

WAECO
mobile solutions



Installation & Operating Manual

› **FRONT LOADING
COMPRESSOR REFRIGERATORS / FREEZERS**

RPD Series
RSD Series

RPF Series
RSF Series

WAECO USA • Clinton, CT • www.waecousa.com

 Safety indications in the text are marked with this symbol:

SAFETY INSTRUCTIONS

- **DANGER!** Never touch uninsulated cables with bare hands. This applies especially to handling AC cables.
- **DANGER!** When installed in a boat, and the device is operated with power cords, it is necessary that the system is protected by a fuse and an earth leakage protection device.
- Installation of AC in a boat/vehicle should be completed by a qualified technician.
- Always ensure that your refrigerator is disconnected from the battery before using a high-speed battery charger.
- Always ensure that the correct voltage is applied to the refrigerator, the voltage is stated on the refrigerator or cooling unit's data plate.
- Never open the cooling circuit.
- Always be aware that batteries contain corrosive acid and therefore should be treated with extreme care.
- The cooling device is not appropriate for transporting corrosive or solvent-comprising substances.
- Never obstruct vents to the refrigerator's compressor.
- Defrost the refrigerator on a regular basis.
- Never use hard or sharp instruments to remove ice from the evaporator.
- Never use abrasive or solvent-based materials when cleaning the liner.
- When the refrigerator or cooling device comes to the end of its working life, it should be disposed of by appropriate person to ensure that it does not contaminate the environment.
- Do not use any electric appliance inside the cooling compartment.

GENERAL

APPLICATION AND OPERATIVE RANGE

Your cooler is designed to refrigerate or freeze food. If you wish to refrigerate medicines, first check if the refrigerator's cooling capacity meets the demands of the respective remedies. The refrigerator is designed to operate in ambient temperatures between 14°F and 130°F in a maximum air humidity of 90%. The refrigerator can operate continuously at an angle of 30° maximum. All materials which have been used in the manufacture of these appliances are generally recognized as fit for purpose.

The refrigerant charge used in the cooling circuit is CFC-free.

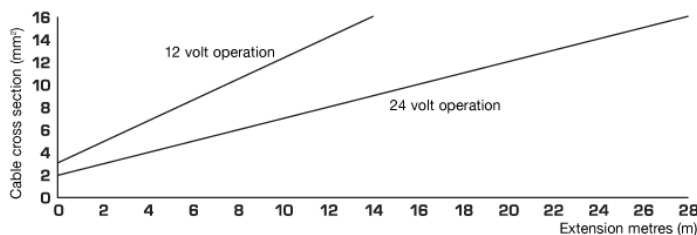
INSTALLATION

Install the refrigerator in a dry place which is protected from the ingress of water. It should not be placed directly adjacent to sources of heat such as engines, heating ducts, pipes, etc.

It should be mounted out of direct sunlight. It is also important that the refrigerator is installed in such a way that air can circulate through the condenser and escape from the mounting area.

BATTERY OPERATION

Your refrigerator can be operated with either 12V or 24V DC without modification. Prior to connection, check whether the voltage indicated on the type plate corresponds to the battery voltage. Connect your refrigerator to the battery terminals using a 15A (12V) or 7.5A (24V) fuse. It is important that the supply to the compressor can handle 15 or 7.5 amps as the initial start current of the compressor can be quite high. Always ensure that the "+" connections are connected to the "+" terminal of the battery and the "-" connections to the "-" terminal of the battery. In order to avoid loss of voltage between battery and compressor, please consult the table below to select the correct cross section of cable required. Voltage drop between compressor and battery will cause poor performance and also earlier cutting-out of the under voltage protection of the compressor.



NOTE: High speed battery chargers may only be connected to the battery after the refrigerator and other consumables have been disconnected from the battery, as some chargers (consult charger manufacturer) may cause high voltage which could damage the compressor.

The refrigerator is automatically protected by reverse polarity connection, It also will switch off should the battery voltage become too low. You will find the specification of the cut-in/cut-out voltage in the table on page 7.

