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Technical Service Bulletin

Date Issued	Model Year(s) Affected	Model(s) Affected	TSB #
6/2/08	2003 – 2008	All Motorized	343

Brand

All	☐	American Star	☐	Mountain Aire	■
Cypress	☐	Dutch Star	■	Kountry Aire	■
Northern Star	■	Bay Star	■	Essex	■
Scottsdale	■	King Aire	■	Canyon Star	■
All Star ME	■	Ventana	■	Grand Star	■

Type

All	☐	T T	☐
F W	☐	C A	■
D P	■	D B	■

- ☐ Air Conditioning & Heating
- ■ Appliances & Accessories
- ☐ Cabinets & Furniture
- ☐ Chassis Components
- ☐ Construction Components
- ☐ Electrical Components
- ☐ Exterior Components
- ☐ Interior Components
- ☐ Plumbing & Bath Components
- ☐ Windows, Awnings, Vents, & Doors

Description of Problem

Norcold is adding a "Thermal Limit Switch" to certain 1200 LR, 1200 LRIM, and 1201 LRIM refrigerators to prevent possible excess or overheating conditions in the "heater" area of the cooling unit exceed a certain level.

Recommended Solution

Norcold has established a procedure for installing a "thermal limit switch" in the heating area of the cooling unit. Read the attached Manufacturers information completely before beginning any diagnosis or repairs. Contact Norcold directly if you should have any questions regarding this procedure.

If you have any questions regarding this T.S.B., please contact a Warranty Service Representative at Newmar Corporation.

Service Kit
Thermal Switch Kit for
1200LR, 1200 LRIM, and 1201 LRIM Refrigerators
Kit Part Number 632609

Purpose

Use these instructions to add a thermal limiting switch to model 1200 LR, 1200 LRIM, and 1201 LRIM refrigerators. Add the switch to models with cooling-unit serial numbers between 1008701 and 1273700 that do not already have the switch.

Definition

The thermal limit switch is a bimetal electromechanical device that shuts off power to the whole refrigerator if the temperature in the heater area exceeds a safe level. The switch's metal collar surrounds the lower region of the insulated canister that houses the heating elements. The new switch will connect to terminals on the existing power board.

Preliminary Arrangements

Arrange for an able-bodied assistant to help lift the refrigerator. You will need help to remove the refrigerator from the RV enclosure and replace it after adding the switch.

Note: You cannot replace the canister and complete this procedure without removing the refrigerator from the enclosure.

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 an explosion, fire, electrical shock, or carbon monoxide poisoning with serious injury, death, or destruction of property, either during service or after you complete the service.

Service Kit Contents (PN 632609):

- Insulation canister (clam shell) (1 ea)
- Metal collar with thermal switch (1)
- Screw for collar (1)
- Wire harness (1)

Tools You Will Need:

- Box knife with new blade or similar cutting instrument
- Cut-proof gloves
- Nut driver, 1/4 inch
- Nut driver 5/15 inch
- Needle-nose pliers

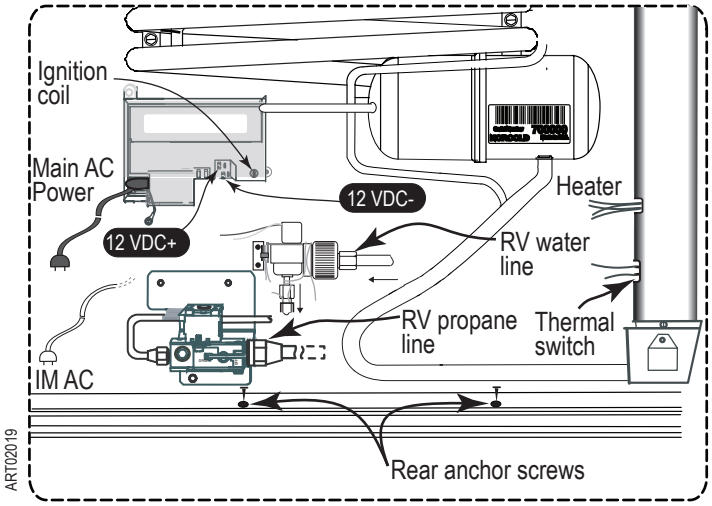

Figure 1. Power Board, Thermal Switch Position, Valves, and Anchor Screws *(seen through the service access)*

Procedure

If the refrigerator has no thermal switch (Refer to Figure 1.) and its cooling unit serial number falls between 1008701 and 1273700 add the switch as described in the following three sections: Shutdown and Removal from Enclosure, Canister Replacement and Thermal Switch Addition, Replacement into Enclosure and Restoring Power.

