



Service Bulletin

Corrective Action Procedure

Resealing Cooling System To Cabinet

120X LRXX Model Series Refrigerators

TNCSTP 120505

IMPORTANT

This service bulletin provides a corrective action procedure for resealing the cooling system on NORCOLD 120X LRXX series refrigerators. It provides the necessary information so the existing cooling system can be properly resealed to the existing cabinet. To accomplish the procedure, the refrigerator must be removed from the enclosure. Technicians performing this procedure must adhere to safe work practices and the protection of the customer's property. Improper resealing will cause a repeat of some or all of the symptoms.

Symptoms

The cooling system may have to be resealed when the owner/customer reports the following symptoms:

- The fresh food compartment warms up while driving.
- Warm up while driving occur whether the refrigerator is operating in AUTO, AC or LP mode.
- The food compartment maintains ideal temperature when the RV is parked.

Remove Refrigerator from RV Enclosure

NOTE

Save all pieces removed for reinstallation.

1. Turn off refrigerator.
2. Close the RV propane tank valve.
3. Unplug the AC power cord from RV AC receptacle.



WARNING

To avoid damaging connection and/or fitting, always use two wrenches to loosen and tighten the propane gas supply connection and/or fitting.

4. Disconnect the RV propane supply line from refrigerator gas valve. See Figure 1.
5. Disconnect the +12 VDC and -12 VDC power supply wires from power board. See Figure 2.
6. Remove the back bracket hold down screws. Screws' location shown in Figure 3.
7. Remove the ice bin. **LRIM model only.**
8. Remove the left and right freezer shelves.
9. Remove the three crispers.
10. Remove the lower glass shelf. **Leave upper glass shelf in place.**

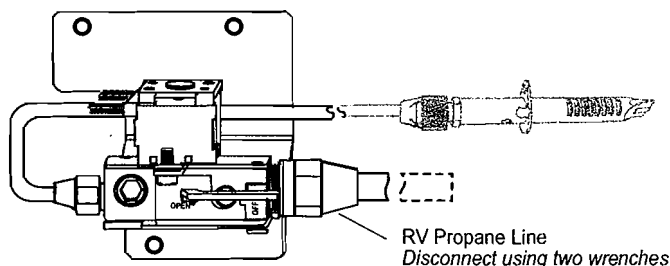


Figure 1. RV propane line connection at gas valve.

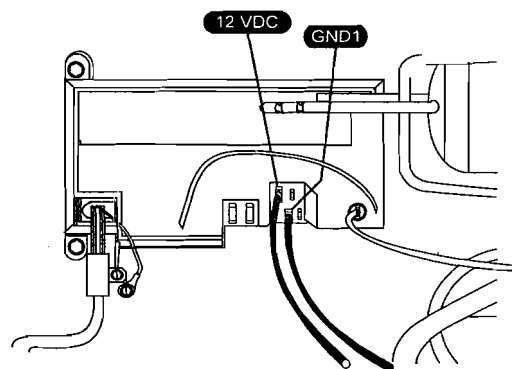


Figure 2. 12 VDC power board connections.

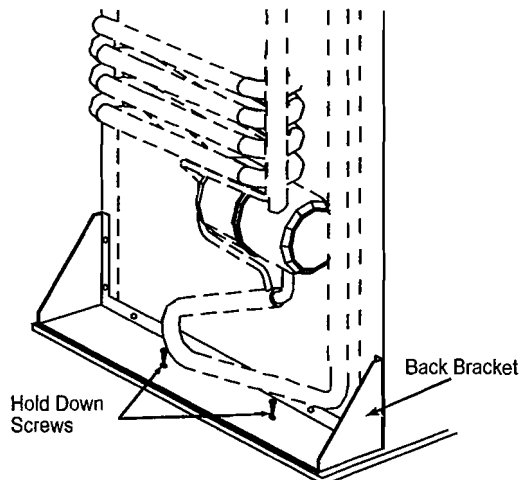


Figure 3. Back bracket hold down screws.

On 120X LRIM (ice maker) unit only!

- A. Turn off RV water pump/close ice maker water supply valve, then bleed off water pressure at kitchen or bathroom sink faucet.
- B. Disconnect RV water supply line from the ice maker water valve.

NOTE

Note location of hinges and doors' shim. Shims will have to be reinstalled on the same hinge or door for correct door alignment.

11. Remove the freezer doors, then remove upper left and upper right cabinet hinges. See Figure 4.
12. Remove the left and the right fresh food compartment doors. Follow steps **a** through **d** to remove each door.
 - a. With the door closed, remove lower hinge pin.
 - b. Open door, then pull out the lower end of door until it clears the lower hinge.
 - c. Lower door until middle hinge pin clears door hinge bushing.
 - d. Place the door in safe place to prevent damaging door panels.
13. Remove the lower left and right fresh food cabinet hinges. See Figure 4.
14. Remove the left and right middle hinge assemblies and striker plate. See Figure 4.
15. Unclip the thermistor from fin assembly. See Figure 5.
16. Remove the eight freezer evaporators' screws. See Figure 5 for details according to LR and LRIM models.
17. Remove the fin assembly screws. See Figure 5.
18. Remove the optical display control. Unplug from harness after removing Phillips head screws. See Figure 5.
19. Remove the upper trim. Location of upper trim and hardware is shown in Figure 5.
20. Remove the lower trim. Location of lower trim and hardware is shown in Figure 5.



WARNING

Do not attempt to pull the refrigerator out of the cabinet without the assistance of an able person. Attempting to pull the refrigerator without additional help may cause personal injury and/or property damage.

21. With the assistance of an able person, carefully pull the refrigerator out of the enclosure, then lay it front side down on the RV door.

