Dometic®

RECORD THIS UNIT INFORMATION FOR FUTURE REFERENCE:
Model Number_____
Serial Number_____
Date Purchased _____

Refrigerator Power Supply 3309724.XXX To Be Used With Danfoss Model BD35 And BD50F 12/24 VDC Refrigerator Compressors

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For Service Center Assistance Call:
800-544-4881

⚠ WARNING

This manual must be read and understood before installation, adjustment, service, or maintenance is performed. This unit must be installed by a qualified service technician. Modification of this product can be extremely hazardous and could result in personal injury or property damage.

⚠ AVERTISSEMENT

Lire et comprendre ce manuel avant de procéder à l'installation, à des réglages, de l'entretien ou des réparations. L'installation de cet appareil doit être effectuée par un réparateur qualifié. Toute modification de cet appareil peut être extrêmement dangereuse et entraîner des blessures ou dommages matériels.

C US

INSTALLATION INSTRUCTIONS

Model

3309724.007

Form No. 3309930.000 9/05
(French 3310024.009)

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LaGrange, IN 46761

Important: **These Instructions must stay with unit.**
Owner read carefully.

SAFETY INSTRUCTIONS

This manual has safety information and instructions to help users eliminate or reduce the risk of accidents and injuries.

RECOGNIZE SAFETY INFORMATION

This is the safety-alert symbol. When you see this symbol in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating instructions.

UNDERSTAND SIGNAL WORDS

A signal word , **WARNING** OR **CAUTION** is used with the safety-alert symbol. They give the level of risk for potential injury.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION used without the safety alert symbol indicates, a potentially hazardous situation which, if not avoided, may result in property damage.

Read and follow all safety information and instructions.

IMPORTANT SAFETY INSTRUCTIONS SPECIFIC TO MARINE USE!

SAVE THESE INSTRUCTIONS - This manual contains important safety and operating instructions for marine Power Supply 3309724.007!

Do not expose this power supply to rain or snow!

Use of an attachment not recommended or sold by the marine power supply manufacturer may result in a risk of fire, electric shock, or injury to persons!

Do not disassemble power supply; unit service should be done at factory. Incorrect reassembly may result in a risk of electric shock or fire!

Locate power supply away from battery!

Never place power supply directly above battery; gases from battery will corrode and damage power supply!

Do not operate power supply in a closed-in area or restrict ventilation in any way!

GROUNDING AND AC POWER CORD CONNECTION INSTRUCTIONS – Power supply should be grounded to reduce risk of electric shock. Power supply is equipped with an electric cord having an equipment grounding conductor and grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

WARNING: Never alter AC Cord or plug provided - if it will not fit outlet have proper outlet installed by a qualified electrician. Improper connection can result in a risk of an electric shock.

GENERAL INFORMATION

The Dometic Refrigerator Power Supply is designed for Marine, RV, and Commercial Transit applications and is intended for use only with refrigerators that are equipped with the Danfoss model BD35 or the BD50F, 12/24 VDC compressors. It provides a regulated DC output of 25.5 VDC for the compressors, and includes provisions for connection to a battery back-up power source. An additional 12 VDC output is provided for the internal refrigerator light.

The power supply is a dual voltage device. It will operate directly from either 120 VAC, 50/60 Hz or 240 VAC, 50/60 Hz. This allows use of the same unit in either voltage application.

Important: The Dometic Refrigerator Power Supply is not intended for battery charging.

When the Dometic Refrigerator Power Supply is connected to a 12/24 VDC back-up battery the power supply will automatically switch to the battery power source in the event of a main power outage in the 120/240 VAC 50/60 Hz. supply. Check the Danfoss compressor operating manual to verify that it will function correctly with a 12/24 VDC battery.

The Dometic Refrigerator Power Supply conforms to both Canadian Standards Association CAN/CSA-C22.2 No. 107.1-01 specification and the Underwriters Lab UL 458 standard.

This Dometic Refrigerator Power Supply has been designed for indoor use only with an operating temperature range of –40 F. to +140 F., and a relative humidity operating range of 5% to 95% in a non-condensing environment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Should the Dometic Refrigerator Power Supply fail to operate as designed, contact a Dometic Authorized Service Center or a qualified service technician for assistance.

INSTALLATION INSTRUCTIONS

A. Precautions

WARNING

Shock Hazard. The Dometic Refrigerator Power Supply is considered non-serviceable. Do not open case for any reason. Failure to follow these instructions could cause death or severe personal injury.

WARNING

Improper installation may damage equipment/ could endanger life, cause serious injury and/ or property damage.

1. Read Installation Instructions carefully before attempting to start this product installation.
2. Dometic Corporation will not be liable for any damages or injury incurred due to failure in following these instructions.
3. Installation must comply with the National Electrical Code ANSI/NFPA-70 and CSA Standard C22.1 (latest edition and any State or Local Codes or regulations.
4. **DO NOT** add any devices or accessories to this power supply except those specifically authorized by Dometic.
5. This equipment must be serviced by qualified personnel and some states require these people to be licensed.