AC OPERATION

You should only use your CoolMatic® refrigerator from AC power with the MOBITRONIC converter (WAECO USA Part Number: MPS-35) specifically designed for the BD35F compressor.

DANGER: Never operate plugs or switches with wet hands or when you are standing in water. If you operate your cooling system on-board your boat using 220 V AC from the AC outlet, it is vital that the system is protected by an earth leakage protection device. Please contact an electrical specialist for advice.

CLEANING

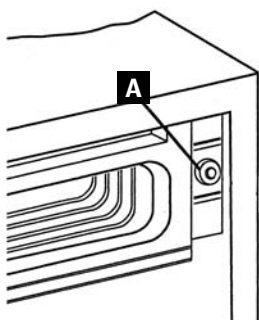
Your refrigerator will be delivered cleaned from the factory—you none the less, should wipe it clean prior to first use. Take a cloth that has been slightly moistened with lukewarm water. Pay attention that no water drops into the seals and possibly damages the electronics. Dry off the refrigerator with a cloth after cleaning. Clean the refrigerator periodically and as soon as it is dirty.

ATTENTION: Never use solvents or agents with abrasive or acidic chemicals for cleaning the evaporator. Never use wire brushes, sharp scrapers or tools to clean ice from the evaporator.

INITIAL OPERATION

Switch on the refrigerator by turning the thermostat knob "A" clockwise. By rotating the knob, you can regulate the internal temperature.

ATTENTION: The refrigerator may need up to 60 seconds for the compressor to start.



TAKING OUT OF SERVICE

If you wish to switch off the refrigerator for longer periods of time, disconnect the AC supply or disconnect the DC supply. Allow the refrigerator to defrost and clean up the condensation. Always leave the door or lid slightly open to prevent the formation of mold and odor.

DEFROSTING

Air humidity can leave a thick coat of ice on the evaporator plate which will reduce the cooling performance. Never use hard or sharp implements to remove ice. This can cause damage to the plastic materials or to the evaporator, therefore defrost the refrigerator in good time. Take out the refrigerated products and store them in another cooling appliance so they remain refrigerated, set the thermostat knob to "0" and leave the lid or door open. Wipe the melted water with a sponge or soft cloth and pour away any water collected in the drip tray.

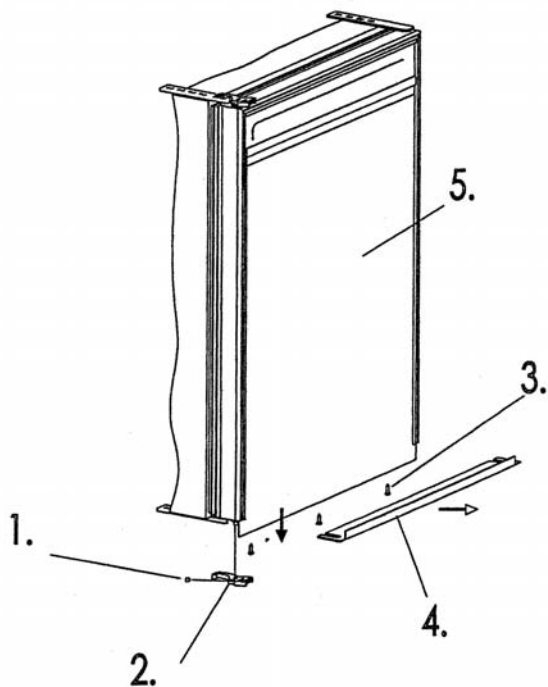
TIPS FOR ENERGY SAVING

- Mount the refrigerator in a cool dry place away from direct sunlight.
- Always allow food to cool before storing in the refrigerator.
- Defrost your refrigerator periodically or when the evaporator is covered with a thick layer of ice.
- Do not set the thermostat colder than the required temperature.
- Do not open the refrigerator more often than necessary.
- Do not leave the lid or the door open any longer than necessary.
- Always ensure that the compressor and condenser are in a well ventilated area. If necessary, add additional ventilation.