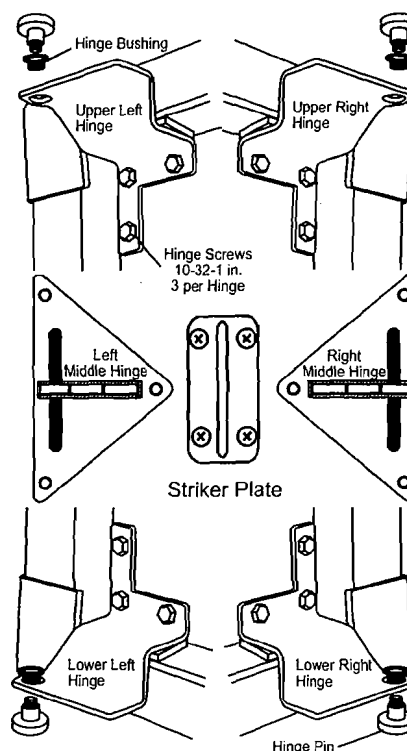


Figure 4. Hinge hardware.

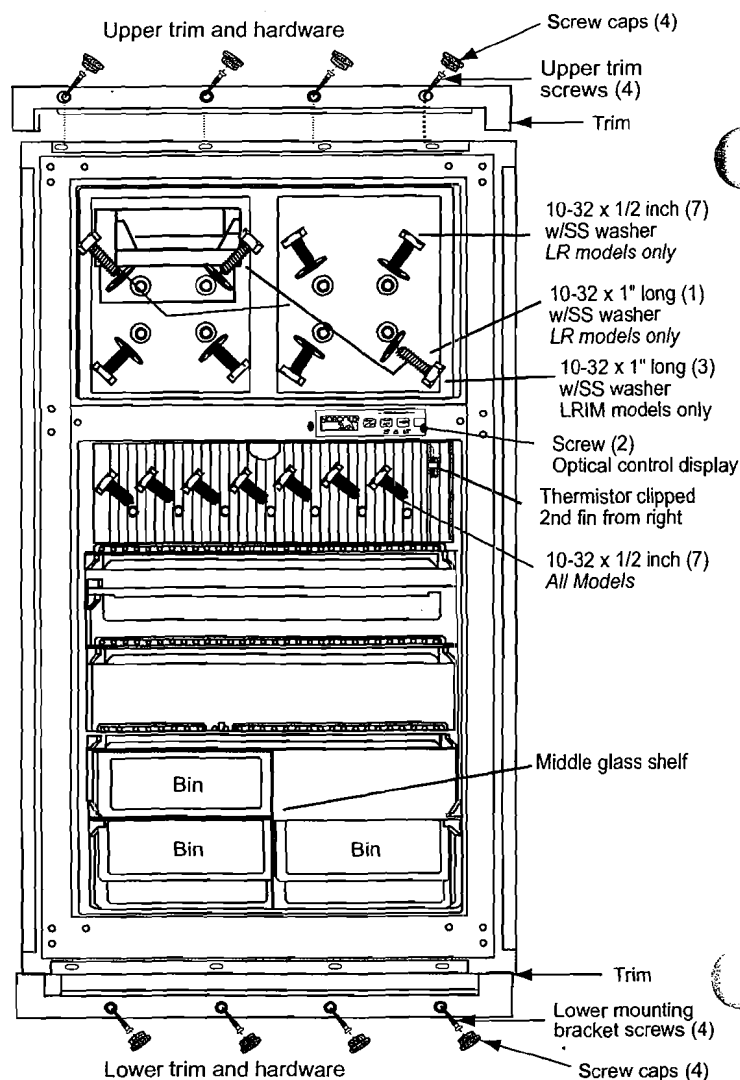


Figure 5. Hardware and parts to be removed.

Remove Ice Maker Water Valve

This section applies to 120X LRIM series refrigerators. If the refrigerator does not have an ice maker, proceed to "Remove Gas Valve and Burner Assembly."

On 120X LRIM (ice maker) unit only!

- Disconnect the brown and white wires from the water valve solenoid. See Figure 6.
- Disconnect water line heater wires from thermostat and power board wire leads. See Figure 6.
- Remove water valve assembly. Loosen the two 8-32 x 1-1/2 inch bracket screws using a 1/4 inch nut driver.
- Unwrap water line heater wire from the valve inlet and outlet.

Remove Gas Valve and Burner Assembly

- Remove drip cup. Loosen the #8 x 3/8 inch hex head sheet metal screw using a 1/4 inch nut driver.
- Remove the burner box cover. Loosen the #8 x 3/8 inch sheet metal screw using a 1/4 inch nut driver.
- Remove gas valve/burner assembly as one assembly following steps **a** through **d**.
 - Disconnect gas valve solenoid wires from the power board terminals GV and terminal GV_GND.
 - Remove burner hold down screw. Loosen the 8-32 x 3/8 inch screw using a #2 Phillips screwdriver. See Figure 7.
 - Remove the gas valve/bracket assembly. Loosen the brackets' three 8-32 x 1 inch screw using a 1/4 inch nut driver. See Figure 7.
 - Carefully remove the complete gas valve/bracket, burner tube and burner assembly by sliding the whole assembly to the left side cabinet until the burner is clear of the burner box.

Remove Spark/Sense Electrode

- Remove the spark/sense electrode. Loosen the 8-32 x 3/8 inch screws using a #2 Phillips screwdriver. See Figure 8.
- Carefully pull the spark/sense electrode from burner box.
- Disconnect spark/sense electrode wire from the power board high tension coil terminal.

Remove Power Board Cover

- Unplug the AC cord from power board. See Figure 9 for location.
- Disconnect flapper heater power supply wires from terminals FLP/DC_HEAT and DC_HT_GND. See Figure 9 for connector location.
- Remove power board cover. Loosen the cover's three 8-32 x 1 inch screws using a 1/4 inch nut driver. See Figure 9 for screws' location.

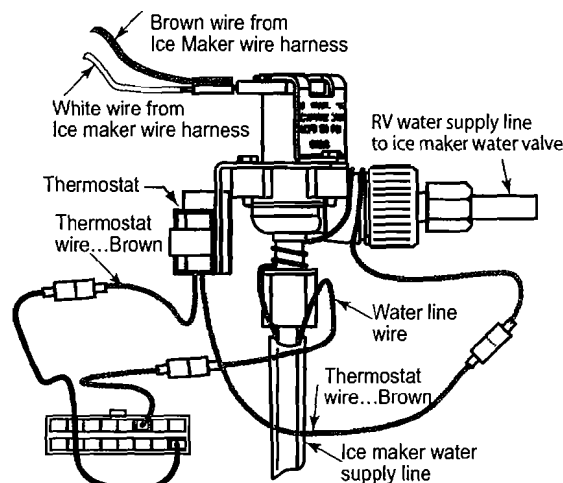


Figure 6. Ice maker water valve connections.