Shut Down and Removal from RV Enclosure

Shutting Down the Electrical Power

Turn the refrigerator to the off position at its control panel.

1. Open the service access/air intake vent on the outside of the RV.
2. Disconnect the refrigerator's black 120 AC power cord from the RV receptacle. Refer to Figure 1.
3. Disconnect the refrigerator's 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 a short circuit and blown fuses or breakers.

4. Disconnect the 12 VDC+ at the power board, and if necessary, tape the connector to prevent a short circuit.

Part No. 632610A (05-21-08)

5. Disconnect the 12 VDC- (ground) black wire from the power board.

Disconnecting the Propane Line

1. Close the propane supply valve at the propane tank.

Danger: Stop electrical power according to the above instructions before disconnecting the propane line at the propane valve. If you continue without stopping electrical power, a spark and explosion could occur and result in death, serious injury, or destruction of property.

Danger: To prevent damage to connections, piping, and components, always use two wrenches to tighten or loosen propane connections. Damaged connections, piping, and components create the potential for leaks that can lead to death or destruction of property.

2. From the service access/air intake vent, use two wrenches to disconnect the RV's propane line from the refrigerator's propane valve. Refer to Figure 1.

Disconnecting the Water Line (IM Models)

1. If the RV provides a water shut-off valve for the refrigerator, tightly close the valve. If not, stop the RV water pump at the RV's control panel. Bleed water pressure at the RV's sink.

Shock Hazard: Stop both AC and DC electrical power to the refrigerator as described in a section above before disconnecting the water line.

2. From the service access/air intake vent, use a wrench to disconnect the incoming water line at the refrigerator's water valve. Refer to Figure 1.

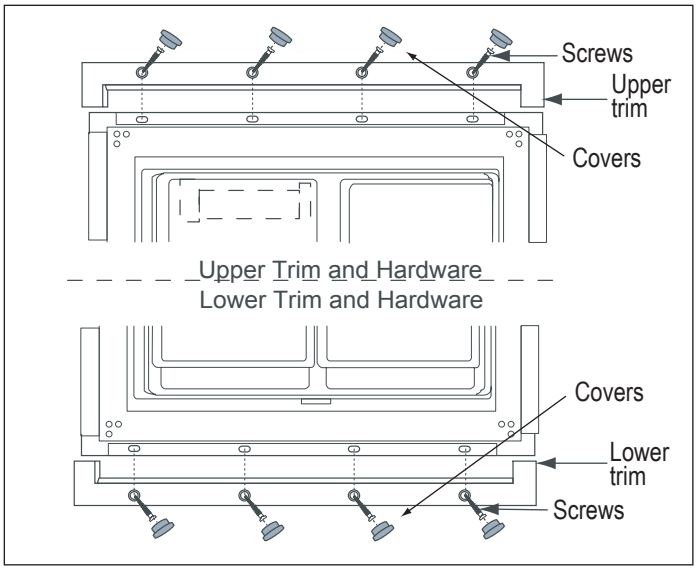

Figure 2. Removing the Upper and Lower Trim Pieces

Removing the Refrigerator from the RV Enclosure

1. From the service access/air intake vent, remove all rear anchor screws holding the refrigerator's frame to the floor of the RV. Refer to Figure 1.
2. If the RV has a drawer or door installed beneath the enclosure, remove the drawer or door to avoid damage while moving the heavy refrigerator.
3. Remove the decorative screw covers from the upper and lower trim pieces, then unscrew and remove the trim pieces. Refer to Figure 2. These screws also help to fasten the refrigerator to the RV enclosure.