BATTERY CONTROLLER

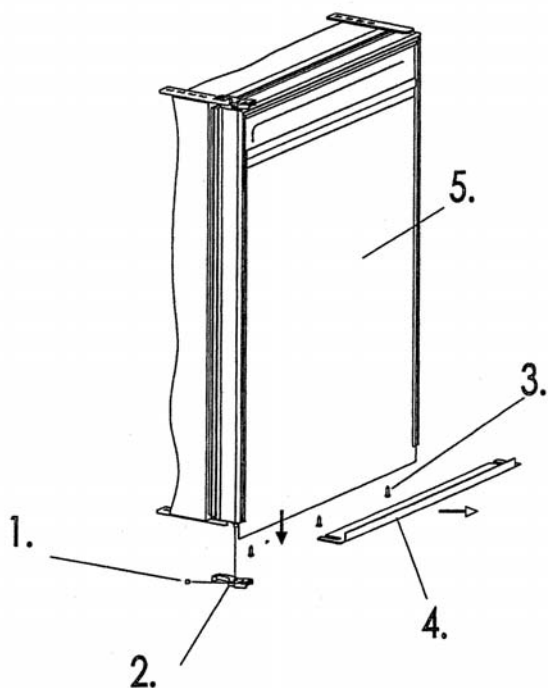
The refrigerator is equipped with a battery controller. This device cuts-out and cuts-in the compressor and therefore, protects the battery and the compressor. The following table indicated the cut-out and cut-in voltages measured at the connection terminals of the battery controller:

Cut-OUT Voltage		Cut-IN Voltage	
12V / 24V		12V / 24V	
Low 10.4V	Low 22.8V	Low 11.7V	Low 24.2V
High 11.3V	High 24.6V	High 12.5V	High 26.0V



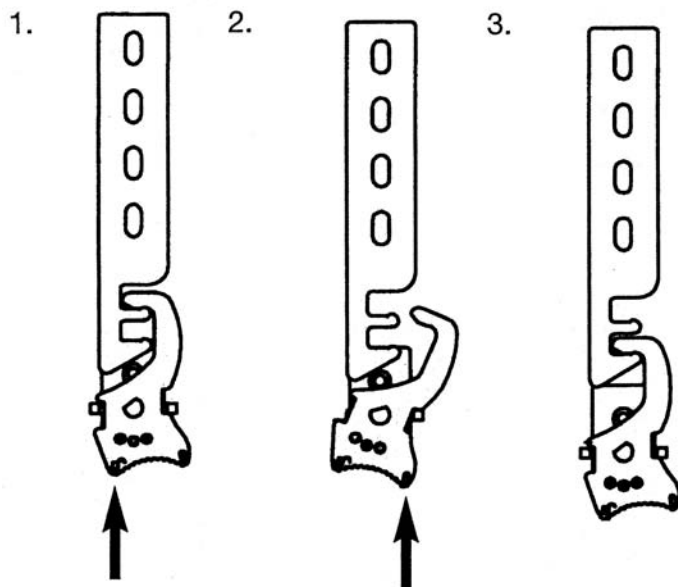
CHANGING THE FACE PANEL

After loosening the screws (1 and 3), the parts (2 and 4) can be dismantled. Now the door panel can be pulled out.



