



**ACCOMPANIES YOU.**

## **Installation and Owner's Manual**

**For Australian refrigerator models:**

**N304.3 (93 liter 3-way operation with propane gas, 240 volts AC, or 12 volts DC )**

**N404.3 (128 liter 3-way operation with propane gas, 240 volts AC, or 12 volts DC )**

**N504.3 (164 liter 3-way operation with propane gas, 240 volts AC, or 12 volts DC )**



**WARNING:** Improper installation, adjustment, alteration, service or maintenance can cause personal 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 Thetford 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 explosive propane gas fumes to be in the living area and/or to be below deck.

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For defined warranty terms, please see the one page warranty statement included in the product information packet.

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## Safety Awareness

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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 means a hazard, which if ignored, can cause dangerous personal injury, death, or much property damage.



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

## Safety Instructions

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**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 anything, especially flammable materials (gasoline, cleaning supplies, etc.)
- Do not remove the round ground prong from the refrigerator 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 fuses are not the correct size. Either use the wire and fuse sizes as written in the "Installation Manual" or refer to your local codes 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 a Thetford 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.
- This refrigerator is not intended for use by children or by infirm persons unless they have been sufficiently supervised by a responsible person to make sure that they can use the refrigerator safely.
- Young children should be supervised to make sure that they do not play with the refrigerator.

- 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 cause a shock hazard, electrical shorts, and in some cases fire.
- Do not use electrical appliances inside the food storage compartment of the refrigerator unless they are of the type recommended by the manufacturer.
- 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.
- At regular intervals, make sure that the refrigerator flue the burner, the vent areas, and the ventilation air pathway between the vents are completely free from any flammable material or blockage. After a period of storage, it is especially important to check these areas for any flammable material or blockage caused by animals.



#### **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.

## **About Your Refrigerator**

### **Storage Volume:**

This refrigerator is made to store fresh and frozen foods and for making ice.

|                           | N304 | N404  | N504  |
|---------------------------|------|-------|-------|
| Total capacity            | 93 L | 128 L | 164 L |
| Freezer capacity          | 11 L | 20 L  | 20 L  |
| Food compartment capacity | 82 L | 108 L | 144 L |

### **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. Do not operate the refrigerator on propane gas while travelling. This can reduce performance, cause an unstable flame, or extinguish the flame.

### **Food compartment:**

Ignite or start up the refrigerator and let it cool for eight hours before loading with food. If the refrigerator does not start to cool down after about two hours, contact your dealer or an authorized Thetford Service Center.

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 collects on the cooling fins:

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

### **Flip-up shelf (N404 / N504):**

The flip-up shelf supplies a space to store tall bottles. To use the flip-up shelf, lift the center of the shelf and fold it up against the inside wall of the refrigerator.

### **Door Bins:**

You may put the door bins [52] of the fresh food compartment in a location that best meets your need (See Art01114). To remove the bins, lift them over the locator and pull them forward. To install the bins, push them onto the locator.

**NOTE:** Do not wash the door bins in a dishwasher. The door bins are not dishwasher safe.

### **Freezer compartment:**

The freezer compartment is made to keep pre-frozen food frozen and not to quick freeze food. Keep pre-frozen foods in the freezer compartment.

**NOTE:** Do not put other items on the ice tray while the water is freezing. The water freezes more rapidly if the thermostat is at the coldest temperature setting.

### **Door latch for travel and storage:**

During travel, the door latch prevents the door from opening. There are no chains, slides, or any devices that you must engage.

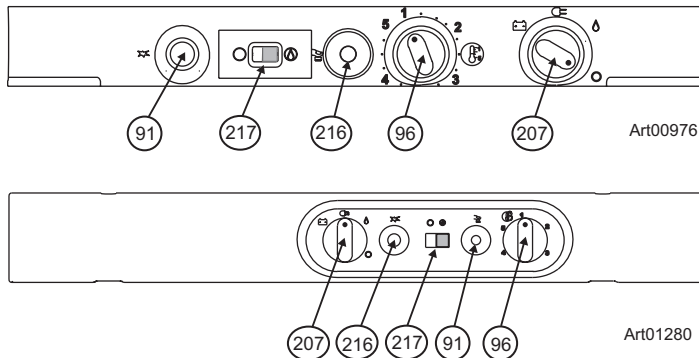
During storage, the door latch prevents the door from completely closing. Use it to prevent odors when the refrigerator is shut down for a long period of time.

To use the door latch for storage (See Art00979):

- Open the door just so the door latch [161] is between the ribs [166] of the latch plate [162].

## Operating the Refrigerator Controls

### Control panel:



For N304 models (See Art00976).

For N404 / N504 models (See Art01280).

|                        |     |
|------------------------|-----|
| Thermostat.....        | 96  |
| Selector switch.....   | 207 |
| Piezo lighter .....    | 216 |
| Gas safety valve ..... | 91  |
| Flame meter.....       | 217 |

The thermostat [96] is the temperature control of the refrigerator. Number 1 is the warmest temperature setting.

**NOTE:** If the cooling load changes, you must manually change the thermostat to maintain the same temperature inside the refrigerator.

When the outside air temperature is below 10° C, the refrigerator may have a tendency to freeze food at the colder temperature settings. To reduce the tendency to freeze food:

- Turn the thermostat to a warmer temperature setting.
- Keep the refrigerator full.
- Put foods that are more likely to freeze on the lower shelf.

The selector switch [207] changes the energy source of the refrigerator between propane gas ( 🔥 ), AC electric ( ⏻ ), DC electric ( 🔌 ), and OFF ( ⏻ ).

The gas safety valve [91] is built into the control panel. As long as a flame is present, the valve is open and allows propane gas to flow into the burner. Any loss of flame (empty propane gas tank, blow out, etc.) closes the safety valve and stops the flow of propane gas.

The piezo igniter [216] makes a spark which ignites the flame in the burner.

The flame meter [217] shows if a flame is present in the burner.

### Ignition - propane gas operation:

1. Open the valve at the propane gas storage tank.
2. Turn the thermostat to the 5 position.
3. Turn the selector switch to the propane gas position ( 🔥 ).
4. Push and hold in the safety valve and push in the igniter several times in rapid succession, for about five seconds:



**WARNING:** Do not hold in the safety valve 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 in the safety valve, gas will collect in the burner area. This could cause a fire or explosion and result in dangerous personal injury or death.

