

# Zephyr (ZF) & Cuddy dc

❖ INSTALLATION • OPERATION

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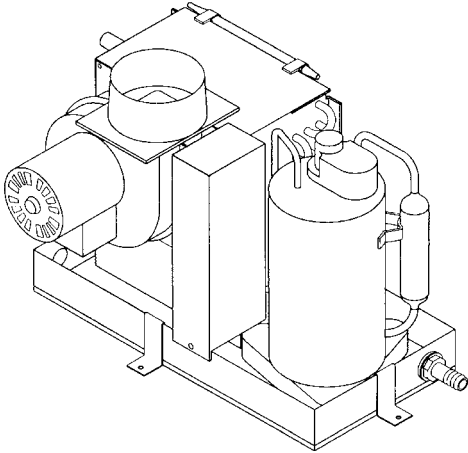
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**Cruisair**<sup>®</sup>  
by Dometic GROUP

Zephyr & Cuddy dc Self-Contained  
Cooling Only A/C Kits  
Revised: 20140404  
L-2028





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# Zephyr and Cuddy dc Units • Installation

## Warning

This manual contains essential safety information concerning the safe and proper installation and operation of Zephyr and Cuddy dc self-contained direct expansion air conditioners. It is very important that you read and understand the contents of this manual thoroughly before attempting to install any Cruisair equipment. If there are any statements in this manual that you do not understand, contact the Dometic Environmental Applications Department (Dometic) for assistance. Phone (804) 746-1313, Fax (804) 746-7248 (8:00am - 5:00pm United States Eastern Time).

## Notice

As of July 1, 1992, United States federal law prohibits the intentional release of refrigerant gases into the environment, including the R-22 refrigerant mostly used in Cruisair air conditioning systems. Special care must be taken when installing, charging and servicing Cruisair equipment to prevent any loss of refrigerant.

Cruisair does not recommend the practice of using refrigerant to purge air and moisture from the system at installation. This formerly used practice of purging is in violation of United States federal law.

## Introduction

You have just purchased the first complete built-in marine air conditioning system designed for self installation. We are confident you will find the added comforts experienced in your boat to be well worth the money spent. If, upon opening your new system, you discover any parts are missing, contact your dealer immediately.

Before attempting to install your new Zephyr (AC powered) or Cuddy dc (DC powered) air conditioning system, you must read this installation manual completely. Failure to perform certain tasks in the proper sequence could result in an inoperative system as well as a voided warranty.

## Cuddy dc

The new **Cuddy dc** marine air conditioner is very similar to the standard Zephyr but is unique in one way—it is designed to be run on 12VDC battery power. Most of the installation, operation and maintenance information in this manual applies to both types of air conditioners, the AC voltage Zephyr and the DC voltage Cuddy dc. Installation of either unit is nearly identical with the exception of the power supply and how that power is connected to the unit, control and pump. With that in mind while reading this manual, please read the Installation, Operation, and Maintenance sections titled “Zephyr and Cuddy dc Units,” and especially the sections subtitled “for DC Powered Cuddy dc”

Cuddy dc owners may skip the sections that are subtitled “for AC Powered Zephyr.”

**Cuddy dc** kits contain the air conditioning unit and these three components: a Dedicated Power Module (DPM), a 2-knob mechanical control, and the water pump. Each of these components is connected to the a/c unit with a polarized plug. These plugs are configured unique to each component. The DPM is sized to run the Cuddy dc system only and should not be used for any other appliance(s). See Figure 14 in the back of this manual for DPM specifications

**! WARNING** The DPM is not ignition protected and must not be installed in the engine compartment or in any area with flammable or compressed gasses or liquids (see the Safety Considerations section of this manual for more information).

Dometic recommends using a separate battery bank dedicated to run the **Cuddy dc**. For specific instructions, please see the two sections in this manual titled “Electrical System and Wiring for DC Powered Cuddy dc” and “Electrical Connections, Grounding & Bonding for DC Powered Cuddy dc.”

**! WARNING** The compressor and fan on the **Cuddy dc** air conditioning unit are **AC voltage components, running on 115VAC** supplied by the DPM. The pump and 2-knob mechanical control also run on 115VAC supplied by the DPM. Once the DPM is connected to the dedicated 12VDC battery bank, then all necessary power distribution to each of the components is handled through the polarized plugs—truly a “plug & play” system.