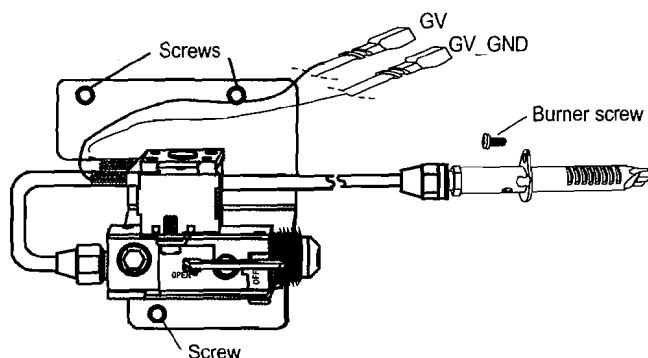


Figure 7. Gas valve/burner tube and burner assembly..

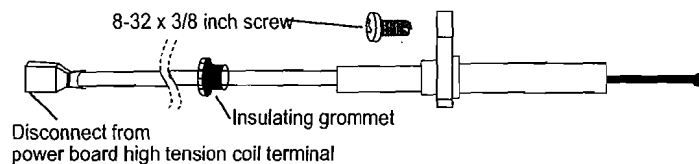


Figure 8. Spark/sense electrode assembly.

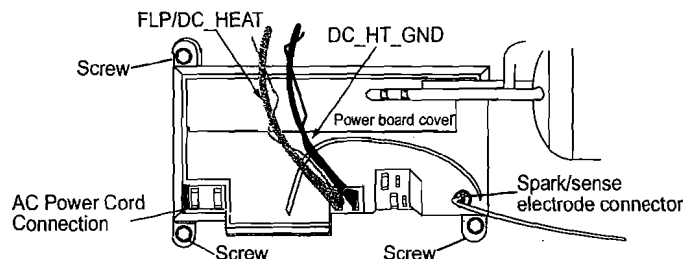


Figure 9. AC power, flapper heater and electrode connections.

Disconnect Ice Maker Power Cord from Wire Harness

This section applies to 120X LRIM series refrigerator. If the refrigerator does not have an ice maker, proceed to "Disconnect Fans."

On 120X LRIM (ice maker) unit only!

Follow steps A through C to disconnect ice maker wire harness from ice maker AC power cord.

- White wire from AC cord ribbed pigtail.
- White wire from AC cord smooth pigtail.
- Green (ground) wire from refrigerator cabinet.

Disconnect Fans

- Disconnect the black wire and white wire from thermostatic switch. Figure 10 shows the disconnect points at switch terminal.
- Disconnect the Y jumper wire. Leave fans attached to brackets on absorber coil. Figure 10 shows disconnect points.
- Loosen the upper cable tie screw using a 1/4 inch nut driver. Figure 11 shows the approximate location of upper cable tie screw.



CAUTION

Exercise extreme care when cutting or removing wire ties to prevent damage to either the ice maker or fan wires.

- Cut the lower cable ties. Leave the cable tie pad attached to the backing. Figure 11 shows the approximate location of the lower cable ties and pad.

Removal of Cooling System from Cabinet

- Cut the tape along all four edges of cooling system foam plug backing. See Figure 11.
- Remove the Permagem sealer from drain hose opening and save for reinstallation. Figure 11 shows the location of brackets' screw.
- Remove the absorber brackets' screw and condenser brackets' screw using a 5/16 inch nut driver. Figure 11 shows the location of brackets' screw.



WARNING

Do not attempt to lift the cooling system out of the cabinet without the assistance of an able person. Attempting to lift the cooling system without additional help may cause personal injury and/or property damage.

- With the help of an assistant, carefully lift the cooling system out of cabinet.

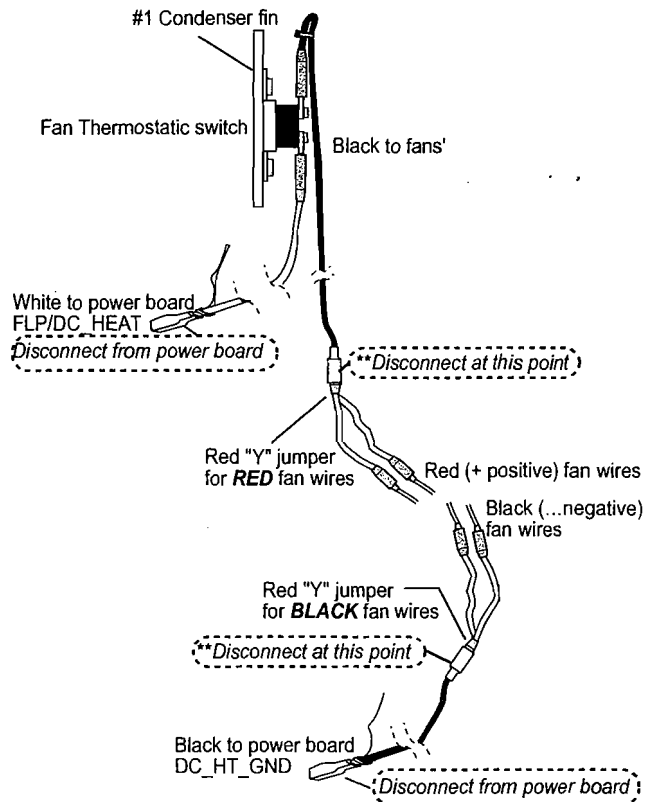


Figure 10. Fans' thermostatic switch and connections.