- When a flame is present and the flame meter moves into the green area, wait about five seconds and release the safety valve.
- If the flame meter does not move into the green area, do this step again.

5. Turn the thermostat to the temperature setting that you wish.

### Do a test of the gas safety valve:

With an established flame in GAS mode:

1. Close the manual gas shutoff valve [91] of the refrigerator (See Art01890).
2. After the flame is extinguished, you should hear a sharp “click” sound within 90 seconds.

**NOTE:** The gas safety valve should close with a sharp “click” sound.

3. Open the manual gas shutoff valve of the refrigerator.
4. 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 240 volts AC is available.
- Turn the selector switch to the AC position ( ⏻ ).
- Turn the thermostat to the temperature setting (numbers 2 -5) that you wish.

**NOTE:** In AC operation only, the number 1 setting of the thermostat turns the refrigerator off.

### Start up - DC operation (3-way models only):

- Make sure that 12 volts DC is available.
- Turn the selector switch to the DC position (  ).

### Shut down:

- Turn the selector switch to the OFF position (  ).

### 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 battery charging system 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, 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.
- Only use DC operation if the vehicle battery and battery charging system are in good operating condition.

## Effects of High Altitude on Propane Gas Operation

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When you operate the refrigerator on propane gas at altitudes higher than 1.7 km above sea level:

- You may experience reduced cooling performance of the refrigerator.
- You may experience burner outages.

To avoid these possible problems, Thetford recommends that you operate the refrigerator on AC when at altitudes higher than 1.7 km above sea level.

## Refrigerator Care Checklist

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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 and the freezer clean. See “Cleaning”.
- Defrost the refrigerator as necessary. See “Defrosting”.
- 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 an authorized Service Center.
- Make sure the gas supply is propane gas only and not butane or a butane mixture.
- When in propane gas operation, examine the appearance of the flame. See “Gas Flame Appearance”.
- Make sure the air flow in the lower intake vent, through the refrigerator condenser and coils 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 materials or combustible materials, especially gasoline and other flammable vapors and liquids.

## Defrosting

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The cooling fins of the refrigerator operate at below freezing temperature and will naturally form frost from humidity, which is always present in the air. The humidity inside the refrigerator increases:

- with higher outside temperature and humidity.
- with the storage of non-sealed fresh foods or warm foods.
- with the amount of time that the door(s) are open.
- with any air leakage into the refrigerator.

It is normal for frost to collect inside the freezer. Excess frost decreases the cooling performance of the refrigerator. Defrost the refrigerator and freezer as necessary:

- Remove all food from the refrigerator.
- Turn the refrigerator OFF.

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

- Remove the drain hose from the drip cup at the rear of the refrigerator (N404 and N504 models only).
- Put the drain hose into a two liter or larger container to capture water (N404 and N504 models only).
- Put dry towels (etc.) inside the refrigerator and freezer to absorb melted frost.



**CAUTION:** High temperatures can cause the inside surfaces of the refrigerator to warp or melt. Do not use pans of HOT water, a hair dryer, or any other high temperature devices to defrost the refrigerator. Do not use any hard or sharp objects to remove frost. Damage to the interior of the refrigerator can occur.

- To increase the speed of defrosting, put pans of WARM water in the refrigerator and freezer.
- Remove the wet towels (etc.) and dry the interior.
- Remove the drain hose from the large container and put the drain hose back into the drip cup (N404 and N504 models only).
- Remove the large container from the enclosure.
- Start up the refrigerator.
- Allow the refrigerator to cool down.
- Return all food to the refrigerator.

## Cleaning

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A good time to clean the refrigerator is just after you defrost it.

Clean the inside of the refrigerator as often as necessary to avoid food odors:

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

### Drip tray:

To remove and clean the drip tray:

- Locate the plastic clip that is around the wire shelf in front of the drip tray.
- Remove and save the screw that attaches the plastic clip to the inside of the refrigerator cabinet.
- Pull the shelf forward to remove from the refrigerator
- Make sure that the drip tray is empty of water.
- Pull the drain tube plug out from the inside of the drip tray and out of the drain hose.
- Pull the drip tray forward to remove from the slots in the refrigerator cabinet.
- Clean the drip tray.
- Put the drain tube plug down into the drip tray and push the drip tray back into the original position.
- Push the drain hose back onto the drain tube plug.
- Put the wire shelf and plastic clip back in the original position.
- Attach the plastic clip with the screw.

## Door Sealing

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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 and thickness of a dollar bill (See Art00980).
- Gently pull the paper.
  - You should feel a slight drag between the gasket and the cabinet.
  - Do this on all four sides of the door.
  - If you do not feel a slight drag on the paper, the door is not sealing correctly:
    - Make sure the screws of the hinges are tight.
    - Make sure the door gasket does not touch the door latch:
      - If the door gasket touches the door latch, loosen the screws of the door latch.
      - Raise the door latch just so it does not touch and tighten the screws of the door latch.
    - Make sure the door latch holds the door closed

## Refrigerator Maintenance Checklist

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Read and understand the following maintenance sections of this manual.

**NOTE: Thetford is not responsible for installation, adjustment, alteration, service, or maintenance performed by anyone other than a qualified RV dealer or an authorized Thetford Service Center.**

Have a qualified RV dealer or an authorized Thetford Service Center do these annual safety and maintenance checks:

- Examine the gas supply lines for leaks.
  - Replace or repair if necessary.
- Make sure the propane gas pressure is 2.7 kPa.
  - 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 (See Art00956).
  - Clean if necessary.
- Make sure the electrode spark gap [3] is 3-5 mm (See Art00955).
  - Adjust if necessary.
- Make sure the AC voltage is 216 - 252 volts and the DC voltage is 11.7 - 15.4 volts.
- Make sure the thermocouple tip is clean and secure.
- Make sure the area at the rear of the refrigerator is free of any combustible materials, gasoline, and other flammable vapors and liquids.

## Refrigerator Storage

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Before the refrigerator is stored for an extended (seasonal) period of time:

- Defrost and clean the interior of the refrigerator.
- Close the doors with the storage latch.