## Unpacking and Inspection

When the equipment is received, all items should be carefully checked against the packing list to ensure all cartons have been received. Move units in the normal “up” orientation as indicated by the arrows on each carton. Examine cartons for shipping damage, removing the units from the cartons if necessary. If the unit is damaged, the carrier should make the proper notation on the delivery receipt acknowledging the damage.

**CAUTION:** When unpacking and installing the control, care must be taken not to kink or break the copper cap tube when uncoiling the sensing bulb. The cap tube is hollow and kinking or sharp bends will inhibit system operation.

## Safety Considerations

Never install your air conditioner in the bilge or engine room areas. Insure that the selected location is sealed from direct access to bilge and/or engine room vapors. Do not terminate condensate drain line within three (3) feet of any outlet of engine or generator exhaust systems, nor in a compartment housing an engine or generator, nor in a bilge, unless the drain is connected

properly to a sealed condensate or shower sump pump. Failure to comply may allow bilge or engine room vapors to mix with the air conditioners return air and contaminate living areas which may result in injury or death.

Consideration should be given to installing a trap in the condensate drain line(s) so that normal discharge of condensate can fill the trap and prevent the ingress of carbon monoxide (CO) or other potentially harmful vapors.

Installation and servicing of this system can be hazardous due to system pressure and electrical components. When working on this equipment, always observe precautions described in the literature, tags and labels attached to the unit. Follow all safety codes. Wear safety glasses and work gloves and place a fire extinguisher close to the work area. The following is a summary of the labels on the unit:

**! DANGER** Electrical shock hazard. Disconnect voltage at main panel or power source before opening any cover. Failure to comply may result in injury or death.

**! WARNING** This component does not meet Federal requirements for ignition protection. Do not install in spaces containing gasoline engines, tanks, LPG/CPG cylinders, regulators, valves or fuel line fittings. Failure to comply may result in injury or death.

**NOTICE** This component is charged with hydrochlorofluoro-carbon (HCFC) refrigerant R22. Effective July 1, 1992 it shall be unlawful for any person to knowingly vent or otherwise knowingly release any class 1 (CFC) or class 2 (HCFC) substance as a refrigerant in a manner which permits such substance to enter the atmosphere per the clean air act of 1990. Public law 101-549 Title IV Section 608-c. Failure to comply may result in severe penalties, including fines and imprisonment. Note: The Cuddy dc unit is charged with R417A.

**! WARNING** To minimize the hazard of electrical shock and personal injury, this component must be effectively grounded. Refer to the installation guidelines for further information.

**! WARNING** The compressor and fan on the **Cuddy dc** air conditioning unit are **AC voltage components, running on 115VAC** supplied by the DPM. The pump and 2-knob mechanical control also run on 115VAC supplied by the DPM. Disconnect voltage at main panel or power source before opening any cover. Failure to comply may result in injury or death.

## Placement Of System

Selecting a good location for your air conditioner is the most important part of your preparations. Be sure to consider the size of the area you are cooling, the air distribution needs, and the size of the unit you have chosen. Keeping in mind that cool air has a tendency to fall, it is highly recommended that you locate the supply air grill as high as possible in the cabin. Figure 1a at the back of this manual shows the single duct application and Figure 1b shows a dual duct application.

The air conditioning unit should be installed as low as possible, **but never in the bilge or engine room areas. Insure that the selected location is sealed from direct access to bilge and/or engine room vapors.** Installing the unit as low as possible (such as under a V-berth, dinette seat or bottom of a locker) and ducting the supply air as high as possible, creates an ideal air flow condition. This type of installation will prevent short or premature cycling.

The unit should be positioned on a firm, level, horizontal surface and the condensate drain line should run downward from the unit to a suitable drain location. Plan all connections which must be made including ducting, condensate drain, seawater in and out, electrical power connections, location of control, and seawater pump placement, to assure easy access for routing and servicing.

