



NORCOLD



INSTALLATION AND OPERATING INSTRUCTIONS

682

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663

WARNING

Improper installation, adjustment, alteration, service, or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information consult 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. Do not touch any electrical switches
3. Extinguish any open flame
4. Immediately call your gas supplier

Contents

Safety Precautions	1
Extended Service Protection Plan	3
Ventilation Requirements	4
Installation Instructions.....	7
Decorative Door Panel Installation.....	11
Reversing Door Swing	11
Lighting and Start-Up Instructions.....	15
Operating and User Instructions	17
Refrigerator Care.....	22
Refrigerator Maintenance.....	22
Failure of Refrigerator	23
Replacement Parts.....	23
Information About LP Gas	24
Wiring Diagrams.....	25
Warranty	27

This refrigerator has been designed to operate on the following energy sources:

LP GAS OPERATION - 11.0 inches Propane & 12 volt DC control voltage (15.4 volts max., 10.5 volts min.).

AC OPERATION - 120 volts AC (132 volts max., 108 volts min.) and 12 volt DC control voltage.

DC OPERATION - [3-WAY MODELS] 12 volts DC (15.4 volts max., 11.5 volts min.).

Operation where these specifications are exceeded may cause damage and will void the warranty.

MODEL NO. _____

SERIAL NO. _____

The location of the model number and serial number may be found attached to the lower front panel of the refrigerator. (See Figure 24)

Safety Precautions

Read this manual and become thoroughly acquainted with it before installing or starting the refrigerator. The following safety precautions and recommendations contained herein are for your protection.

Improper installation, adjustment, or operation can cause injury or property damage.

The safety symbols used in this manual contain Safety Alert information. Understand their meanings and be safety conscious.



DANGER

A SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.



WARNING

A SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.



CAUTION

A SITUATION WHICH, IF NOT AVOIDED, MAY RESULT IN MINOR OR MODERATE INJURY.

General

- Keep the unit and surrounding area clean. Never use the area behind refrigerator for storage; in particular, storing flammable materials (oily rags, paper, aerosol cans, and chemicals.). Stored materials not only present a safety hazard but could block the ventilation to the system.
- Provide appropriate fire extinguishers installed in convenient locations. Consult your local fire department for the correct type to use. Do not use foam on electrical fires. Use extinguisher rated by NFPA.
- Make sure all fasteners, supports, seals, electrical covers are secure.

LP Gas System

- LP gas is highly flammable. Gas connections must be leak tight. Do not smoke, create sparks or use an open flame when checking gas connections. Do not ignore the "rotten egg" smell of gas fumes.
- Protect all gas lines from physical damage, vibration, or excessive heat.
- Insure that the supply gas pressure is within the tolerance specified on the front cover of this manual. The gas controls are designed for safety. Never tamper with the adjustment or function of the controls other than as directed by the Lighting and Shutdown Instructions. All repairs must be done by a qualified service person.

Exhaust Gases

- Proper ventilation to remove exhaust gases is extremely important. These gases, generated in the GAS mode at the rear of the refrigerator, replace the oxygen in the air and in extreme cases can produce dangerous levels of carbon monoxide. This manual contains installation instructions to safely remove the exhaust gases and seal the zone from the living area. The installation instructions are certified by American Gas Association and Canadian Gas Association and must be followed.
- Check the burner for proper flame characteristics at the initial start-up and at least once every year. The information for this check is located in this manual and must be performed by a qualified service person.

Safety Precautions - continued

Electrical Circuits - AC and DC

- The 120 volt AC circuit must be properly grounded. Never cut or remove the round grounding prong from the refrigerator's AC cord. Do not use a two-prong adapter. Do not use an extension cord to connect to the approved AC receptacle.
- Protect all wiring from physical damage, vibration, or excessive heat.
- Always disconnect both AC and DC sources of power when working on either circuit (only a qualified service person).
- Insure all terminating connections are clean and tight to prevent arcing or overheating.
- Never allow Leak Detecting fluids or any other liquids to spill on electrical connections. Many liquids are electrically conductive and could cause serious arcing damage and, in some case, fires.

Refrigerant System

- Never physically bend, drop, drill, weld, or hammer the refrigerant system. Doing so could cause the system to rupture and release dangerous chemicals which can cause severe burns to the eyes or skin. If ignited, these chemicals will burn with intense flame. A leaking system can release certain chromium components which, if inhaled, can cause cancer.
- Never apply direct heat in excess of 240° F to the refrigerant system. Because the refrigerant is hermetically sealed under pressure, a temperature sensitive safety device opens to protect the system from erupting under excessive pressure. However, the expelled refrigerant could ignite and burn if an ignition source were near.
- Never attempt to repair or recharge the refrigerant system. If defective, it must be replaced.

Child Entrapment

- Never install door locks or other restraints which could entrap small children within the refrigerator. The Travel Latch system must not be modified.

Handling the Refrigerator

- Never lift the refrigerator without assistance. Protect yourself from body strain.
- Avoid hot surfaces at the rear of the refrigerator when operating. The absorption type refrigerator produces several hot areas at the rear of the unit. This is true whether in GAS or ELECTRIC mode.
- Take care to avoid brushing against the irregular shapes and sheet metal parts at the rear of the refrigerator. Cuts or abrasions could result.

NORCOLD E.S.P.

Models 662, 663, 682, and 683

EXTENDED COOLING UNIT SERVICE PROTECTION PLAN

An additional four year Service Contract is now available to original purchasers of Norcold refrigerators. For only \$40.00 you get:

- * Four extra years protection against cooling unit failure.
- * Automatic replacement of defective cooling unit.
- * Pre-paid freight from your dealer to Norcold and return.
- * Labor free of charge.

The E.S.P. (Extended Service Protection) plan can be obtained by mailing your check for \$40.00*, U.S. funds to:

**NORCOLD
P O BOX 4248
SIDNEY OH 45365-4248**

If mailing in Canada:

**GREG LUND PRODUCTS LTD
P O BOX 760
OAKVILLE ONTARIO CANADA L6J 5C4**

E.S.P. is a service contract between Norcold and the original purchaser. The contract provides replacement of a defective cooling unit only for this refrigerator (freight, parts, and labor) for an additional period of four years after expiration of the original Limited Warranty. The refrigerator must be delivered to Norcold Service Center together with the Norcold E.S.P. card showing E.S.P. coverage. An E.S.P. card will be mailed to the original purchaser upon receipt of a completed Service Contract Application form and a check covering the E.S.P. charge. E.S.P. coverage is non-transferable and non-refundable.

To register your refrigerator, fill out the warranty Service Contract Application - i.e.: Tear Sheet Form in yellow envelope or include the following information (Please Print Clearly):

1. Owner's name and address.
2. Refrigerator model number.
3. Refrigerator serial number.
4. Date of purchase.
5. Check for \$40.00* (payable to Norcold).

Applications will be accepted only if they are mailed within ninety (90) days after date of purchase.

*Ohio residents, add \$2.60 sales tax.

General Instructions - All Models

The refrigerators described herein are designed and certified for built-in installations. They must be installed on a solid floor and secured by screws through holes provided. In making provisions for the installation, the following must be considered:

- a. Adequate ventilation (See section on "Ventilation Requirements").
- b. Minimum clearance to combustible materials: 0" back, sides, bottom, top, is acceptable on these models.
- c. Adequate seal between refrigerator mounting flange and cut-out opening. (See Figure 12)

WARNING

THIS REFRIGERATOR IS NOT INTENDED TO BE OPERATED AS A FREE STANDING UNIT (I.E. WHERE THE PRODUCTS OF COMBUSTION ARE NOT COMPLETELY SEALED OFF FROM THE LIVING AREA) OR INSTALLED IN SUCH A WAY AS TO CONFLICT WITH THESE INSTALLATION INSTRUCTIONS. UNAPPROVED INSTALLATIONS COULD RESULT IN SAFETY RISKS OR PERFORMANCE PROBLEMS.

VENTILATION REQUIREMENTS

Installation must assure complete isolation of the living space of the mobile home or recreational vehicle and the combustion system of the refrigerator.

Certified installation requires that one lower combustion air intake and one upper exhaust vent be used. Not only must the combustion kits be installed correctly, but the construction around the rear of the refrigerator allow good circulation and seal off the combustion products from the living space. Cut-Out dimensions for factory supplied vents are shown in TABLE 1. The specified vent kit for this refrigerator, certified by A.G.A. and CGA, must be installed as directed by this manual without modification. Any deviation or substitution other than the specified vent kit will void this certification and the factory warranty of the refrigerator.

A.G.A./CGA certification permits installing the refrigerator with zero inch (0") minimum clearance at the sides, back, top, and bottom. This certification does not specify any maximum clearance. However, the clearances around the sides and rear should be minimized in order to create a proper air draft necessary for good refrigerator performance. The condenser and absorber tubes must receive a continual supply of cooler air in order to maintain proper refrigerator cooling. The air passage (ventilation zone) from the lower vent door to the refrigerator coils and from the coils up through the roof vent must be unobstructed.

⚠ WARNING

INADEQUATE VENTILATION OR PARTIAL BLOCKAGE OF FLUE EXHAUST CAN PRODUCE CARBON MONOXIDE WHILE OPERATING IN GAS MODE. INHALING FUMES CAN CAUSE DIZZINESS, NAUSEA, OR IN EXTREME CASES, DEATH.

TABLE 1
VENT KITS AND DIMENSIONS (INCHES)

Cut - Out Dimension (inches)							
Part No.	Type	Roof Jack		Lower Intake Vent			Approved Models
		Length	Width	Height	Width	Radius	
615302	Sq. Corner	--	--	13 1/8	22 1/4	--	All Models
615303	Rad. Corner	--	--	13 1/8	22 1/4	2 5/8	All Models
616010	Sq. Corner	--	--	13 3/4	21 3/4	--	All Models
616009	Rad. corner	--	--	13 3/4	21 7/8	3 1/4	All Models
615998	Rad. Corner	--	--	13 3/4	21 7/8	3 1/4	All Models
614467	Roof Jack	24	5	--	--	--	All Models
615791	Roof Jack	24	5 1/4	--	--	--	All Models

The Lower vent is also to be utilized as a service entrance door. Opening of the lower vent must be flushed or below the bottom of the refrigerator. In the event of a propane leak, the properly installed lower vent door will allow the propane to "Weep" to the outside at the floor level, preventing large pockets of gas from collecting.

Certified Vent Kits

Kit Number	Certified Lower Vent Door	Certified Roof Jack	Models
3	615998 616009 616010 616066	615791	662, 663 682, 683

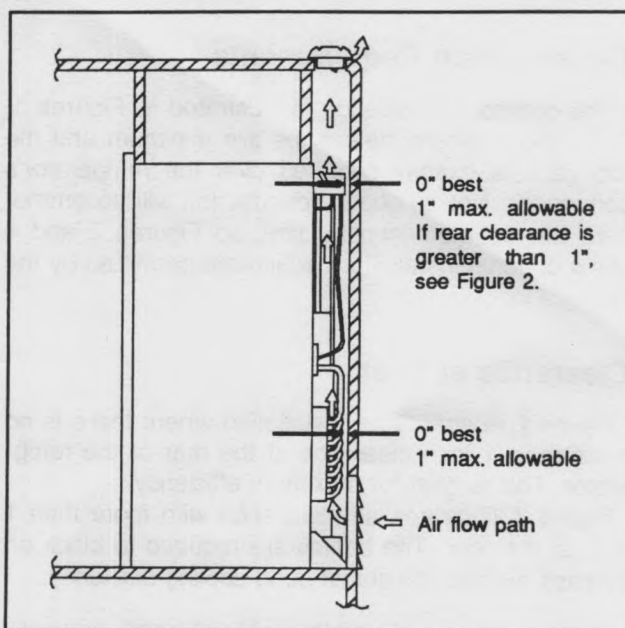


Figure 1 - Minimum Rear Clearance

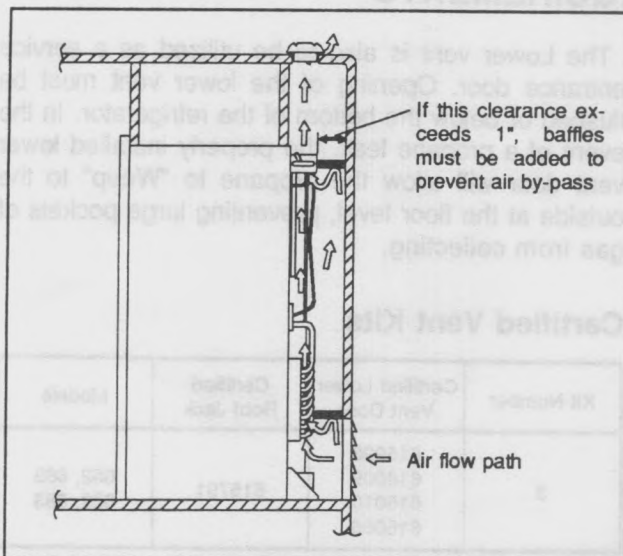


Figure 2 - Baffles Required at Rear

Construction Requirements

The optimum installation is illustrated in Figures 1, 3, 5, and 8 where clearances are minimum and the roof jack is exactly centered over the refrigerator's condenser. Not all coach construction will accommodate the optimum construction, so Figures 2 and 4 show optional installations which are permitted by the certification.