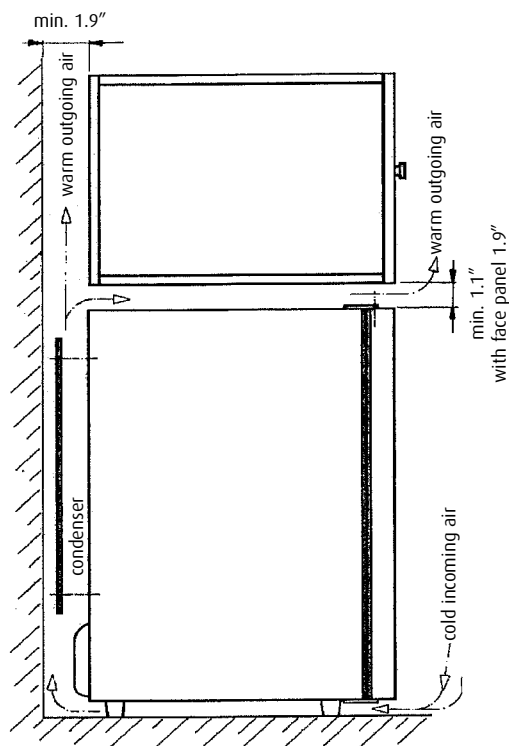
CHANGING THE DOOR HINGE POSITION

Dismount the top hinge (1) and pull out the door. Unscrew the locking hook (3) and pull out the locking bar. Dismount the stopper (4) and place it on the opposite side. Complete the locking system. Now exchange the position of the fastener, (5) and hinges (1) and add the door.



TRANSPORT LOCKING SYSTEM

1. Door is closed and secured.
2. Securing device inactive; door can be opened.
3. Door secured in vent position; door is slightly opened.