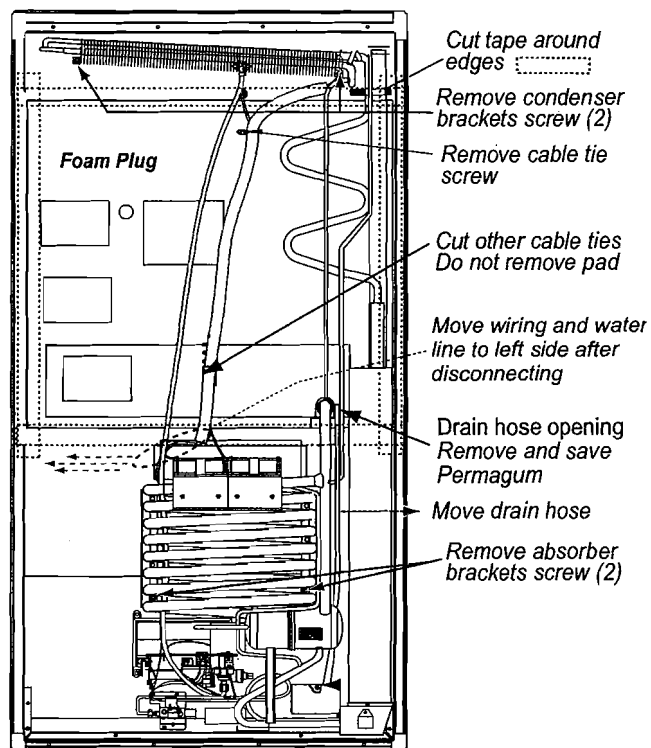


Figure 11. Components on back of refrigerator.

Apply Thermal Mastic Sealant to Cooling System and Cabinet

1. Clean the old Thermal Mastic sealant from the cabinet step, fin assembly and each freezer evaporator.
2. Clean the old Thermal Mastic sealant from the cooling system foam plug step and heat exchanger.



CAUTION

Thermal Mastic sealant is to be applied to the cabinet and cooling system as outlined in the following steps and as shown in Figure 13, **a** and **b**. Failure to apply the sealant as outlined will result in poor cooling performance.



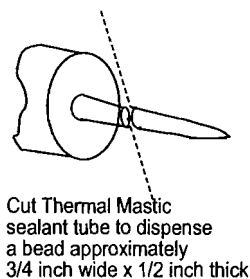
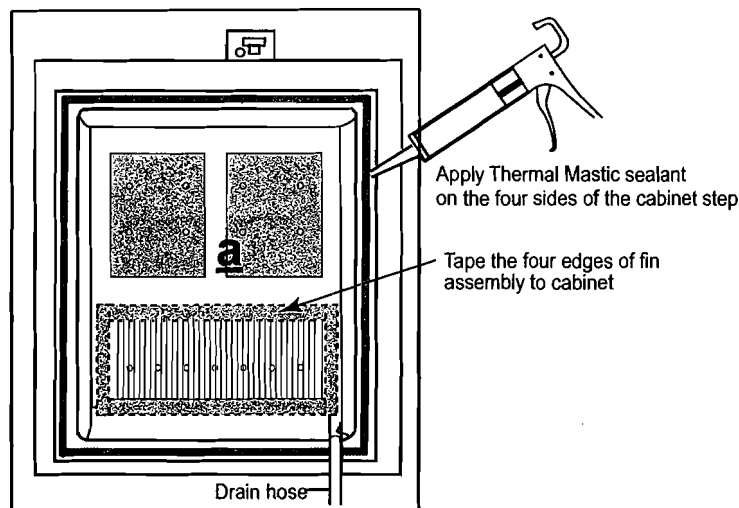
CAUTION

Use only NORCOLD approved Thermal Mastic sealant (part number 61450740). Do not use silicon, latex or petroleum base sealant. Silicone, latex and petroleum sealants may damage the cabinet and/or cooling system foam, greatly reducing cooling efficiency.

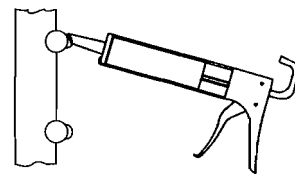
NOTE

Resealing requires at least three tubes of Thermal Mastic sealant. Each tube tip must be cut wide enough to dispense a 3/4 inch thick bead. See Figure 12, top.

3. Apply a 1/2 inch wide x 1/2 inch thick bead of Thermal Mastic sealant to the evaporator section of the cooling system as shown in Figure 12.
4. Tape the fin assembly as shown in Figure 13, **a**. Use two inch wide adhesive backed HVAC aluminum tape.
5. Apply 3/4 inch wide x 1/2 inch thick bead of Thermal Mastic sealant to the cabinet step as shown in Figure 13, **a** and Figure 13, **b**.



Cut Thermal Mastic sealant tube to dispense a bead approximately 3/4 inch wide x 1/2 inch thick



Apply a bead approximately 1/2 inch wide x 1/2 inch thick

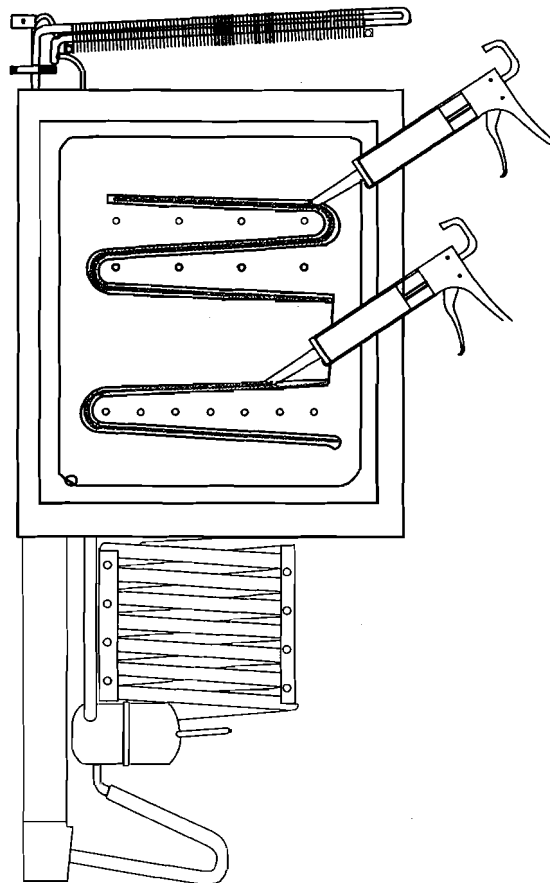


Figure 12. Thermal Mastic sealant application to heat exchanger.