Clearance at Rear

Figure 1 illustrates an installation where there is no more than 1 inch clearance at the rear of the refrigerator. This is best for maximum efficiency.

Figure 2 illustrates an installation with more than 1 inch at the rear. The baffles are required to block off by-pass air and still obtain good cooling efficiency.

Ventilation Above Refrigerator

The construction of Figure 3 achieves the best results where the roof opening is aligned with the condenser. Figure 4 illustrates an optional condition where the roof opening is more inboard than the rear of the refrigerator. This opening position is permitted, provided a baffle is provided between Point A (in-board edge of roof opening) and Point B (back edge of refrigerator cabinet). The tilt angle (as indicated) must not exceed 45 degrees.

Figure 5 indicates the requirement to center the roof jack opening over the condenser (front to rear of vehicle). No options to this location are permitted.

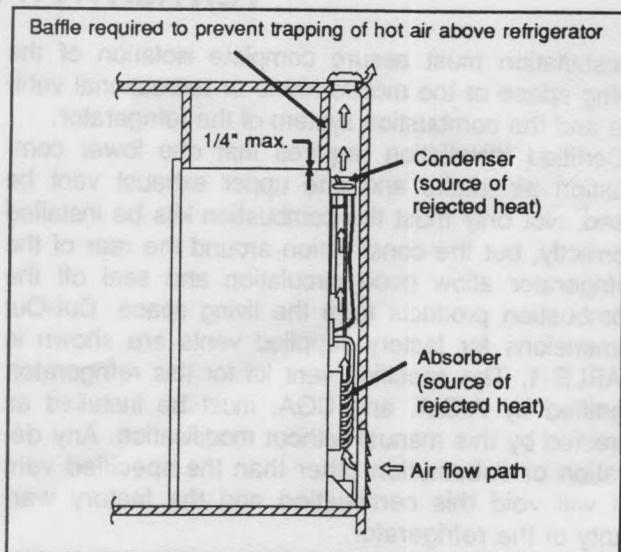


Figure 3 - Roof Jack Above Condenser

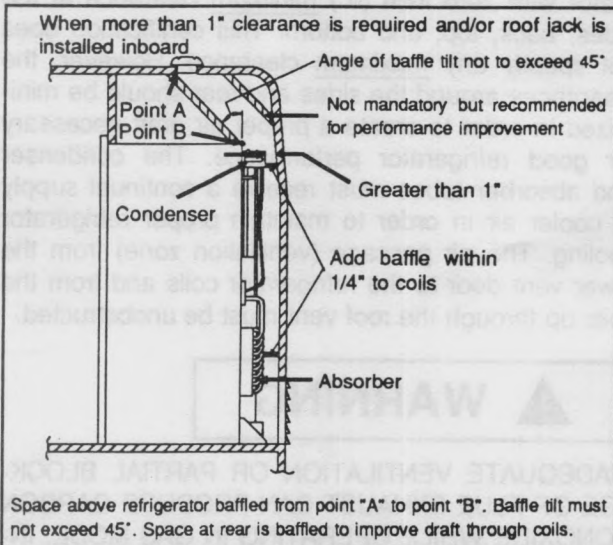


Figure 4 - Roof Jack Inboard from Condenser

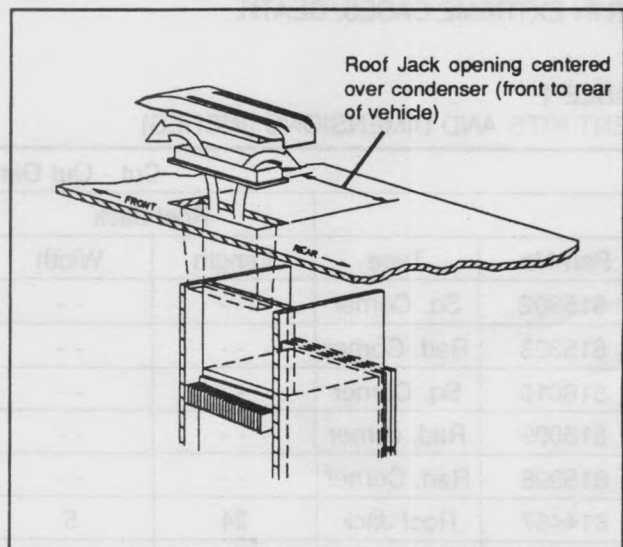


Figure 5 - Roof Jack Centered (Front to Rear of Vehicle)

Side Blockage

A good installation requires a minimum amount of side clearance. Figure 6 illustrates the requirement to allow no more than 1/2 inch clearance on either side of the refrigerator. This minimum clearance can be provided by built-in panels, fiberglass batts, or other types of baffles. No options are permitted.

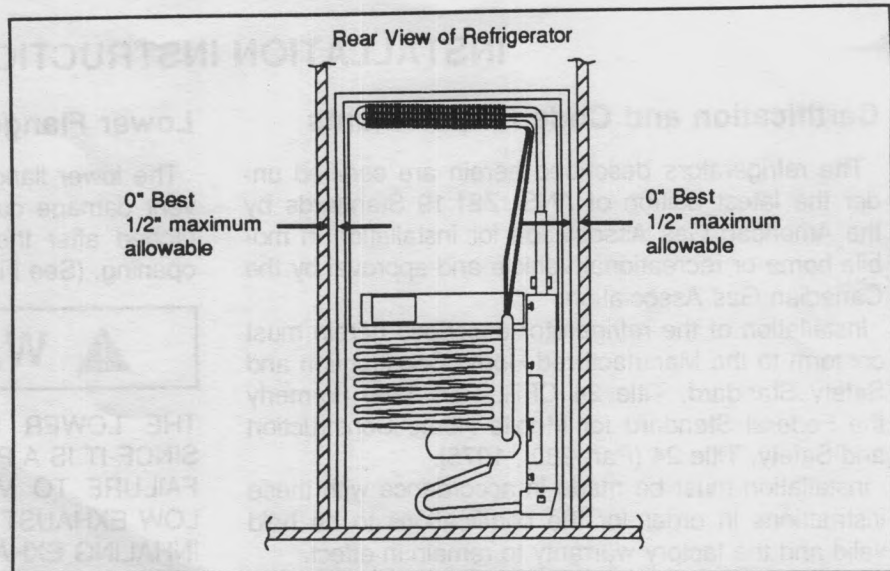


Figure 6 - Maintain a Minimum Side Clearance

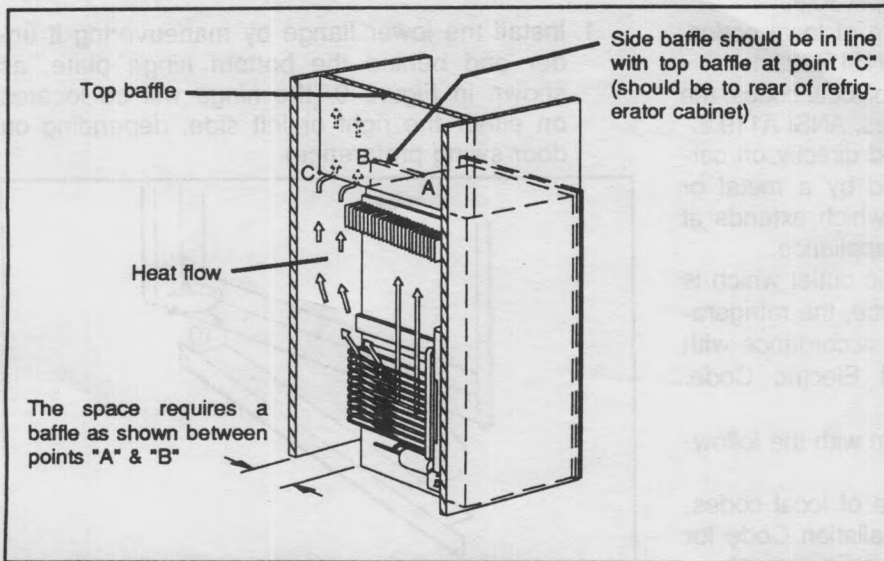


Figure 7 - Incorrect Alignment of Side Baffles

Figure 7 illustrates an unapproved installation where the side baffle is not aligned with the top baffle; consequently hot air can fill above the refrigerator.

Figure 8 shows an approved side baffle, aligned with the top baffle. The rising hot air is carried off and does not become trapped above the refrigerator.

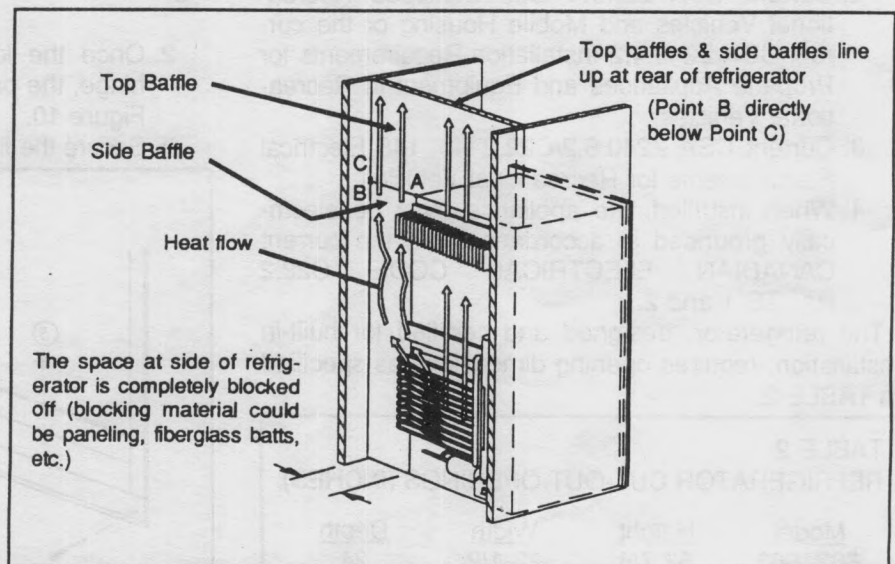


Figure 8 - Correct Alignment of Side Baffles

INSTALLATION INSTRUCTIONS

Certification and Code Requirements

The refrigerators described herein are certified under the latest edition of ANSI Z21.19 Standards by the American Gas Association for installation in mobile home or recreational vehicle and approval by the Canadian Gas Association.

Installation of the refrigerator described herein must conform to the Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280 [formerly the Federal Standard for Mobile Home Construction and Safety, Title 24 (Part 280), 1975].

Installation must be made in accordance with these instructions in order for the certifications to be held valid and the factory warranty to remain in effect.

United States installations must conform with the latest editions of the following, as applicable:

- a. Local codes or, in the absence of local codes, the National Fuel Gas Code, ANSI Z223.1.
- b. Local codes or, in the absence of local codes, the Standard for Recreational Vehicles, ANSI A119.2.

The appliance must not be installed directly on carpeting. Carpeting must be protected by a metal or wood panel beneath the appliance which extends at least the full width and depth of the appliance.

For installations requiring an electric outlet which is energized by an external power source, the refrigerator must be electrically grounded in accordance with the latest edition of the National Electric Code. ANSI/NFPA No. 70.

Canadian Installations must conform with the following, as applicable:

1. Local codes or, in the absence of local codes, the current CAN 1-B149.2 Installation Code for Propane Burning Appliances and Equipment.
2. Current CSA Z240.4 Gas Equipped Recreational Vehicles and Mobile Housing or the current CSA Z240.4.2 Installation Requirements for Propane Appliances and Equipment in Recreational Vehicles.
3. Current CSA Z240.6.2/C22.2 No. 148 Electrical Requirements for Recreational Vehicles.
4. When installed, the appliance must be electrically grounded in accordance with the current CANADIAN ELECTRICAL CODE C22.2 PARTS 1 and 2.

The refrigerator, designed and certified for built-in installation, requires opening dimensions as specified in TABLE 2.

TABLE 2
REFRIGERATOR CUT-OUT OPENINGS (INCHES)

Model	Height	Width	Depth
662, 663	52 7/8	23 1/2	24
682, 683	59 7/8	23 1/2	24

Lower Flange Installation

The lower flange is shipped as a loose part to prevent damage during shipment. The part is to be attached after the refrigerator is set into the cut-out opening. (See Figure 12)

WARNING

THE LOWER FLANGE CANNOT BE OMITTED SINCE IT IS A PART OF THE COMBUSTION SEAL. FAILURE TO MAINTAIN THIS SEAL COULD ALLOW EXHAUST FUMES INTO LIVING QUARTERS. INHALING EXHAUST FUMES COULD CAUSE DIZZINESS, NAUSEA, OR IN EXTREME CASES, DEATH.

1. Install the lower flange by maneuvering it under and behind the bottom hinge plate, as shown in Figure 9 (the hinge will be located on either the right or left side, depending on door swing preference).