B. Ventilation

The Dometic Refrigerator Power Supply is a switch-mode style power supply, which operates more efficiently than conventional linear power supplies. However, it can still generate considerable heat when operated at full load. The power supply relies on ventilation to prevent overheating. It is important that ventilation is not restricted; otherwise, performance and safety may be compromised. Ensure that a minimum of 1 inch clearance is provided around the power supply and that it is not located directly over any heat sources such as the refrigerator compressor.

SPECIFICATIONS

General

AC Input	120/240 VAC, 50/60 Hz.
AC Input Protection	Fused at 4 amps, 250 VAC
Power Consumption	135 watts
Efficiency	85%
DC Input	12/24 VDC, back-up battery
DC Input Protection	Fused at 10 amps/32 volt
Operating Temperature Range	–40° C/F to 60°C/140° F
Operating Humidity Range (non-condensing)	5% to 95% RH
EMC	Complies with FCC Part B
Size (inches)	5.23" x 5.5" x 2.41"
Weight (pounds)	2.5

Outputs

Rated Power Output	114 watts
Voltage Output	25.5 VDC
Current Output @ 25 VDC	4.45 A @ 46°C/115°F
	Linearly derating to 3.60A at 60°C/140°F
Line Regulation	2.0 % (104 - 253 VAC)
Overload Protection	Power limited - Auto-recovering
Light	12 VDC/.288 amps (Continuous)

C. Location

WARNING

Shock Hazard. Locate the power supply in an area that is not exposed to the outside elements. Exposing the power supply to moisture from rain, snow, power washers etc., may create an electrical short resulting in an electrical shock. Failure to follow this instructions may result in death, severe person injury and/or property damage.

The preferred location for mounting the Dometic Refrigerator power supply is on the refrigerator next to the compressor.

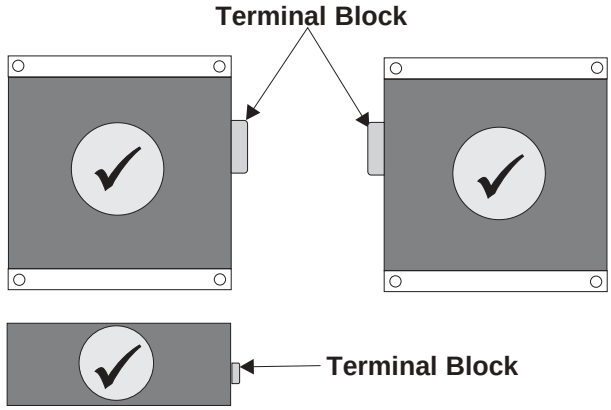
If an alternate location must be used, the power supply should be positioned as close as possible to the refrigerator. Locate the power supply away from the back-up battery and any sources of heat.

CAUTION

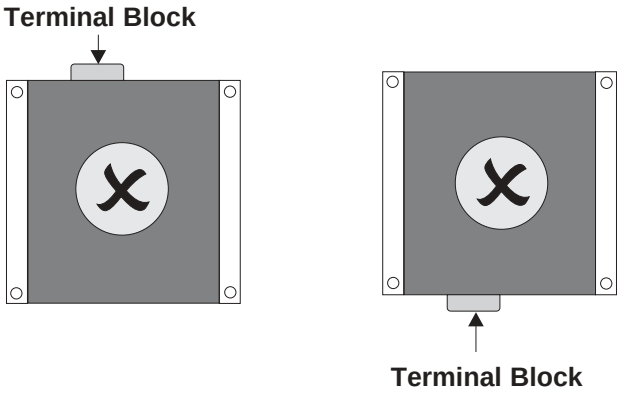
Property Damage Hazard. Never place power supply directly above battery. Battery gases will corrode and damage the power supply.

Once the location for the Dometic Refrigerator Power Supply has been chosen, prepare the area for drilling the four mounting holes before making any of the electrical connections. Install the supplied grommets & screws in all four mounting holes to ensure the power supply is secure from vibration.

Acceptable Vertical Mounting Configuration



Unacceptable Vertical Mounting Configuration



D. Output Connections

⚠ WARNING

Shock Hazard. To avoid being shocked, make the output connections first. This will ensure no AC or DC power is present on the power supply outputs. Failure to follow these instructions can result in death or severe personal injury.

1. Primary 12/24 VDC power output.
   a. Connection to the refrigerator compressor is provided via the supplied wire harness equipped with standard 1/4" spade terminals. Although both the model BD35 and BD50F Danfoss compressors are protected against reverse polarity connection, correct polarity must be observed to ensure correct operation of the compressor. The positive (+) connection is via the red wire, and the negative (–) connection is via the black wire. The wires plug directly into the corresponding terminals on the Danfoss Model BD35 and BD50F compressor units.

Important: If the Dometic Refrigerator Power Supply is replacing the 12/24 VDC power on a previously wired refrigerator, disconnect the red and black supply wires from the Danfoss electronic control. Find the connection between the factory supplied wire and the incoming 12/24 VDC power. Eliminate this connection and remove the loose wires. The remaining wires will be used to connect the back-up power source in step E-2.

   b. Light output.
   A 12 VDC output is provided for the internal refrigerator light through terminals on the Power Supply. Disconnect the red and black light wires from the Danfoss electronic control. Cut off the connector and strip wire back 1/2". Connect the red wire to the terminal marked "Light +". Connect the black wire to the terminal marked " Battery/Light –".