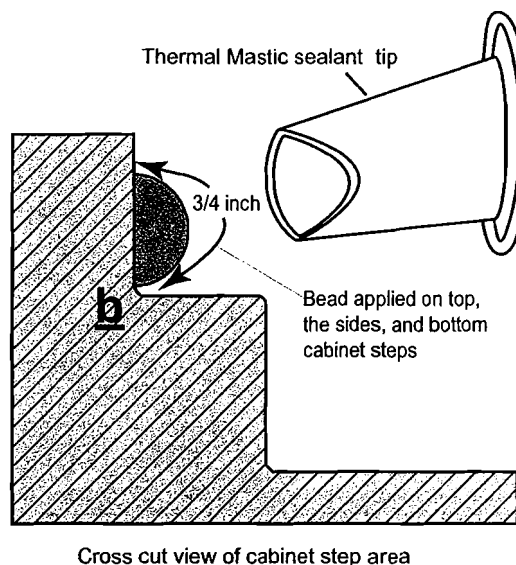


Figure 13. Thermal Mastic application to cabinet step.

Reinstall Cooling System into Cabinet

1. Move the ice maker water line, wiring, and fan wiring to the opposite side of the cooling system flue tube.



WARNING

Do not attempt to install the cooling system into the cabinet without the assistance of an able person. Attempting to install the cooling system without additional help may cause personal injury and/or property damage.

2. Carefully lift the cooling system over the cabinet, then align the foam plug over the cabinet step.
3. Have an assistant insert the drain hose through the drain hose opening, then hold the tube straight up.
4. Carefully lower foam plug evenly into the cabinet step.
5. Apply even pressure over the cooling system foam plug surface to fully mate the cooling system to the cabinet.
6. Place the ice maker water tube, wiring, and fan thermostatic switch wiring between the cabinet and absorber coils. See Figure 14.



CAUTION

Maximum condenser and absorber coil screw torque is 25 inch-pound. Exceeding torque values may damage foamed-in back plate screw hole threads.

7. Fasten condenser brackets to the cabinet. Screws' location shown in Figure 14. Tighten each #10 x 1/2 inch hex head screw 15 to 20 inch-pound.
8. Fasten the absorber coil brackets to the cabinet. Screws' location shown in Figure 14. Tighten each #10 x 1/2 inch hex head screw 15 to 20 inch-pound.
9. Tape foam plug backing edges to cabinet. Use two inch wide adhesive backed HVAC aluminum tape or poly mask sealing tape. See Figure 14.
10. Make sure heat deflector cap is firmly on the flue tube. The cap's metal tang should contact the flue tube opening, and the solid back side facing the refrigerator cabinet. See Figure 15.

Connect AC Heaters' Wires to Power Board and Install Power Board Cover

1. Connect one AC heater BLACK wire to power board terminal AC_HT_LO and the other to AC_HT_LO_2. See Figure 16.
2. Connect one AC heater YELLOW wire to power board terminal AC_HT_HI and the other to AC_HT_HI_2. See Figure 16.
3. Install the power board cover. Tighten each 8-32 x 1 inch hex head screw 15 to 20 inch-pound.
4. Connect AC cord plug to power board.

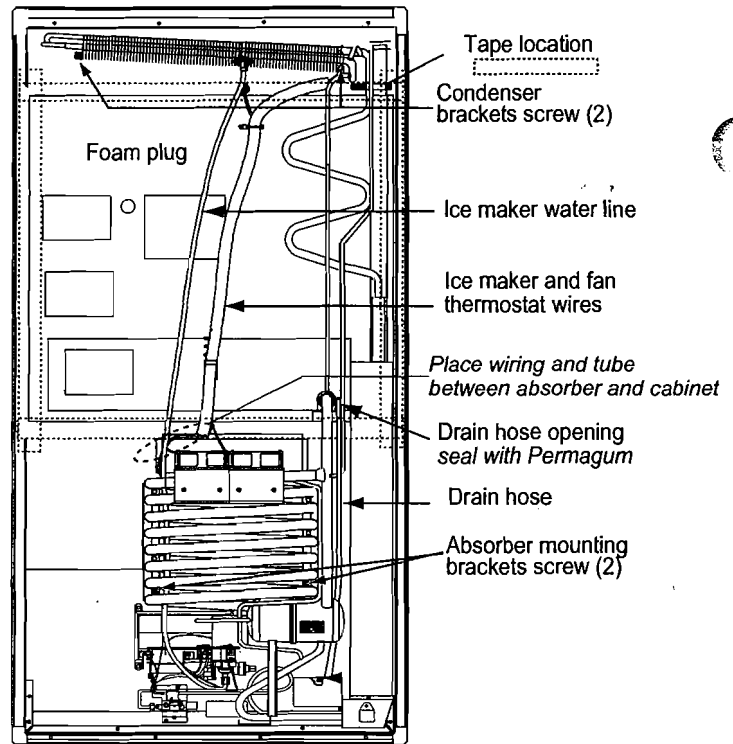


Figure 14. Hardware and wiring-rear of cabinet.