If the refrigerator is stored for an extended period of time, before start up:

- Make sure there are no obstructions in the vents, the ventilation air pathway, the burner, the orifice, or the flue area.

## Refrigerator Maintenance

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### Gas flame appearance:

While in propane gas operation, examine the appearance of the gas flame:

- Turn the thermostat to the 5 position.
- Open the lower intake vent.



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

- Open the burner box door [165] and look at the gas flame [75] (See Art00955 and Art01890).
  - The flame should be:
    - a darker blue color on the inside of the flame and a lighter blue color on the outside of the flame.
    - a constant shape without flickering.

- Contact your dealer or Thetford authorized service center if the flame is:
  - yellow
  - flickering or changing shape.
- Make sure the flame does not touch the inside of the flue tube [76].
- If the flame touches the inside of the flue tube, contact your dealer or an authorized Thetford Service Center.
- Close the burner box door.

### Remove and clean the burner orifice:

NOTE: Your dealer or an authorized Thetford Service Center must do this procedure.

To remove and clean the burner orifice:

- Close the valve at the propane gas tank(s).
- Close the manual shut off valve of the refrigerator.
- Shut down the refrigerator..
- Open the lower intake vent.



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

- Remove the burner box cover by removing one screw.



**WARNING:** To avoid possible propane gas leaks, always use two wrenches to loosen and tighten the gas supply line at the refrigerator's manual shut off valve.

- Remove the flare nut from the orifice assembly [77] (See Art00956).
- Remove the orifice assembly from the burner [78].



**WARNING:** Do not try to remove the orifice [79] from the orifice adapter [80] when cleaning. Removal will damage the orifice and seal of the orifice and can cause a propane gas leak. Leaking propane gas can ignite or explode which can 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.
  - Tighten the flare nut by hand.
  - Hold the orifice assembly securely and, using a wrench, tighten the flare nut 1/4 revolution only.
- Examine all of the connections for gas leaks.

### Remove the Refrigerator

NOTE: Your dealer or an authorized Thetford Service Center must do this procedure.



**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 propane gas leaks, always use two wrenches to loosen and tighten the gas supply line at the refrigerator's manual shut off valve.

2. Open the lower intake vent and remove the gas supply line from the manual shut off valve of the refrigerator.
3. Remove the AC power cord from the power point.
4. Remove the DC wiring from the refrigerator:
  - Remove the DC wiring from the battery or the converter of the vehicle.
  - Put a mark on the DC wires so you can put them back in the correct location.
  - Remove the DC wires from the refrigerator.
5. Remove the screws which fasten the refrigerator to the floor.
6. Remove the door from the refrigerator.
7. Remove the screws which fasten the refrigerator to the wall.
8. Remove the refrigerator from the opening.
9. Attach the door to the refrigerator.

## Reinstall the Refrigerator

NOTE: Your dealer or an authorized Thetford Service Center must do this procedure.



**WARNING:** Make sure the combustion seal is not broken, is completely around the refrigerator mounting flanges, and is between the mounting flanges and the wall of the enclosure. If the combustion 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, and in extreme cases, death.

1. Push the refrigerator completely into the enclosure.
2. Remove the door from the refrigerator.
3. Put the screws though the mounting flanges and into the wall.
4. Attach the door to 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.

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



**WARNING:** To avoid possible propane gas leaks, always use two wrenches to loosen and tighten the gas supply line at the refrigerator's manual shut off valve.

6. Attach the gas supply line to the manual shut off valve of the refrigerator.
7. Open the valve at the propane gas tank(s).



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

8. Examine the gas supply line for leaks.
9. 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.
10. Connect the AC power cord to the receptacle.

## Replacement Parts

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

## Wiring Pictorial

The parts of the wiring pictorial are (Art01995):

|                                       |     |
|---------------------------------------|-----|
| 240 VAC Power cord.....               | 108 |
| DC heater.....                        | 94  |
| 3 Amp fuse.....                       | 220 |
| Selector switch.....                  | 207 |
| Thermocouple.....                     | 221 |
| Thermostat / gas safety valve.....    | 91  |
| Thermocouple interrupter.....         | 222 |
| Flame meter.....                      | 217 |
| AC heater.....                        | 92  |
| -12 VDC Power supply.....             | 224 |
| +12 VDC Power supply.....             | 99  |
| 20 Amp fuse(N304.3) or                |     |
| 25 Amp fuse (N404.3 and N504.3) ..... | 223 |

# Installation Manual

## Safety Awareness

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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 means a hazard, which if ignored, can cause dangerous personal injury, death, or much property damage.



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

## Safety Instructions

---



**WARNING:**

- This refrigerator is made for use in RV and towable applications, and is correct for camping use. It is made to operate with, and be connected to, multiple energy sources. Disconnect all energy sources before you remove the refrigerator or do servicing to the refrigerator.
- This refrigerator is not approved for use as a free standing refrigerator. It is equipped for the use of propane gas only and can not be changed to use any other fuels (natural gas, butane, etc.).
- Incorrect installation, adjustment, alteration, 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.
- Do not allow anything to touch the refrigerator cooling system.
- Propane gas can ignite and cause an explosion that can result in property damage, personal injury, or death. Do not smoke or create sparks. Do not use an open flame to examine the propane gas supply line for leaks. Always use two wrenches to tighten or loosen the propane gas supply line connections.
- Make sure the electrical installation obeys all applicable codes. See "Certification and Code Requirements" section.

- 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, 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, use caution and wear cut resistant gloves.

## Certification and Code Requirements

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This refrigerator is certified under the latest edition of the Australian Gas Association Standard AS4555/AG105 and the Australian National Electric Standard for household and similar electrical appliances AS/NZS 3350.1:1994.

The refrigerator is made for installation in a caravan or a recreational vehicle. The installation must obey the requirements of this "installation Manual" for the THETFORD limited warranty to be in effect.

The installation must agree with local codes. In the absence of local codes, the installation must obey these standards:

- Gas Installations AS5601.
- National Fuel Gas Code, ANSI Z223.1 (latest edition).
- Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280.
- Standard for Recreational Vehicles, RVIA A119.2 latest edition.
- All gas supply piping and fittings must obey local, and national codes about type and size.

