

Newmar Corporation Warranty Department

Technical Service Bulletin

Date Issued	Model Year(s) Affected	Model(s) Affected	TSB #
09/10/2010	2008-2009	All	375
Brand			Type
All <input checked="" type="checkbox"/>	American Star <input type="checkbox"/>	Mountain Aire <input type="checkbox"/>	All <input type="checkbox"/> T T <input type="checkbox"/>
Cypress <input type="checkbox"/>	Dutch Star <input type="checkbox"/>	Kountry Aire <input type="checkbox"/>	F W <input type="checkbox"/> C A <input type="checkbox"/>
Northern Star <input type="checkbox"/>	Kountry Star <input type="checkbox"/>	Essex <input type="checkbox"/>	D P <input type="checkbox"/> D B <input type="checkbox"/>
Scottsdale <input type="checkbox"/>	King Aire <input type="checkbox"/>	London Aire <input type="checkbox"/>	
All Star ME <input type="checkbox"/>	Ventana <input type="checkbox"/>	Bay Star <input type="checkbox"/>	
<input type="checkbox"/> Air Conditioning & Heating <input checked="" type="checkbox"/> Appliances & Accessories <input type="checkbox"/> Cabinets & Furniture <input type="checkbox"/> Chassis Components <input type="checkbox"/> Construction Components <input type="checkbox"/> Electrical Components <input type="checkbox"/> Exterior Components <input type="checkbox"/> Interior Components <input type="checkbox"/> Plumbing & Bath Components <input type="checkbox"/> Windows, Awnings, Vents, & Doors			
Description of Problem			
Due to potential poor cooling performance on some Norcold 2117 refrigerators with serial # 11323165 and earlier, an upgrade kit is available to be installed.			
Recommended Solution			
Please refer to the Norcold Technical Service Bulletins attached to assist with installing the kit parts.			
Parts needed: 632699 heater tube/defrost board 628570 optical 629408 freezer thermistor 620528 thermistor 631031 flapper 632801 drain tube 633734 thermistor clips (x2) --- originally 61689122		Flat rate pays: Labor hours 2.5	

Purpose

Use these instructions to prevent the pooling of defrost water in the fresh food compartment. Pooling occurs if

- The drain tube does not exit through the foamed wall with a straight, downward slope.
- The end of the drain tube has a black plastic cap or restrictor attached to it.
- Kinked or pinched sections of the drain tube block the flow of water to the drip cup.

Kit Contents (Kit PN 632801)

- Loop clamp for drain hose
- Self-drilling screw for drip cup

Tools You Will Need

- Drill bit, 3/8 inch (Do not use an electric drill with this bit!)
- Needle-nose pliers
- Box knife
- Phillips screwdriver, medium
- Nut driver, 1/4 inch
- Electric Drill with 1/4 inch hex head bit (for self-drilling screw)

Procedure

Shut Down

1. Turn off the refrigerator at the control panel.
2. Open the exterior access panel.
3. Disconnect both AC power cords from the refrigerator (one black and one white) at the RV's AC receptacles. Refer to Figure 1. No further shutdown is needed to complete this procedure.

Removing the Top Glass Shelf and Evaporator Fin Cover

Removing the top glass shelf and fin cover allows access to the drain cup so that you can pour water through the tube to check for blockage. If necessary, you can later remove the drain tube.

1. Use a Phillips screwdriver to remove the screw from the loop clamps below each side of the shelf.
2. Pull evenly on the shelf to remove it, and lay it aside.
3. Use a nut driver to remove the four screws from the evaporator fin cover in the fresh food compartment. Lay the cover and screws aside.

Inspecting the Drain Tube

1. From the exterior access panel, remove the white drain tube from the drip cup. Refer to Figure 1.
2. If the end of the tube has a black plastic end cap, pull it out and discard it. The cap reduces flow and can cause the water to back up as described in Norcold Service Bulletin 632407A(01-08-08).
3. Inspect the drain tube from its exit point at the refrigerator wall to the drip cup. Look for kinked or pinched areas.