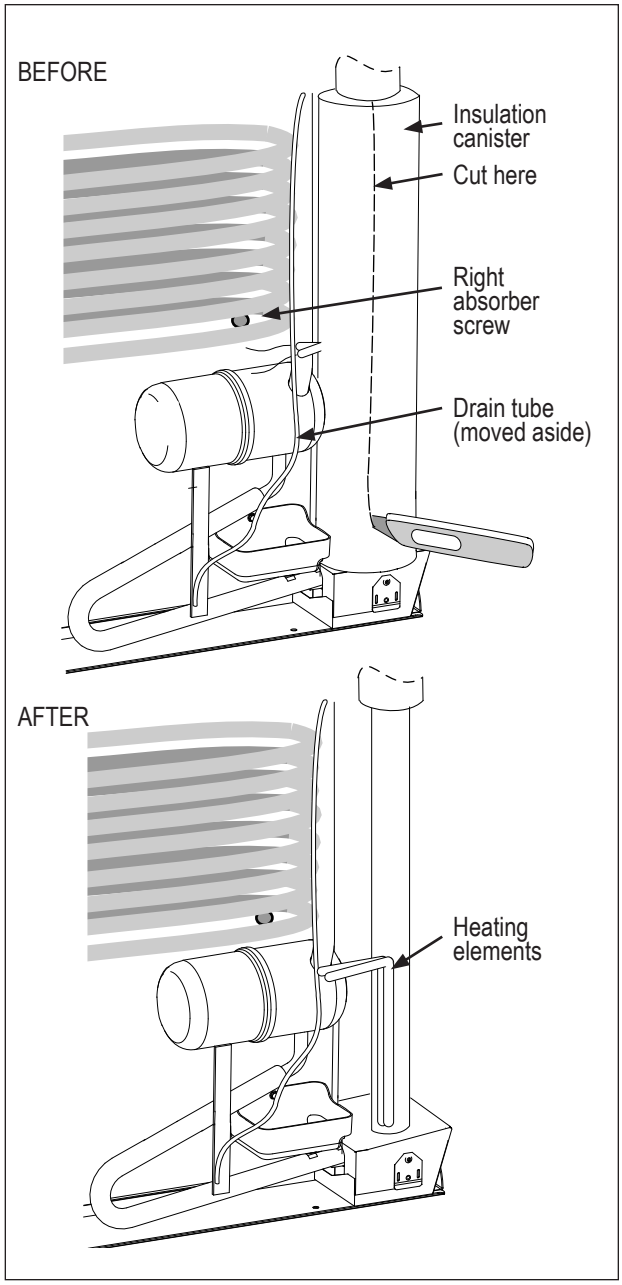

Figure 3. Removing Insulation Canister

Warning: Do not attempt to remove the refrigerator from the enclosure without the aid of an able-bodied assistant. If you attempt to move the refrigerator without assistance, you will likely cause personal injury, property damage, or both.

4. With assistance, carefully pull the refrigerator forward and remove it from the enclosure, placing it upright on the floor.
5. Rotate the refrigerator to give access to its bottom rear.
6. Remove both screws (left and right) from the absorber bracket to allow it to shift slightly and ease installation of the new canister. Refer to Figure 3.

Canister Replacement and Thermal Switch Addition

Removing the Old Insulation

1. Move the drain tube away from the canister to avoid accidental damage.
2. Use a box knife to cut open the old insulation canister that covers the heaters. Refer to figure 3.
3. Remove the old insulation and discard it.
4. Inspect the area around the heaters. If you see a yellow residue (from the cooling liquid), call 800-767-9101. You may need to replace the whole cooling unit.

Installing the New Insulation Canister

1. With the rectangular hole for the switch at the bottom of the new insulation canister, spread the canister open and carefully push the bottom half into place under the flue tube and heaters. Refer to Figure 4.

Caution: The insulation canister must close completely and tightly to insure proper heating. A loose canister with space at the seams **will** reduce the cooling capacity of the refrigerator.

2. Close the canister and make sure the halves close **tightly** to form a insulating cylinder around the flue tube and heaters.
3. Wearing cut-proof gloves, wrap the bottom flap that is below the heater wires snugly around the canister.
4. Reach around and peel the release strip from the adhesive edge of this flap and snugly seal the flap to the back side of the canister.
5. Still wearing the cut-proof gloves, wrap the top flap around the flue and heaters.
6. Again reach around and peel the release strip from its adhesive edge, and seal the flap snugly around the canister.

Installing the Metal Collar and Thermal Switch

1. Slide the metal collar between the drip cup and canister so that the switch lines up with its hole in the canister and the seam in the sleeve is on the right side of the canister. Refer to Figure 5.
2. Squeeze and release at the seam to lock the tabs in place and fasten the collar.
3. Use the screw that came in the kit to securely fasten the collar together in the hole provided in its seam area.