## Tools Required for Installation

- Screw drivers
- Pliers
- Pipe wrench
- Wire cutters/crimpers
- Drill & 7/8" bit
- Jig saw
- Duct tape
- Electrical tape
- Threaded-seal tape
- Bedding compound to seal thru hull fittings
- Hardware to secure unit, pump, strainer, grills & control panel

## Spacing Allowances & Unit Dimensions

The following space allowances should be considered when mounting the unit:

1. Allow a minimum of 6" (152mm) around the perimeter of the unit in the area of the seawater and condensate drain piping.
2. Allow a minimum of 3" (76mm) of air space in front of the evaporator coil for the return air intake if it is adjacent to a bulkhead.
3. Allow a minimum of 3" (76mm) of air space for the electric blower motor ventilation. For Cuddy dc systems, allow at least 1" (25mm) above DPM for adequate ventilation.
4. For flexible ducting connection, allow 2" (51mm) for the duct ring, 1" (25mm) for the duct bend radius and add diameter of the ducting to get the total clearance distance (2" [51mm] + 1" [25mm] + duct diameter) as measured from the blower outlet (this also applies to clearance needed behind the supply air grill). Note that the blower and duct ring can be positioned either vertically or horizontally. See Figure 2 at the back of this manual.

These space allowances are suggested minimums. Enough space should be allocated for installation and serviceability. See Figure 2 at the back of this manual for space allowances and

unit dimensions.

## How It Works

The air conditioning unit consists of four main components and a refrigerant gas circulating through the system. The BLOWER draws warm cabin air across the fins on the EVAPORATOR where the heat from the air is transferred to the refrigerant in the evaporator coil. As the refrigerant evaporates from a liquid into a gas it absorbs the heat from the cabin air. The COMPRESSOR then compresses the refrigerant gas and pumps it through the outer tube in the CONDENSER COIL. The seawater pump circulates cool seawater through the inner tube in the condenser coil, this cools the refrigerant in the outer tube and condenses it from a gas into a liquid. The heat from the refrigerant is exchanged to the seawater and discharged overboard. The liquid refrigerant is then passed through the EVAPORATOR COIL and the cycle repeats. Removing heat from the cabin air lowers its temperature. The cooled air is blown through the ducting and out the supply air grill(s). See Figure 3 at the back of this manual for component identification.

## Mounting Brackets

The air conditioning unit is supplied with a base pan that also serves as a condensate pan. Mounting clip brackets and screws (4) are provided to secure the base pan onto a flat, horizontal surface. See Figure 4 at the back of this manual.

## Condensate Drains

The condensate drain pan is 1 $\frac{3}{4}$ " high with two drain locations. During conditions of high humidity, condensate may be produced at a rate of approximately  $\frac{1}{2}$  gallon (1.9 liters) per hour. With this in mind, it is important to route condensate drains downward to a sump pump. It is not recommended to route condensate drains to the bilge. After the condensate drain installation is complete, test the installation by pouring a quart of water into the pan and checking for good flow.

For installation of the condensate drain (refer to Figure 5 at the back of this manual):

1. Remove the aft facing watertight plug from the base pan of the air conditioning unit.
2. Slip the solid washer and the liquid-seal washer onto the PVC fitting in that order.
3. Connect the fitting through the exposed hole in the base pan with the locking nut.
4. Securely tighten with two (2) wrenches to provide a proper seal.
5. Attach a 5/8" (16mm) I.D. reinforced hose to the hose barb and secure with stainless steel hose clamps.
6. Install the condensate drain hose downhill from the unit and aft to a sump - hose should have a trap.
7. Two drain fittings may be used and the hoses teed together

er provided there is a minimum 2" (51mm) drop from the bottom of the base pan to the tee connection.

### Note:

*Do not terminate condensate drain line within 3 feet (91cm) of any outlet of engine or generator exhaust systems, nor in a compartment housing an engine or generator, nor in a bilge, unless the drain is connected properly to a sealed condensate or shower sump pump.*

## Blower Assembly

Horizontal or vertical supply air discharge may be achieved by rotating the blower. Its design allows the blower to be rotated by removing the screws holding the blower plate to the evaporator coil shroud. Rotate the blower to allow the most direct flow of air to the supply air grill. **To rotate the 10-16K blowers, remove the two plastic plugs for access to the mounting screws.**

## Supply & Return Air Grills and Transition Boxes

As previously indicated, install the supply air grille(s) as high as possible and the return air grille as low and close to the air conditioning unit as possible to insure direct uninterrupted airflow to the evaporator. In no instance should the supply air grille discharge be directed towards the return air grille, as this will cause the system to short cycle.

