



Installation and Owner's Manual

For model 322 - a 1.7 cu. ft., 2-way refrigerator.

For model 323 - a 1.7 cu. ft., 3-way refrigerator.



WARNING: Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information, contact a qualified installer, service agency, or the gas supplier.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquid in the vicinity of this or any other appliance.

FOR YOUR SAFETY

If you smell gas:

1. Open windows
2. Don't touch electrical switches.
3. Extinguish any open flame.
4. Immediately call your gas supplier.



WARNING: DO NOT install this refrigerator in below deck marine applications. Do not install this refrigerator in fixed indoor cabin or other dwelling applications. This refrigerator must use only NORCOLD designed and approved outside air intake and exhaust ventilation for correct and safe operation. Any other ventilation could cause lethal combustion exhaust fumes and/or propane gas fumes to be present in the living area and/or below deck.

English

French

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NORCOLD - Gas Absorption 3 Year Limited Warranty Policy

Norcold • P.O. Box 4248 • Sidney, OH • USA • 45365-4248

Provided it is properly installed, properly maintained and placed under normal service and use, Norcold, Inc. warrants its refrigeration equipment to be free from defects in material and workmanship for three years with respect to the equipment’s component parts, and for two years with respect to the labor to repair or replace such parts, commencing from the original date of purchase.

Limitations of warranty

1. This Warranty applies only to Norcold gas absorption refrigerator operating equipment. This Warranty does not extend to glassware, electric light bulbs, and replaceable fuses.
2. This warranty does not apply to parts and assemblies that have been subjected to misuse, improper installation, improper or abnormal service, transit damage, recharging of the cooling system, accident, fire, improper repair, tampering or abuse.
3. Irrespective of the nature of the warranty protection offered or claimed, the period of warranty shall in no case extend beyond three years for component parts and two years for the labor to repair or replace such parts, commencing from the original date of purchase of the new equipment.
4. In order to obtain the remedy of repair and replacement, the refrigerator must be brought to any Norcold Service Center for warranty service. The end consumer is responsible for all expenses resulting from any remote service call if the refrigerator cannot be brought into the Norcold service center.
5. It is the responsibility of the end consumer to have maintenance performed upon the warranted equipment one time during the second year or before the beginning of the third year after original purchase. Such maintenance is required to maintain this warranty in effect and failure to perform such maintenance will void the remainder of the warranty. Required maintenance during the second year or before the third year after purchase is cleaning and checking of the following: Burner, Flue, Spiral Baffle, Roof Cap Screen, and Control Board Sequence.

Limitation of remedy

1. The responsibility of Norcold under this or any warranty is limited to the repair or replacement (at Norcold’s option) of the defective part or assembly

- In no event and under no circumstances shall Norcold be responsible under this limited warranty for any other charge whatsoever, including but not limited to charges or claims for labor, lost business, lost time, lost profits, loss of use, or any kind of incidental or consequential damages, however denominated or described. The remedy under this warranty is limited to replacement or repair.
- Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

Disclaimer of other warranties

This warranty is expressly in lieu of all other warranties either expressed or implied. All other warranties, expressed or implied, including any warranty of merchantability or fitness for a particular purpose, are hereby disclaimed and excluded.

Legal rights

This warranty gives you specific legal rights, and you may have other legal rights, which vary from state to state.

Gas Absorption Warranty Information

Your refrigerator is made to provide the ultimate in cooling satisfaction and will serve you reliably in the years to come. Norcold refrigerators are the only RV refrigerators made in the United States and offer a standard limited three-year warranty. Norcold also offers an additional warranty coverage plan which extends the standard limited three-year warranty. To activate your three-year limited warranty and to receive an invitation to participate in the extended warranty plan, complete and mail the warranty registration supplied.

Help us to help you.

Write the model number and serial number below for future reference. These numbers are on the serial plate in the refrigerator. The serial plate is located in the fresh food compartment on the top right hand side. Use these numbers when receiving service or in any correspondence concerning your refrigerator.

Model number _____ Serial number _____

If a problem occurs with your refrigerator, contact any of the service centers throughout the United States and Canada. To find an authorized Norcold Service Center near you, please telephone the Norcold Customer Support Dept. at 800-543-1219 (option-1) or visit our web site at www.norcold.com.

Norcold is committed to providing products that are in harmony with the environment. Your Norcold refrigerator meets all environmental safety standards.

Gas Absorption Warranty Questions

This warranty is the only warranty for your Norcold refrigerator. There are no other express warranties. The only uses for this product are described in this manual. Part or model specifications are subject to change without notice.

What does this warranty cover?

This warranty covers labor and U.P.S. ground transportation costs incurred in removing and reinstalling the refrigerator when necessary to replace a defective part and any parts replaced under warranty (including cooling units).

What is not covered by this warranty?

- Travel expenses for bringing the refrigerator to an authorized Norcold Service Center for warranty coverage.
- Additional costs caused by the inability to bring the refrigerator to an authorized Norcold Service Center.
- Defects which are caused by transit damage, misuse, neglect, or accident.
- Manufacturing defects found at the time of purchase, parts replaced under warranty, and associated labor, which the original consumer-purchaser do not communicate to Norcold within 30 days.
- Labor, performed without need for parts replacements, which the original consumer-purchaser does not communicate to Norcold within 30 days.
- Defects in glassware, electric light bulbs, or replacement fuses.
- Defects caused by improper installation, maintenance, or adjustment.
- Normal maintenance of this refrigerator as described in this manual.
- Defects caused by the improper use of parts or parts not manufactured or supplied by Norcold for repairs or replacements to the refrigerator.

Norcold will not be liable for any incidental or consequential loss or damage, due directly or indirectly to the use of this product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above may not apply to you.

How long does this warranty last?

This warranty is effective for a period of two years from date of purchase or for a period of three years from date of purchase if the required maintenance is done.