E. Input Connections

1. 120/240 VAC input voltage
   a. The Dometic Refrigerator Power Supply operates directly from a standard 120 or 240 VAC, 50/60 Hz., power source and can be plugged directly into a standard AC receptacle. The Dometic Refrigerator Power Supply is equipped with the correct power cord. The power cord is of a 3 conductor grounded style and under no circumstances should the ground connection be removed. Also ensure the power supply is plugged into a properly grounded outlet that is protected by a circuit breaker. Avoid the use of any electrical adapters or extension cords.

⚠ WARNING

Shock Hazard. Never remove the grounding post or use an adapter plug to connect the power supply plug to a receptacle. Failure to follow these instructions may result in death or severe personal injury.

2. If there is a need to turn off the power supply simply unplug the power supply AC cord from the AC receptacle.

3. Back-up power source

⚠ WARNING

Fire Hazard. Before connecting the two wires for the back-up battery ensure that the circuit breaker for the battery has been switched off or that the wires to the battery have been disconnected at the battery end. Batteries can be a source very high electrical currents. They are a potential risk for fire or injury if not connected properly. Failure to follow these instructions may result in death or severe personal injury.

   a. The Dometic Refrigerator Power Supply is designed to automatically switch to a 12/24 VDC back-up power source in the event of an interruption in the main 120/240 VAC power supply. Connection to the back-up power supply is through terminals on the power supply. Route a red + (positive) and black – (negative) wire of appropriate size from the back-up battery to the power supply location. (See chart below). Strip wire back 1/2" and connect the Red positive (+) wire to the terminal marked "Battery +". Connect the Black negative (–) wire to the terminal marked "Battery/Light –".

Maximum Total Conductor Wire Length (in feet and meters)

Wire Length	Awg
Up To 17 ft. 5 m	14
Up To 27 ft. 8 m	12

Important: If the Dometic Refrigerator Power Supply is replacing the 12/24 VDC power on a previously wired refrigerator use the wires that were disconnected in step D-1.

MAINTENANCE & SERVICE

A. Cleaning

Inspect the power supply for dust and debris build-up. If the power supply is located inside the refrigerator compartment the refrigerator will need to be removed.

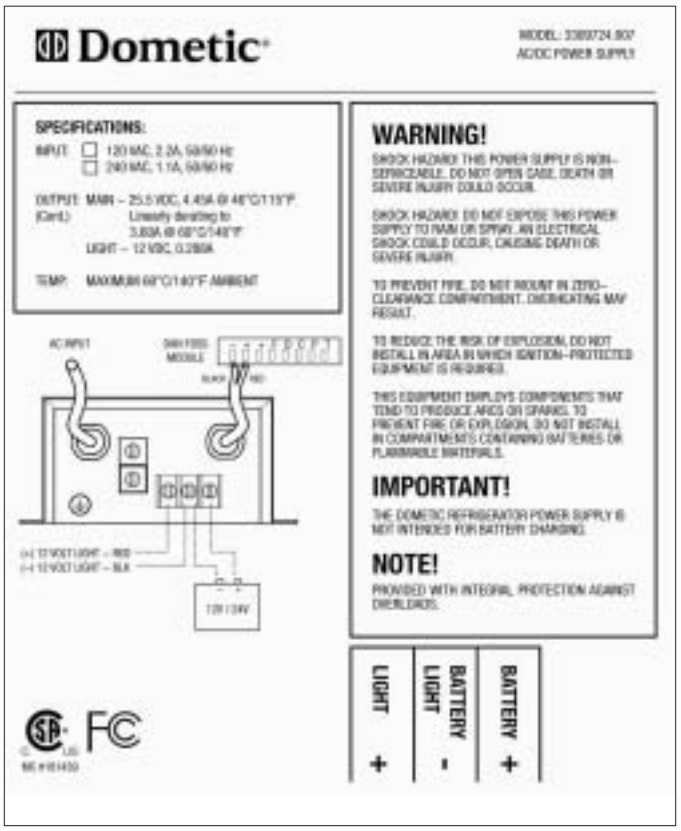
⚠ CAUTION

Cut Hazard. When cleaning power supply wear protective gloves to avoid direct contact with fins. If these instructions are not followed injury could occur.

⚠ WARNING

Shock Hazard. Disconnect refrigerator at the 120/240 VAC & 12/24 VDC power supply. Failure to follow these instructions could cause death or severe personal injury.

1. Refrigerator Removal
   a. Locate and remove the mounting flange screws in the front face of the mounting flange.
   b. If bottom mounting flange is secured to cabinet opening, remove the screws.
   c. Slide refrigerator out of the alcove.
   d. Disconnect the 12 VDC wires attached to the refrigerator distribution center located next to the compressor.
2. Clean power supply with a soft bristle brush only.

Important: Do not use compressed air to clean the power supply as this could force dirt into the power supply further restricting air-flow.

Wiring Diagram