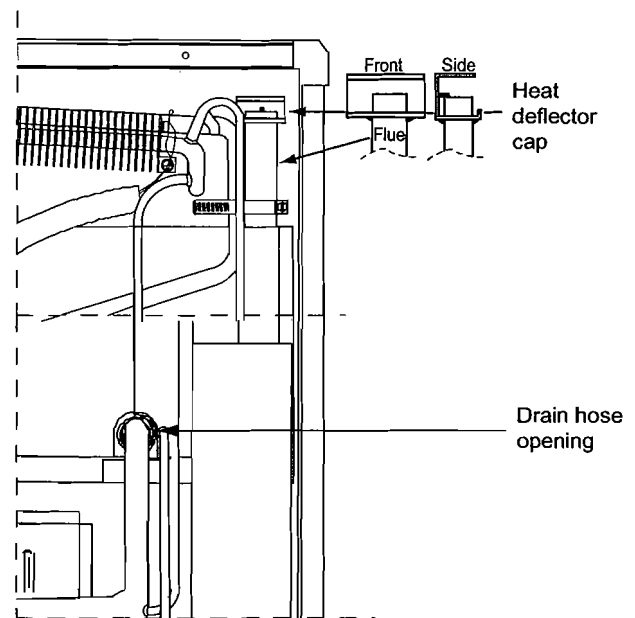


Figure 15. Heat deflector cap location and position.

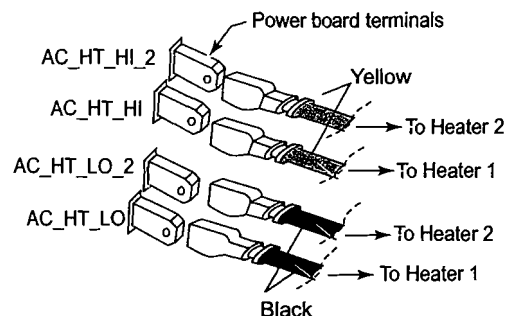


Figure 16. AC Heaters' power board connections.

Wire Fans to Thermostatic Switch and Power Board



CAUTION
Observe correct polarity by making switch, fans and power board connections as outlined in Figure 17. Fans will not turn on if connections are not correct.

1. Follow directions on Figure 17 to connect fans and thermostatic switch to wiring.
2. Tuck wires in the plastic conduit.
3. Install the upper cable tie screw and install new cable ties to replace those cut during cooling system removal.

Install Spark/Sense Electrode and Connect to Power Board

1. Make sure the spark/sense electrode wire passes through burner box cover insulating grommet. See Figure 18.
2. Install spark/sense electrode on the burner box, tighten the #2 Phillips 8-32 x 3/8 inch pan head screw.
3. Connect the spark/sense electrode wire terminal to the power board high tension coil.

Install Gas Valve and Burner Assembly

1. Carefully slide the complete gas valve/bracket, burner tube and burner assembly until the tip of the burner is fully inserted in the burner box slot.
2. Fasten the burner box cover to the burner box and tighten the #2 Phillips 8-32 x 3/8 inch pan head screw.
3. Fasten the gas valve bracket to the back plate with three 8-32 x 1 inch hex head screws using a 1/4 inch nut driver. Tighten each screw 15 to 20 inch-pound. See Figure 19.
4. Reconnect one gas valve solenoid wire to power board terminal **GV** and the other to **GV_GND**. See Figure 19.

Install Burner Box Cover and Drip Cup

1. Install burner box cover, then tighten the #8 x 3/8 inch hex head sheet metal screw using a 1/4 inch nut driver.
2. Install drip cup, then tighten the #2 Phillips #8 x 3/8 inch hex head sheet metal screw using a 1/4 inch nut driver.
3. Place drain hose end into drip cup.
4. Reseal foam plug drain hose opening with Permagum.

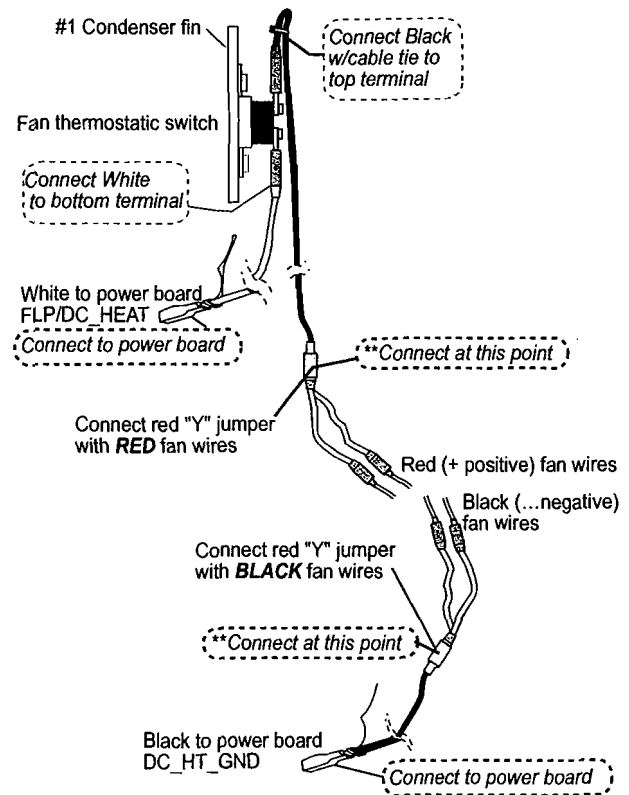


Figure 17. Wiring connections for fans.

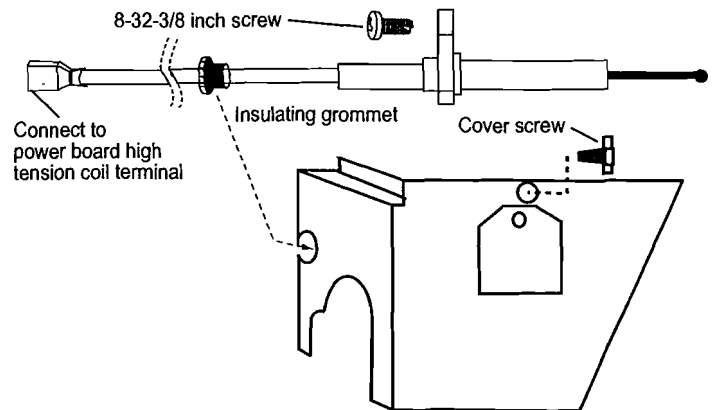


Figure 18. Gas valve connections and screws.