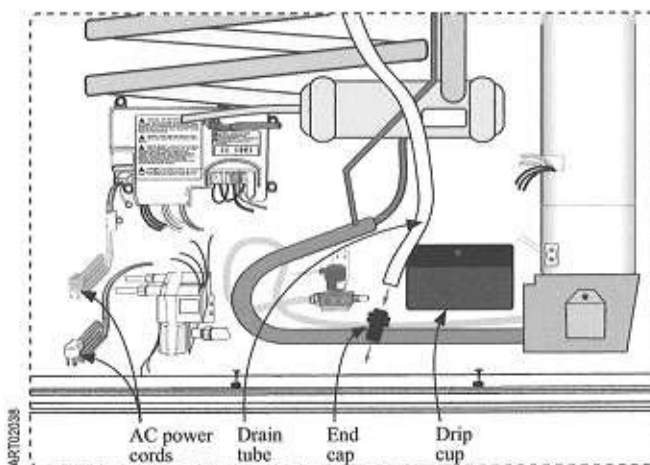


Figure 1. View from Exterior Access Panel

4. If kinked or pinched areas exist, correct them and place the end of the tube back into the drip cup.
5. Test the drain tube for flow by pouring water into the defrost drain cup in the fresh food compartment. Refer to Figure 2.
6. If the water flows freely into the rear drip cup, proceed to the section "Repositioning the Rear Drain Cup and Fastening the Drain Hose." If the flow remains blocked, continue to the next section.

Removing the Interior Drain Cup and Drain Tube

1. Use a Phillips screwdriver to remove the two screws that hold the drain cup in place below the evaporator cover in the fresh food compartment. Refer to Figure 2. Pull to remove the drain cup, and lay the screws and cup aside.
2. From the external access panel, pull down on the drain tube until it starts to stretch slightly. This action helps to break the bond between the foam and the tube.

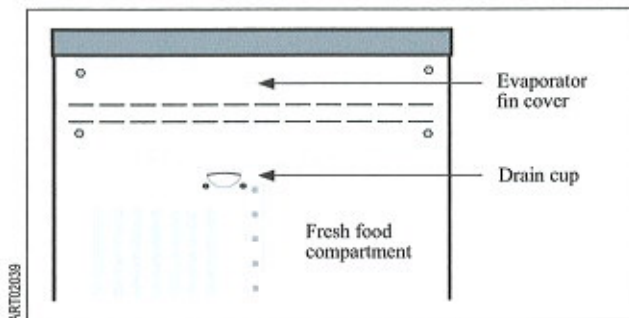


Figure 2. Evaporator Fin Cover and Drain Cup

3. Use needle-nose pliers to grab the wall of the drain tube and pull with a quick, smooth action. Refer to Figure 3. Continue to withdraw the whole tube.

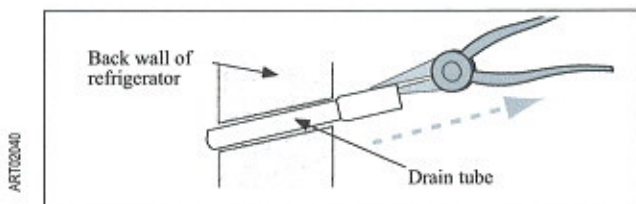


Figure 3. Remove Drain Tube

Correcting the Drain Tube Slope

To drain freely, the tube should exit the back wall of the fresh food compartment at a downward angle of approximately 30 degrees and continue straight through the foam and the back of the wall. If the foam was mis-formed during production, the tube may bend upward before exiting the rear of the wall, slowing or stopping the flow of water.

Straightening the Path Through the Wall

Warning! Do not use an electric drill to remove foam from the wall. Use your fingers to twist the drill bit. Using an electric drill or other implement can rupture the absorber coils, causing a coolant leak and possibly an explosion leading to death, serious injury, or destruction of property.

1. Insert the tip of the 3/8 inch drill bit into the hole in the wall where you removed the drain tube. Refer to Figure 4.
2. Hold the bit at a downward angle of about 30 degrees and twist the bit with your fingers to remove foam as you push the bit toward the hole in the rear of the wall.

