator.
 - c. Plug the AC power cord back into the receptacle in the back of the enclosure.
 - d. Uncap the gas supply line.
 - e. Reconnect the gas supply line to the input of the gas control valve. Use the double wrenching technique with one wrench on the supply line nut and one wrench on the gas control valve to secure the connection.
 - f. Turn on the gas supply line to the refrigerator at the LP tank and use leak test fluid to check for leaks around the supply line connection.
5. Follow the instructions in the owner's manual for purging the air from the gas supply lines and verifying normal operation of the refrigerator.

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Over the years of running a mobile RV repair service, having a dedicated place to access service manuals for all the different appliances and components found on RVs was something that I always had a desire to create.

I hope this resource makes your RV repairs easier, as it has mine, but please be careful and follow proper safety practices when attempting to repair your own RV.

If in doubt, please consult with a professional RV technician!



DARREN KOEPP - OWNER, MY RV WORKS, INC.

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