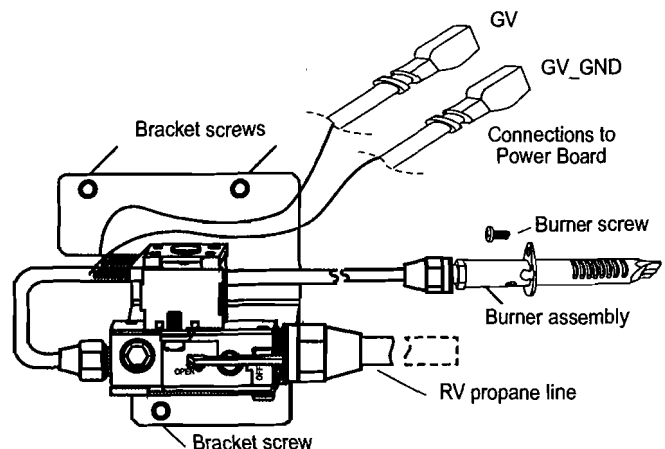


Figure 19. Gas valve connections and screws.

Install Ice Maker Water Valve

This section applies to 120X LRIM series refrigerators. If the refrigerator does not have an ice maker, proceed to "Install Freezers' Evaporator Screws and Fin Assembly Screws."

On 120X LRIM (ice maker) unit only!

- Fasten the water valve to back plate with two 8-32 x 1-1/2 inch hex head screws. Tighten each screw 15 to 20 inch-pound.
- Wrap the water line heater wire to the valve body as shown in Figure 20.
- Reconnect the water line heater to thermostat and power board. See Figure 20.
- Connect ice maker harness brown wire to water valve solenoid. See Figure 20.
- Connect the ice maker AC power cord pig tail wire to water valve solenoid.

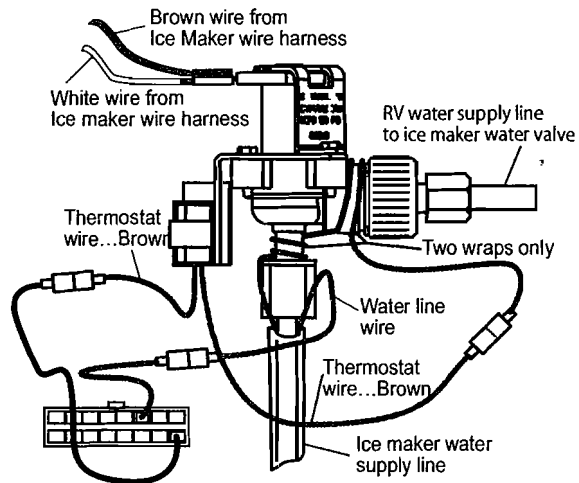


Figure 20. Ice maker water valve connections.

Install Freezers' Evaporator Screws and Fin Assembly Screws

- Carefully lift the refrigerator back up to the upright position.

NOTE

For ease of installation, Figure 20 labels freezers' evaporator plate screws 1 through 8. Screws 1, 2 and 7 are one inch long. Screws labeled 3, 4, 5, 6 and 8 are 3/8 inch long.



CAUTION

Install washers with rounded edge facing evaporator plate. Installing the washers with the sharp edge facing the evaporator plate may damage the evaporator plate finish.

- Align and install evaporator plate screws along with flat washers. See Figure 20 and follow steps **a** through **d**.
 - Evaporator plate screw ①. See Figure 21.
 - Evaporator plate screw ②. See Figure 21.
 - Tighten plate screws ① and ② 30 to 55 inch-pound.
 - Install and tighten remaining screws in the order shown in Figure 21.
- Align and install fin assembly screws. Follow the numerical sequence shown in Figure 21. Tighten each screw 30 to 55 inch-pound.
- Clip thermistor to second fin from the right side of the fin assembly. See Figure 21.

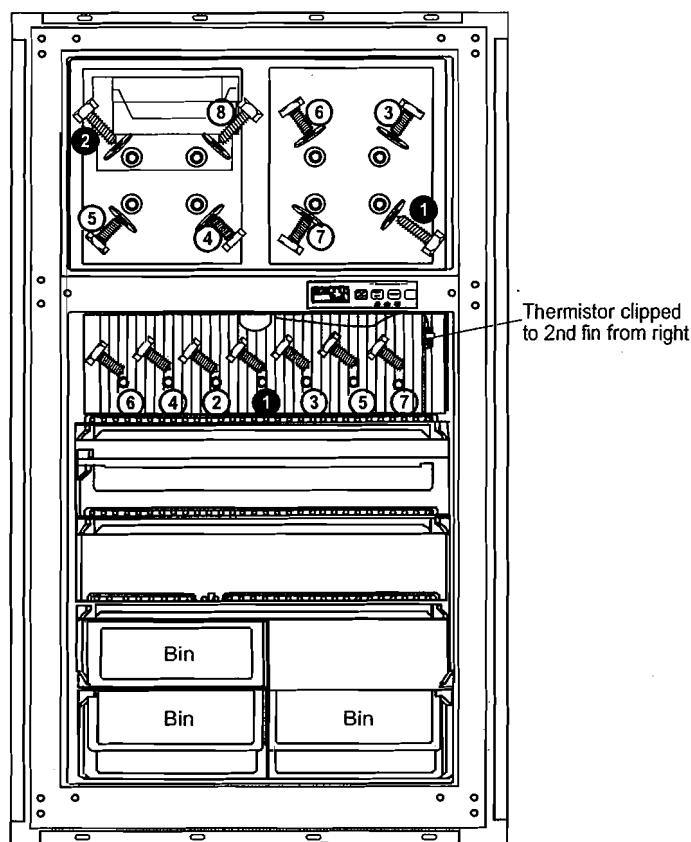


Figure 21. Freezer plates and fin assembly hardware.

Install Refrigerator In Enclosure

1. Check condition of combustion seal. Replace seal if damaged prior to proceeding to step 2.



WARNING

Do not attempt to install the refrigerator in the enclosure without the assistance of an able person. Attempting to install the refrigerator without additional help may cause personal injury and/or extensive property damage.