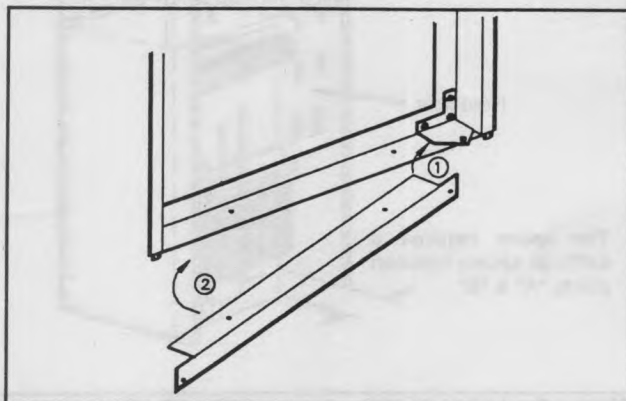


Figure 9

2. Once the lower flange is slipped around the hinge, the part will swing into place as shown in Figure 10.
3. Secure the flange with screws provided. (Fig. 10)

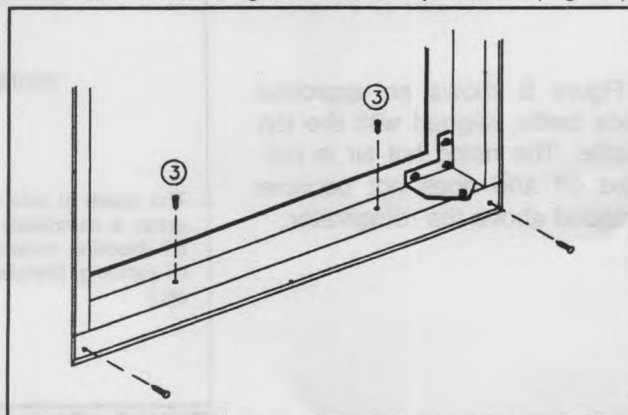


Figure 10

Securing Refrigerator

After the refrigerator is mounted in place (insuring a combustion seal at the front mounting flange), the unit can be secured by screws through the mounting flange and hole(s) provided at floor level in the rear (See Figure 11). Caps are provided to cover the mounting flange holes.

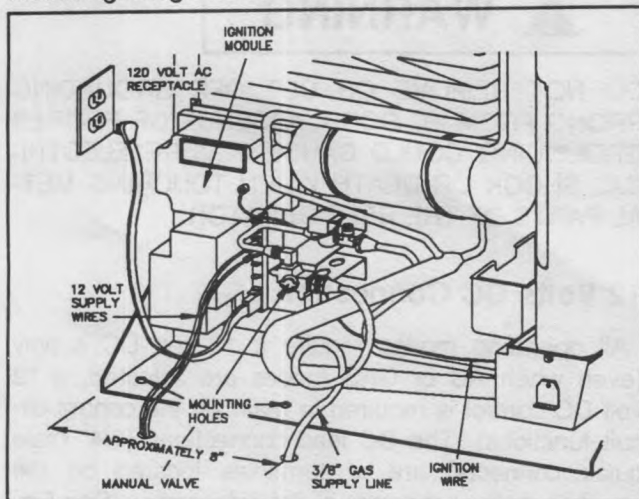


Figure 11 - Rear View

Seal strips, provided with the refrigerator, must be in position behind the mounting flange after the refrigerator is installed in the wall enclosure (See Figure 12).

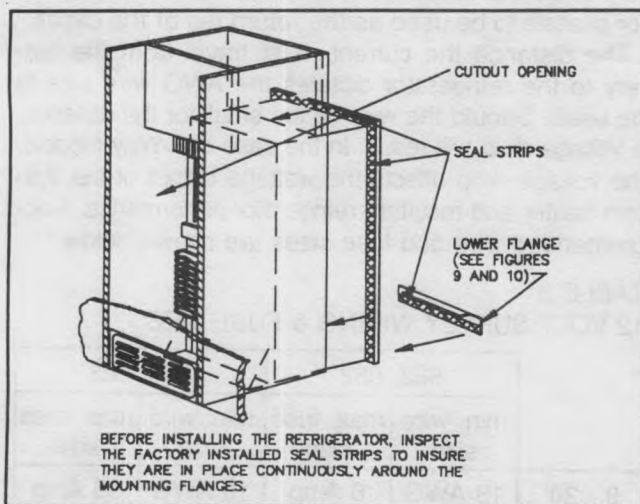


Figure 12 - Location of Seals

⚠ WARNING

THE SEAL MUST BE CONTINUOUS BETWEEN THE REFRIGERATOR MOUNTING FLANGE AND WALL TO ASSURE COMBUSTION SEAL. FAILURE TO MAINTAIN THIS SEAL COULD ALLOW EXHAUST FUMES INTO LIVING QUARTERS. INHALING EXHAUST FUMES COULD CAUSE DIZZINESS, NAUSEA, OR IN EXTREME CASES, DEATH.

Gas Connection

⚠ WARNING

USE EXTREME CAUTION WHEN WORKING ON OR NEAR A PROPANE GAS SYSTEM. DO NOT SMOKE OR USE AN OPEN FLAME NEAR A PROPANE GAS SYSTEM. LEAKING PROPANE GAS CAN CAUSE AN EXPLOSION AND RESULT IN SEVERE PERSONAL INJURY OR DEATH.

When connecting the gas supply line to the refrigerator, use tubing and fittings that comply with local, state, or national codes governing size and type. All flexible metal connectors used must comply with the provisions of the current Standard CAN1-6.10, METAL CONNECTORS FOR GAS APPLIANCES. The gas connection fitting is located at the inlet to the gas valve (See Figure 13) and is a 3/8 SAE (UNF 5/8"-18) male flare connection. Care must be taken when final tightening of the tubing nut is done that the fitting is held securely. Access to this fitting is through the lower vent door.

⚠ CAUTION

USE TWO WRENCHES WHEN TIGHTENING OR UNTIGHTENING GAS INLET FITTING. FAILURE TO USE TWO WRENCHES COULD OVER STRESS TUBING AND CREATE GAS LEAKS.

The gas line should be routed in a manner to limit the possibility of vibration or abrasion. It is recommended that the gas supply line enter the combustion chamber through the floor which supports the refrigerator. The hole size through which the gas line enters should be of sufficient size that adequate clearance is maintained. Once the gas line is installed a rubber type sealant should be applied around the line at the point it enters the refrigerator area. This will minimize abrasion, vibration, and serve as a barrier from external moisture.

Once the gas line has been connected, ALL CONNECTIONS must be thoroughly checked for possible leaks with a soap suds solution. DO NOT TEST FOR LEAKS WITH AN OPEN FLAME.

⚠ CAUTION

DO NOT ALLOW LEAK DETECTION SOLUTIONS TO COME INTO CONTACT WITH ELECTRICAL COMPONENTS. MANY SUCH LIQUIDS ARE ELECTRICALLY CONDUCTIVE WHICH CAN CAUSE ELECTRICAL SHORTS AND IN SOME CASES, FIRES.

If compressed air is used for leak testing, the pressure must not exceed 1/2 psig (3.4kPa).

The appliance and its individual shutoff valve (See Figure 13) must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (14 inches Water Column).

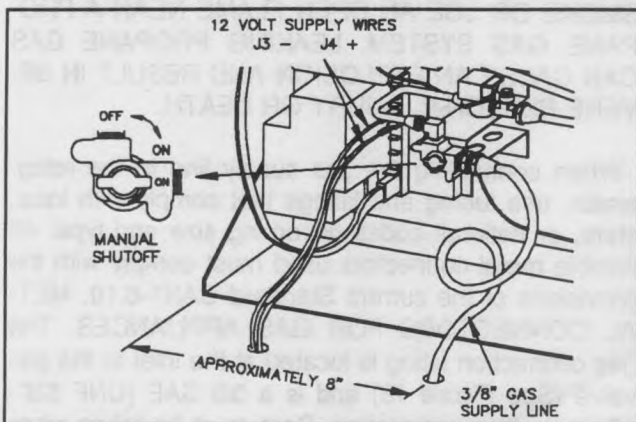


Figure 13 - Gas & DC Supply Connections

The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures less than or equal to 1/2 psig (14 inches Water Column).

After placing the appliance in operation, the gas safety shutoff device must be tested, by disconnecting the electrode wire to the ignition module (See Figure 14). In not more than 20 seconds, the flame should go out, indicating the safety valve is operational.

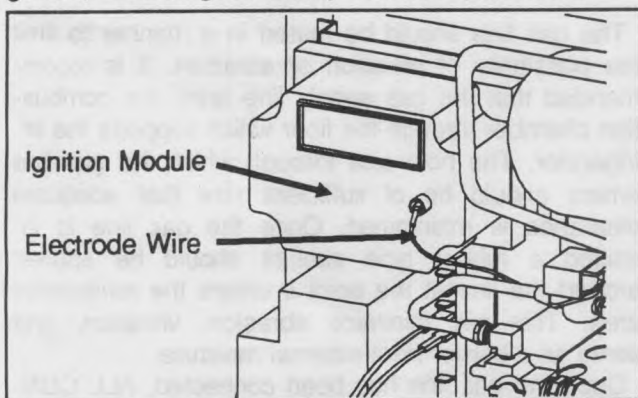


Figure 14 - Location of Electrode Wire

Electrical Connection

120 Volts AC Connection

This refrigerator is equipped with a three prong plug for protection against shock hazard and must be connected into a recognized three prong attachment receptacle. The free length of cord is 24" and therefore is recommended that the receptacle be located to the left side of the refrigerator (viewed from rear) and ap-

proximately 12" from the floor (See Figure 11). This allows easy accessibility through the vent door. The cord must be routed so as not to come in contact with the burner cover, flue pipe, or any other component that could damage the cord insulation. EXTENSION CORDS ARE NOT RECOMMENDED.

⚠ WARNING

DO NOT REMOVE OR CUT OFF GROUNDING PRONG FROM AC CORD. ABSENCE OF PROPER GROUNDING COULD CAUSE SEVERE ELECTRICAL SHOCK OR DEATH WHEN TOUCHING METAL PARTS OF THE REFRIGERATOR.

12 Volts DC Connection

All operating modes require a 12 volt DC supply (even when AC or GAS modes are selected, a 12 volt DC control is required to maintain the control circuit functions). The DC lead connections (1/4" male quick connects) are at terminals located on the power supply at the rear of the refrigerator (See Figure 13). One connection (J4) is marked positive (+) and the other (J3) negative (-). Correct polarity must be observed when connecting to the DC supply. The DC supply must be fused and must be a two wire system since the certification does not allow the refrigerator chassis to be used as the return leg of the circuit.

The distance the current must travel from the battery to the refrigerator dictates the AWG wire size to be used. Should the wire be too small for the distance, a voltage drop will result. In the case of 3-Way models, the voltage drop affects the wattage output of the system heater and resultant refrigerator performance. Recommended wire and fuse sizes are shown below.

TABLE 3
12 VOLT SUPPLY WIRING & FUSE SIZE

	662, 682		663, 683	
	min. wire size	max. fuse size	min. wire size	max. fuse size
0 - 20'	18 AWG	6 Amp	10 AWG	30 Amp
over 20'	18 AWG	6 Amp	8 AWG	40 Amp

If a wire size is installed which is larger than the minimum size indicated in the table, it must be fused in accordance with the requirements of the R.V.I.A. A119.2 standard or local governing codes.

12 Volts DC Operation (3-Way Models Only)

The refrigerator receives its power from the vehicle's 12 volt system, which in most cases is an auxiliary (house) battery. In some cases, it may be the

engine's battery. The battery source is not only furnishing the power for the refrigerator's DC mode, but it is also supplying the demands for the other components in the coach. For this reason, the refrigerator's DC circuit is designed to be as energy conserving as possible with the resulting cooling power somewhat less than the gas and AC modes.

IMPORTANT INFORMATION ON 12 VOLT DC OPERATION (3-Way Models Only)

The 12 volt DC mode is not designed for continuous DC operation - only for short "in transit" periods when gas or AC sources are not available.

Check the DC supply voltage at the refrigerator (not at the battery) while the unit operates on DC mode. The voltage must not be less than the minimum of 11.5 volts.

The 12 volt DC mode cannot be used for the initial pull-down of the refrigerator compartment(s). The initial cooling operation must be done in either the GAS or AC modes. The refrigerator must be cooled and stabilized before the DC operation is effective.

The following points regarding the DC operation should be considered:

- a. Operate the refrigerator in the DC mode only in periods when AC or GAS operation is unavailable.
- b. The DC operation is designed to operate during a short "hold over" period, such as a four (4) to six (6) hour period while in transit. The refrigerator should not be switched to the DC mode if the food is not completely chilled.
- c. Good battery condition is essential when operating on DC. This implies an adequate recharging means which can handle the demands of the refrigerator along with other loads.
- d. The wires from the battery to the refrigerator must be of large enough size to handle the load. The connections must be clean, tight and free from corrosion. If not, a resulting voltage drop will cause a decreased cooling capacity.