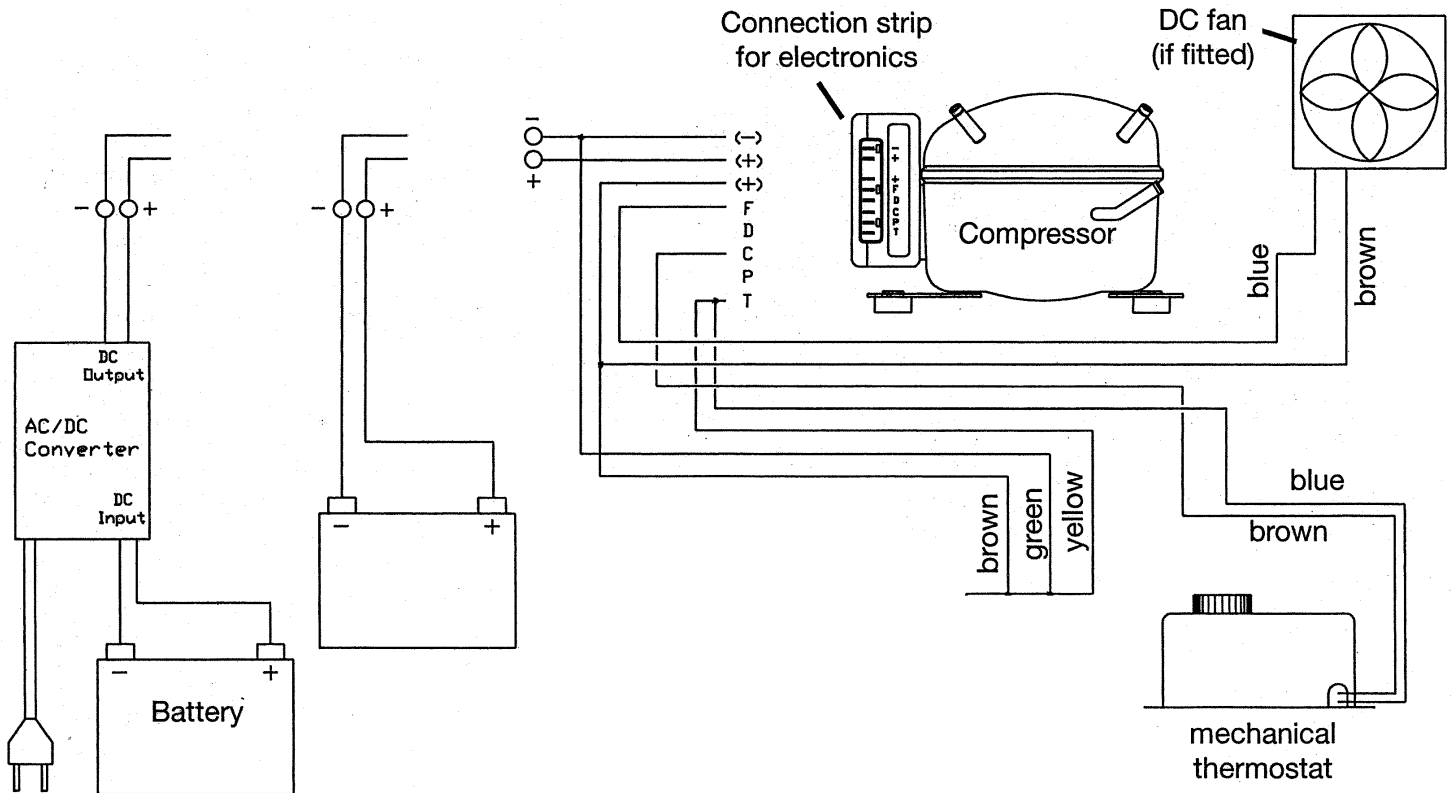


INSTALLATION INSTRUCTIONS FOR 12/24 VOLT REFRIGERATORS

In order to ensure adequate ventilation, air channels must be provided over the entire width of the refrigerator as shown in the sketch below.

ATTENTION: Air circulation must never be restricted or even interrupted.

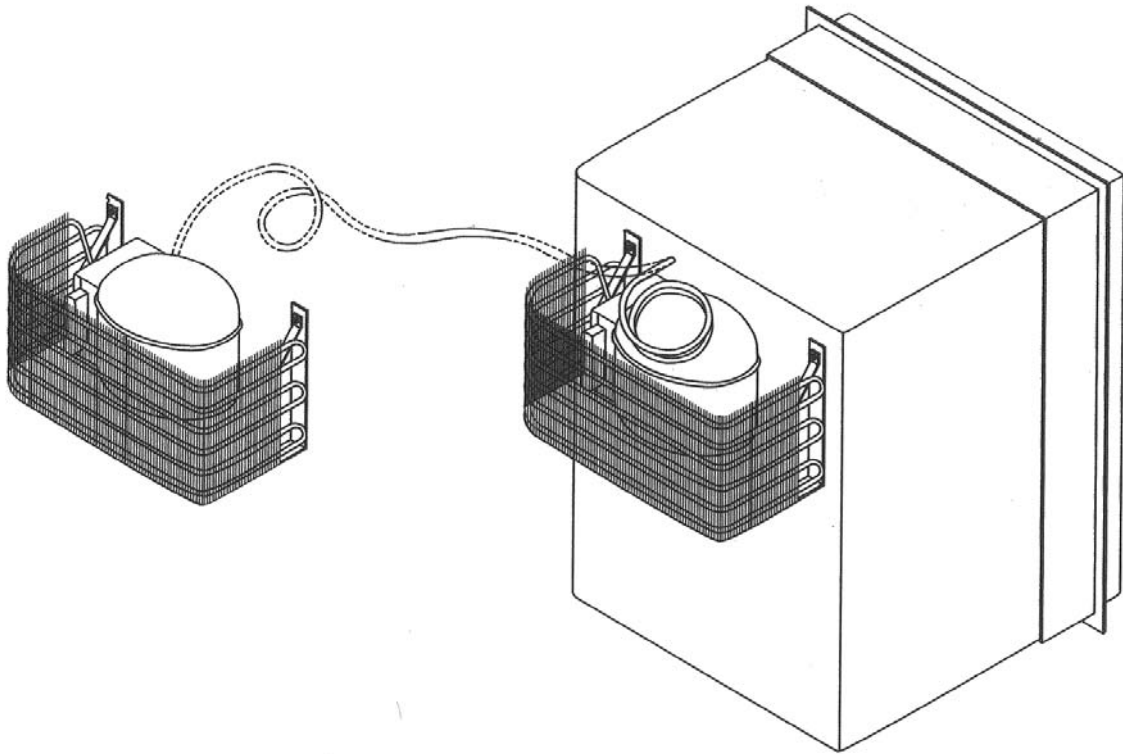
CONNECTION DIAGRAM



REMOTE MOUNTING THE COOLING UNIT

For RPD, RSD, RSF APPLIANCES

The detachable cooling unit can be installed separately.