The cut out for the 3" (76mm) round supply air grille for the 3.5K unit is 3" (76mm) in diameter and the flange is 3 $\frac{7}{8}$ " (99mm) in diameter. The cut out for the 4" (102mm) round supply air grille for the 5K unit is 4" (102mm) in diameter and the flange is 5 $\frac{1}{2}$ " (140mm) in diameter. The cut out for the rectangular supply air transition box used with the 10 & 12K units is 11 $\frac{5}{8}$ " (295mm) by 5 $\frac{5}{8}$ " (148 mm) and for the 16K unit it is 13 $\frac{5}{8}$ " (346mm) by 5 $\frac{5}{8}$ " (148 mm). Connect the 6" (152mm) or 7" (178mm) oblong duct ring to the transition box by first placing the ring on the box and tracing the hole. Cut the oblong hole out of the box. Secure the ring to the box with rivets (trim  $\frac{1}{4}$ " [6mm] from ring flanges if necessary). Completely seal the joint between ring and box with silicone. A minimum clearance of 3" (76mm) plus the duct diameter size is required behind the grille for attaching the ducting (see earlier section, "Spacing Allowance and Unit Dimensions").

The cut outs for the return air grilles are as follows: 7-5/8" (194mm) square for the 3.5K & 5K units, 11-5/8" (295mm) square for the 10K & 12K units, and 13-5/8" (346mm) x 11-5/8" (295mm) (width x height) for the 16K unit. The return air grille should have a minimum of 4" (107mm) of clearance in front of it, free from any furniture or other obstructions. The return air filter, mounted to the front of the evaporator, removes debris from the air prior to the air being drawn across the evaporator coil and fins. Dust and lint can clog and reduce airflow across the evaporator coil resulting in poor performance. See the "Maintenance" section for filter cleaning instructions.

## Ducting

Good airflow is critical for the performance of the entire system. It is highly dependent on the quality of the ducting installation. The ducting should be run as straight, smooth and taut as possible minimizing the number of 90 degree bends (two tight 90 degree bends can reduce airflow by 25 percent). The following is a summary of proper ducting connections:

1. Pull back the fiberglass insulation exposing the inner mylar duct hose.
2. Slide the mylar duct hose around the mount ring until it bottoms out.
3. Screw 3 or 4 stainless steel sheet metal screws through the duct hose into the transition ring. Make sure to catch the wire in the duct hose with the heads of the screws. Do not use band clamps, as the hose will slide off.
4. Wrap duct tape around the ducting and ring joint to prevent any air leaks.
5. Pull the insulation back up over the mylar to the ring and tape this joint.
6. Remove excess ducting and use the same connection method at the supply air grill.

## Manual Control Panel Installation

The manual control panel should be located within cap tube length of the air conditioning unit. The dimensions for the 2-knob panel is 3¼" (83mm) x 5½" (140mm). The cut out size for the 2-knob panel is 2½" (64mm) wide by 4¾" (121mm) tall. The 3-knob panel is configured either vertically or horizontally. Dimensions for the 3-knob is 2<sup>15</sup>/<sub>16</sub>" (75mm) x 7<sup>15</sup>/<sub>16</sub>" (202mm). The cut out size for the 3-knob panel is 2" (51mm) by 6¾" (171mm). (Refer to Figures 6 and 7 at the back of this manual.) Once the cut out is made, carefully uncoil the copper cap tube with return air sensor (copper bulb) and route the control wires and cap tube through the hole and back to the unit **using caution not to kink the cap tube**. Mount the return air sensor into the clips provided on the evaporator coil. If the return air sensor cannot be mounted on the evaporator coil, mount it behind the return air grill. The sensor must be mounted in the return air stream. Make electrical connections according to the wiring diagrams provided. (See wiring diagrams, Figures 8, 9, 10 and 11 at the back of this manual.)