Hypot Tests

A successful Dielectric Strength test (Hypot test) has been conducted at the factory and the refrigerator does not require an additional test. If Hypot tests are to be conducted on other 12-volt DC circuits, the 12-volt supply to the refrigerator must be disconnected to protect the sensitive electronic circuit. In addition, never contact the positive probe of the Hypot tester to the chassis or grounded members of the vehicle since damage could be introduced into the electronics. Failure to observe these precautions voids the Warranty.

Refrigerator Check Out

After the installation is complete, the refrigerator should be checked out in both gas and electric operation. Both gas and electric supplies must be connected and within specifications on the front page of this manual. Refer to pages 15 and 16 for layout of Mode Control Panel. Check functions as follows:

Set NORMAL-STORAGE-HIGH HUMIDITY switch to HIGH HUMIDITY; set thermostat to COLDEST.

On 3-Way models, set DC OFF/DC ON switch to DC OFF.

Set AUTO-OFF-GAS to AUTO. The Mode Control panel should display AC indicating 120 volts AC.

Disconnect AC power. Mode Control panel should now display GAS, indicating the system has automatically switched to gas upon loss of AC power.

Let the unit operate on gas for a few minutes to insure the flame does not lock out.

With the aid of a mirror (dental type mirror is best), observe the flame. The flame should be sharp blue as indicated in Figure 28 with a stable burning appearance. The flame should have no yellow constituent or appear erratic or unstable. The flame should be centered into the flue tube without touching the inner wall of the tube. See Figure 28.

Turn off gas supply at refrigerator's manual valve (See Figure 11). After about 20 seconds the red X on the Mode Control panel will indicate loss of flame.

Turn gas supply back on. The gas should remain locked out. Switch AUTO-OFF-GAS to GAS. The gas mode should be re-established indicated by LP on the Mode Control panel.

On 3-Way models, set DC OFF/DC ON switch to DC ON. The Mode Control panel should display DC indicating operation in 12-volt DC mode. Also, the gas and AC functions will be disabled regardless of the AUTO-OFF-GAS setting. Re-set the switch back to DC OFF.

Check the divider between the two doors; the divider panel should feel warm after being on for a few minutes. Turn NORMAL-STORAGE-HIGH HUMIDITY to STORAGE. All functions, including Mode Control panel and the interior cabinet light should be off. Then move the switch to NORMAL. The refrigerator should return to the operation indicated by the Mode Selector switch.

AN EXAMINATION OF THE VENT AND FLUE SYSTEM SHOULD BE MADE TO INSURE THAT NOTHING IS OBSTRUCTING THE NORMAL FLOW OF COMBUSTION AND VENTING AIR. PAY PARTICULAR ATTENTION TO THE AREA ABOVE THE REFRIGERATOR TO GUARANTEE THAT FIBER-GLASS OR OTHER MATERIALS DO NOT BLOCK THE PASSAGE. THE REFRIGERATOR AREA MUST BE CLEAN AND FREE OF COMBUSTIBLE MATERIALS, GASOLINE, AND OTHER FLAMMABLE VAPORS OR LIQUIDS.

Decorative Door Panel Installation

The Norcold refrigerator doors provide slots for inserting decorative panels. Installation of the panels is accomplished by removing the handle assembly, inserting the decorative panel, and re-inserting the handle assembly. This procedure applies to both doors. (See Figure 15)

The frame slots are designed to accept panel thickness up to 3/16" maximum.

TABLE 4
PANEL DIMENSIONS

	662, 663	682, 683
Upper Door	19 11/16" x 16"	19 11/16" x 16"
Lower Door	19 11/16" x 32 1/4"	19 11/16" x 39 1/4"

INSTRUCTIONS

1. Prepare panel by cutting to size indicated in accompanying chart. (See TABLE 4)
2. Remove handle assembly (A) by removing four screws (B). (See Figure 15)
3. Slide panel into frame slots.
4. Replace the handle assembly.

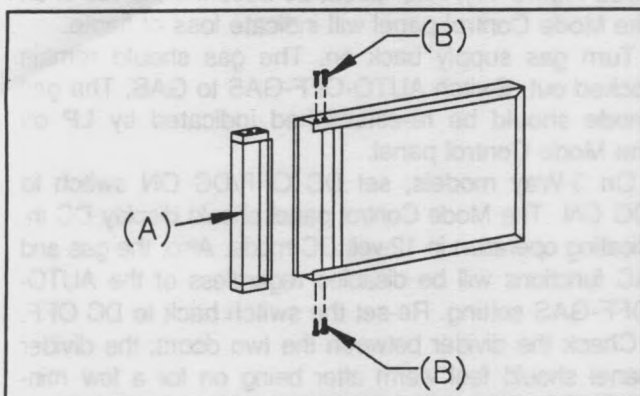


Figure 15

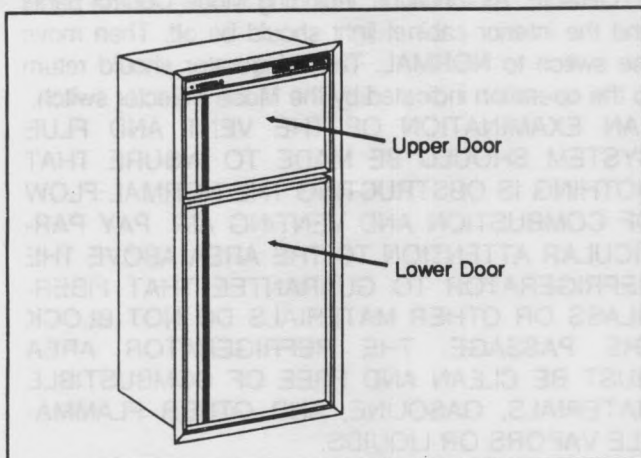


Figure 16

Instructions for Reversing Door Swing

Your refrigerator is equipped with convertible door hinges. The hinging of the doors can be changed to the opposite side anytime you wish.

TOOLS REQUIRED

- Phillips Screwdriver - Size #2
- Two Slotted Screwdrivers

REMOVING THE DOORS

1. Remove all items of food, juices, etc., from the doors. Remove the juice rack and storage bins. Close both doors before removing hinge pins. (See Figure 24)
2. Remove the top hinge pin using one of the slotted screwdrivers. Remove the center hinge pin (both pieces) using the two slotted screwdrivers; one on each end of the pin. Lastly, remove the bottom hinge pin. Be sure to save the pins for reassembly later. (See Figure 23)
3. Remove the upper door by opening the door slightly and pulling the bottom of the door away from the refrigerator. Allow enough room to slide the door down off of the upper hinge pin shoulder. (See Figure 17)

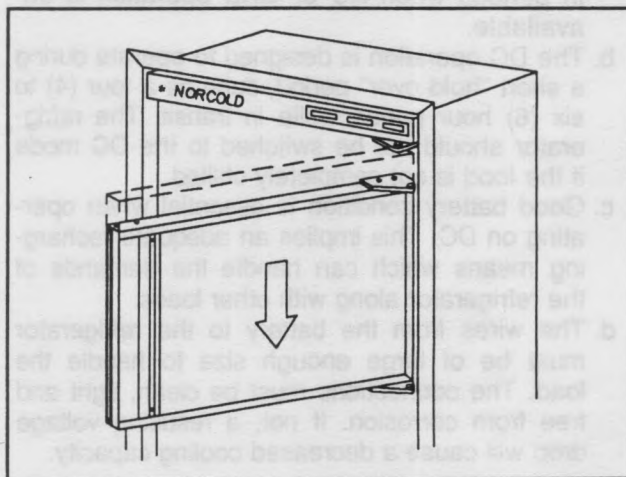


Figure 17

4. Remove the lower door by opening it slightly and pulling the top of the door away from the refrigerator. Allow enough room so the door can be lifted up and off of the bottom hinge pin shoulder (See Figure 18). Be sure to save the hinge plates along with the spacer used in the middle hinge bracket, for reassembly later. (See Figures 23A, 23B, and 23C)

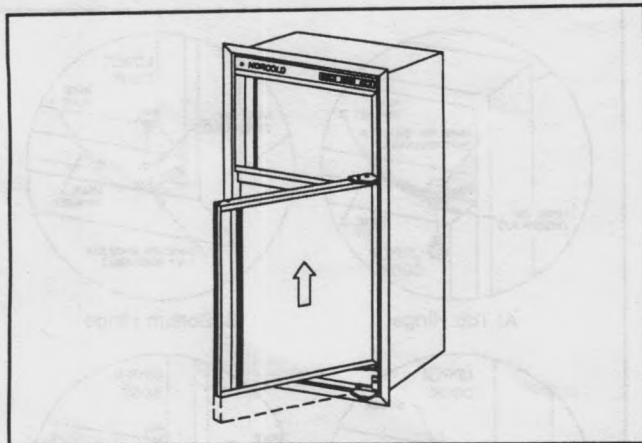


Figure 18

REMOVING AND RELOCATING THE HINGE BRACKETS

5. Remove the middle hinge bracket by using the #2 Phillips screwdriver and taking out the three screws holding it in place. Next, with fingernails, lift and remove the three hole plugs on the opposite side corresponding to the center hinge location. Relocate them in the holes just exposed by the removal of the hinge bracket. Using the same screws, attach the hinge bracket to the refrigerator where the hole plugs previously were. Do not tighten screws completely. (See Figure 19)

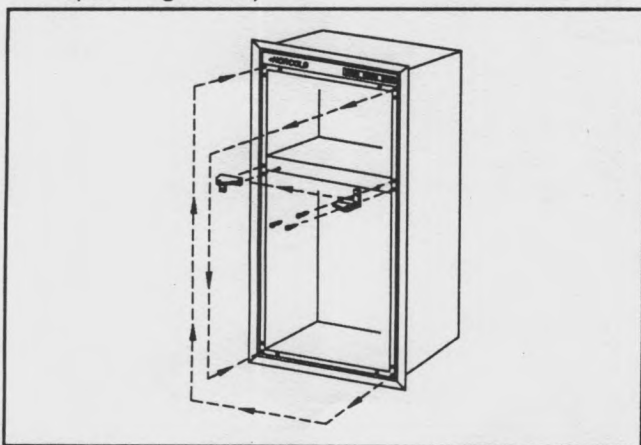


Figure 19

6. Remove the top hinge bracket and reposition it in the opposite bottom corner. Use the same technique as outlined in Step #5.
7. Remove the bottom hinge bracket and reposition it in the opposite top corner. Use the same technique as outlined in Step #5.

RELOCATING THE TRAVEL LATCHES

8. Remove both travel latches by taking out the two screws holding each to the refrigerator. Use the #2 Phillips screwdriver. Remove the two

hole plugs from each of the corresponding holes on the opposite side of the refrigerator. Relocate them in the two holes just exposed by the removal of the latches. Using the two screws, attach each latch in the new position so the tab points towards the opposite side of the refrigerator. Do not tighten screws completely. (See Figure 20)

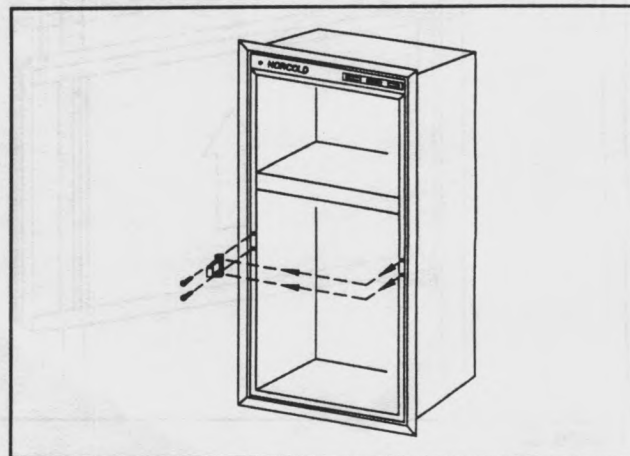


Figure 20

9. Turn the door over so that the end previously at the bottom is now at the top. Relocate the bottom of the door on the bottom hinge pin shoulder. Close door and align holes in top hinge brackets. The magnetic gasket will hold the door in place. Before reinstalling the top door, check to insure that the spacer is in place. (See Figures 21 and 23C)

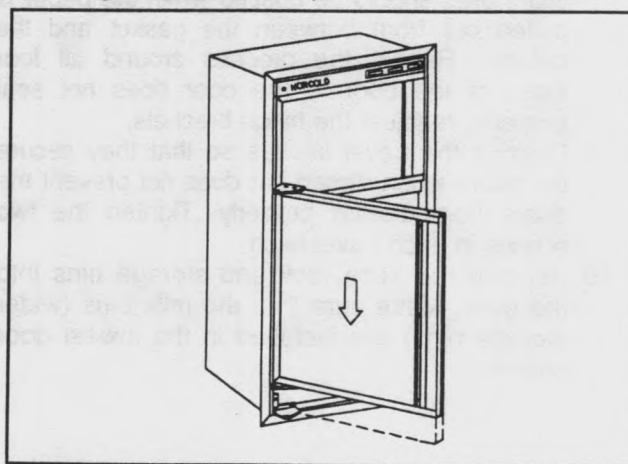


Figure 21

10. Reposition the upper door in a similar manner as described in Step #9, except the top of the door must be engaged into the hinge pin shoulder before setting the door in place. (See Figure 22)
11. Starting at the top, replace the hinge pins using the slotted screwdrivers as in the removal procedure. Tighten all screws.