CAUTION

Make sure AC power cords are safely placed within lower two absorber coils. Loose AC cords may get cut or damaged if caught between refrigerator and enclosure walls or floor.

2. Carefully lift the refrigerator and push it evenly into enclosure until the combustion seal is fully seated on the enclosure frame.
3. Install the lower trim piece, mounting screws and plastic screw caps. See Figure 22.
4. Install the upper trim piece, mounting screws and plastic screw caps. See Figure 22.
5. Connect optical control assembly to wire harness. Fasten to divider with two #2 Phillips head screws.

For Torque values see "Torque Value Table."

6. Install the striker plate. Fasten to divider with four #2 Phillips head screws.
7. Install the left and right middle hinge assemblies. Each hinge is fastened with three 10-32 x one inch hex head screws. See Figure 23.
8. Install the lower left and right fresh food cabinet hinges. Install hinge shims if previously removed. See Figure 23.
9. Install left and right fresh food cabinet doors. Follow steps **a** through **f** and see Figure 23.
 - a. Hold the door ajar, then insert door upper hinge boss into the middle hinge pin.
 - b. Close the door, then position and align lower door hinge over lower hinge.
 - c. Lower the door assembly until the upper door hinge clears the middle hinge pin.
 - d. Apply a drop of thread locking compound to the lower hinge pin.
 - e. Install the hinge pin with door shim, if previously removed.
 - f. Tighten the hinge pin 20 to 25 inch-pound.

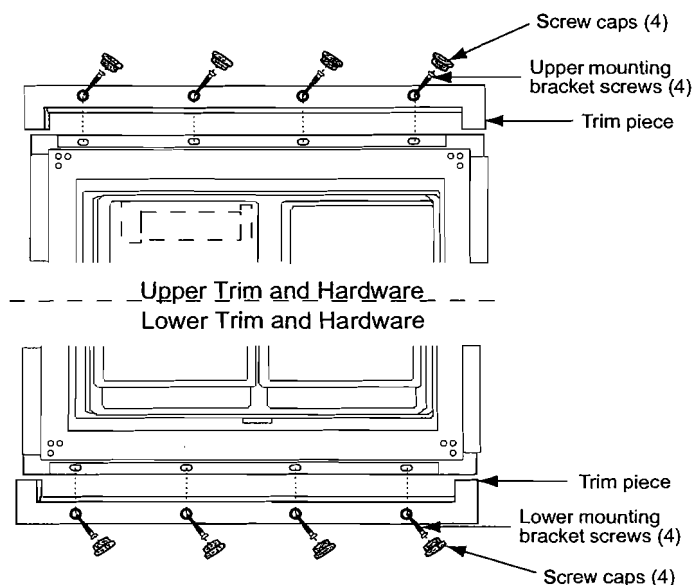


Figure 22. Upper and lower trim hardware.

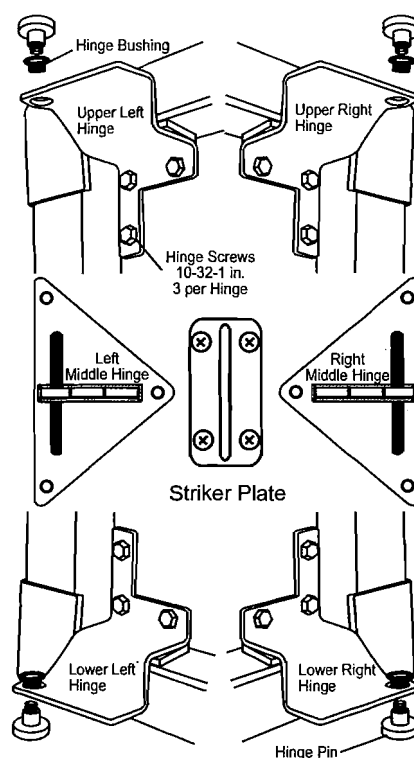


Figure 23. Upper and lower trim hardware.

Fastener	Torque Value
Absorber brackets screw	15 to 20
Back bracket screws	13 to 23
Condenser bracket screw	15 to 20
Evaporator screw	30 to 55
Fin Assembly	30 to 55
Gas valve bracket screw	15 to 20
Hinge screw	30 to 35
Optical display cover screw	7 to 12
Striker plate screw	7 to 12
Water valve bracket screw	15 to 20

Table: Fasteners' torque values.

10. Install the left and right freezer doors. Follow steps **a** through **d** to install each door.
 - a. Hold the door ajar, then insert the door lower hinge into the middle hinge pin.
 - b. Close the door, then position and align upper door hinge over upper cabinet hinge.
 - c. Apply a drop of thread locking compound to the upper hinge pin.
 - d. Install the hinge pin. Tighten the hinge pin. See Table: Fasteners' torque values, bottom of page 9.
11. Install the lower left glass shelf, then install the crispers.
12. Install the right and left freezer shelves.
13. Install ice bin. ***Ice maker models only.***
14. Install the back bracket hold down screws to fasten refrigerator to the base of the RV enclosure.

On 120X LRIM (ice maker) unit only!

- A. Connect RV water supply line to ice maker water valve.
- B. Turn on RV water pump and check for water leaks at water valve connection.

15. Reconnect the RV propane supply line to gas valve.



WARNING

To avoid damaging connection and/or fitting, always use two wrenches to loosen and tighten the propane gas supply connection and/or fitting.



WARNING

Use a commercial leak testing solution. Prevent wetting electrical connections when applying leak test solution to fittings. Fix all gas leaks and repeat leak test after repairs.

16. Open the RV propane gas tank valve and leak test connection at refrigerator gas valve.
17. Connect the +12 VDC and -12 VDC power supply wires to the power board. See Figure 2, page 1.
18. Plug the power board AC power cord into the RV AC receptacle.
19. Turn on the refrigerator and select LP manual mode operation.
20. Leak test all refrigerator propane fittings and connections.
21. Test the refrigerator cooling performance

Technical Assistance

Please contact NORCOLD Customer Service Technical Assistance at 1-800-444-7210 if further assistance is needed to complete this procedure.