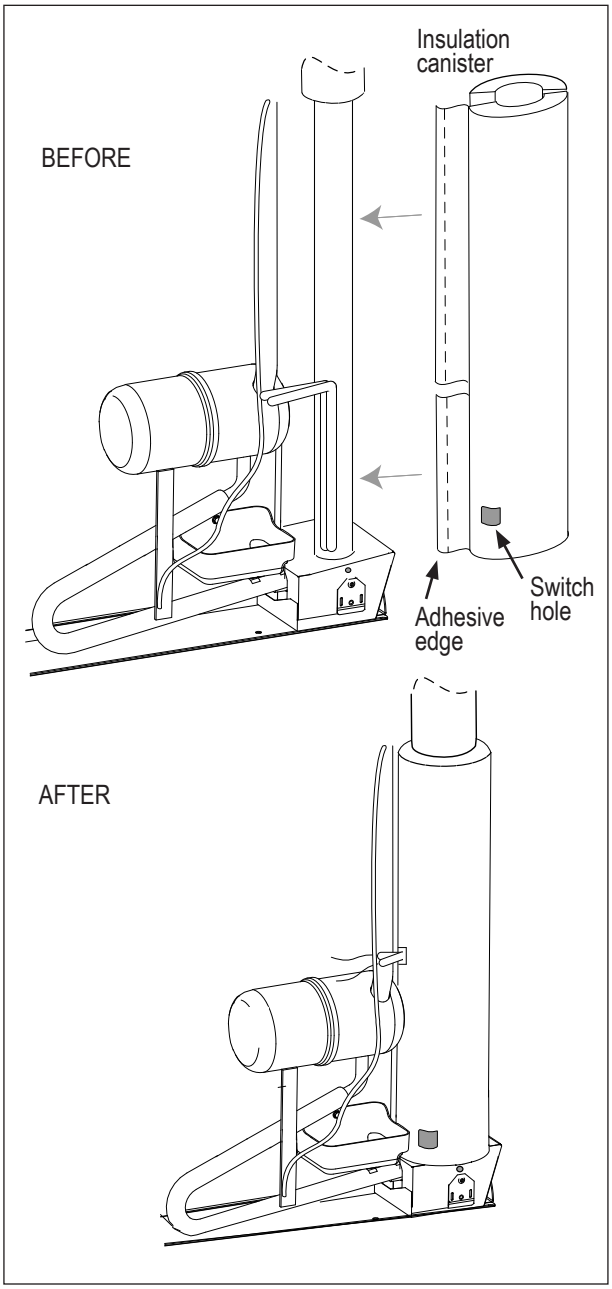

Figure 4. Installing New Insulation Canister

4. Use a 1/4 inch nut driver to remove the screw from the top of the burner box.
5. Rotate the collar until the tab screw hole aligns with the hole in the burner box.
6. Replace the screw to hold the collar and switch in place.
7. Move the drain line back into its original position and put its end back into the drip cup.

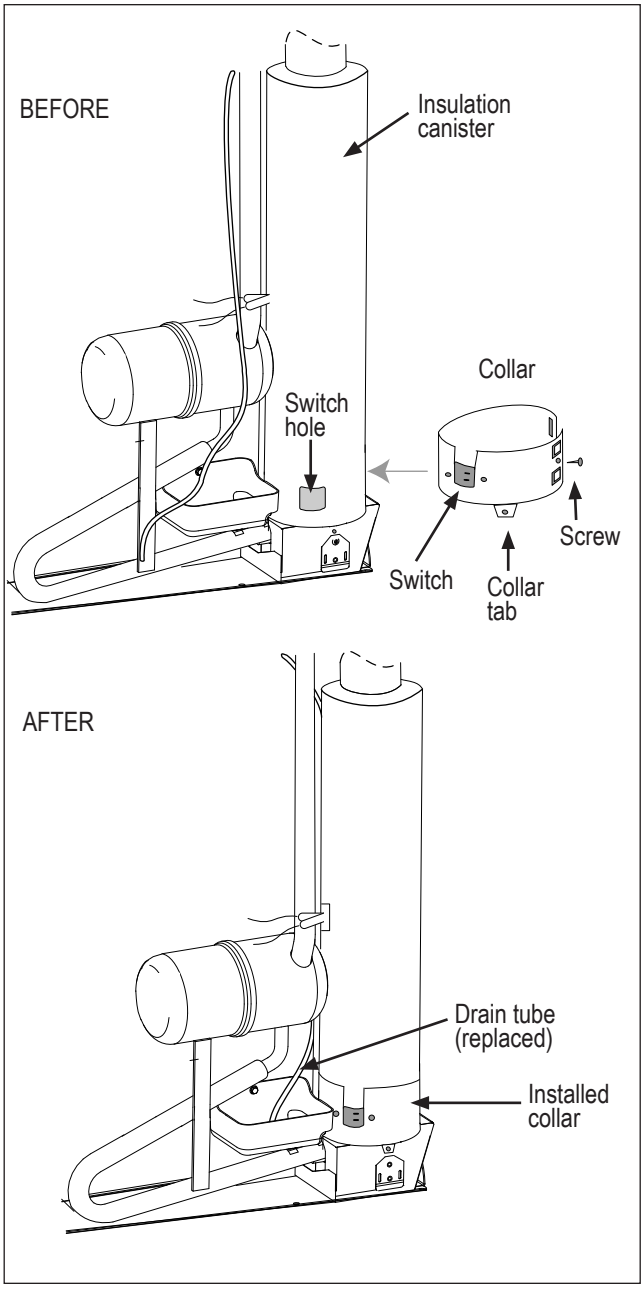

Figure 5. Installing the Metal Collar and Switch

Connecting the New Switch to the Power Board

The wire harness consists of two wires held together by a tie wrap near the ends that attach to the thermal switch. Refer to Figure 6.

1. Use needle-nosed pliers to connect either short end of the switch wires to either switch terminal.
2. Connect the other short end to the other switch terminal.

   Note: Polarity does not matter with this switch.
3. Connect the long end, which has the smaller connector, to the male terminal, labeled 12VDC+ on the power board, as shown in Figure 6.
4. Replace the screws in the absorber brackets.

After you lift the refrigerator back into its enclosure in the following section, you will connect the remaining switch wire (with the large connector) to the RV's 12VDC+ supply line as shown in Figure 6.

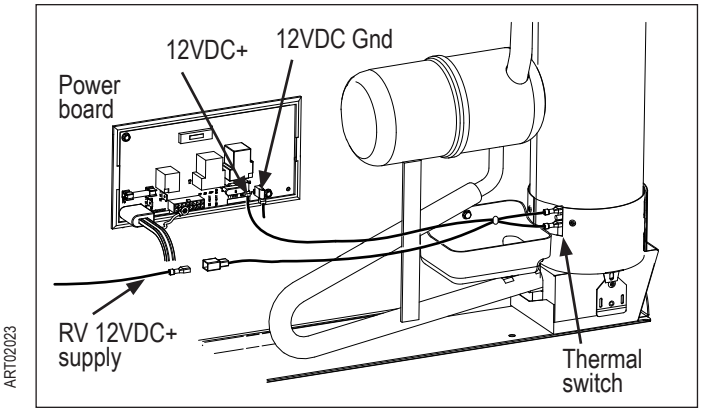

Figure 6. Connecting the Switch Electrically

Reinstalling the Refrigerator into the RV Enclosure and Restoring Power

Reinstalling the Refrigerator into the Enclosure

Warning: Do not attempt to move the refrigerator or lift it into the enclosure without the aid of an able-bodied assistant. If you attempt to move the refrigerator without assistance, you will likely cause personal injury, property damage, or both.

1. Temporarily tie any loose wires, including AC power cords and the 12VDC+ wire, to the absorber coils to prevent damage while moving the refrigerator back into its enclosure.
2. Carefully rotate the refrigerator into position in front of the RV enclosure.
3. Still with assistance, take care not to bend or collapse the flue cap (Refer to Figure 8.) as you lift the refrigerator into the enclosure and carefully push it back to fit evenly with the front of the enclosure.
4. Reinstall the lower trim piece with its same screws, and replace the decorative screw caps. Refer to Figure 2.

   Note: Tightening the lower trim piece in place before the upper one will make the installation easier.
5. Reinstall the upper trim piece with its same screws, and replace the decorative screw caps.

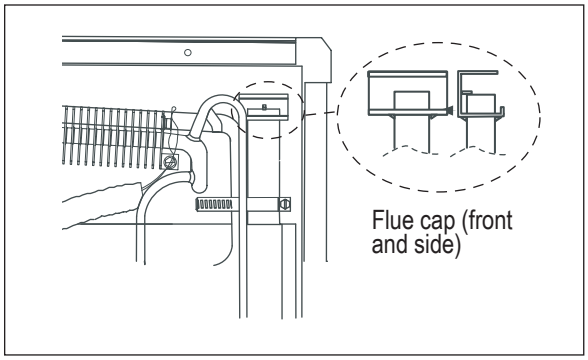

Figure 8. Protecting the Flue Cap

Danger: Do not bend or collapse the flue cap as you lift the refrigerator and place it back into the enclosure. A damaged flue cap can cause poor ventilation, poor ability to cool, and a build up of gases that can cause an explosion, fire, carbon monoxide poisoning, and death, now or after the work is finished.

Danger: For safety, please restore power sources in the following order and obey the safety messages below:

Restoring Propane Pressure

Danger: Use two wrenches to loosen or tighten propane fittings—using one wrench can damage the fitting and create a propane leak that could cause an explosion, death, serious injury, or damage to property.

1. Reconnect the propane line to the propane valve. Refer to Figure 1.
2. Turn on the propane pressure at the propane tank valve.

Danger: To avoid fires or explosions that can cause death or property destruction, never use flames to check for propane leaks.

3. Check for leaks at the connection of the refrigerator's propane valve using a soap solution.

Danger: If bubbles form in the soap solution, tighten the fitting or repair the flare. **DO NOT** reconnect electrical power until the connection is free of leaks. A fire or explosion resulting in serious injury, death, or destruction of property could result!

Restoring the Water Pressure (models with ice maker)

1. Snugly reconnect the RV water line to the water valve. Refer to Figure 1.
2. Restore water pressure at the shut-off valve or RV control panel.
3. Check for and repair any water leaks at the water valve connection.

Restoring Electrical Power

When you are sure that no propane or water leaks exist, restore electrical power to the refrigerator as follows:

1. Connect the RV's 12 VDC- (ground) wire to the terminal at the bottom right of the power board.
2. Insert the refrigerator's black power cord into an RV AC receptacle. Refer to Figure 1.
3. Insert the white, ice maker AC power cord, if present, into a second RV AC receptacle.
4. If present, remove the protective tape from the RV's 12 VDC+ supply line and reconnect it to the new, loose wire from the thermal switch. Refer to Figure 6.

Powering on, Leak Checking, and Testing the Unit

1. Turn on the refrigerator from the control panel and place the refrigerator in the propane mode.

Danger: Never use flames to check for propane leaks. Flames can cause fires or explosions that can lead to injury, death, or property damage.

2. When the burner lights, use a bubble solution to check for propane leaks at all fittings in the propane system.

Danger: If a propane leak exists, use two wrenches to loosen or tighten the fitting—using one wrench can damage the fitting and create a propane leak that could cause an explosion, death, serious injury, or damage to property.

3. If the system has propane leaks, tighten, repair, or replace any leaky fittings and repeat the leak check.
4. Recheck for water leaks at the water valve and at the water dispenser connection. Repair any leaks.

Danger: Do not continue until the system is completely free of propane leaks.—A propane leak can cause an explosion, fire, death, serious injury, or damage to property.

5. Check for cooling in both modes of operation.

If the refrigerator decreases the temperature of the food compartments in both the propane power mode and the AC power mode, the procedure is complete.

Filing a Claim to Recover Labor Costs

1. Find the Claim-for-Labor form that is either inside the parts box or attached to the outside of the box.

   Note: Use this form! The company cannot pay your repair/work order or invoice without this form.

2. Fill out the claim form completely using black ink! Be sure to include each of the following fields:
   - Norcold cooling unit serial number
   - Vehicle information and seventeen digit VIN (if not preprinted on the claim form).
   - Signature of the repair technician
   - Date of the repair
   - Dated signature of the owner.

   Note: To receive payment and avoid return of the incomplete form, **you must provide all of the bulleted items** listed above:

3. Mail the white portion of the claim form to the address listed at the top of the form.

   Note: Send the form by US mail! The company does not accept faxed or emailed claim forms.

Payment will equal the amount that is either pre-printed on the warranty claim form, or the amount we posted in our database for you on the date that you ordered the kit.