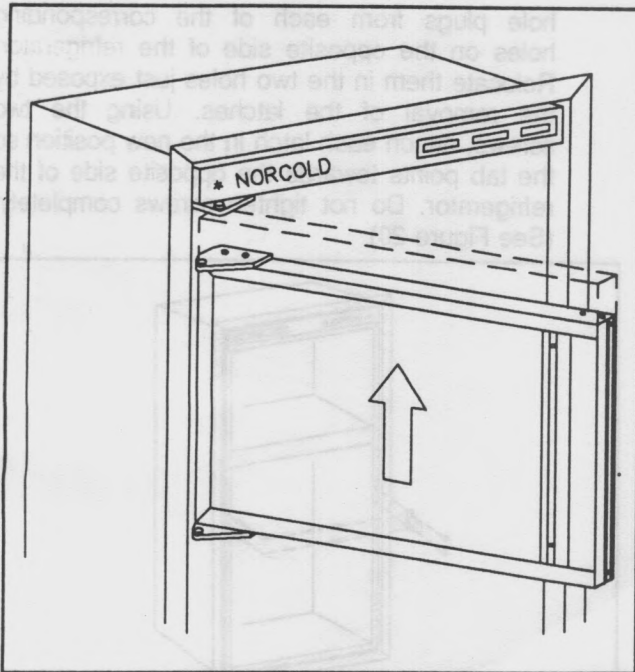


Figure 22

ALIGNMENT OF THE DOORS

12. Align the upper door with the lower so that there is a parallel gap between the doors and around the frame. Adjust the doors to the cabinet so the gaskets seal but do not bind. Tighten the screws holding the hinge brackets in place.
13. Door Seal: The door seal can be checked by closing the door on a 1" x 6" strip of paper. A slight drag should be noticed when the paper is pulled out from between the gasket and the cabinet. Repeat the process around all four sides of the door. If the door does not seal properly, readjust the hinge brackets.
14. Position the travel latches so that they secure the doors when closed but does not prevent the doors from closing properly. Tighten the two screws in each travel latch.
15. Replace the juice rack and storage bins into the door. Make sure that the milk bins (wider storage bins) are installed in the lowest door position.

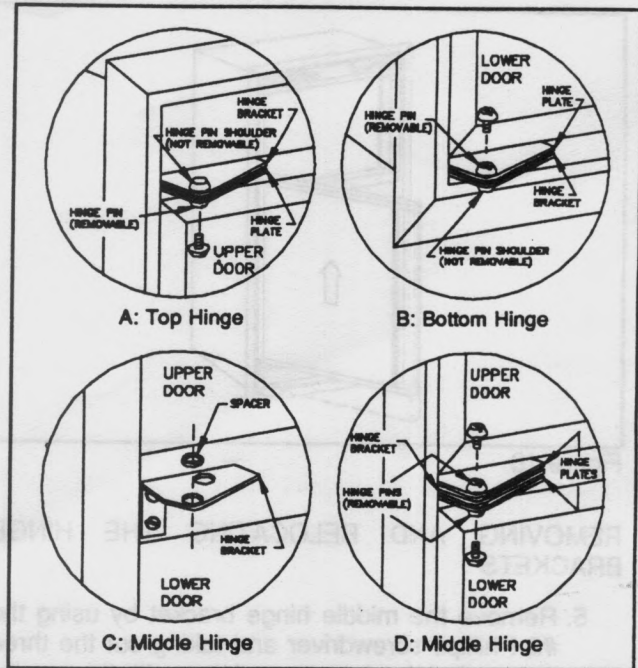


Figure 23



Figure 24

NOTES

PRELIMINARY REQUIREMENTS:

- a) 12 volts must be present for any selected mode of operation
- b) The NORMAL STORAGE HIGH HUMIDITY switch must be set to NORMAL or HIGH HUMIDITY

(2-Way Models)

3. After 10 seconds, the burner should be lit and the unit operating normally.
4. On the initial refrigeration start-up, it may take longer than 10 seconds to allow air to be purged from the gas line. If gas does not ignite within 20 seconds, valve will automatically shut off and the red X will be displayed at the CHECK position.
5. To restart when the X is displayed, move AUTO-OFF-GAS switch to OFF position then return switch to the GAS position.

CAUTION

DO NOT CONTINUE TO RESET GAS SWITCH IF CHECK INDICATION CONTINUES TO DISPLAY AFTER SEVERAL TIMES. A GAS BUILD-UP MAY OCCUR IN THE BURNER AREA AND RESULT IN A FLASH BACK WHICH MAY CAUSE PERSONAL INJURY.

Start Down Instructions - Gas or Electric

Short Duration: Set AUTO-OFF-GAS switch to OFF.
Long Duration: Set NORMAL STORAGE HIGH HUMIDITY switch located on divider between the two doors to STORAGE.

Start Up Instructions - Auto Mode

1. Move thermostat to COLDEST position. Set AUTO-OFF-GAS switch to AUTO.
2. If 120 volts is active, Mode Control panel will display AC indicating refrigerator is operating in 120 volt AC mode.
3. If 120 volts AC is inactive (low voltage, display will show "off"). Mode Control panel will display "P" indicating refrigerator is automatically switched to LP gas mode.
4. If Mode Control panel displays LP and a red X continuously, the refrigerator has failed to ignite. Switch to gas mode. Restart gas operation by moving AUTO-OFF-GAS switch to OFF and back to AUTO. (See steps 3, 4, and 5 under Gas Mode.) Note: Gas operation will automatically return to AC when 120 volts AC is restored. Even if the unit is locked out of gas operation, move thermostat to desired setting, usually a mid setting.

Start Up Instructions Gas Mode

1. Move thermostat to COLDEST. Set AUTO-OFF-GAS switch to GAS.
2. Mode Control panel will display LP, indicating LP gas mode (LP is not displayed, check for loss of DC supply voltage). Initially, the red X will be displayed for about 2 seconds after which, sparking will start at the burner and the red X goes out.

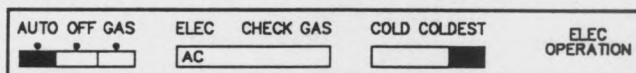
LIGHTING INSTRUCTIONS

PRELIMINARY REQUIREMENTS:

- a) 12 volts must be present for any selected mode of operation.
- b) The NORMAL-STORAGE-HIGH HUMIDITY switch must be set to NORMAL or HIGH HUMIDITY.

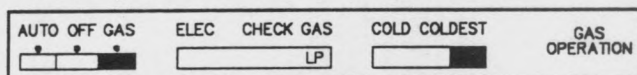
(2-Way Models)

Start Up Instructions - Auto Mode



1. Move thermostat to COLDEST position. Set AUTO-OFF-GAS switch to AUTO.
2. If 120 volts is active, Mode Control panel will display AC, indicating refrigerator is operating in 120 volt AC mode.
3. If 120 volts AC is inactive (power failure, disconnected, etc.), Mode Control panel will display LP, indicating refrigerator has automatically switched to LP gas mode.
4. If Mode Control panel displays LP and a red X continuously, the refrigerator has failed to ignite burner on gas mode. Restart gas operation by moving AUTO-OFF-GAS switch to OFF and back to AUTO (See steps 3, 4, and 5 under Gas Mode.). Note: Unit operation will automatically return to AC when 120 volts AC is restored, even if the unit is locked out on gas operation.
5. Move thermostat to desired setting, usually a mid setting.

Start Up Instructions - Gas Mode



1. Move thermostat to COLDEST. Set AUTO-OFF-GAS switch to GAS.
2. Mode Control panel will display LP, indicating LP gas mode (If LP is not displayed, check for loss of DC supply voltage.). Initially, the red X will be displayed for about 2 seconds; after which, sparking will start at the burner and the red X goes off.

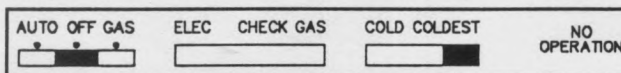
3. After 10 seconds, the burner should be ignited and operating normally.
4. On the initial refrigerator start-up, it may take longer than 10 seconds to allow air to be purged from the gas line. If gas does not ignite within 20 seconds, valve will automatically shut off and the red X will be displayed at the CHECK position.
5. To restart when the X is displayed, move AUTO-OFF-GAS switch to OFF position then return switch to the GAS position.



CAUTION

DO NOT CONTINUE TO RESET GAS SWITCH IF CHECK INDICATION CONTINUES TO DISPLAY AFTER SEVERAL TRIES. A GAS BUILD-UP MAY OCCUR IN THE BURNER AREA AND RESULT IN A FLASH BACK WHICH MAY CAUSE PERSONAL INJURY.

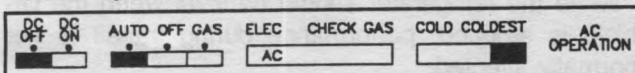
Shut Down Instructions - Gas or Electric



Short Duration: Set AUTO-OFF-GAS switch to OFF.
Long Duration: Set NORMAL-STORAGE-HIGH HUMIDITY switch (located on divider between the two doors) to STORAGE.

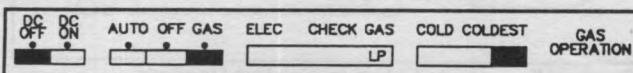
(3-Way Models)

Start Up Instructions - Auto Mode



1. Move thermostat to COLDEST position. Set AUTO-OFF-GAS switch to AUTO. Set DC OFF/DC ON to DC OFF.
2. If 120 volts is active, Mode Control panel will display AC, indicating refrigerator is operating in 120 volt AC mode.
3. If 120 volts AC is inactive (power failure, disconnected, etc.), Mode Control panel will display LP, indicating refrigerator has automatically switched to LP gas mode.
4. If Mode Control panel displays LP and a red X continuously, the refrigerator has failed to ignite burner on gas mode. Restart gas operation by moving AUTO-OFF-GAS switch to OFF and back to AUTO (See steps 3, 4, and 5 under Gas Mode.). Note: Unit operation will automatically return to AC when 120 volts AC is restored, even if the unit is locked out on gas operation.
5. Move thermostat to desired setting, usually a mid setting.

Start Up Instructions - Gas Mode



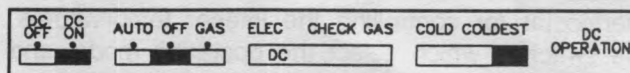
1. Move thermostat to COLDEST. Set AUTO-OFF-GAS switch to GAS. Set DC OFF/DC ON to DC OFF.
2. Mode Control panel will display LP, indicating LP gas mode (If LP is not displayed, check for loss of DC supply voltage.). Initially, the red X will be displayed for about 2 seconds; after which, sparking will start at the burner and the red X goes off.
3. After 10 seconds, the burner should be ignited and operating normally.

4. On the initial refrigerator start-up, it may take longer than 10 seconds to allow air to be purged from the gas line. If gas does not ignite within 20 seconds, valve will automatically shut off and the red X will be displayed at the CHECK position.
5. To restart when the X is displayed, move AUTO-OFF-GAS switch to OFF position then return switch to the GAS position.

⚠ CAUTION

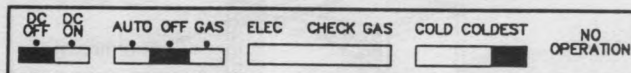
DO NOT CONTINUE TO RESET GAS SWITCH IF CHECK INDICATION CONTINUES TO DISPLAY AFTER SEVERAL TRIES. A GAS BUILD-UP MAY OCCUR IN THE BURNER AREA AND RESULT IN A FLASH BACK WHICH MAY CAUSE PERSONAL INJURY.

DC Mode



1. Move thermostat to COLDEST position.
2. Set DC OFF/DC ON switch to DC ON. (DC ON will override the AUTO-OFF-GAS switch.)
3. Mode Control panel will display DC, indicating operation in DC mode.

Shut Down Instructions - All Modes



Short Duration: Set AUTO-OFF-GAS switch to OFF. Set DC OFF/DC ON switch to DC OFF.

Long Duration: Set NORMAL-STORAGE-HIGH HUMIDITY switch (located on divider between the two doors) to STORAGE.

OPERATING AND USER INSTRUCTIONS

Norcold cannot accept responsibility for repairs, adjustment, or maintenance performed by other than a qualified dealer or service center. Resultant costs or related consequential problems cannot be assumed by Norcold. The nearest qualified service location can be furnished by a) your dealer, b) the qualified service center list supplied with the refrigerator, or c) contacting Norcold.

THIS APPLIANCE HAS BEEN DESIGNED FOR STORAGE OF FOODS, STORAGE OF FROZEN FOODS AND MAKING ICE WHEN INSTALLED AS DIRECTED BY THIS MANUAL.