NOTE: The foam is soft and easy to remove. The bit should follow the original channel to the back of the wall after removing a small amount of foam.

Re-inserting the Drain Tube and Replacing the Drain Cup and Evaporator Fin Cover

1. Use a box knife to cut a bevel at the end of the drain tube that goes into the drip cup at the bottom rear of the refrigerator. Refer to Figure 5.

NOTE: The bevel will help the tube pass the absorber tubes as you re-insert the tube through the wall of the refrigerator.

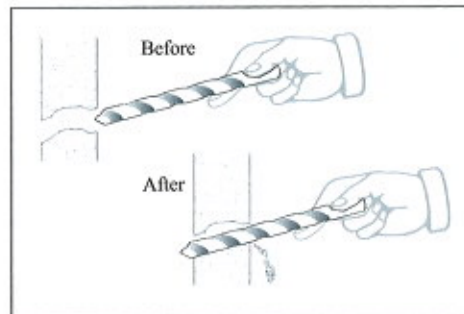


Figure 4. Removing Foam

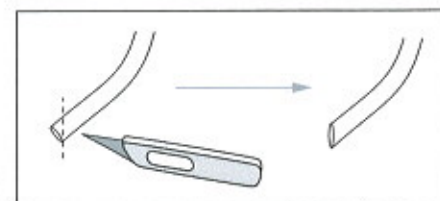


Figure 5. Bevel Tube

Caution: Do not shove the tube all of the way into the hole before attaching the drain cup. Connect the drain cup first to ensure a good connection with the drain cup nipple.

2. Insert the beveled end of the tube into the hole and feed it through the wall with a twisting motion. Stop when the end of the tube reaches about 6 inches from the hole.
3. Blow air through the drain tube to remove any foam shavings that could block the flow.
4. Insert the nipple of the drain cup back into the enlarged end of the tube. Refer to Figure 6.

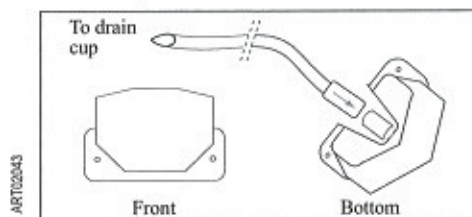


Figure 6. Replacing the Drain Cup

5. Finish inserting the tube (with cup) back into the hole and use the Phillips screwdriver to fasten the drain cup in place with its original screws.
6. From the exterior access panel, take care to avoid pinching or kinking the drain tube as you feed it down through the absorber tubes.

Repositioning the Rear Drain Cup and Fastening the Drain Hose

The right side of the drip cup should be against the canister and about 1/4 inch above the burner chamber to allow for good drainage from the drain tube.

1. Remove the single screw holding the drip cup in its original position at the rear of the refrigerator. Refer to Figure 7.

2. Extend the end of the drain hose 1/2 inch through the loop clamp (included in the kit).
3. Put the drain cup into its new position, 1/4 inch above the burner chamber cover and next to the canister.
4. Put the self-drilling screw (included in the kit) through the hole in the loop clamp (included in kit) with the screw side of the clamp down.
5. Use the electric drill with the 1/4 inch hex head bit to drive the self drilling screw as you re-install the drip cup with the newly attached drain tube in its new location.