TROUBLESHOOTING

SYMPTOM	RESULT	CORRECTIVE ACTION
Compressor does not work		
$U_{KL} = 0$ Volts	Interruption in connection line of the battery / electronics Main switch is defective Additional line fuse is blown	Load battery
$U_{KL} \leq U_{ON}$	Battery voltage is too low	
Start attempt with $U_{KL} \leq U_{ON}$	Loose cable connection / poor contact (corrosion) Cable cross section too small Battery capacity too low	Replace battery
Start attempt with $U_{KL} \geq U_{ON}$	Ambient temperature is too high Insufficient air inlet and outlet Dirt build-up in condenser Fan defective	
Compressor does not operate with electronics	Electronics defective	Replace electronics
Interruption in compressor's electronic system between the pins	Compressor defective	Replace compressor
Interior temperature too low at thermostat setting 1		
Compressor runs constantly	Thermostat sensor has no contact at evaporator Thermostat line short-circuited Thermostat defective	Secure thermostat Replace thermostat
Compressor runs too long	Large quantity frozen in evaporator compartment	
Compressor running time normal	Refrigerating chamber is too small	Shield evaporator from refrigerating chamber

LEGEND

U_{KL} . . . Voltage between positive and negative terminal of electronics

U_{ON} . . . Switch-on voltage at terminal of electronics

U_{OFF} . . . Switch-off voltage at terminal of electronics

TROUBLESHOOTING

SYMPTOM	RESULT	CORRECTIVE ACTION
Refrigerating capacity decreases, interior temperature increases		
Compressor runs for long periods of time, constantly	Excessive evaporator icing	Defrost evaporator
	Insufficient refrigerating chamber insulation (moist/wet)	Readjust / replace door seal
	Ambient temperature too high	
	Insufficient ventilation	
	Dirt build-up on condenser	
	Fan defective	
Compressor runs occasionally	Battery capacity exhausted	Load battery
Unusual noises		
Loud buzzing	Component of refrigerant circuit cannot vibrate freely, touches the wall.	Bend carefully
	Foreign substance jammed between refrigerator and wall	
	Fan noise	
Radio & Television interference		
Interferences	Electronics connection not direct	Install 4 mH coil in supply line to radio set

IMPORTANT INFORMATION • LIMITED WARRANTY

WAECO USA LIMITED WARRANTY

WAECO USA, Inc. warrants its products to be free of defects in materials and workmanship for the periods specified below subject to the specified conditions and limitations. *What WAECO Will Do:* Repair or replace (choice of remedy at Company's discretion) goods or parts that prove to be defective in materials or workmanship after examination by a factory representative or authorized service dealer.

How long Coverage Lasts: COMPRESSOR PRODUCTS

Labor: WAECO will pay for necessary labor from an authorized service agent for one year from date of purchase or third party installation. For OEM factory installed products the duration is one year from the date of purchase of the vehicle (vessel).

Parts: WAECO will pay for necessary parts for two years from the date of purchase or third party installation. For OEM factory installed products the duration is two years from the date of purchase of the vehicle (vessel).

What is Not Covered:

1. Damages due to accident, misuse, abuse, normal wear, improper installation, lack of reasonable and necessary maintenance, transportation, corrosion, tampering, improper repair, unusual physical or electrical stress or recharging of the coolant.
2. Electric light bulbs or replaceable fuses.
3. Failures due to use of the products in applications for which they are not intended.
4. Warranty coverage following unauthorized service.
5. Warranty coverage following transfer of ownership.

How State Law Relates to this Warranty:

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

THERE ARE NO OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE OR ANY OTHER KIND. ANY EXPRESSED OR IMPLIED ARE HEREBY DISCLAIMED AND EXCLUDED. THE COMPANY SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES TO YACHTS, EQUIPMENT OR OTHER PROPERTY OR PERSONS DUE TO ANY FAILURE OF WAECO USA PRODUCTS. THIS WARRANTY IS EXPRESSLY PROVIDED IN LIEU OF ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED.