



# DUAL VOLTAGE REFRIGERATORS 120 VOLTS AC AND 12/24 VOLTS DC

MRFT15  
MRFT40  
MRFT60

## INSTALLATION AND OWNER'S MANUAL

### **Service Information**

If service or parts are required, contact the nearest Norcold Service Center. To find an authorized Norcold Service Center near you, please telephone the Norcold Customer Support Dept. at 800-543-1219 (option-1) or visit our web site at [www.norcold.com](http://www.norcold.com).

Norcold Customer Support Dept.  
Telephone : 800-543-1219  
Fax : 937-497-3183  
Web Site: [www.norcold.com](http://www.norcold.com)

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Part No. 5490 312 2000

Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_

## **NORCOLD AC/DC Models - Two Year Limited Warranty Policy**

Norcold, Inc. warrants that when properly installed and placed under normal service and use its refrigeration equipment is free from defects in material and workmanship for two years commencing from the original date of purchase of the new equipment.

### **Limitations of Warranty**

1. This Warranty is the only warranty for a Norcold AC/DC refrigerator. This Warranty does not extend to glassware, electric light bulbs, and replaceable fuses.
2. This warranty does not apply to parts and assemblies that have been subjected to misuse, improper installation, abnormal service, transit damage, recharging of cooling system, accident, fire, improper repair, tampering or abuse.
3. Irrespective of the nature of the warranty protection offered or claimed, the period of warranty shall in no case extend beyond two years commencing from the original date of purchase of the new equipment.

### **Limitation of Remedy**

1. The responsibility of NORCOLD under this or any warranty is limited to the repair or replacement (at NORCOLD'S option) of the defective part or assembly.
2. In no event and under no circumstances shall NORCOLD be responsible under this Limited Warranty for any other charge whatsoever, including but not limited to charges or claims for labor, lost business, lost time, lost profits, loss of use, or any kind of incidental or consequential damages, however denominated or described. The remedy under this warranty is limited to repair or replacement.
3. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

### **Disclaimer of Other Warranties**

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

### **Legal Rights**

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

## Safety Awareness

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

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



**WARNING:** This signal word 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.

## Model No. and Serial No.

The model and serial number are on a label which is on the compressor cover near the portable handle and on the cover of this manual.

## General

The refrigerator should be placed on a level and solid surface. The compressor has shock mounts to allow the refrigerator operation during transit.

Be sure the refrigerator is not in direct sunlight or near a gas stove, a heater, or other heat-generating appliances. Avoid placing your refrigerator in an area where it could be accidentally splashed or sprayed with water which could enter the electrical compartment of the refrigerator.

Your refrigerator was thoroughly cleaned before shipment from the factory. It is advisable, however, to clean the interior once more before using. Wipe the interior with a cloth and warm water. Then wipe with a dry cloth.

## Operation

This refrigerator operates on either 120 volts (60 hertz) AC current from a standard wall receptacle or 12/24 volts DC current from a battery in your car, boat, trailer, camper, etc. If both power supplies are available, the refrigerator will select and operate on AC voltage. If the AC power becomes unavailable, the refrigerator will switch operation to DC voltage.



**CAUTION:** Never store combustible materials near the refrigerator. Storing combustible materials near the refrigerator creates a safety hazard and also decreases the ventilation of the cooling system which decreases the refrigerator performance.

Do not touch the evaporator or other metal parts inside the refrigerator cabinet with wet hands because they can freeze to the refrigerator.

Always disconnect all power sources from the refrigerator when doing routine maintenance. Have service work done only by a qualified service technician.

A green power light illuminates when the refrigerator is “ON”.

The refrigerator temperature is controlled by a thermostat control. Number “1” (“REF”) is the warmest and number “5” (“FREEZE”) is the coldest thermostat position. For efficient operation, change the thermostat control according to the types of food stored and the ambient temperature.

To preserve frozen food, turn the thermostat control knob to the “5” (“FREEZE”) position.

To turn off the refrigerator, turn the thermostat control to the “OFF” position. If you are not going to use the refrigerator for an extended period of time:

- Remove the food from the refrigerator.
- Remove the power plug(s) from the socket.
- Clean and dry the inside of the refrigerator.
- Allow the door to be open a small amount.

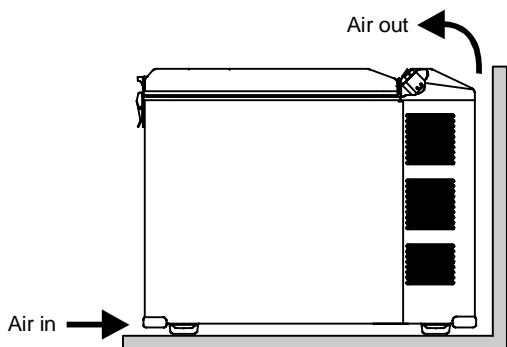
## Cooling Unit Basics

The cooling unit of your Norcold refrigerator makes heat. This heat must be removed quickly and efficiently in order for the refrigerator to have its maximum cooling performance. When the refrigerator is in an enclosed space, the temperature within the space will rise quickly and will reduce the cooling performance of the refrigerator. Continued operation at high temperatures can damage the refrigerator compressor and other components.

A free flow of air (ventilation) through the refrigerator condenser coils and around the compressor is necessary for the refrigerator to operate correctly. While Norcold refrigerators are made to operate in more severe conditions than typical household refrigerators, you should not operate the refrigerator in high ambient temperatures. This will result in poor performance and possible food spoilage

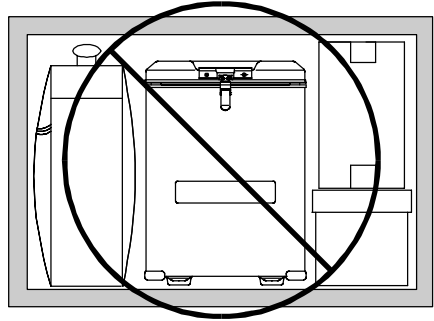
## Convection Basics

When ventilating an enclosed space, consider the facts of natural convection, that cool air falls and warm air rises. The ideal ventilation design will use natural convection and provide a path for cool air to enter below the refrigerator and warmer air to exit above the refrigerator. The design of the refrigerator allows this to occur if there is a ventilation opening above the refrigerator. The heat created by the refrigerator can then flow freely out of the enclosed space rather than be trapped within it.



## Storage

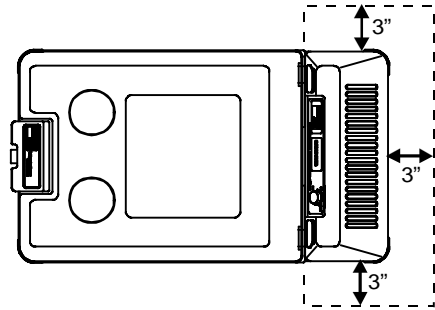
When storing portable refrigerators/freezers, make sure that there are no obstructions (luggage, etc.) around the refrigerator while it is operating. Make sure that there is adequate ventilation space to the refrigerator. Locate the ventilation space in an area that allows natural convection through the refrigerator condenser coils and around the compressor.



## Understanding Ventilation for Norcold Portable Refrigerators/Freezers

For the maximum cooling efficiency and the lowest power consumption, use the following guidelines. These are especially important when using the refrigerator under a counter or in an enclosed space.

- Make sure that there are at least 3 inches of clearance on all three sides of the compressor compartment.
- When using the refrigerator in an enclosed space such as an RV basement, make sure that there are at least 48 square inches of ventilation area above the compressor compartment.
- The ventilation area should open into the living area of the vehicle.



**CAUTION:** More than 48 square inches of ventilation area will improve the operating efficiency of the refrigerator. Less than 48 square inches of ventilation area will result in poor refrigeration performance, continuous compressor operation, and a shortened refrigerator life.

## Storing Food

Store fresh foods in covered dishes, in plastic bags, in foil wrap, etc. to prevent them from becoming dry and from transferring odors to other stored foods.

Store frozen food in the freezer compartment for several days if the thermostat control is at the "5" ("FREEZE") position. If frozen food is allowed to thaw, DO NOT attempt to refreeze it.

## Protection System

Your refrigerator has an over current protection system in the electronic circuit to prevent damage to the inverter which may occur due to a reverse polarity connection.

If the refrigerator does not operate and the green power light does not come on, check the fuse, which is located in the cigarette plug body of the DC power cord, and the polarity of the DC power supply. If the refrigerator still does not operate, another problem can exist in the inverter. Have an authorized Norcold Service Center check the refrigerator.

Models MRFT15 and MRFT40 only have an 10 Amp glass fuse that is located in the cigarette lighter plug body of the DC power cord.

Model MRFT60 only has a 15 Amp glass fuse that is located in the fuse holder of the DC power cord.

## Defrosting

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



**CAUTION:** Do not use sharp objects, a hair dryer, a heat gun, etc. to defrost the refrigerator. Damage to the interior of the refrigerator can occur.

- Turn the thermostat control to "OFF".
- Remove all food from the refrigerator.
- Put dry towels (etc.) inside the refrigerator to absorb the excess water.
- Remove the wet towels (etc.) and dry the inside of the refrigerator
- Turn the thermostat control to the desired setting.
- Put the food in the refrigerator.

## Cleaning

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 inside of the refrigerator.

- Wash the inside of the refrigerator and the door gasket with a solution of liquid dish detergent and warm water.
- Rinse with clean water and dry.
- After cleaning, put a thin coating of petroleum jelly on the hinge side of the gasket to keep it soft and to prevent it from rolling.

## Over cooling drains your battery

When the ambient temperature is between 70° and 90° F, keep the thermostat at the “3” position to avoid an excessive drain of the battery. When making ice, or storing frozen foods, turn the thermostat to the coldest setting “5”.

## Check the Battery Charge Level

If the DC voltage to the refrigerator is less than 10.7 volts, the cooling performance of the refrigerator will immediately decrease. Make sure that the battery is fully charged.

A fully charged battery will have a specific gravity reading of between 1.260 and 1.280. The battery voltage is best indicated when the refrigerator is “ON” and the battery charging system is “OFF”. Charge the battery when the specific gravity reading is less than 1.200.



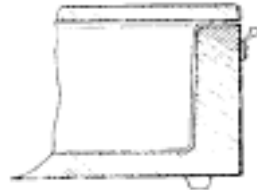
### CAUTION:

- Never use a battery charger, an AC/DC converter, a rectifier, or etc. instead of a battery to operate the refrigerator on DC power. These electrical devices cause high ripples or surge voltages which can damage the refrigerator.
- Never use a commercial inverter or converter to operate the refrigerator on AC power. These electrical devices do not hold the constant frequency that is necessary for the refrigerator.
- Only use a “quick charger” on the battery if the thermostat control is turned to “OFF”. If a “quick charger” is used on the battery while the thermostat control is “ON”, damage to the refrigerator can occur.

## Install the Lifting Handles (Models MRFT40 and MRFT60 only)

Lifting handles are packed inside the refrigerator.

Using the screw provided, install the lifting handles on the ends of the refrigerator as shown.



## Connect the Power Supply

This refrigerator operates on either 120 volts (60 hertz) AC current in your home or 12/24 volts DC current from a battery in your car, boat, trailer, camper, etc. If both power supplies are available, the refrigerator will select and operate on AC voltage. If an AC power supply becomes unavailable, the refrigerator will switch operation to DC voltage.

## Connect the AC power supply

- Turn the thermostat control knob to the OFF position.
- Put the square plug end of the AC power cord into the AC connector of the refrigerator.
- Put the standard plug end of the AC power cord into any standard AC receptacle.
- Do not use an extension cord.

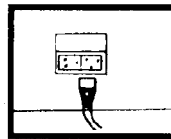
## Connect the DC power supply

The battery voltage varies with the type of vehicle. Most American cars and boats use a 12 volt system. A 12/24 volt battery with a negative ground is necessary to operate the refrigerator on DC power.

### For Models MRFT15 and MRFT40 only

- Turn the thermostat control knob to the OFF position.
- Put the square plug end of the DC power cord into the DC connector of the refrigerator.
- Put the cigarette lighter plug end of the DC power cord into the cigarette lighter of the vehicle.

NOTE: When not using the refrigerator, remove the cigarette lighter plug to prevent discharge of the battery.

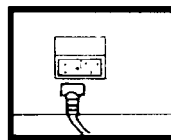


AC Operation

cigarette lighter to prevent

### For Model MRFT60 only:

- Turn the thermostat control knob to the OFF position.
- Put the square plug end of the DC power cord into the DC connector of the refrigerator.
- Connect the two wires from the other end of the DC power cord to the cigarette lighter of the vehicle.



DC Operation

of the refrigerator.

the battery of the



**CAUTION:** Only connect the refrigerator to the cigarette lighter. Do not connect the refrigerator to the battery. Because they often generate high voltage pulses and cause to damage the refrigerator, switches, lead wires, or electrical equipment should share the wiring between the refrigerator and battery.

Because they often generate high voltage pulses and cause to damage the refrigerator, switches, lead wires, or electrical equipment should share the wiring between the refrigerator and battery.

As the distance from the vehicle battery to the refrigerator increases, the correct AWG wire size also increases. If the wire size is too small for the distance, a voltage drop occurs. The voltage drop decreases the cooling performance of the refrigerator.

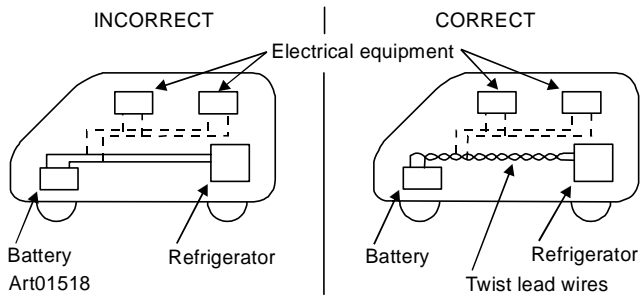


1. Norcold recommends that you use the following wire sizes:

- Measure the distance from the vehicle battery to the refrigerator:
  - If the distance is less than 19 feet, use 14 AWG wire on DC 12 volt series or 16 AWG on DC 24 volt series.
  - If the distance is between 19 and 32 feet, use 12 AWG wire on DC 12 volt series or 14 AWG on DC 24 volt series.
  - If the distance is more than 32 feet, use 10 AWG wire on DC 12 volt series or 12 AWG on DC 24 volt series.

NOTE: It is not recommended to locate the refrigerator more than 32 feet from the battery.

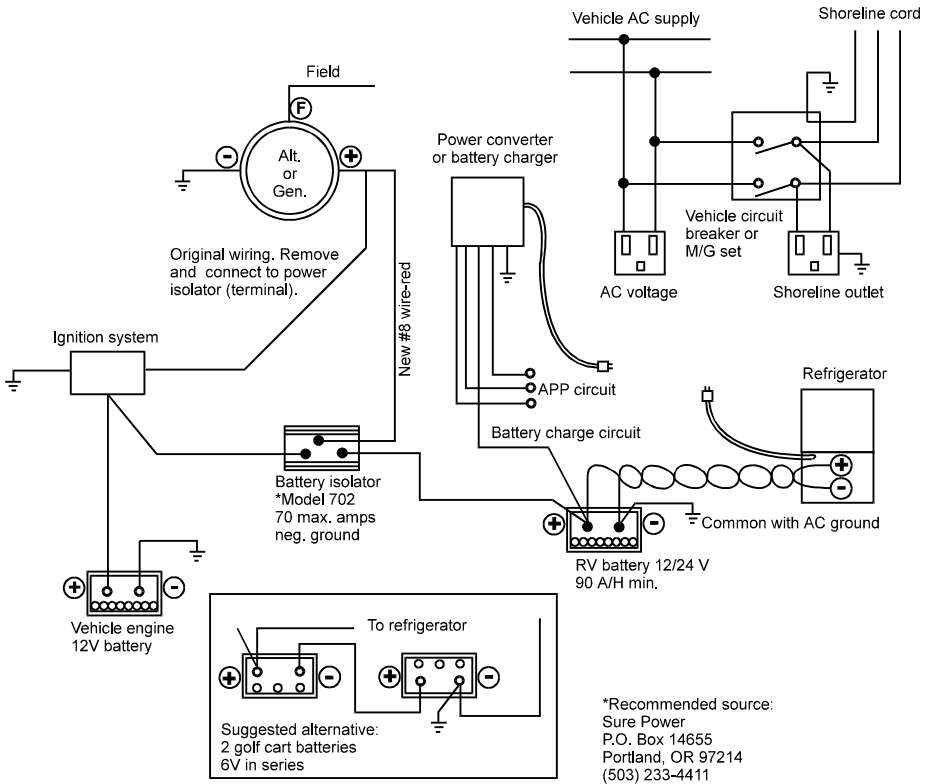
- Twist the lead wires to reduce the radio interference and induction of a high voltage surge from the outside (See Art01518).



2. On MRFT60 models only, install a 15 Amp fuse in the DC wiring circuit near the battery to protect the refrigerator against reverse polarity or a short circuit.

## For your reference

The wiring diagram shown below is recommended for dual battery hookup (See Art01516).



Art01516