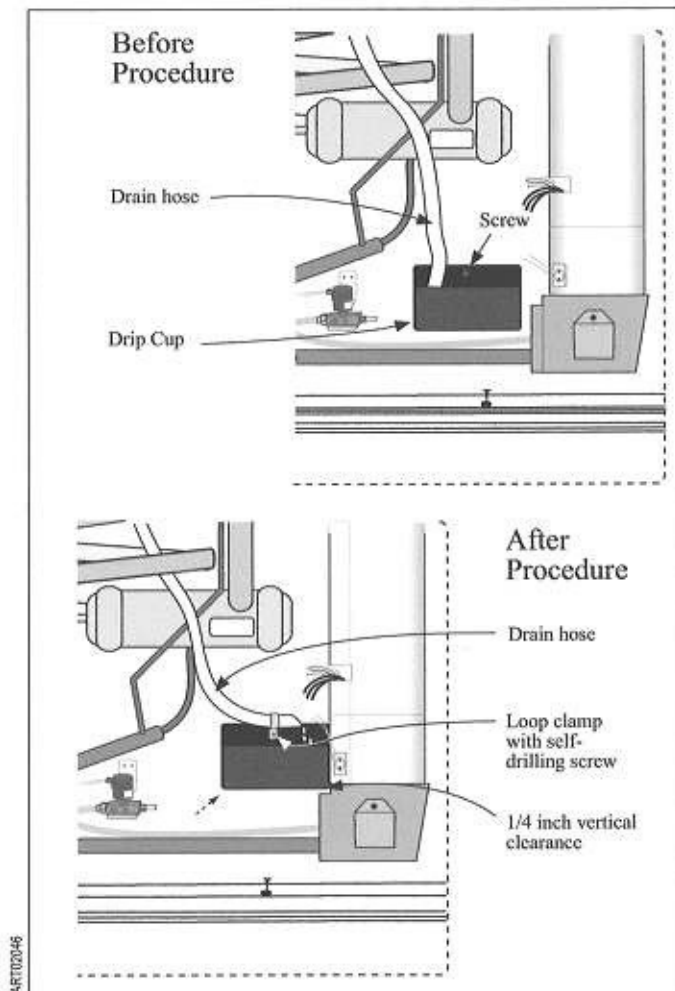


Figure 7. Drain Cup and Hose, Before and After Procedure

Replacing the Glass Shelf

1. Remove the plastic loop clamps (Refer to Figure 8.) from the rails at the sides of the glass shelf to ease replacing the shelf in its tracks.
2. Slide the shelf into the tracks and all of the way back to meet the evaporator-fin cover.
3. Force the loop clamps over the rails, and line them up with their holes.
4. Use the Phillips screwdriver to replace the original screws in the loop clamps.



Figure 8. Loop Clamps

Powering Up

1. Reconnect both the black and white AC power cords at the RV's AC receptacles.
2. Turn on the refrigerator at its control panel.

Defrost water should no longer pool in the fresh food compartment and the procedure is now complete. ■

Re-testing the Flow and Replacing the Evaporator Fin Cover

1. Again pour water into the interior drain cup and check to see that it flows freely into the rear drip cup. If the flow is blocked, check for kinked or pinched sections. Do not proceed until water flows freely.
2. Put the evaporator-fin cover in place, and use the nut driver to replace its original four screws.



Service Kit

Defrost Modification/Drain Kit for

2117 Refrigerators

Kit Part Number 632699

Purpose

Install this kit to eliminate pooling of moisture in the freezing compartments of 2117 series refrigerators during defrosting.

Safety Information



General: Do this whole procedure in the order presented. Obey all safety messages marked with the universal safety symbol shown at the left. Doing the procedure out of order or going against safety messages could result in electrical shock or damage to electrical circuits.

Service Kit Contents (PN 632699):

- Instructions, PN 632694A (1 ea)
- Defrost circuit board, PN 628668 (1 ea)
- Heater strip, PN632697 (1 ea)
- Aluminum pop rivet, PN 632698 (1 ea)
- Collared drill bit, PN 632700 (1 ea)

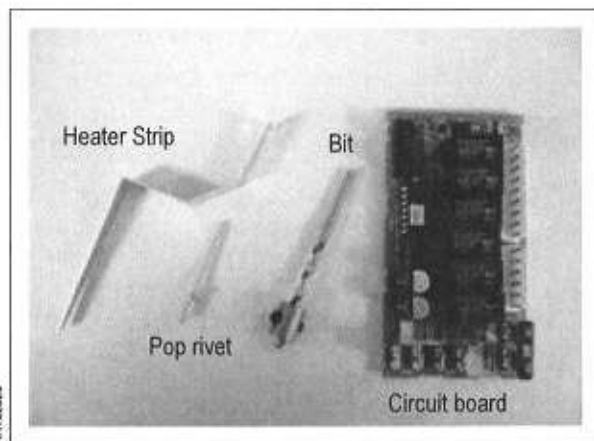


Figure 1. Kit Items

Tools You Will Need:

- Phillips screwdriver, medium
- Flat tip screwdriver, small
- Nut driver, 1/4 inch
- Electric drill
- Pop rivet gun
- Anti-static wrist strap

Procedure

Shutting Down

Shut Down the AC Electrical Power

1. Turn off the refrigerator at its control panel.
2. Open the service access/air intake vent.
3. Disconnect the refrigerator's black 120 AC power cord from the RV receptacle. Refer to Figure 2.
4. Disconnect the white 120 VAC power cord for the ice maker from the RV receptacle.



Caution: If the RV's 12 VDC+ supply line is exposed when you disconnect it below, immediately insulate it with electrical tape to avoid shorts and blown fuses or breakers.

5. Disconnect the RV's 12 VDC+ power at the power board. If necessary, tape the RV's connector to prevent shorts and blown fuses. Refer to Figure 2.
6. Disconnect the negative (GND) black wire from the power board.

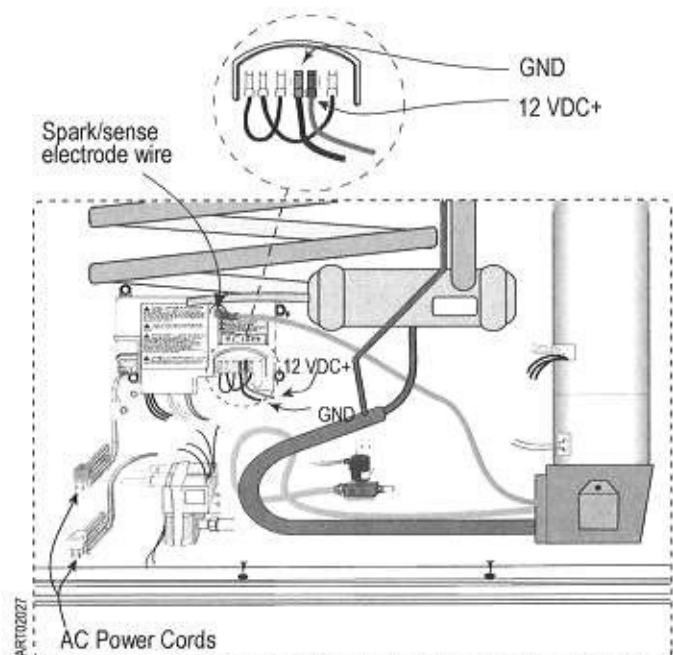


Figure 2. Power Board (as seen through exterior air intake vent)

- Take care to prevent damage to the terminal and wire end as you carefully disconnect the high voltage spark/sense electrode wire from the power board. Refer to Figure 2.

Defrosting the Refrigerator (if necessary)

If the freezer contains any ice, you will need to allow it to melt thoroughly before continuing.



Caution: Do not use hair dryers to melt ice and do not use sharp objects such as screw drivers to chip ice during defrosting. These practices will damage the refrigerator liner.



Caution: If ice build-up is significant, remove the drain tube from the drip cup and place it in a bucket to avoid overflow and damage to the enclosure or floor.

- If a large amount of ice is present, remove the drain tube from the drip cup and place it in a bucket. Refer to Figure 3.

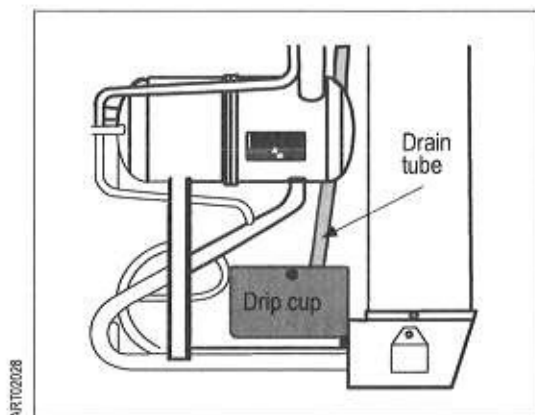


Figure 3. Drain Tube and Drip Cup

- Allow the ice to melt completely.
- Place the drain tube back into the drip cup.