Location of Controls

Figure 24 illustrates the locations of the refrigerator's operating controls. The Mode Control panel is located above the upper door and includes the thermostat for controlling the interior temperatures, the switches which select the operating mode, and an area which continuously displays the selected operating mode. On the divider panel, located between the two doors, is the High Humidity and Storage switch. See following paragraphs for a description. The light switch, which is located in this area, automatically activates the cabinet light when the lower door opens.

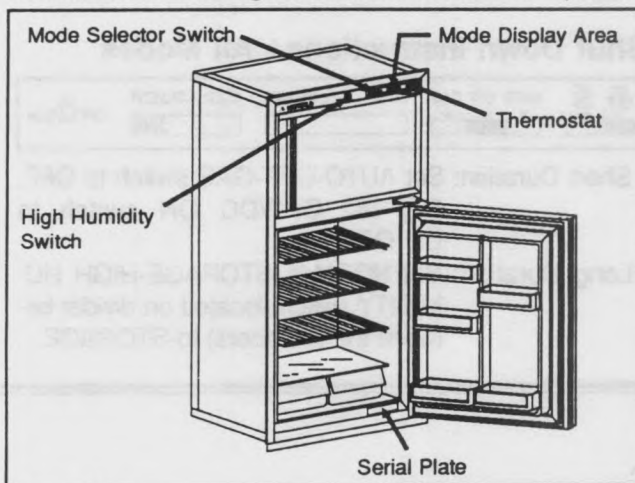


Figure 24

Leveling

Norcold refrigerators do not require critical leveling such as required by other absorption type refrigerators.

Normal vehicle leveling to provide comfort for the occupants is satisfactory for refrigerator operation. This will be well within the refrigerator's operation limits of 3 degrees off-level side to side and 6 degrees off-level front to back.

Operation in Transit

While the refrigerator should be level when the vehicle is stopped, performance during transit is not normally affected.

Door Latch

The refrigerator's built-in door latch prevents the door from flying open during transit. There are no chains or slides to remember to actuate when the vehicle starts moving (See Figure 25). Always close the door to the sealed position (audible click) to prevent cooling loss and heavy frost.

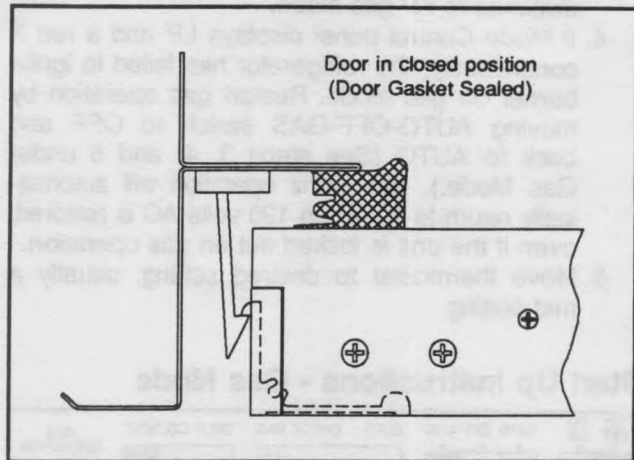


Figure 25 Door Latch in Sealed Position

Mode Selector

This refrigerator is equipped with Norcold's exclusive Mode Selector. A description of each of these selections follows:

AUTO: The refrigerator will operate on 120 volts AC so long as AC power is available to the refrigerator. If AC power is lost (or disconnected), the Selector will automatically switch to gas operation. As soon as AC power is restored, the Selector automatically switches back to AC operation (The user does not have to manually switch the refrigerator back to AC). When the operation is automatically switched to gas, the burner will ignite and continue to operate the refrigerator at the same thermostat setting as set for AC power.

Note: If a 3-Way model, DC ON/DC OFF switch must be set at DC OFF.

GAS: This selection allows the refrigerator to operate on LP gas only. It will not automatically switch modes regardless of whether AC power is connected. If the flame is lost

(LP bottle empty, etc), the operation locks out and must be manually reset.

Note: If a 3-Way model, DC ON/DC OFF switch must be set at DC OFF.

12 VOLT DC (3-WAY models): Selecting DC operation overrides all other operating modes (all three settings of the AUTO-OFF-GAS switch). If DC power is lost, the refrigerator remains off until the DC power is restored. It does not require a manual restart procedure.

Mode Display

The lighted display area provides a continuous indication of the refrigerator's operating mode. A description of each indication is as follows:

AC: Indicates 120 volt AC is connected and operating in that mode while the Mode Selector switch is set at AUTO.

LP: Indicates the gas burner is operating normally in the LP gas mode. However, if a red X is also displayed, the gas burner is off and the refrigerator is locked out in the gas mode. As a safety precaution, the Mode Selector switch must be manually reset. See Lighting Instructions on page 15 (2-Way) or page 16 (3-Way).

X: Indicates the gas burner is off in the gas mode. See explanation in the preceding paragraph.

DC: (3-WAY Models Only) Indicates refrigerator is operating on 12 volts DC with the Mode Selector set at DC ON.

Thermostat

The thermostat on the Norcold refrigerator controls both the gas and electric operation thereby eliminating the necessity of resetting each time a different energy source is employed. After the initial start-up, the thermostat should be moved from "COLDEST" to the desired temperature setting, usually about mid setting.

High Humidity - Storage Switch

Pressing this switch (Figure 26) to "HIGH HUMIDITY" will keep the surface between the door openings dry during high humidity conditions. The switch should be left in the "NORMAL OPERATION" position unless condensation is observed in this area.

Both NORMAL and HIGH HUMIDITY positions allow the cabinet light to activate when the lower door is opened.

When your RV is being stored for the winter, this switch should be placed in the "STORAGE" (light off)

position. This position shuts off all DC power including the light and humidity heater and allows the refrigerator door to be left open for airing without chance of battery drain during storage. (See "Information Regarding Battery Drain" below.) The "STORAGE" position also prevents refrigerator operation, regardless of where the Mode Selector is set.

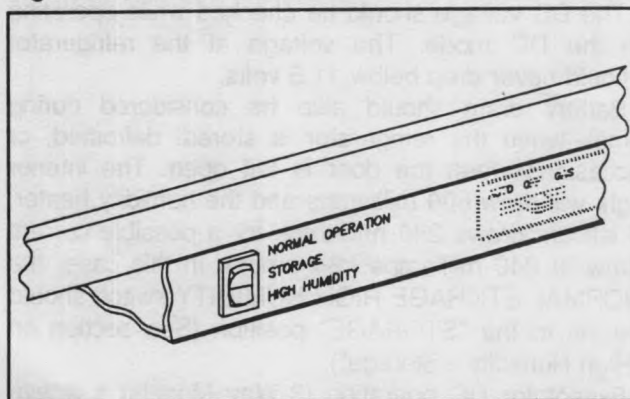


Figure 26

Additional Information on Controls

! CAUTION

NEVER ALLOW WATER TO BE SPRAYED DIRECTLY ON ELECTRICAL CONTROLS LOCATED BEHIND THE INLET VENT DOOR. ELECTRICAL DAMAGE OR FIRES COULD RESULT.

1. Be attentive when the outer coach surface is being hosed down to avoid wetting the refrigerator controls.
2. The User should be aware that 12 volts DC is required during all operating modes (AC, GAS, DC). 12 volts is necessary to energize the cabinet light, humidity heater and the mode display area.
3. This Norcold refrigerator is equipped with electronic ignition (no pilot flame). It provides automatic gas ignition on start-up, automatic re-ignition in case of flame blowout and electrical signal to warn of flame failure (red X on mode display).

Information Regarding Battery Drain

As indicated, a 12 volt DC source is required for operation on gas to provide features of automatic ignition. The current draw is less than 500 milliamps. If the humidity heater is also energized, this adds 240 milliamps for a total less than 740 milliamps (.74 amps). This indicates that the drain on the battery is very low and has little effect on "battery run down"

unless these switches are left on for long periods of time on a battery with no means of recharging.

During AC operation, 12 volt DC is required to operate the interior light, humidity heater, the mode display, and electronic thermostat.

On 3-Way Models, the DC operation draws approximately 14.5 amps at 12 volts or 16 amps at 14 volts.

The DC voltage should be checked while operating in the DC mode. The voltage at the refrigerator should never drop below 11.5 volts.

Battery drain should also be considered during times when the refrigerator is stored, defrosted, or occasions when the door is left open. The interior light will draw 600 milliamps and the humidity heater, if left on, draws 240 milliamps for a possible current draw of 840 milliamps (.84 amps). In this case, the NORMAL-STORAGE-HIGH HUMIDITY switch should be set to the "STORAGE" position (See section on "High Humidity - Storage").

Except for DC operation (3-Way Models) it is evident that the 12 volt demand is quite low; nevertheless, the refrigerator should not be operated for long periods of time from a battery only, without a means of recharge (through alternator or converter).

The Freezer Compartment

This compartment is not designed for the quick freezing of food, but designed to retain food in a frozen state. Foods purchased for storage in the freezer compartment should be frozen when purchased to reduce the load on the refrigerator system.

IMPORTANT: Ice trays must be placed on the bottom freezer surface when making ice.

Water will freeze more rapidly if the thermostat is at it's coldest setting.

The freezer shelf (Figure 27) can be adjusted for three different heights or can be removed for large frozen packages. Do not place packages on ice trays while water is freezing.

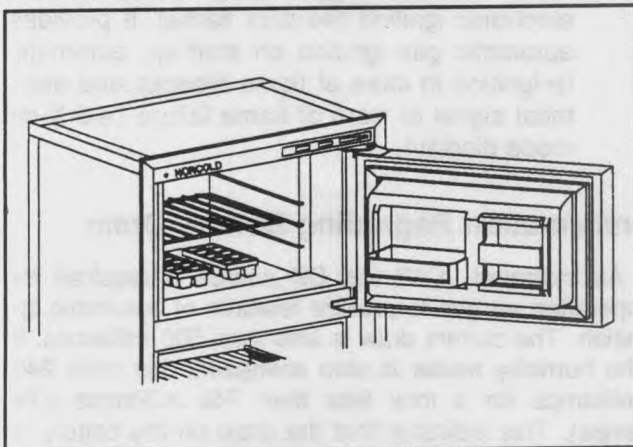


Figure 27

Door Sealing

To maintain cooling efficiency and prevent excessive frost build-up, the doors must seal completely around the entire length of the door gasket. Frequent frost build-up or reduced cooling are indications of air leaks. To check for complete door sealing, lay a long strip of paper (or a dollar bill) across the flange, against which the gasket seals; then close the door. A frictional drag should be felt upon withdrawing the paper. Repeat in several places all around the door. If the paper feels loose, the gasket is not sealing. Contact your dealer or Service Center.

⚠ CAUTION

DO NOT USE UNDUE FORCE OR JERKING ACTION WHEN OPENING THE REFRIGERATOR DOOR. AIR TEMPERATURE DIFFERENCES CAN CAUSE A PARTIAL VACUUM WITHIN THE CABINET REQUIRING A FIRM BUT STEADY FORCE TO OPEN THE DOOR. A SUDDEN JERK COULD CAUSE DOOR DAMAGE OR PERSONAL INJURY.

Defrosting the Refrigerator

After a period of operation, it is normal for frost to gradually accumulate on the freezer plate and the cooling fins, thereby impairing cooling efficiency.

To defrost the refrigerator, remove all food, then move the NORMAL-STORAGE-HIGH HUMIDITY switch to "STORAGE". Fill trays with hot water, placing them in the freezer compartment. When all frost has melted, empty the drip tray (beneath the finned evaporator) and wipe up the excess moisture with a clean cloth. Replace the drip tray (making sure the drain is not clogged and the tray engages the drain tube) and all the food. Place the refrigerator back into operation. Set the thermostat to its coldest setting for a few hours for maximum cooling before returning it to its normal operation.

⚠ WARNING

NEVER BEND, DROP, DRILL, OR WELD THE COOLING UNIT. DOING SO COULD CAUSE THE UNIT TO RUPTURE, RELEASING DANGEROUS CHEMICALS WHICH CAN CAUSE SEVERE BURNS TO THE EYES OR SKIN.

Cleaning the Refrigerator

It is important to keep the cabinet clean to minimize the possibility of food odor. The best time to clean the cabinet is after defrosting the refrigerator. Re-

move the stored food and cleanse interior with lukewarm water to which a dishwasher detergent has been added (Dawn works well on stubborn grease spots).

⚠ CAUTION

NEVER USE STRONG OR ABRASIVE TYPE CLEANERS, CHEMICALS, OR SCOURING PADS SINCE THEY CAN HARM THE INTERIOR SURFACES.

Rinsing with a solution of baking soda and water will freshen the surroundings. Wipe with a soft dry cloth to prevent water spots.

Light Bulb Replacement

If the interior light bulb requires replacement, slide the clear lens cover toward the back of the refrigerator to gain access to the bulb. The bulb, which snaps into place, may be removed by pulling it straight out of the socket. Do not twist or turn while removing.

⚠ CAUTION

THE LIGHT BULB MUST BE REPLACED BY THE WATTAGE BULB TO AVOID OVERHEATING THE PLASTIC COVER. REFER TO THE REPLACEMENT PARTS LIST ON PAGE 23.

Shutdown and Storage

During periods when the refrigerator is not in use, set NORMAL-STORAGE-HIGH HUMIDITY switch to the "STORAGE" position and disconnect the power to the refrigerator. The interior should be cleaned and the doors opened to prevent musty smells in the cabinet.

⚠ WARNING

NEVER ADD LOCKS OR RESTRAINTS WHICH COULD UNKNOWINGLY ENTRAP SMALL CHILDREN OR PETS DURING THE STORAGE PERIOD.

Gas Flame

If the GAS mode of your refrigerator is used (even if only occasionally), a visual check of the burner flame should be made regularly. While operating at maximum thermostat cooling and in the GAS mode, open the Intake Vent door and remove the Burner Box cover secured with one Phillips head screw. Be aware that the cover could be hot.

⚠ CAUTION

NEVER EXAMINE THE BURNER WHEN IT IS ATTEMPTING TO IGNITE A FLAME. A GAS BUILD-UP MAY OCCUR, RESULTING IN A FLASH BACK AND POSSIBLE PERSONAL INJURY.

With the aid of a mirror (dental type mirror is best), observe the flame. The flame should be sharp blue as indicated in Figure 28 with a stable burning appearance. If there is a constant yellow component observed or if the flame appears erratic and unstable, contact your dealer or Service Center. Also check the position of the flame; it should be centered into the flue tube without touching the inner wall of the tube. If service is required, it must be done by an authorized dealer or Service Center. Be sure to replace the Burner Box cover.

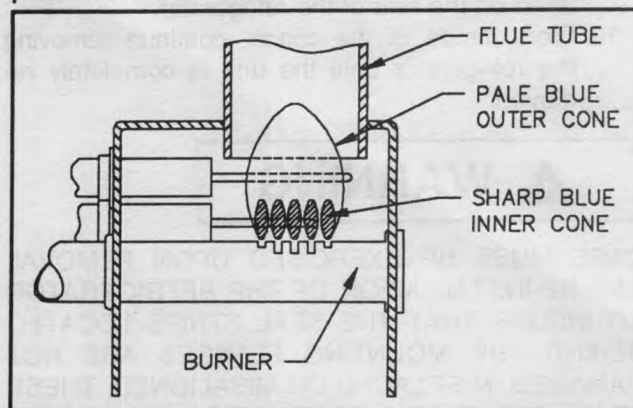


Figure 28

To Remove the Refrigerator

1. Turn off the propane gas at the main supply source.
2. Disconnect the gas line at the manual shut-off valve located at the rear of the refrigerator (reference Installation Instructions page 8, Figure 11). Access to this connection is made through the lower exterior vent door opening. Use two wrenches when loosening this connection in order to prevent twisting or kinking of the gas line.
3. Disconnect the AC power cord from the wall receptacle.
4. Disconnect any DC wiring that may be connected to the back of the refrigerator. Wires should be marked prior to removal in order to insure proper re-connection. Prior to removal of DC supply lines, the supply circuit should be de-energized. This can be accomplished by removing the DC Line Fuse or by disconnecting the refrigerators +12 volt supply at either the battery or the converter.

5. Remove any fasteners securing the refrigerator to the floor.
6. From the inside of the coach, remove the eight (8) plastic plug seals located in the front mounting flange.
7. Remove the eight (8) screws securing the mounting flange to the coach wall. The refrigerator is now ready for removal.
8. If the refrigerator is installed above floor level, place a box or other rigid structure that is approximately the height between the bottom of the refrigerator and the coach floor, directly under the refrigerator.
9. From outside the coach, reach through the lower vent door opening and gently push the refrigerator towards the center of the coach. The refrigerator should be moved three (3) or four (4) inches. Care should be exercised to avoid any sharp edges that may be encountered on the rear of the refrigerator.
10. From inside of the coach, continue removing the refrigerator until the unit is completely removed.

WARNING

CARE MUST BE EXERCISED UPON REMOVAL AND RE-INSTALLATION OF THE REFRIGERATOR TO INSURE THAT THE SEAL STRIPS LOCATED BEHIND THE MOUNTING FLANGES ARE NOT DAMAGED, MISPLACED OR MISALIGNED. THESE SEALS SERVE AS A COMBUSTION SEAL WHICH PREVENTS EXHAUST FUMES FROM ENTERING INTO THE LIVING QUARTERS.

To Re-Install the Refrigerator

1. Check that all sealing strips are properly aligned.
2. From the inside of the coach, carefully slide the refrigerator into the wall opening until the mounting flange contacts the wall face.

3. Replace the eight (8) screws through the mounting flange and tighten securely into the coach wall.
4. Replace the eight (8) plastic hole plug inserts.
5. From the outside of the coach through the lower vent door access opening, re-install all fasteners securing the refrigerator to the coach floor.
6. Re-connect the gas line to the 3/8" flare fitting on the manual shut-off valve located at the rear of the refrigerator (reference Installation Instructions page 8, Figure 11). Access to this connection is made through the lower exterior vent door opening. Use two wrenches when tightening this connection in order to prevent twisting or kinking of the gas line.
7. Turn on the gas at the main supply tank and check for leaks using a leak detector solution.

WARNING

DO NOT USE AN OPEN FLAME WHEN CHECKING FOR GAS LEAKS. SERIOUS PERSONAL INJURY AND PROPERTY DAMAGE CAN RESULT FROM THE IGNITION OF LEAKING PROPANE GAS.

CAUTION

DO NOT ALLOW LEAK DETECTION SOLUTIONS TO COME INTO CONTACT WITH ELECTRICAL COMPONENTS. MANY SUCH LIQUIDS ARE ELECTRICALLY CONDUCTIVE WHICH CAN CAUSE ELECTRICAL SHORTS AND, IN SOME CASES, FIRES.

8. Re-connect the DC Supply wires to the pre-labeled connections.
9. Re-energize the DC Supply circuit by replacing the DC Supply fuse or by reconnecting the +12 volt source at the battery and/or Converter.

REFRIGERATOR CARE

Owner's Check List

Your refrigerator is designed for years of trouble free operation if a few simple steps are performed on a regular three to six month basis. Use the check list below as a guide and a reminder.

1. Keep the freezer and food compartment clean. (See section on Cleaning the Refrigerator)
2. Check for frost build-up. (See section on Defrosting)
3. Check for proper draining of the fins in the fresh food compartment. (See section on Defrosting)
4. Insure that the food compartment and freezer doors are sealing properly. (See section on Door Sealing)
5. Insure that there is no lockout when switching to the Gas mode (Red light remains on). If lockout occurs frequently, contact your dealer or Service Center.
6. Be alert to noticeable changes in cooling performance - either overcooling or poor cooling. If this happens without changes in other factors such as weather changes or resetting of thermostat, contact your dealer or Service Center.
7. Insure that the interior light is operational and shutting off properly. If more than a defective bulb, contact your dealer or Service Center.
8. Insure that your LP gas supply is Propane, not other types such as Butane or Butane mixtures.
9. Check the flame appearance during operation in the GAS mode. (See section on Gas Flame Appearance)
10. Inspect the floor at the rear of refrigerator (Look through intake vent from outside of coach). If water appears frequently, contact your dealer or Service Center.
11. Insure the ventilation space behind the refrigerator (the area from the bottom intake vent, up the back of the refrigerator and to the top exhaust vent) is clear of obstructions (insulation, supports, etc.).
12. Insure that the area directly behind the refrigerator is not being used for storage, particularly for storage of combustible material.

REFRIGERATOR MAINTENANCE

Maintenance Check List

In addition to completing the Check List items under Refrigerator Care, a safety and performance check should be made annually by a qualified service person. The schedule should include at least the following:

- a. Leak test the gas lines.
- b. Check combustion seal; repair or replace, if necessary. (Visual check without removing the refrigerator.)
- c. Inspect or clean the burner or burner orifice.
- d. Check/adjust the electrode spark gap.
- e. Check/adjust AC and DC voltages and gas supply pressure.
- f. Insure that the area around the burner and controls is free of debris, oily rags, etc.
- g. Inspect the controls, piping and wiring to insure that they are in good condition.

THESE MAINTENANCE PROCEDURES MUST BE PERFORMED BY A QUALIFIED SERVICE PERSON. NORCOLD CANNOT ACCEPT RESPONSIBILITY FOR REPAIRS, ADJUSTMENT, OR MAINTENANCE PERFORMED BY OTHER THAN A QUALIFIED DEALER OR SERVICE CENTER.

The nearest qualified service location can be found on the service center list supplied with the refrigerator or by contacting your dealer.

FAILURE OF REFRIGERATION

Failure of refrigeration does not necessarily indicate that the cooling system is defective. Other factors governing its operation must be checked.

Lack of operation may be due to loss of the proper power source. If difficulty is experienced in refrigerator start-up, it may be due to lack of proper power hook-up. TABLE 5 below can help in recognizing the power requirements for each mode of operation. For example, if AC operation is expected by connecting the AC supply and setting the Mode switch to AUTO, the unit will not operate unless 12 volts DC is also connected to the unit, as indicated on the third line of TABLE 5.

If the refrigerator has been operating on gas and a loss of cooling is noted, convert the refrigerator to electric operation, AC power (See "Start Up Instructions - Auto Mode"). If the refrigerator has been operating on electric, switch it to gas operation. This will determine if a component failure in the electric or gas controls is causing the cooling fault.

After the refrigerator has been converted from one power source to the other (gas to electric, or electric to gas) allow several hours to assure the unit is cycling properly. At the end of the period the freezer plate should start to cool, providing the following items have been checked out thoroughly.

1. The evaporator plate is level in each direction.
2. The controls have been properly set for the power source utilized.
3. The power source is at the correct 11 inches water column for gas (main tank supply) and 120 volts AC for electric.
4. 12 volt DC supply present for mode selector control.
5. The upper and lower vents are not obstructed so as to restrict ventilation.

(Do not attempt to operate the system on DC when analyzing the system performance as this power source is designed for short period operation only and does not power the system at its full capabilities).

If no cooling is evident after a reasonable time period, contact your dealer or Service Center.

Replacement Parts

The following is a list of parts which can be replaced by the owner and are obtainable from all Norcold Service Centers.

Description	Model 682,3	Model 662,3
Ice Cube Tray	61630422	61630422
Crisper	61571360	61571360
Juice Rack	61580540	61580540
Storage Bin	61564060	61564060
Milk Bin	61579460	61579460
Dairy Keeper Lid	61580460	61580460
Freezer Door Gasket	61567830	61567830
Lower Door Gasket	61568030	61567930
Cabinet Lamp	61760922*	61760922*
Knob - Thermostat	61587422	61587422
Owner's Manual	61668222	61668222

*SYLVANIA NO. T-168 OR EQUIVALENT
Available at Hardware/Auto Supply

Storage Volume

Model	682,3	662,3
Storage Volume	7.5 cu. ft.	6.3 cu. ft.

TABLE 5 - CONDITIONS FOR DESIRED OPERATING MODE (NORM.-STOR.-HIGH HUMID. must be on NORMAL or HIGH HUMID.)

IF YOU HAVE THESE CONDITIONS:				YOU WILL OBSERVE THIS:		
MODE SWITCH POSITION	AC SUPPLY CONNECTED?	DC SUPPLY CONNECTED?	GAS SUPPLY CONNECTED?	CONDITION OF UNIT:	CONTROL PANEL INDICATORS	REMARKS
AUTO	YES	YES	YES OR NO	AC MODE	"AC"	OPERATIONAL
AUTO	NO	YES	YES	GAS MODE	"LP"	OPERATIONAL
AUTO	YES OR NO	NO	YES OR NO	OFF	ALL OFF	NOTE 1
AUTO	NO	YES	NO	OFF	"LP", "CHECK"	NOTE 2
GAS	YES OR NO	YES	YES	GAS MODE	"LP"	OPERATIONAL
GAS	YES OR NO	YES	NO	OFF	"LP", "CHECK"	NOTE 3
GAS	YES OR NO	NO	YES OR NO	OFF	ALL OFF	NOTE 1
DC*	YES OR NO	YES	YES OR NO	DC MODE*	"DC"	OPERATIONAL
DC*	YES OR NO	NO	YES OR NO	OFF	ALL OFF	UNIT OFF

NOTE 1: Both GAS and AC modes require a 12 volt DC control voltage; Therefore, unit cannot start without the 12 volt DC source.

NOTE 2: Without 120 volts AC connected, unit will automatically try to start up in GAS mode; If gas is not present (bottle could be empty), unit will try to start, then lock out. ("CHECK" light)

NOTE 3: No gas supply to burner, unit will try to start, then lock out. ("CHECK" light)

* 3-Way Models Only

INFORMATION ABOUT LP GAS

WARNING

USE EXTREME CAUTION WHEN WORKING ON OR NEAR A PROPANE GAS SYSTEM. DO NOT SMOKE OR USE AN OPEN FLAME NEAR A PROPANE GAS SYSTEM. LEAKING PROPANE GAS CAN CAUSE AN EXPLOSION AND RESULT IN SEVERE PERSONAL INJURY OR DEATH.

Although every precaution is taken by fuel producers, tank manufacturers, and LP gas dealers in keeping moisture out of the fuel, this problem does at times exist causing regulator freeze-ups. Suggestions that you may want to follow to help prevent this moisture are:

1. Always keep the main tank valve closed during periods that the gas will not be used and especially if the tank is empty.
2. Contact your LP dealer about the addition of methyl alcohol into your tank. He may do this for a minimal charge and it will help prevent freeze-up.

NOTE: The refrigerator operates on propane, do not use Butane or Butane mixtures.

Basic Practices to Assure Safety

1. Do not allow your tank to be filled beyond the legal liquid level capacity indicated by the liquid level stop fill gauge.
2. When closing the POL valve or liquid level on your tank, never use a wrench or pliers. These valves are designed to be closed leak-tight by hand and, if wrenches are necessary to stop a leak, the valve should be replaced.
3. When tightening the left hand thread POL nut

on the service valve, draw it up just snug with a proper wrench. Do not over tighten it or jam it. This is a machined brass fitting which seats securely against a female seat in the POL valve and requires no pipe joint compound.

4. When you are ready to use your tank, open the POL valve all the way and then close it one quarter turn. This will assist you in determining if the valve is open or closed.
5. Periodically check all tank and line connections for leaks using a soapy solution. In transit vibration may create leaks.

CAUTION

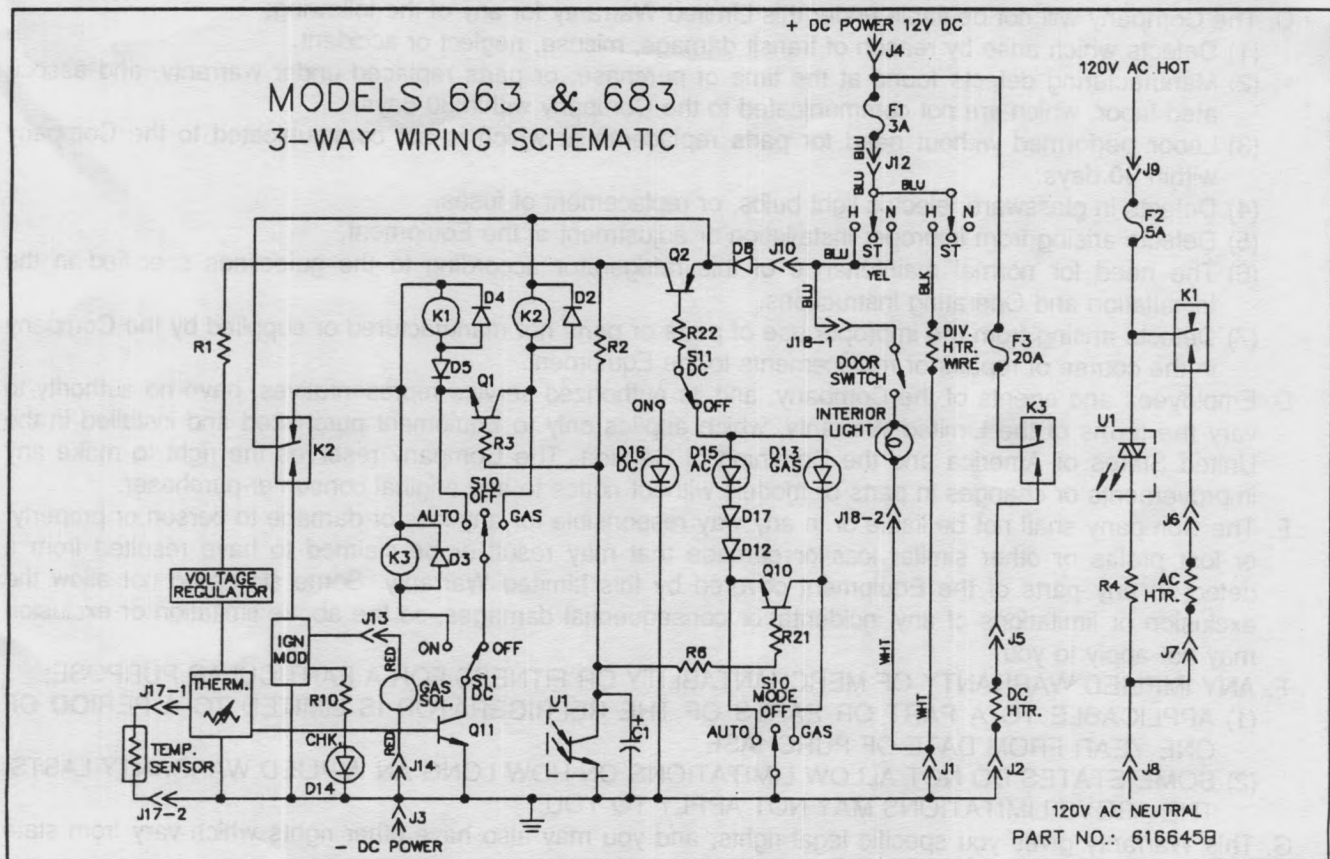
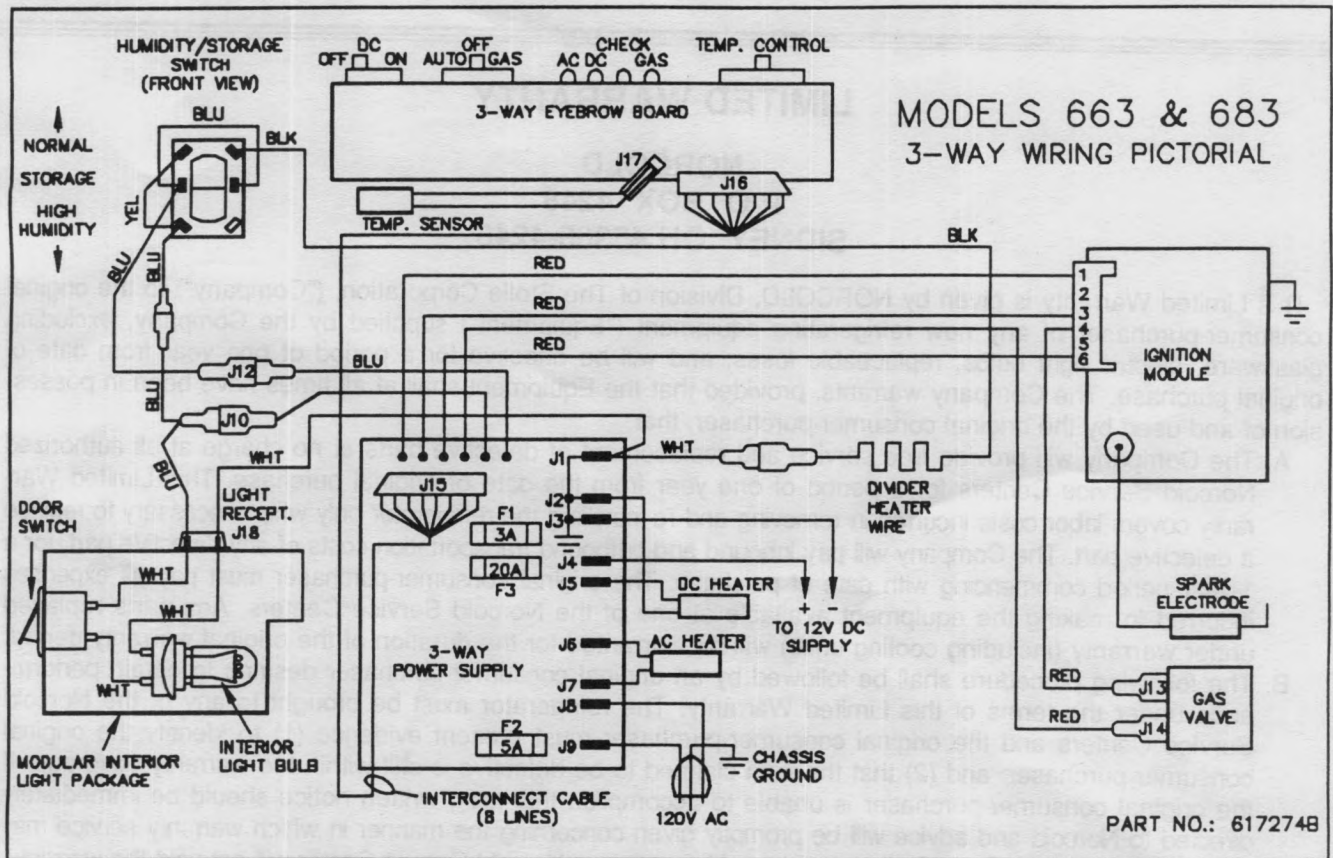
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6. Make certain your tank is securely fastened in place.
7. On travel trailer installations having dual tanks, turn the tanks so that the open part of the tank guard is facing the trailer. This will protect the valve and regulator from flying rocks or mud.
8. If you remove your tank for transport to a dealer for refill, transport it in the same position as it is normally used and with the valve closed. Secure the tank against falling or rolling.
9. Above all, practice safety at all times. LP gas can be dangerous. If you have any questions about the operation of your gas appliances or the LP gas system itself, contact your local LP gas dealer.

SERVICE INFORMATION

IF SERVICE OR PARTS ARE REQUIRED, CONTACT THE NEAREST NORCOLD SERVICE CENTER.

A NORCOLD SERVICE CENTER BOOKLET HAS BEEN INCLUDED WITH THE REFRIGERATOR INFORMATION PACKET.



LIMITED WARRANTY

NORCOLD
P O BOX 4248
SIDNEY OH 45365-4248

This Limited Warranty is given by NORCOLD, Division of The Stolle Corporation, ("Company") to the original consumer-purchaser of any new refrigerating equipment ("Equipment") supplied by the Company, excluding glassware, electric light bulbs, replaceable fuses, and will be effective for a period of one year from date of original purchase. The Company warrants, provided that the Equipment shall at all times have been in possession of and used by the original consumer-purchaser, that:

- A. The Company will provide free service and replacement of defective parts at no charge at all authorized Norcold Service Centers for a period of one year from the date of original purchase. This Limited Warranty covers labor costs incurred in removing and re-installing the refrigerator only when necessary to replace a defective part. The Company will pay inbound and outbound transportation costs of any defective part, for a 1-year period commencing with date of purchase. The original consumer-purchaser must pay all expenses incurred in making the equipment available at one of the Norcold Service Centers. Any parts replaced under warranty (including cooling units) will be warranted for the duration of the original warranty period.
- B. The following procedure shall be followed by an original consumer-purchaser desiring to obtain performance under the terms of this Limited Warranty. The refrigerator must be brought to any of the Norcold Service Centers and the original consumer-purchaser must present evidence (1) to identify the original consumer-purchaser: and (2) that the item claimed to be defective is still within the warranty coverage. If the original consumer-purchaser is unable to accomplish this task, written notice should be immediately directed to Norcold and advice will be promptly given concerning the manner in which warranty service may be obtained. Inability to physically bring the refrigerator to a Norcold Service Center will not void the warranty, but any additional costs thereby incurred are solely for the account of the original consumer-purchaser.
- C. The Company will not be liable under this Limited Warranty for any of the following:
 - (1) Defects which arise by reason of transit damage, misuse, neglect or accident.
 - (2) Manufacturing defects found at the time of purchase, or parts replaced under warranty, and associated labor, which are not communicated to the Company within 30 days.
 - (3) Labor performed without need for parts replacements which is not communicated to the Company within 30 days.
 - (4) Defects in glassware, electric light bulbs, or replacement of fuses.
 - (5) Defects arising from improper installation or adjustment of the Equipment.
 - (6) The need for normal maintenance of this refrigerator according to the guidelines specified in the Installation and Operating Instructions.
 - (7) Defects arising from the improper use of parts or parts not manufactured or supplied by the Company in the course of repairs or replacements to the Equipment.
- D. Employees and agents of the Company, and its authorized service representatives, have no authority to vary the terms of the Limited Warranty, which applies only to Equipment purchased and installed in the United States of America and the Dominion of Canada. The Company reserves the right to make any improvements or changes in parts or models without notice to any original consumer-purchaser.
- E. The Company shall not be liable or in any way responsible for any loss or damage to person or property, or lost profits or other similar loss or damage that may result or be claimed to have resulted from a defect in any parts of the Equipment covered by this Limited Warranty. Some states do not allow the exclusion or limitations of any incidental or consequential damages, so the above limitation or exclusion may not apply to you.
- F. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE:
 - (1) APPLICABLE TO A PART OR PARTS OF THE REFRIGERATOR IS LIMITED TO A PERIOD OF ONE YEAR FROM DATE OF PURCHASE.
 - (2) SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS. THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.
- G. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.