## 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 through the correct use of baffles and panel construction.

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

The bottom of 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.

While there are no maximum clearances specified for certification, the following maximum clearances are necessary for correct refrigeration:

|           |           |            |
|-----------|-----------|------------|
| Bottom    | 0 mm min. | 0 mm max.  |
| Each Side | 0 mm min  | 3 mm max.  |
| Top       | 0 mm min. | 6 mm max.  |
| Rear      | 0 mm min. | 25 mm max. |

These clearances plus the lower and upper vents cause the natural air draft that is necessary for good refrigeration. Cooler air comes in through the lower intake vent, goes up 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.

## Assemble the Enclosure

1. Make sure the enclosure is:

N304 models  
756 mm high x 521 mm wide x 543 mm deep.

N404 models  
929 mm high x 602 mm wide x 620 mm deep.

N504 models  
1083 mm high x 602 mm wide x 620 mm deep.

2. 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.

3. Make sure there are no adjacent heat sources such as a furnace vent, a hot water heater vent, etc.

## Install the Lower and Upper Vents

1. Using the following chart, decide which vents and rough opening (RO) sizes to use.

| Certified Vent               | P/N    | RO Height | RO Width |
|------------------------------|--------|-----------|----------|
| Upper Roof Exhaust Vent      | 622293 | 610 mm    | 133 mm   |
| Upper Side Exhaust Vent      | 617485 | 184 mm    | 457 mm   |
| Lower Side Intake Vent       | 617484 | 248 mm    | 492 mm   |
| Universal Upper & Lower Vent | 620505 | 157 mm    | 452 mm   |
| Universal Upper & Lower Vent | 621156 | 349 mm    | 546 mm   |

2. Install the lower intake vent (See Art01608):

NOTE: The lower intake vent is also the service access opening for the components on the rear of the refrigerator.



**WARNING:** Make sure the bottom of the opening of 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 lower intake vent is even with or immediately below the floor level.

- Align the lower intake vent [9] vertically below the coils [10] and the condenser [11] of the refrigerator.

### 3. Install the upper exhaust vent:

- If you install the roof exhaust vent (see Art01638):



**CAUTION:** Make sure that no sawdust, insulation, or other construction debris is on the refrigerator or in the enclosure. Debris can cause a combustion hazard and prevent the refrigerator from operating correctly.

**NOTE:** Tighten the screws of the upper roof exhaust cap to 11.5 kgf/cm max. Also make sure that the air flow around the upper roof exhaust cap is not blocked or decreased by other roof mounted features such as a luggage carrier, an air conditioner, a solar panel, etc.

- If the design of the vehicle allows, install the roof exhaust vent [12] directly above the condenser [11] of the refrigerator.
  - Install a baffle [13] to prevent stagnant hot air in the area [14] above the refrigerator.
    - Make sure there is less than 6 mm clearance [15] between the baffle and the top of the refrigerator.
    - Make sure the baffle is the full width of the inside of the enclosure.
- If the design of the vehicle does not allow you to install the roof exhaust vent directly above the condenser of the refrigerator:
  - Align the roof exhaust vent [12] above the lower intake vent and move it inboard as necessary (See Art01639).
  - Install two baffles [13] to prevent stagnant hot air in the area [14] above the refrigerator.
    - Make sure both baffles are the full width of the inside of the enclosure.
    - Make sure that both baffles are no more than 45° from vertical [20].
    - Put one baffle between the top rear edge of the refrigerator and the inside edge of the upper exhaust vent opening.
      - Make sure there is less than 6 mm clearance [15] between the baffle and the top of the refrigerator.
    - Put the other baffle between the outside edge of the upper exhaust vent opening and the side wall of the vehicle.
- If you install the upper side exhaust vent (See Art01637):
  - Make sure the distance [25] from the floor level to the top of the rough opening for the upper exhaust vent is at least 940 mm for N304 models, 1060 mm for N404 models, and 1210 mm for N504 models or poor cooling performance can occur.

- Align the upper exhaust vent [24] horizontally above the lower intake vent [9] of the refrigerator.
- Install a baffle [13] to prevent stagnant hot air in the area [14] above the refrigerator.
  - Make sure there is less than 6mm clearance [15] between the baffle and the top of the refrigerator.
  - Make sure the baffle is the full width of the inside of the enclosure.
- If there is more than 25 mm of clearance between the rear of the refrigerator and the enclosure, add two baffles [16] to the rear of the enclosure (See Art01637, Art01638, and Art01639):
  - Put one baffle at the top edge of the lower intake vent [9].
  - Put the other baffle at the lower edge of the condenser [11] of the refrigerator.
    - Make sure the baffles are less than 6 mm from the coils [10] and condenser of the refrigerator.
    - Make sure the baffles are the full width of the inside of the enclosure.
- If there is more than 13 mm of clearance between either side of the refrigerator and the wall, fill the space with fiberglass insulation or add a baffle to eliminate the excess clearance.

## Install the Refrigerator

Put the refrigerator in position (see Art01288):



**WARNING:** Make sure the combustion seal [28] is not broken, is completely around the refrigerator mounting flanges [156], and is between the mounting flanges and the wall of the enclosure. If the combustion 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.

- On N404 and N504 models, remove the door from the refrigerator (See "Reverse the door swing" section).
- Put screws through the holes of the refrigerator mounting flanges and into the enclosure wall.
- Attach the door to the refrigerator.
- Put a screw through the holes [121] in the braces at the lower rear corners of the refrigerator and into the floor.

## Installation Options

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### Install the decorative door panel:

NOTE: The decorative panels must be 5 mm or less in thickness.

- Make a decorative door panel [38] that is (See Art00977):
  - 659 mm high x 511 mm wide for N304 models.
  - 787 mm high x 541 mm wide for N404 models.
  - 939 mm high x 541 mm wide for N504 models.
- Push the decorative door panel into the slots [157] of the door end caps [158].
- Push each panel retainer [37] into the slot on the edge of the door.

### Reverse the door swing:

This refrigerator has hinges that allow you to change the direction that the door opens by moving the hinges to the opposite corner (See Art01313).