## Electrical Connections, Grounding & Bonding for AC Powered Zephyr

All Zephyr units have a five position terminal strip mounted inside the electric box. The terminal strip is labeled for proper connections of the electrical supply, ground wires and pump circuits. Wiring diagrams are provided in the electrical box and in this manual. The correct size circuit breaker should be used to protect the system as specified on the air conditioning unit's data plate label. A minimum of 12 AWG boat cable should be used to supply power to the air conditioning unit and to the seawater pump (see next paragraph). All connections to the terminal strip

shall be made with ring terminals supplied with the Zephyr kit. **Turn off AC (alternating current) power supply circuit breaker before opening electrical box and accessing the terminal strip.**

Each air conditioning unit installed requires its own dedicated circuit breaker. If there is only one air conditioning unit installed, the seawater pump does not require a circuit breaker; the wiring from the seawater pump is connected to the terminal strip on the unit. (See wiring diagrams, Figures 8, 9 and 10 at the back of this manual.) A minimum of 12 AWG boat cable should be used to extend the wires on the pump, if necessary, using the butt slices included with the kit. If two or more air conditioning units use the same seawater pump, the pump wires will be connected to a pump relay panel (PRP) which in turn has its own dedicated circuit breaker (see the wiring diagram furnished with the PRP). Any electrical connections in the bilge below the waterline should use heat shrink type butt splices.

The air conditioning unit must be connected to the boat's bonding system to prevent corrosion due to stray electrical current. All pumps, metallic valves and fittings in the seawater circuit that are isolated from the air conditioning unit by PVC or rubber hoses must be individually bonded to the boat's bonding system also. This will help eliminate any possibility of corrosion due to stray current.

**Note: Failure to properly ground and bond the system will void the warranty!**

## Electrical Connections, Grounding & Bonding for DC Powered Cuddy dc

All Cuddy dc units are connected by polarized plugs to the Dedicated Power Module DPM, pump, and control (available separately or in kit). These plugs are configured unique to each component. Wiring diagrams and schematics are provided in this manual (see Figure 11 at the back of this manual). A 60 amp circuit breaker or fuse should be installed at the positive side of the battery to protect the wires. Any electrical connections in the bilge below the waterline should be heat shrink type.

**Turn off DC power supply circuit breaker before making connections.**

The air conditioning unit and its components must be connected to the boat's bonding system to prevent corrosion due to stray electrical current. There is a bonding ground stud on the Dedicated Power Module. This stud must be connected to the vessel's bonding stud, which is typically on the engine block. This connection must be made per ABYC specifications. All pumps, metallic valves and fittings in the seawater circuit that are isolated from the air conditioning unit by PVC or rubber hoses must be individually bonded to the boat's bonding system also. This will help eliminate any possibility of corrosion due to stray current.

**Note: Failure to properly ground and bond the system will void the warranty!**

## Electrical System and Wiring for DC Powered Cuddy dc

Dometic recommends a separate set of batteries dedicated for the Cuddy dc air conditioning system. Deep cycle AGM or Gel Cell batteries are the best for this application. If need be, please contact your Dometic dealer for assistance in sizing batteries.

The Cuddy dc kit contains the Dedicated Power Module (DPM). The DPM is meant to be used for the Cuddy dc system only and is sized to do so (see Figure 14 at the back of this manual for DPM specifications).

When connecting the DPM to the batteries, maintain correct wire size as shown in the DC Wire Sizing Table (see Figure 15 at the back of this manual), keep wire runs as short as possible, and with as few intermediate connections as possible, to avoid unnecessary resistance or voltage drop. See wiring diagram Figure 11 for location of customer-installed 60 amp fuse. Use an ignition protected fuse holder if installed in the engine compartment or in any area with flammable or compressed gasses or liquids (see the Safety Considerations section of this manual for more information). A standard ABYC approved battery disconnect switch is also recommended and should be used any time the system needs servicing. Do not forget to maintain proper color coding, (red = positive, black = negative) to aid in future electrical troubleshooting. If the wires are incorrectly connected (positive and negative reversed), the air conditioning unit will not start and the DPM will be damaged.

The DPM is wired to the FAN setting on the two-knob switch assembly and is energized only when the Cuddy dc is running (see the Operation section of this manual). For DC wire sizing, see Figure 15 at the back of this manual.

As batteries age, their peak voltage lowers and they discharge quicker. This, of course, can affect the air conditioner performance as well as other DC devices. The battery condition should be maintained and monitored regularly and weak batteries should be replaced. A battery isolator, combiner or selector switch will allow simultaneous charging while preventing the discharge of a fully charged battery into a depleted one.

Over current protection, in addition to fuse provided, must be supplied for the ungrounded conductor at the main switchboard, per ABYC E-9. Use a 60 amp breaker for 12 VDC systems. This provides protection from possible short circuits. When dockside, the Cuddy dc unit can operate against the batteries while using the AC battery charger (50 amp min) as a backup (most marine battery chargers will shut off when the battery is fully charged).