Removing the Freezer Shelves and Evaporator Cover

- Remove the ice bin.
- Use a medium size Phillips screwdriver to loosen the freezer shelf locks. Refer to Figure 4.
- Lift up on the back of the shelves and remove them.
- Use a nut driver to remove the evaporator cover screws. Refer to Figure 5.
- Lay the cover aside.

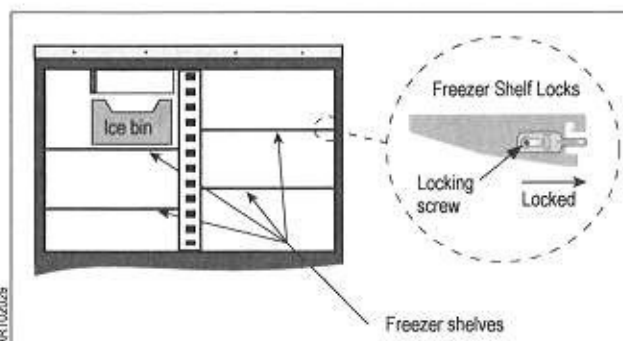


Figure 4. Shelves and Shelf Locks

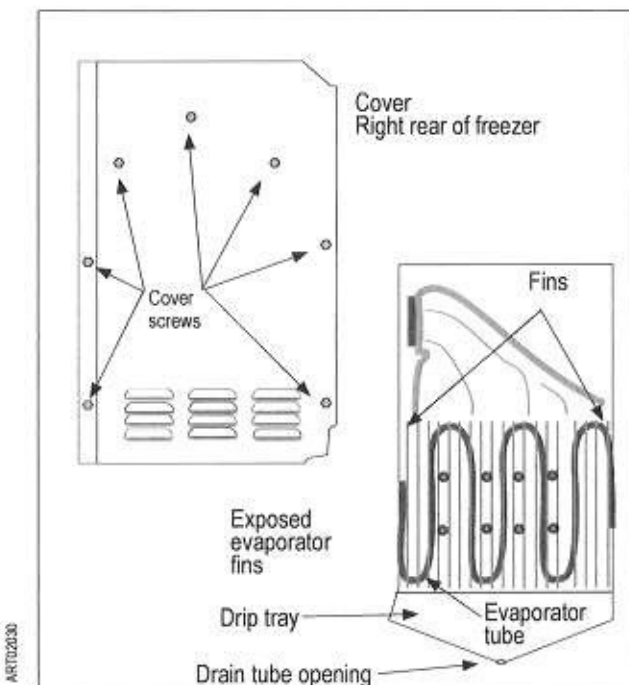


Figure 5. Evaporator Cover/Exposed Fins

Installing the Heater Strip

- Insert the tapered tip of the heater strip into the drain tube opening with the hole at the top of the strip (refer to Figures 5 and 6), and press the strip firmly against the bottom of the drip tray. Refer to Figures 7.
- With the strip in place, plug or tape the drain tube opening to prevent shavings from entering the tube.
- Use the hole in the top of the strip as a guide as you drill a hole with the pre-set collared bit in the back of the drip tray. Refer to Figure 7.
- Use the pop rivet and gun to attach the heater strip to the back of the drip tray. Refer to Figure 8.
- Clean away all shavings from the drip tray and freezing compartment.
- Remove the plug from the drain tube opening.