What will Norcold do?

Norcold will provide free service and replacement of defective parts, at no charge, at all authorized Norcold Service Centers. Norcold has the option of replacing the defective parts or the entire refrigerator. If the refrigerator is replaced, Norcold is not responsible for replacing dealer installed options.

How do you get service?

Bring the refrigerator to any authorized Norcold Service Center and:

- Show proof that the defective item is within warranty coverage.
 - Show proof that required maintenance has been performed if applicable. Required maintenance during the second year or before the third year after purchase is cleaning and checking of the Burner, Flue, Spiral Baffle, Roof Cap Screen, and Control Board Sequence.
- If you are unable to bring the refrigerator to an authorized Norcold Service Center:
- Send a written notice of the defect to Norcold.
 - Norcold will promptly advise you how to obtain warranty service.


What rights do you have?


This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

Safety Awareness

Read this manual carefully and understand the contents before you use the refrigerator.

Be aware of possible safety hazards when you see the safety alert symbol on the refrigerator and in this manual. A signal word follows the safety alert symbol and identifies the danger of the hazard. Carefully read the descriptions of these signal words to fully know their meanings. They are for your safety.

 **WARNING:** This signal word identifies a hazard, which if ignored, can cause dangerous personal injury, death, or much property damage.

 **CAUTION:** This signal word identifies a hazard, which if ignored, can cause small personal injury or much property damage.

Safety Instructions

 **WARNING:**

- The storage of flammable materials behind or around the refrigerator creates a fire hazard. Do not use the area behind the refrigerator to store flammable materials (gasoline, cleaning supplies, etc.)
- Do not remove the round ground prong from the refrigerator's AC power cord. Do not use a two prong adapter or extension cord on the AC power cord.
- A circuit overload can result in an electrical fire if the wires and/or fuse are not the correct size. Either use the wire and fuse sizes as written in this manual or refer to your local codes or the applicable RVIA Standards for the correct wire and fuse sizes.
- Incorrect installation, adjustment, change to, or maintenance of this refrigerator can cause personal injury, property damage, or both. Have service and maintenance work done by your dealer or by an Norcold authorized service center.
- Disconnect both the AC and DC power sources before doing any maintenance work on the refrigerator. All service work on this refrigerator must be done by a qualified service technician.
- Do not bypass or change the refrigerator's electrical components or features.
- When you discard an appliance, remove all doors to prevent accidental entrapment and suffocation.
- Do not spray liquids near electrical outlets, connections, or the refrigerator components. Many liquids are electrically conductive and can create a shock hazard, electrical shorts, and in some cases, fire.

- The refrigerator cooling system is under pressure. Do not try to repair or to recharge a defective cooling system. The cooling system contains sodium chromate. The breathing of certain chromium compounds can cause cancer. The cooling system contents can cause severe skin and eye burns, and can ignite and burn with an intense flame. Do not bend, drop, weld, move, drill, puncture, or hit the cooling system.



CAUTION:


- The rear of the refrigerator has sharp edges and corners. To prevent cuts or abrasions when working on the refrigerator, be careful and wear cut resistant gloves.
- Make sure all fasteners and connections are tight.

About Your Refrigerator

Storage volume:

This refrigerator is made to store fresh food and has a capacity of 1.7 cubic feet

Leveling:

 **CAUTION:** The refrigerator is made to operate within 3° off level side-to-side and 6° off level front-to-back (as looking at the front of the refrigerator). Operating it at more than these limits can cause damage to the cooling system and create a risk of personal injury or property damage. Make sure the vehicle is level before you operate the refrigerator.

Operation during travel:

While the refrigerator should be level when the vehicle is stopped, performance during travel is not usually effected.

Food compartment:

Let the refrigerator cool for at least eight hours before you fill with food.

For the best cooling performance:

- Let air move freely inside the entire food compartment.
- Do not cover the shelves with plastic, paper, etc.

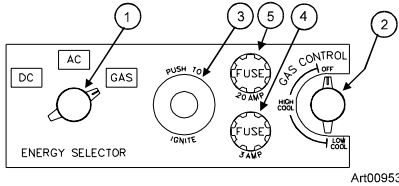
To decrease the amount of ice that forms on the cooling fins:

- Cover all liquids and moist foods.
- Let hot foods cool before putting them in the refrigerator.
- Do not open the door any longer than necessary.

Operating the Refrigerator Controls

Control panel:

The refrigerator control panel [1] is located on the rear of the refrigerator (See Art00953 and Art00954). Unlike refrigerators with electric controls, this refrigerator will operate on one energy source, independently of the others.



Energy selector	1
Gas control	2
Piezo lighter	3
3 Amp fuse	4
20 Amp fuse	5

The energy selector [1] changes the energy source of the refrigerator between propane GAS, AC electric, and DC electric.

A nonadjustable thermostat controls the AC and DC operation of the refrigerator. The thermostat has a capillary sensor that is attached to the cooling fin. The AC or DC electric heater operates in response to the temperature of the cooling fin to keep the refrigerator temperature constant.

The gas control [2] changes the amount of propane gas that goes to the burner. This acts as the temperature control of the refrigerator. When operating the refrigerator on GAS, you can change the refrigerator temperature to the desired setting by putting the gas control at any position between HIGH COOL and LOW COOL. HIGH COOL is the coldest temperature setting.

NOTE: This is not an automatic gas control. It does not change the flame from high fire to low fire as with other RV refrigerators. If the cooling load changes, you must manually change the gas control to maintain the same temperature inside the refrigerator.

When the outside air temperature is below 50° F., the refrigerator may have a tendency to freeze food. To reduce the tendency to freeze food:

- Turn the gas control to LOW COOL position.
- Keep the refrigerator full.
- Put foods that are more likely to freeze on the top or middle shelves.

The gas control has a gas safety valve built into it. As long as a flame is present, the safety valve is open and allows propane gas to flow to the burner. Any loss of flame (empty gas tank, blow out, etc.) closes the safety valve and stops the flow of propane gas.

The piezo lighter [3] makes a spark which ignites the flame at the burner.

The 3 Amp fuse [4] protects the AC wiring of the refrigerator.

The 20 Amp fuse [5] (model 323) protects the DC wiring of the refrigerator.

Ignition - propane gas operation:

WARNING: Do not use a match for ignition. An ignition flashback can cause burns to the hand or face. If, in an emergency, you must use a match for ignition of the refrigerator, do not hold in the gas control for more than five or ten seconds at a time and use the longest match possible.

1. Open the lower intake vent to get access to the rear of the refrigerator.
2. Open the valve at the propane gas storage tank.
3. Open the viewing window on the burner box .
4. Turn the energy selector switch [1] to the GAS position (See Art00953).
5. Turn the gas control [2] to the HIGH COOL position.
6. Push and hold in the gas control.
 - In rapid succession, push the igniter [3] in several times.
 - Look through the viewing window and make sure that ignition occurred.

WARNING: Do not hold the gas control in for more than 30 seconds. If there is no flame in this time, wait at least five minutes before you try ignition again. If you continue to hold the gas control in, gas will collect in the burner area. This could cause a fire or an explosion and result in dangerous personal injury or death.

- Continue to hold the gas control in for about 15 seconds only.
7. Turn the gas control to the amount of cooling that you wish.
 8. Close the viewing window on the burner box.

Do a test of the gas safety valve:

With an established flame in GAS mode:

1. Close the manual gas shutoff valve [3] of the refrigerator (See Art00952).
2. After the flame is extinguished, you should hear a sharp "click" sound within three minutes.

NOTE: The gas safety valve should close with a sharp "click" sound.

3. Open the manual gas shutoff valve of the refrigerator.

- Without pushing in the gas control, push the igniter several times rapidly in succession. The burner flame should not ignite. This means that the gas safety valve is working correctly.

Start up - AC operation:

- Make sure that 120 volts AC is available and the AC fuse [4] is working correctly.
- Turn the energy selector to the AC position.
- Turn the gas control to the OFF position.

Start up - DC operation (model 323 only):

- Make sure that 12 volts DC is available and the DC fuse [5] is working correctly.
- Turn the energy selector to the DC position.
- Turn the gas control to the OFF position.

The refrigerator receives its DC power from the 12 volt system of the vehicle; either the vehicle engine battery or an auxiliary (house) battery. The 12 volt system of the vehicle supplies DC power only to the refrigerator but also to any other DC appliances of the vehicle. When operating on DC, the refrigerator has a high current draw and can cause a rapid battery discharge.

DC Operation Precautions:

This refrigerator is made to operate on DC power while your vehicle is "in transit" and AC power or propane gas sources are not available. Operate the refrigerator on DC power only when the vehicle engine is running.

For the refrigerator to operate correctly on DC power, the battery must be maintained in a fully charged condition. For the battery to be fully charged at all times during refrigerator operation on DC, the vehicle engine must be running and the alternator must be in good operating condition.

Keep in mind the following electrical precautions for DC operation of the refrigerator:

- Good battery condition is necessary for correct DC operation.
- The capacity of the battery charging system must be more than what is necessary for the refrigerator and other DC appliances.
- While the vehicle engine is running, have a qualified service technician make sure the voltage of the DC power supply leads at the refrigerator is more than 11.5 VDC.

DC Operation Guidelines:

DC operation is intended only to maintain the temperature of the refrigerator and its contents when they are already cool.

The DC operation is not intended for the initial start up and cooling of the refrigerator. Always use either the AC operation or propane gas operation to initially start up and cool the refrigerator. The refrigerator must be cooled and the temperature must be steady before you operate the refrigerator on DC.

Keep in mind the following guidelines for DC operation of the refrigerator:

- Use DC operation of the refrigerator while the vehicle is in transit.
- Do not use DC operation until the refrigerator and its contents are completely cooled.

Shut down:

- Turn the gas control to the OFF position.
- Turn the energy selector to the GAS position.

Refrigerator Care Checklist

Your refrigerator will give you years of trouble free service if you do these simple checks every three to six months:

- Keep the food compartment clean. See "Defrosting and Cleaning".
- Defrost the refrigerator as necessary. See "Defrosting and Cleaning".
- Make sure the door seals correctly. See "Door Sealing".
- Be aware of any cooling changes that are not because of weather, loading, or gas control changes. If changes occur, contact your dealer or service center.
- Make sure the gas supply is propane gas only and is not butane or a butane mixture.
- When in propane gas operation, examine the appearance of the flame. See "Gas Flame Inspection".
- Make sure the air flow in the lower intake vent, through the refrigerator coils and condenser, and out the upper exhaust vent is not blocked or decreased.
- Make sure the area behind the refrigerator is clear. Do not use the area behind the refrigerator for storage of any combustible materials, especially gasoline and other flammable vapors and liquids.

Defrosting and Cleaning

Defrosting:

It is normal for frost to collect on the cooling fins inside the refrigerator. Excess frost decreases the cooling performance of the refrigerator. To defrost the refrigerator when necessary:

- Remove all food from the refrigerator.
- Turn the gas control to the OFF position and the energy selector to the GAS position.

NOTE: Defrosting the refrigerator makes excess water inside the refrigerator.

- Put dry towels (etc.) inside the refrigerator to absorb the water.
- Put trays of hot water in the refrigerator until the frost is melted.
- Remove the wet towels (etc.) and dry the interior.
- Put all food in the refrigerator.
- Do the ignition procedure or start up the refrigerator.