1. Remove the door:
  - Turn out and save the upper hinge pin [63].
  - Open the door 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 [64].
  - Turn out and save the lower hinge pin.
2. Change the position of the hinges:
  - Remove the screws from the upper hinge [159].
  - Put this hinge on the other side as the lower hinge.
  - Attach the hinge with the screws.
  - Turn the lower hinge pin down into this hinge.
  - Remove the screws from the lower hinge [160].
  - Remove the screws from the travel latch [161].
  - Put this hinge on the other side as the upper hinge.
  - Attach the hinge with the screws.
3. Change the position of the travel latch (See Art01313 and Art01571):
  - Put the travel latch on the other side of the refrigerator.
  - Attach the travel latch with the screws.

- Remove the screw [41] from the travel latch plate [162] on the door.
  - Remove the screw [41] from the filler plate [163] on the door.
  - Put the travel latch plate on the other side of the door.
  - Attach the travel latch plate with the screw.
  - Put the filler plate on the other side of the door.
  - Attach the filler plate with the screw.
4. Install the door:
    - Put the door down onto the lower hinge pin.
    - Align the holes in the upper hinge and the filler plate and hold in this position.
    - Screw the upper hinge pin down into the upper hinge and into the door.
    - Tighten all of the screws.
    - Make sure the travel latch fully engages the travel latch plate.
      - The travel latch should engage the travel latch plate 5 mm.
      - If not, loosen the screws and adjust the height of the travel latch.
    - Tighten the screws.

### Change the travel latch position:

This refrigerator allows you to put the travel latch either at the top of the door or at the bottom of the door regardless of the door swing direction (See Art01570 and Art01572).

1. Change the position of the travel latch plate:
  - Remove the screw [41] from the travel latch plate [162] on the door.
  - Remove the screw [41] from the filler plate [163] on the opposite end of the door.
  - Put the travel latch plate on the opposite end of the door.
  - Attach the travel latch plate with the screw.
  - Put the filler plate on the opposite end of the door.
  - Attach the filler plate with the screw.
2. Change the position of the travel latch:
  - Remove the screws from the travel latch [161].
  - Put the travel latch on the opposite end of the refrigerator.
  - Attach the travel latch with the screws.

## Connect the Electrical Components

NOTE: The current draws are nominal values.

### N304 models

|              |                                                      |
|--------------|------------------------------------------------------|
| AC Operation | 240 volts AC<br>(216 volts min. - 264 volts max.)    |
| Current Draw | 0.75 Amps at 240 volts AC                            |
| DC Operation | 12 volts DC<br>(11.5 volts min. - 15.4 volts max.)   |
| Current Draw | 12.0 Amps at 12 volts DC<br>14.0 Amps at 14 volts DC |

### N404 and N504 models

|              |                                                      |
|--------------|------------------------------------------------------|
| AC Operation | 240 volts AC<br>(216 volts min. - 264 volts max.)    |
| Current Draw | 1.0 Amps at 240 volts AC                             |
| DC Operation | 12 volts DC<br>(11.5 volts min. - 15.4 volts max.)   |
| Current Draw | 14.1 Amps at 12 volts DC<br>16.5 Amps at 14 volts DC |

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.



**WARNING:** The rear of the refrigerator cooling system has hot surfaces and sharp surfaces that can damage electrical wiring. Make sure that there is a good clearance between all electrical wiring and the cooling system of the refrigerator. Position any electrical wiring within the refrigerator enclosure opposite the burner side of the refrigerator. Do not put any electrical wiring through the roof exhaust vent. Failure to correctly position electrical wiring can result in electrical shock or fire.

### Connect the 240 volt AC supply:



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

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

- Make sure the power point is 100-150 mm above the floor of the enclosure and is positioned 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 volt DC supply (3-way models only):

As the distance from the vehicle battery to the refrigerator increases, the correct wire size and fuse size also increases. If the wire size is too small for the distance, a voltage drop occurs. The voltage drop decreases the output of the system heater and causes poor cooling performance.

1. Determine the min. wire size and the max. fuse size to use:



**WARNING:** If you use an incorrect wire size and/or fuse size, electrical fire can result.

- Measure the distance from the vehicle battery to the refrigerator and use the following size wire and fuse:

| Distance | Models    | Min wire size     | Fuse size |
|----------|-----------|-------------------|-----------|
| 5 m      | N304      | 4 mm <sup>2</sup> | 20 Amp    |
|          | N404/N504 | 4 mm <sup>2</sup> | 30 Amp    |
| 8 m      | N304      | 6 mm <sup>2</sup> | 30 Amp    |
|          | N404/N504 | 6 mm <sup>2</sup> | 40 Amp    |

- If the wire is larger than the min. size, use the correct fuse per local codes.

The wire connections must be clean, tight and free of corrosion. If any of these items are not correct:

- A voltage drop to the refrigerator will occur.
- The voltage drop will reduce the cooling performance of the refrigerator.

The terminals for connecting the DC power supply are marked positive (+) and negative (-). Make sure that:

- Each DC power supply wire is attached to the correct polarity terminal.
- The chassis or the vehicle frame is not used as one of the conductors.
- The DC power supply wires including the fuses are routed directly from the battery to the refrigerator.

## 2. Connect the D.C. power supply wires:

- Attach a fully insulated 6.35 mm Quick Connect terminal to each DC power supply wire.
- Push the positive (+) DC power wire onto the white DC wire.
- Push the negative (-) DC power wire onto the yellow DC heater wire.
- Make sure each DC power supply wire is on the correct polarity terminal.

## Connect the Propane Gas Components

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This refrigerator operates on propane gas at a pressure of 2.7kPa propane. The refrigerator gas usage is:

|                      |           |
|----------------------|-----------|
| N304 models          | 1.25 MJ/h |
| N404 and N504 models | 1.4 MJ/h  |

### 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 a propane gas leak, 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.
- Use of 3/8 inch copper tubing as the gas supply line and a 3/8 inch SAE (UNF 5/8-18) male flare fitting as the connection to the refrigerator.
- Put the propane gas supply line up through the floor of the enclosure.
- Make sure the hole through the floor is large enough to allow clearance for the gas supply line.
- Put a weather resistant seal (grommet, sealant, etc.) around the gas supply line where it goes through the floor to prevent vibration and abrasion.

- To prevent vibration and abrasion, make sure that the gas supply line is not against anything in the enclosure.
- Attach the gas supply line to the bulkhead fitting [91] of the refrigerator (See Art01890).

### Examine the 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.

Use a leak detecting solution to examine the gas supply line and all propane gas connections for leaks.

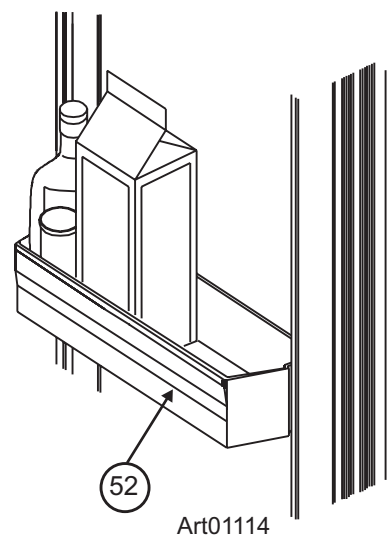
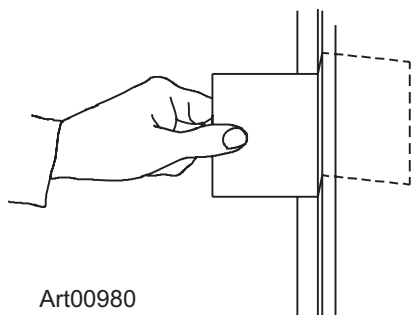
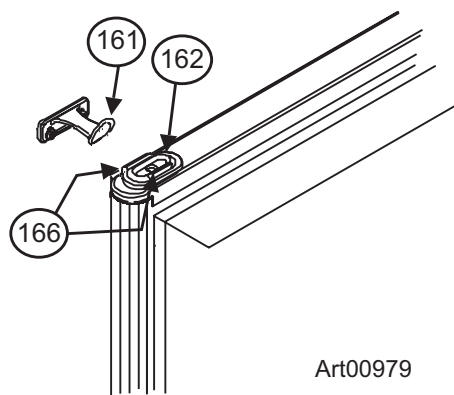
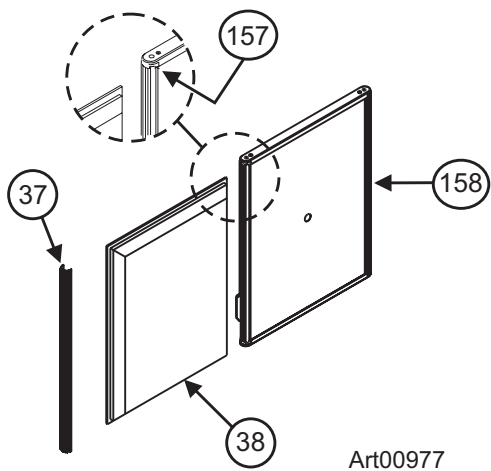
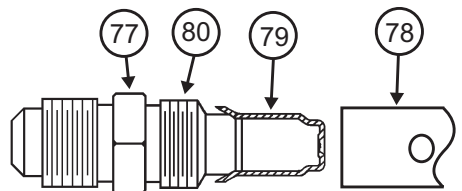
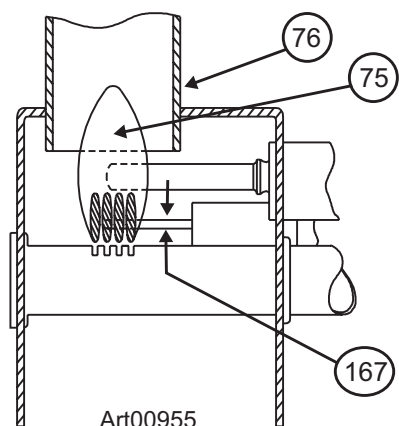
If you use compressed air for the test:

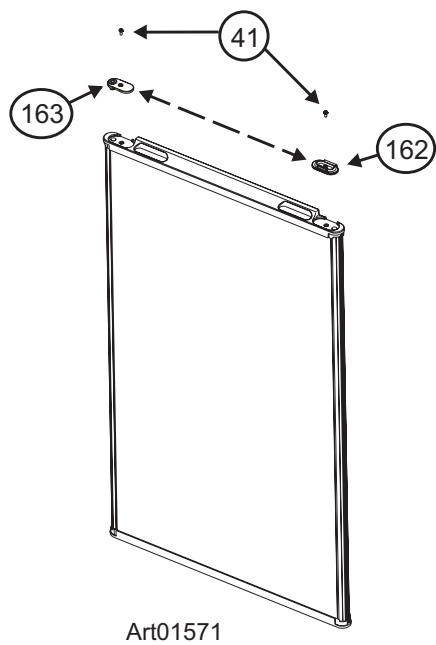
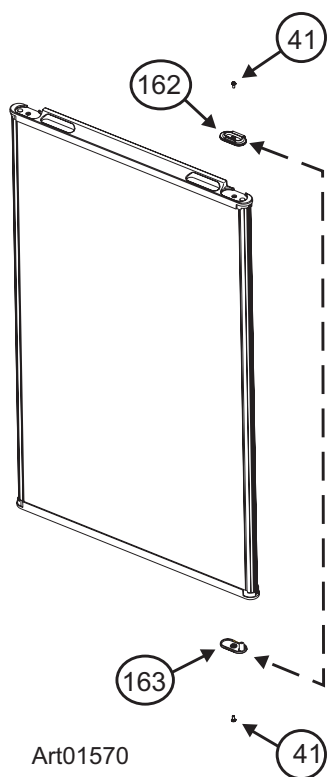
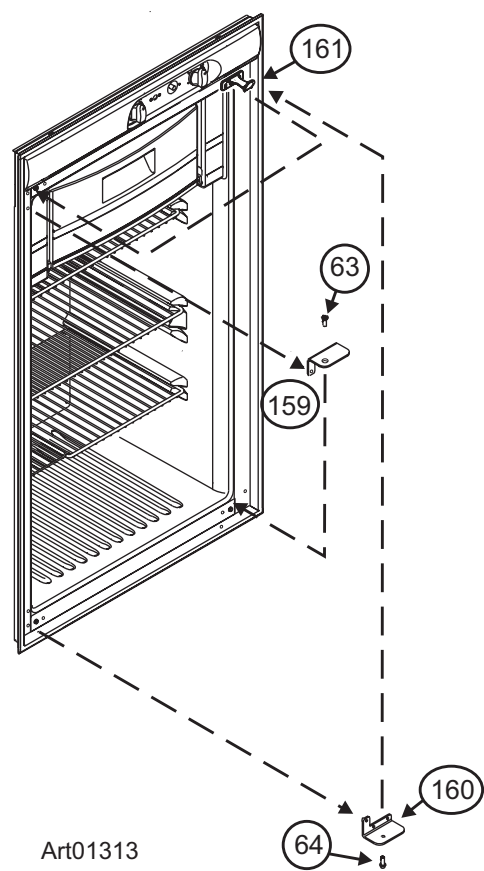
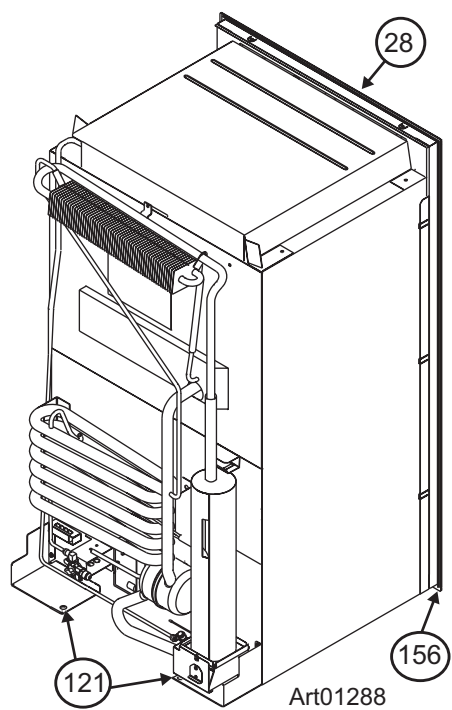
- The pressure at the manual shut off valve of the refrigerator must not be more than 3.5 kPa.
- If the air pressure is more than 3.5 kPa, remove the gas supply line from the bulkhead fitting of the refrigerator before the test.
- If the air pressure is equal to or less than 3.5 kPa, close the manual shutoff valve of the refrigerator before the test.

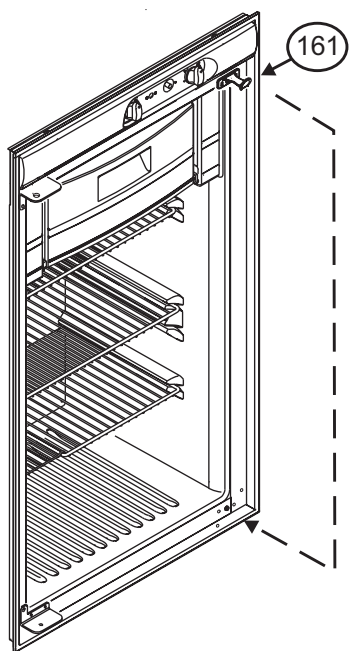
## Troubleshooting Refrigerator Problems

| Problem                                                                                 | Corrective Action                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The refrigerator does not operate on AC.                                                | Check: <ul style="list-style-type: none"><li>- That the refrigerator is plugged in.</li><li>- That the thermostat is turned to setting numbers 2-5. Setting number 1 is an OFF position in AC operation.</li></ul>                                                                                                                                      |
| The refrigerator does not operate on propane gas.                                       | Check: <ul style="list-style-type: none"><li>- That the propane gas supply line is purged.</li><li>- That the propane gas tank(s) is not empty.</li><li>- That the valve of the propane gas tank(s) is open.</li><li>- That the propane gas is at the correct pressure.</li><li>- That the manual shut off valve of the refrigerator is open.</li></ul> |
| The refrigerator does not operate on DC.                                                | Check: <ul style="list-style-type: none"><li>- That the battery charging equipment of the vehicle is operational.</li><li>- That the AC/DC converter is operational (if applicable).</li><li>- That the DC connection to the refrigerator is tight.</li><li>- See your dealer or authorized Thetford Service Center.</li></ul>                          |
| The refrigerator does not cool correctly on AC, DC, or propane gas.                     | Check: <ul style="list-style-type: none"><li>- That the refrigerator vents are unobstructed and remove any obstructions.</li><li>- That the vehicle is level within 3° from side-to-side and 6° from front-to-back.</li></ul>                                                                                                                           |
| Excessive frost collects in the freezer or on the fins in the refrigerator compartment. | Check: <ul style="list-style-type: none"><li>- That all food storage containers in the refrigerator are sealed.</li><li>- That you open the refrigerator door only when necessary.</li><li>- That the door gasket seals correctly.</li><li>- That the refrigerator and freezer are defrosted.</li></ul>                                                 |

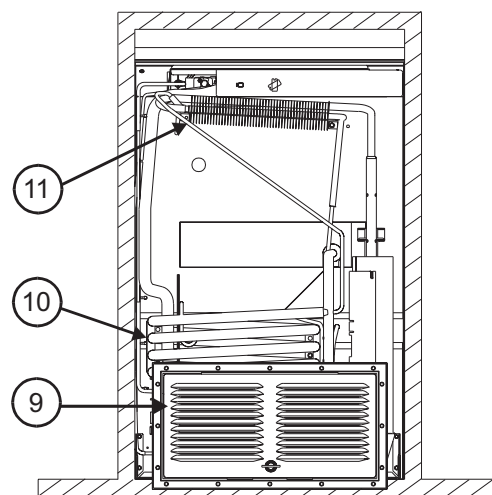
If you are unable to correct your refrigerator problem after using this guide, see your dealer or an authorized Thetford Service Center.



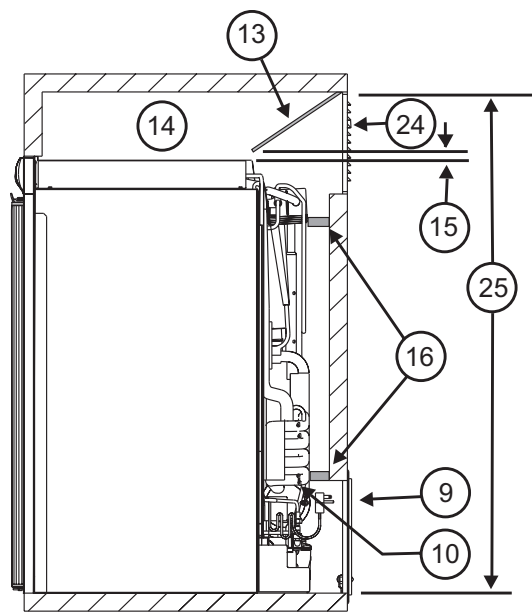




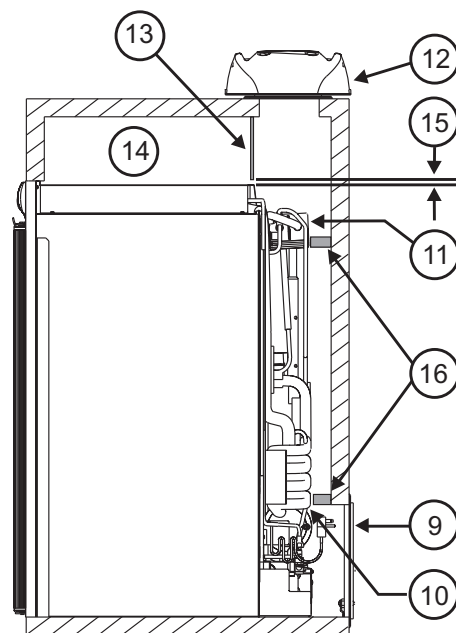
Art01572



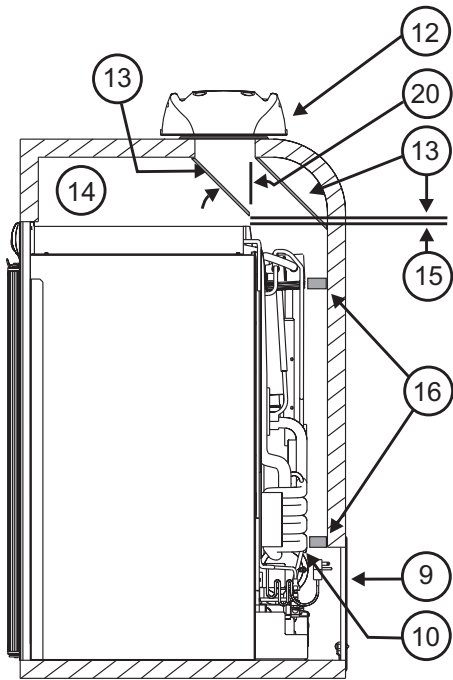
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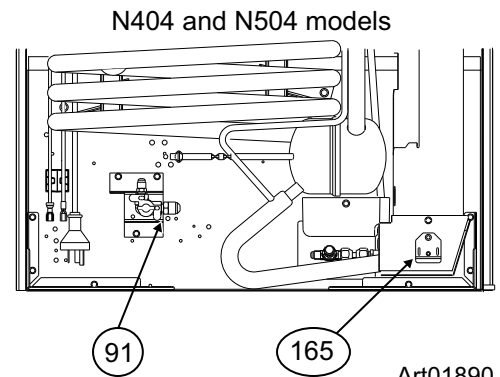
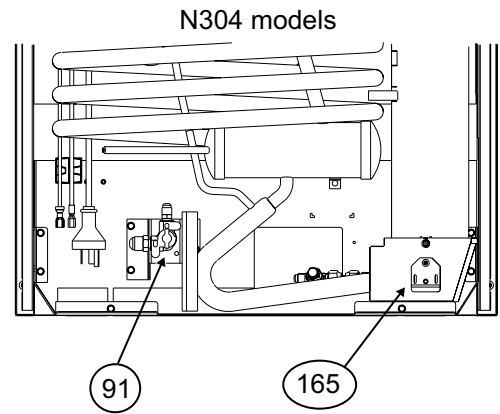
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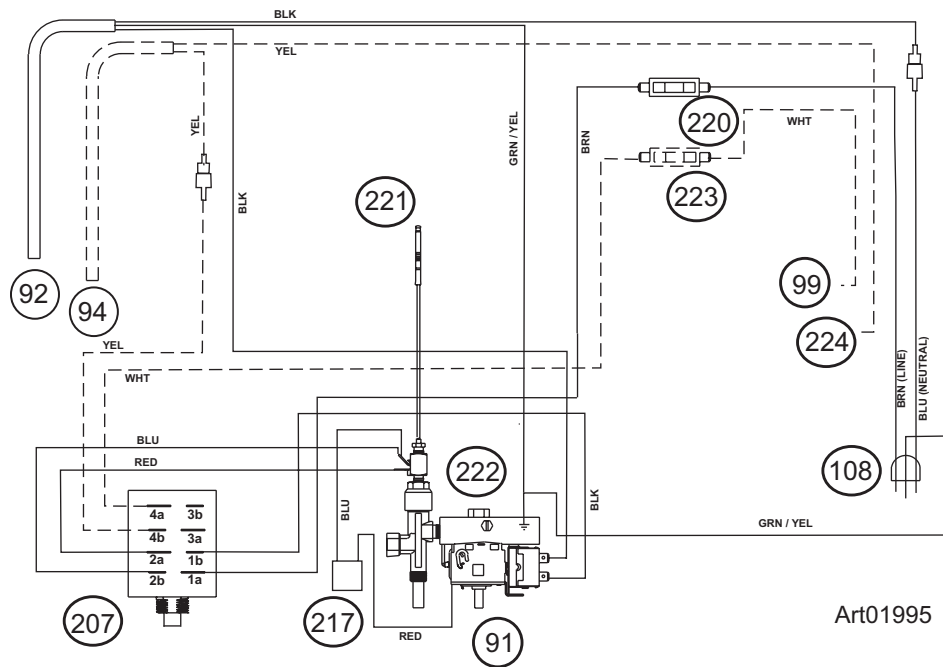
Art01638



Art01639



Art01890



Art01995