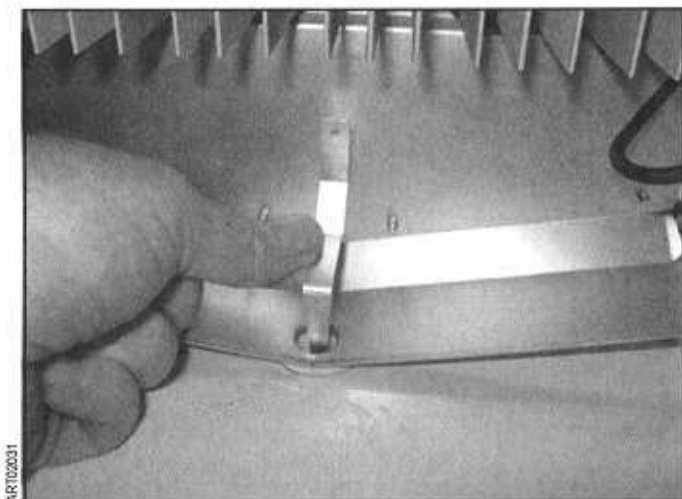


Figure 6. Inserting Heater Strip in Drain Tube

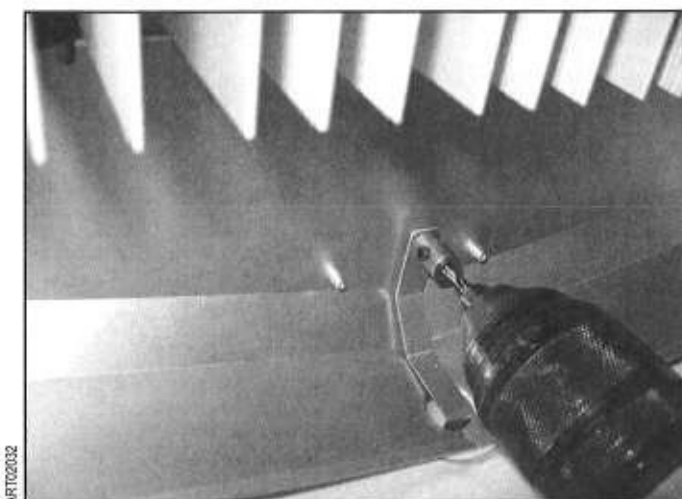


Figure 7. Drilling the Drip Pan



Figure 8. Pop Riveting Strip in Place

Exchanging the Defrost Circuit Board

Removing the Old Defrost Board

1. Put on the antistatic wrist strap and connect it to a ground point for the refrigerator.
2. Unplug the AC power cord plug from the bottom left of the power board. Refer to Figure 9.
3. Disconnect the red and black DC supply jumper wires connected at the defrost board (GND and 12V).

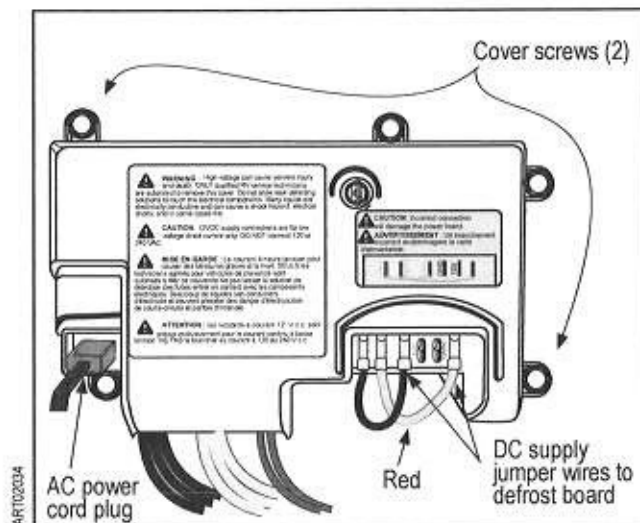


Figure 9. Remove the Power board Cover

4. Use the nut driver to remove the two screws that hold the power board cover in place, and remove the cover.

Caution: Pull straight up on the connectors to avoid bending the terminals as you disconnect the defrost board connectors.

5. Carefully pull straight up to disconnect the P1, P2, and P3 connectors from the defrost board. Refer to Figure 10.

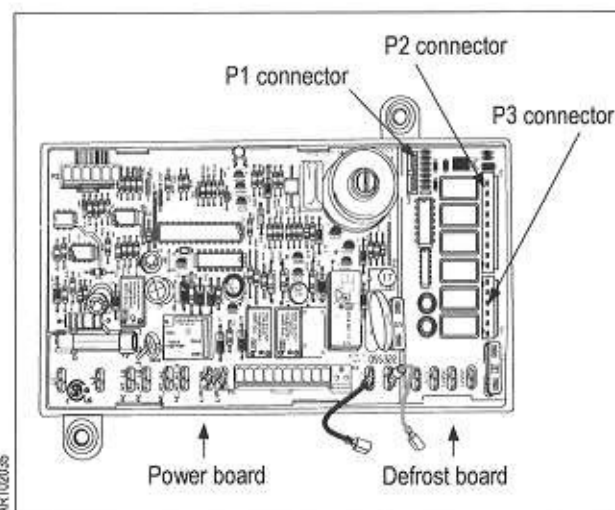


Figure 10. Power Board and Defroster Board



Caution: Use care to avoid damaging the plastic retainer as you pry the defrost board loose, below.

6. Insert the tip of a small screwdriver into the notched area at the top of the defrost board and pry the defrost board free of the plastic retainer. Refer to Figure 11. (Discard the old defrost board.)

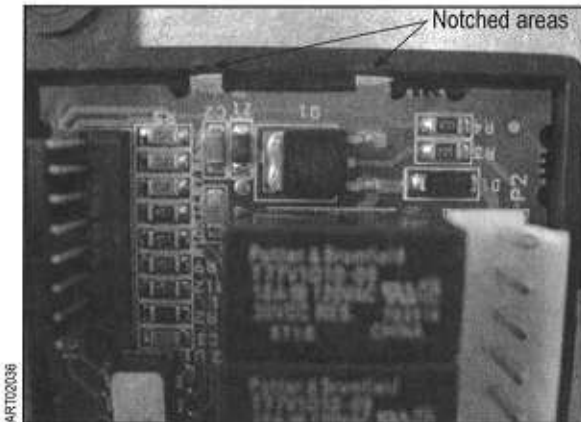


Figure 11. Removing the Defrost Board

Inserting the New Defrost Board

1. With your anti-static wrist strap still in place, remove the new defrost board, included in the kit, from its plastic bag.
2. Insert the bottom of the board into the retainer and snap the top into place.
3. Carefully reconnect connectors P1, P2, and P3 to the new board.
4. Replace the power board cover and use the nut driver to replace the two screws. Refer to Figure 9.



Caution: Take care to reconnect the power supply jumpers correctly to avoid damaging the power board.

5. Reconnect the red and black jumpers from the power board to the defrost board. Refer to Figure 12.

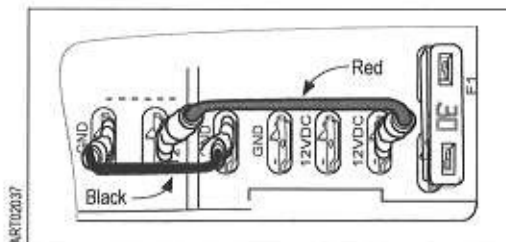


Figure 12. Jumper Connections

6. Remove your anti-static wrist strap.

Reinstalling the Fin Cover and Freezer Shelves

1. Hold the cover in place and use the nut driver to replace its seven screws. Refer to figure 5.
2. Reinstall the freezer shelves and use the Phillips screwdriver to fasten their locks in place. Refer to Figure 4.

Restoring Electrical Power

1. Check to be sure that you placed the drain tube back into the drip cup. Refer to Figure 3.
2. Reconnect the RV's ground wire to the ground terminal of the power board. Refer to Figures 2 and 12.
3. Remove the electrical tape from the RV's 12 VDC+ wire (if necessary) and connect it to the power board. Refer to Figures 2 and 12.
4. Connect the small end of the black AC power cord to the bottom left of the power board. Refer to Figure 9.
5. Plug both power cords (one black and one white) into the RV's AC receptacles. Refer to Figure 2.
6. Turn on the refrigerator at its control panel and check for proper operation.