Cleaning:

A good time to clean the refrigerator is just after you defrost it. To avoid food odors, clean the inside of the refrigerator as often as necessary:

- Remove all food from the refrigerator.

NOTE: Do not use abrasive cleaners, chemicals, or scouring pads because they can damage the interior of the refrigerator.

- Wash the interior with a solution of dish detergent and warm water.
- Rinse with a solution of baking soda and clean water.
- Dry with clean cloth.
- Put all food in the refrigerator.

Door Sealing

If the door does not seal correctly, excess frost will collect inside the refrigerator. Make sure the door seals correctly:

- Close the door on a piece of paper that is about the size of a dollar bill (See Art00980).
- Gently pull the paper.
 - You should feel a slight drag between the door gasket and the cabinet.
- Do this on all four sides of the door.
- If you do not feel drag on the paper, the door gasket is not sealing correctly.
- Contact your dealer or Norcold authorized service center.

Refrigerator Maintenance Checklist

Read and understand the following maintenance sections of this manual.

NOTE: Norcold is not responsible for installation, adjustment, alteration, service, or maintenance performed by anyone other than a qualified RV dealer or a Norcold authorized service center.

Have a qualified RV dealer or a Norcold authorized service center do these annual safety and maintenance checks:


- Examine the gas supply lines for leaks.
 - Replace or repair if necessary.
- Make sure the gas pressure is correct.
 - Adjust if necessary.
- Make sure the combustion seal is complete and intact.
 - Replace or repair it if necessary.
- Make sure the burner and the burner orifice are clean.
 - Clean if necessary.
- Make sure the electrode spark gap [3] is 1/8 - 3/16 inch (See Art00955).
 - Adjust if necessary.
- Make sure the AC and DC voltages are correct.
 - Adjust if needed.
- Make sure the thermocouple tip is clean and secure.
- Make sure the area at the rear of the refrigerator is free from any combustible materials, especially gasoline and other flammable vapors and liquids.

Refrigerator Maintenance

Gas flame appearance:

While in GAS operation, examine the gas flame:

- Open the lower intake vent.
- Turn the gas control to the HIGH COOL position.

 **CAUTION:** The burner box cover can be hot. Wear gloves to avoid burns.


- Remove the burner box cover by removing one screw.
- Using a small mirror, look at the gas flame [1] (See Art00955).
 - The flame should be a darker blue inside and a lighter blue outside and should be a constant and steady shape.
 - If the flame is yellow or if has an erratic and unstable shape, contact your RV dealer or Norcold authorized service center.
 - Make sure the flame does not touch the inside of the flue tube [2].
 - If the flame touches the inside of the flue tube, contact your dealer or Norcold authorized service center.
- Put the burner box cover back in the original location.

Remove and clean the burner orifice:


NOTE: Your dealer or a Norcold authorized service center must do this procedure.

To remove and clean the burner orifice (See Art00956):

- Close the valve at the propane gas tank(s).
- Open the lower intake vent.
- Close the manual shut off valve of the refrigerator.
- Turn the gas control to the OFF position.


 **CAUTION:** The burner box cover can be hot. Wear gloves to avoid burns.

- Remove the flare nut of the pressure "T" fitting from the orifice assembly [1].
- Remove the orifice assembly from the burner [2]


 **WARNING:** When cleaning, do not try to remove the orifice [3] from the orifice adapter [4]. Removal will damage the orifice and seal of the orifice and can cause a propane gas leak. Leaking propane gas can ignite or explode and result in dangerous personal injury or death. Do not clean the orifice with a pin or other objects.

- Clean the orifice assembly with air pressure and alcohol only.
- Using a wrench, assemble the orifice assembly to the burner.
- Assemble the flare nut to the orifice assembly.
- Examine the propane gas supply system for leaks.

Remove the Refrigerator


 **CAUTION:** The rear of the refrigerator has sharp edges and corners. To prevent cuts or abrasions when working on the refrigerator, be careful and wear cut resistant gloves.

1. Close the valve at the propane gas tank(s).

 **WARNING:** To avoid possible gas leaks, always use two wrenches to tighten or loosen the gas supply line connections of the refrigerator.

2. Open the lower intake vent and remove the gas supply line from the bulkhead fitting of the refrigerator.
3. Remove the AC power cord from the receptacle.
 - Put marks on the DC wires (model 323) so you can put them back in the correct location.
 - Remove the DC wiring from the refrigerator.
4. Remove the screws which attach the rear of the refrigerator to the floor.
5. Remove the screws which attach the refrigerator to the wall.

Reinstall the Refrigerator

 **WARNING:** Make sure the seal strips [1] (See Art00951) are not broken, are completely around the refrigerator mounting flanges, and are between the refrigerator mounting flanges and the wall of the enclosure. If the seal is not complete, exhaust fumes can be present in the living area of the vehicle. The breathing of exhaust fumes can cause dizziness, nausea, or in extreme cases, death.

1. Push the refrigerator completely into the enclosure.
2. Put the screws through the mounting flanges and into the wall.

- Put the plastic plugs into the mounting flanges of the refrigerator.

CAUTION: The rear of the refrigerator has sharp edges and corners. To prevent cuts or abrasions when working on the refrigerator, be careful and wear cut resistant gloves.

- Open the lower intake vent and put the screws through refrigerator and into the floor.

WARNING: To avoid possible gas leaks, always use two wrenches to tighten or loosen the propane gas supply line connections of the refrigerator.

- Attach the propane gas supply line to the bulkhead fitting of the refrigerator.

- Open the valve at the propane gas tank(s).

WARNING: Do not allow the leak detecting solution to touch the electrical components. Many liquids are electrically conductive and can cause a shock hazard, electrical shorts, and in some cases, fire.

- Using a leak detecting solution, examine the gas supply line for leaks.

- Connect the DC wiring to the refrigerator:

- Install the DC fuse or connect the DC wiring to the battery or the converter.
- Connect the DC wires from the refrigerator.

- Connect the AC power cord to the receptacle.

Refrigeration Failure

If the refrigerator does not cool, it does not mean that the cooling system is defective. Other items which effect the refrigerator operation may be the cause of the problem.

If you notice a loss of cooling, do a check for a failure of either the electric or propane gas controls as follows:

- Change the energy source of the refrigerator.
 - If the refrigerator is operating on propane gas, change it to electric operation.
 - If the refrigerator is operating on electric, change it to propane gas operation.
- Operate the refrigerator for several hours.
 - Make sure the refrigerator is level within 3° side-to-side and 6° front-to-back.
 - Make sure the controls are in the correct position for the energy source in use.

- Make sure the gas pressure is 11 inches Water Column (10.5 in. W.C. min. - 11.5 in W.C. max.) and the voltage is 120 volts AC (108 v. min. - 132 v. max.) (on model 323 only 12 volts DC, 11.5 volts min. - 15.4 volts max.)

- Make sure the air flow in the lower intake vent, through the refrigerator cooling system, and out through the upper exhaust vent is not blocked or decreased.

- If no cooling is occurs after about eight hours, contact your dealer or a Norcold authorized service center.

Wiring Pictorial

The parts of the wiring pictorial are (See Art00958):

1	..... DC heater
2	..... AC heater
3	..... Chassis ground
4	..... Thermocouple interrupter
5	..... 3 Amp fuse
6	..... 20 Amp fuse
7	..... Terminal block
8	..... Jumper
9	..... Thermostat
10	..... witch
11	..... 120 VAC
12	..... 12 VDC+
13	..... Spark gap

Wiring Diagram

The parts of the wiring diagram are (See Art00957):

1	..... 12 VDC+
2	..... 20 Amp fuse
3	..... DC heater
4	..... 12 VDC com
5	..... 120 VAC
6	..... 3 Amp fuse
7	..... AC heater
8	..... 12 VDC com
9	..... Ground
10	..... Thermostat
11	..... Spark gap
12	..... Piezo lighter
13	..... Safety valve
14	..... Thermocouple
15	..... Thermocouple interrupter

Replacement Parts


You may purchase replacement parts through your local RV dealer or Norcold authorized Service Center.


Installation Manual

Safety Awareness

Read this manual carefully and understand the contents before you install the refrigerator.

Be aware of possible safety hazards when you see the safety alert symbol on the refrigerator and in this manual. A signal word follows the safety alert symbol and identifies the danger of the hazard. Carefully read the descriptions of these signal words to fully know their meanings. They are for your safety.

 **WARNING:** This signal word identifies a hazard, which if ignored, can cause dangerous personal injury, death, or much property damage.

 **CAUTION:** This signal word identifies a hazard, which if ignored, can cause small personal injury or much property damage.

Safety Instructions

 **WARNING:**

- This refrigerator is equipped for the use of propane gas only and can not be changed to any other fuels (natural gas, butane, etc.).
- Incorrect installation, adjustment, changes to, or maintenance of this refrigerator can cause personal injury, property damage, or both.
- Obey the instructions in this manual to install the intake and exhaust vents.
- Do not install the refrigerator directly on carpet. Put the refrigerator on a metal or wood panel that extends the full width and depth of the refrigerator enclosure.
- Propane gas can ignite and cause an explosion that can result in property damage, personal injury, or death. Do not smoke or create sparks while working on the gas supply system. Do not use an open flame to examine the gas supply piping or fittings for leaks.
- To avoid possible propane gas leaks, always use two wrenches to tighten or loosen the gas supply line connections.
- Make sure the electrical installation obeys all applicable codes. See the "Certification and Code Requirements" section of this manual.
- Do not bypass or change the refrigerator's electrical components or features.
- Do not spray liquids near electrical outlets, connections, or the refrigerator components. Many liquids are electrically conductive and can cause a shock hazard, electrical shorts and in some cases, fire.

- The refrigerator cooling system is under pressure. Do not try to repair or to recharge a defective cooling system. The cooling system contains sodium chromate. The breathing of certain chromium compounds can cause cancer. The cooling system contents can cause severe skin and eye burns, and can ignite and burn with an intense flame. Do not bend, drop, weld, move, or hit the cooling system.



CAUTION:

- The rear of the refrigerator has sharp edges and corners. To prevent cuts or abrasions when working on the refrigerator, be careful and wear cut resistant gloves.

Certification and Code Requirements

This refrigerator is certified under the latest edition of ANSI Z21.19 Standards by the American Gas Association for installation in mobile homes or recreational vehicles and is approved by the Canadian Gas Association.

The installation must obey these standards and this manual for the NORCOLD limited warranty to be in effect. Installation must agree with local codes. In the absence of local codes, the installation must obey with these standards:



Art01290

In the United States:

- National Fuel Gas Code, ANSI Z223.1.
- Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 32-80.
- Standard for Recreational Vehicles, ANSI A119.2 latest edition.
- For installations which need an electric outlet that is energized by an external power source, the refrigerator must be electrically grounded as written in local or state codes, the National Electrical code, and ANSI/NFPA 70.

In Canada:

- Current CGA B149.1 and CGA B149.2 Installation code for Propane Appliances and Equipment.
- Current CSA Z240.4.2 Installation Requirement for Propane Appliances and Equipment in Recreational Vehicles.
- Current CSA Z240.6.2/C22.2 No. 148 Electrical Requirement for Recreational Vehicles.
- When installed, the refrigerator must be electrically grounded as written in local or state codes and the Canadian Electrical Code C22.2. Parts 1 and 2.

All propane gas supply piping and fittings must obey local, state, and national codes about type and size. These components must also obey the current NFPA 501C section 2-4, and the current CAN 1-6.10 Standard.

Ventilation Requirements



WARNING: The completed installation must:

- Make sure there is sufficient intake of fresh air for combustion.
- Make sure the living space is completely isolated from the combustion system of the refrigerator.
- Make sure there is complete and unrestricted ventilation of the flue exhaust which, in gas mode, can produce carbon monoxide. The breathing of carbon monoxide fumes can cause dizziness, nausea, or in extreme cases, death.
- Make sure the refrigerator is completely isolated from its heat generating components by the correct use of baffles and panel construction.

Certified installation needs one lower intake vent and one upper exhaust vent. Install the vents through the side wall of the vehicle exactly as instructed in this manual. Any other installation method voids both the certification and the factory warranty of the refrigerator.

The opening for the lower intake vent, which is also the service access door, must be even with or immediately below the floor level. This allows any leaking propane gas to escape to the outside and not to collect at floor level.

American Gas Association/Canadian Gas Association (AGA/CGA) certification allows the refrigerator to have zero (0) inch minimum clearance at the sides, rear, top, and bottom. While there are no maximum clearances specified for certification, the following maximum clearances are necessary for correct refrigeration:

Bottom	0 inch min.	0 inch max.
Each Side	0 inch min	1/2 inch max.
Top	0 inch min.	1/4 inch max.
Rear	0 inch min.	1 inch max.

These clearances plus the lower and upper vents cause the natural air draft that is necessary for good refrigeration. Cooler air goes in through the lower intake vent, goes around the refrigerator coils where it removes the excess heat from the refrigerator components, and goes out through the upper exhaust vent. If this air flow is blocked or decreased, the refrigerator will not cool correctly.

Each NORCOLD model is certified by AGA and CGA for correct ventilation.

Assemble the Enclosure

- Make sure the enclosure is 20 5/8 inches high x 17 1/2 inches wide x 21 1/4 inches deep.
- Make sure the floor is solid and level.
 - The floor must be metal or a wood panel and extend the full width and depth of the enclosure.
 - The floor must be able to support the weight of the refrigerator and its contents.
- Make sure there are no adjacent heat sources such as a furnace vent, direct sunlight, etc.

Install the Lower and Upper Vents

1. Determine the rough opening (R.O.) size for each vent.

Certified Vent	Part No.	R.O. High	R.O. Wide
Upper Exhaust Vent	617485	7 1/4 in.	18 in.
Lower Intake Vent	617484	9 3/4 in.	19 3/8 in.
Universal Upper & Lower Vent	620505	6 3/16 in.	17 13/16 in.

2. Install the lower intake vent (See Art00947 and Art00948):



WARNING: Make sure the bottom of the opening for the lower intake vent is even with or immediately below the floor level. This allows any leaking propane gas to escape to the outside and not to collect at floor level.

- Make sure the bottom of the opening of the lower intake vent [1] is even with or immediately below the floor level [2].
 - Align the lower intake vent vertically below the coils of the refrigerator.
3. Install the upper exhaust vent (See Art00947 and Art00948):

NOTE: For the best cooling performance, the distance [3] from the floor level [2] to the top of the rough opening [4] of the upper exhaust vent should be 30 1/2 inches.

- Make sure the distance from the floor level to the top of the rough opening for the upper exhaust vent is at least 20 5/8 inches or poor cooling performance and damage to the cooling system can occur.
- Align the upper exhaust vent vertically above the coils and the condenser of the refrigerator.
- Install a baffle [6] to prevent stagnant hot air in the area above the refrigerator.
 - Make sure the baffle is the full width of the inside of the enclosure.

- If the distance from the back of the refrigerator to the wall of the vehicle is more than one inch, install a baffle [7] between the back of the refrigerator to the wall of the vehicle.

Reverse the Door Swing (optional)

This refrigerator has a door hinge that allows you to change the direction that the door opens. You can change the door swing at any time, but the best time is before you install the refrigerator. To change door swing:

1. Remove the door (See Art00949):
 - Turn out and save the upper hinge pin [1].
 - Open the door [2] a small amount and pull the top of the door away from the upper hinge of the refrigerator.
 - Lift the door off of the lower hinge pin [3].
 - Turn out, remove, and save the lower hinge pin.
2. Change the position of the hinges (See Art00950):
 - Carefully pull the breaker [4] off the front of the refrigerator.
 - Remove the screws [5] from the hinge [6] and the hinge spacer [7].
 - Invert the hinge and the hinge spacer and put them on the other side of the refrigerator
 - Attach the hinge and the hinge spacer with the screws.
 - Turn the lower hinge pin down into the hinge.
3. Install the door:
 - Put the door down onto the lower hinge pin.
 - Close the door.
 - Align the holes in the hinge and the door and hold in this position.
 - Invert the breaker and push it onto the front of the refrigerator.
 - Turn the upper hinge pin down into the hinge and into the door.
4. Examine the door:
 - Make sure the door aligns correctly.
 - Make sure the travel latch engages correctly.

Install the Refrigerator



WARNING: Make sure the seal strips [1] are not broken, are completely around the refrigerator mounting flanges, and are between the refrigerator mounting flanges and the wall of the enclosure (See Art00951). If the seal is not complete, exhaust fumes can be present in the living area of the vehicle. The breathing of exhaust fumes can cause dizziness, nausea, or in extreme cases, death.

1. Put screws through the refrigerator mounting flanges and into the wall of the enclosure.
2. Put a cap on each of the screw holes in the refrigerator mounting flanges.
3. Put screws through the braces [2] at the lower rear corners of the refrigerator and into the floor (See Art00952).

Connect the Electrical Components

AC Operation 120 volts AC voltage
(108 volts min. - 132 volts max.)

DC Operation 12 volts DC voltage
(model 323 only) (11.5 volts min. - 15.4 volts max.)

This refrigerator operates on both AC and DC electrical sources. Operation out of these limits may damage the refrigerator's electrical circuit parts and will void the warranty.

Connect the 120 volts AC supply:



WARNING: Connect the AC power cord only to a grounded three-prong receptacle. Do not remove the round ground prong from the power cord. Do not use a two-prong adapter or an extension cord. Operation of the refrigerator without a correct ground could cause dangerous electrical shock or death if you are touching the metal parts of the refrigerator or the vehicle.

Put the AC power cord into a grounded three-prong receptacle:

- Make sure the receptacle is within easy reach of the lower intake vent.
- Make sure the power cord does not touch the burner cover, the flue pipe, or any hot component that could damage the insulation of the power cord.

Connect the 12 volts DC supply (model 323 only):

The minimum size of wiring to supply this current from the battery is 12 AWG.

- Connect the DC negative wire from the battery to the black DC wire on the terminal block of the refrigerator.

- Connect the DC positive wire from the battery to the red DC wire on the terminal block of the refrigerator.
- Install a 20 Amp in-line fuse on the DC positive wire and as near the battery as possible, between the battery and the terminal block of the refrigerator.

NOTE: This in-line fuse is necessary for added safety, even though the refrigerator has a DC fuse in the control assembly.

Connect the Propane Gas Components

This refrigerator operates on propane gas at a pressure of 11 inches Water Column Propane.

Connect the propane gas supply system:



WARNING: Be very careful when working on or near the propane gas system.

- Do not smoke, or use an open flame near the propane gas system.
- Do not use an open flame to examine for leaks.
- Do not connect the refrigerator to the propane gas tank without a pressure regulator between them.
- To avoid possible propane gas leaks, always use two wrenches to tighten or loosen the gas supply line connections.
- Leaking propane gas can ignite or explode and result in dangerous personal injury or death.

Connect the gas supply line to the refrigerator:

- Make sure all tubing and fittings obey all local, state, and national codes about size and type.
- Make sure that all flexible metal connectors obey the current CAN 1-6.10 Standard.
- Use 3/8" diameter copper tubing as the gas supply line and use a 3/8" SAE (UNF5/8 -18) male flare fitting as the connection to the refrigerator.
- Put the gas supply line up through the floor of the enclosure and in a manner to decrease vibration and abrasion.
- Make sure the hole through the floor is large enough to allow clearance for the gas supply line.
- Put a weather resistant seal (grommets, sealant, etc.) around the gas supply line where it goes through the floor to decrease vibration and abrasion.
- Attach the gas supply line to the bulkhead fitting of the refrigerator.

Examine the propane gas supply system for leaks:

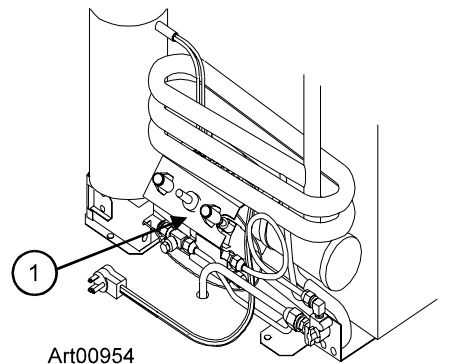
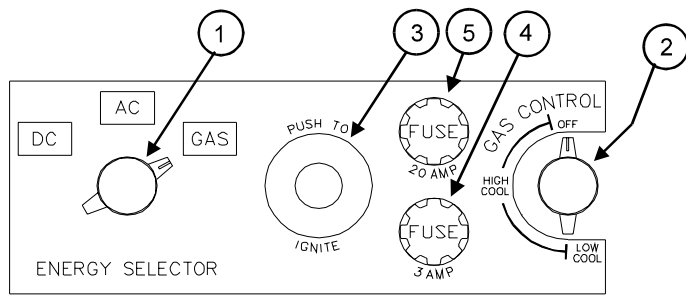
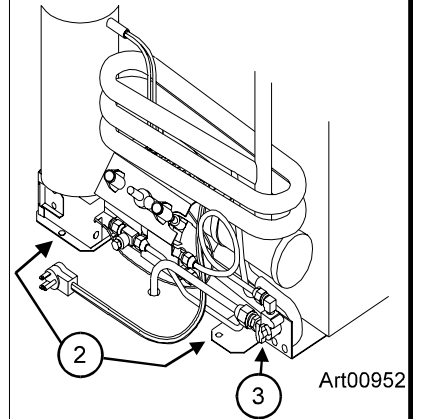
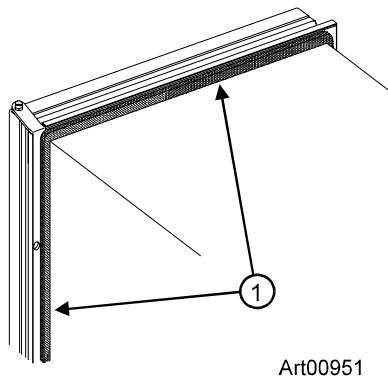
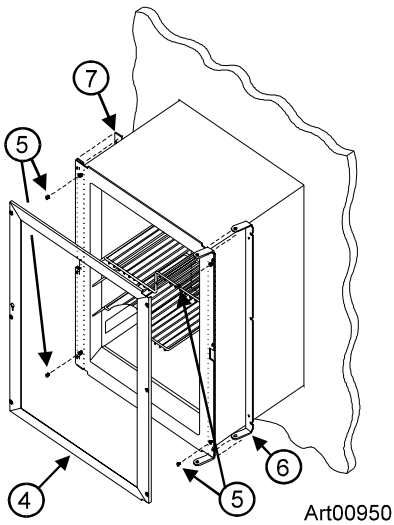
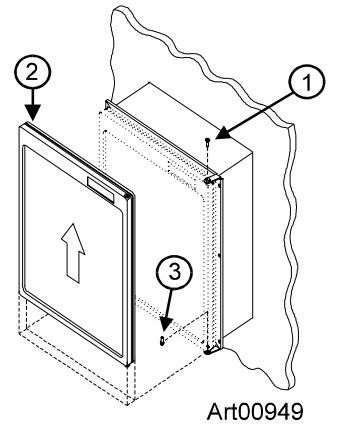
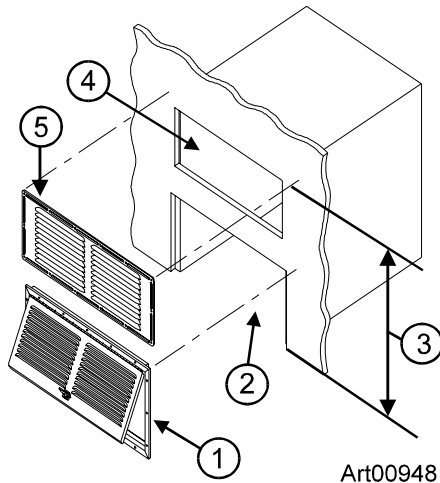
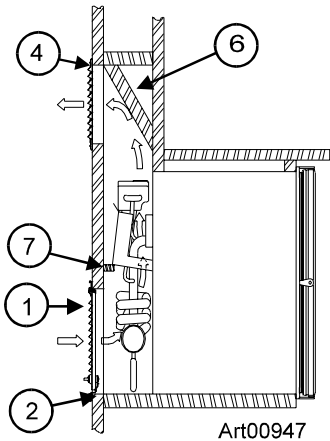


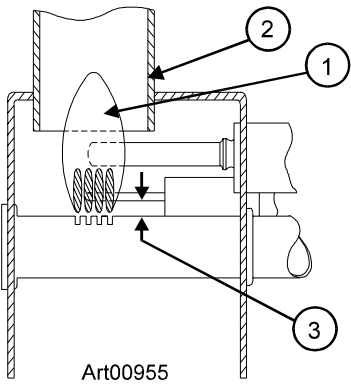
WARNING: Do not allow the leak detecting solution to touch the electrical components. Many liquids are electrically conductive and can cause a shock hazard, electrical shorts and in some cases, fire.

Using a solution of liquid detergent and water, examine the gas supply line and all gas connections for leaks. Do not use any liquid that contains ammonia.

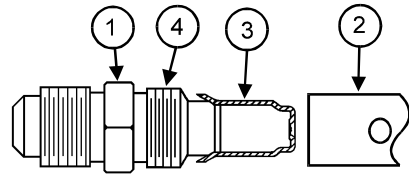
If you use compressed air for the test:

- The pressure at the gas control of the refrigerator must not be more than 1/2 psig (14 inches Water Column).
- If the air pressure is more than 1/2 psig (14 inches Water Column), remove the gas supply line from the bulkhead fitting of the refrigerator before the test.
- If the air pressure is equal to or less than 1/2 psig (14 inches Water Column), turn the gas control to OFF before the test.

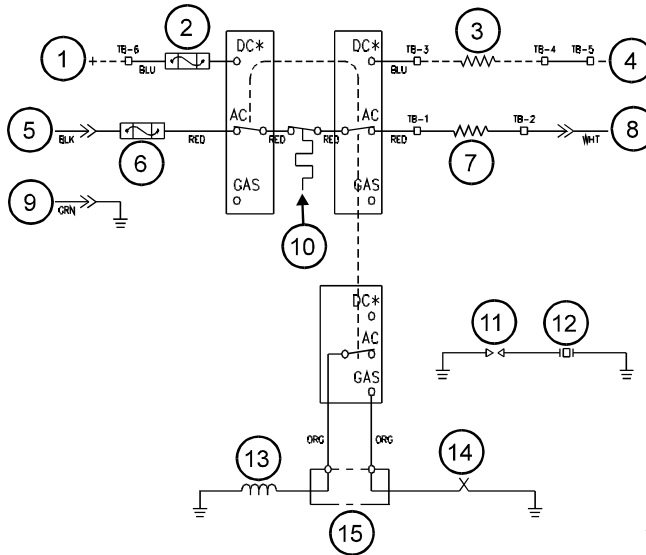




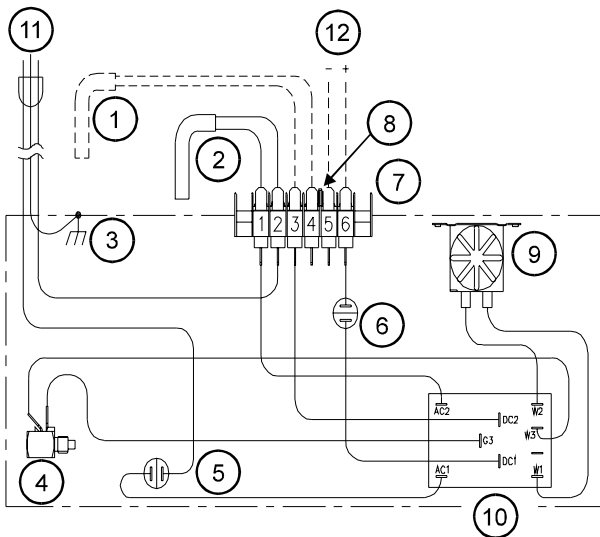
Art00955



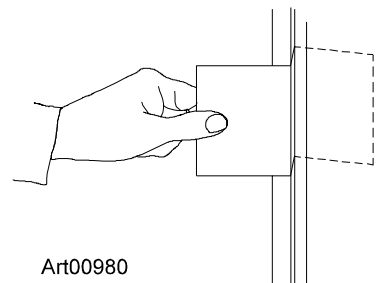
Art 00956



Art00957



Art00958



Art00980