Ensure that all DC electrical connections are made in compliance with American Boat and Yacht Council (ABYC) standards section E-9.

### Notice and ABYC Standards:

Field wiring must comply with ABYC electrical standards. Power to the unit must be within the operating voltage range indicated

on the data plate. Properly sized fuses and circuit breakers must be installed for branch circuit protection. See equipment rating plate for maximum size. All air conditioning units must be effectively grounded to minimize the hazard of electric shock and personal injury. The following standards apply:

1. AC (alternating current) grounding (green) wire must be provided with the AC power conductors and connected to the ground terminal (marked "GRND") at the AC power input terminal block of the unit(s), per ABYC standard E-8.
2. Connections between the vessel's AC system grounding conductor (green wire) and the vessel's DC (Direct Current) negative or bonding system should be made as part of the vessel's wiring, per ABYC standard E-9.
3. When servicing or replacing existing equipment containing a chassis-mounted "ground" stud, the service person or installer must check the vessel's wiring for the existence of the connection required in item 2 above.

ABYC standards are available from:

American Boat and Yacht Council  
613 Third Street, Suite 10  
Annapolis, MD 21403  
Phone: (410) 990-4460, Fax: (410) 990-4466

## Seawater Pump and Plumbing

Several guidelines should be followed during the installation of the seawater system. Since the circulation pump is centrifugal and not self-priming, it must be mounted so that it is always at least one foot below the water line regardless of which tack the vessel is on. Pump may be mounted horizontally or vertically, however the discharge must always be above the inlet. Pump head should be rotated toward the direction of water flow. **Install the seawater speed scoop intake as far below the water line and as close to the keel as possible in any application, but especially on a sailboat, to keep the intake in the water when the boat heels over so that air does not get into the system.** The speed scoop intake must face forward and not be shared with any other pump. A seawater strainer is mandatory between the shut off valve (seacock) and the pump to protect the pump from any foreign matter. **Failure to install a seawater strainer will void the pump warranty.** The seawater system should be installed with an upward incline from the speed scoop & seacock, through the strainer, to the inlet of the pump and then up to the inlet of the air conditioning unit's condenser coil. The discharge from the air conditioning unit should then run to the seawater outlet thru-hull fitting which should be located where it can be visually checked for water flow and as close as practicable to the waterline to reduce noise. All hose connections shall be secured by means of double/reversed stainless steel hose clamps. Use threaded-seal tape on all threaded connections. The following is a summary of the seawater system installation:



1. Install the speed scoop thru-hull inlet as close to the keel and as far below the water line as possible, facing forward. Bed the scoop with a marine sealant designed for underwater use.
2. Install a bronze, full flow seacock on the speed scoop thru-hull inlet.
3. Install a seawater strainer below the level of the pump with access to filter.
4. Mount the pump above the strainer and at least one foot below the waterline.
5. Connect the seacock and strainer with an uphill run of 5/8" reinforced marine grade hose.
6. Connect the discharge from the pump uphill to the bottom inlet of the air conditioning unit's condenser coil with 5/8" reinforced marine grade hose. Connect the discharge from the condenser coil to the overboard discharge thru-hull fitting with 5/8" reinforced marine grade hose.
7. Avoid loops, high spots or the use of 90° elbows with seawater hose (each 90° elbow is equivalent in pressure drop to 2.5' of hose and a 90° elbow on the pump outlet is equivalent to 20' of hose).
8. Double clamp all hose connections with stainless steel clamps, reversing the clamps.
9. Use threaded-seal tape on all threaded connections.
10. **Connect all metallic parts in contact with seawater to the vessel's bonding system including the speed scoop inlet, strainer, pump and the air conditioner.**

Refer to Figure 12, 13a, and 13b at the back of this manual for seawater kit installation drawings.

## ***Installation Checklist (review prior to and after installation)***

### **Seawater cooling system**

- Speed scoop located as far below the water line and as close to the keel as possible
- Shut off valve and speed scoop properly sealed and tight
- Seawater pump at least one foot below water line and securely mounted
- Strainer mounted below pump with access to filter
- Double/reversed stainless steel hose clamps on all hose connections
- Threaded-seal tape on all threaded connections
- Hose runs uphill from speed scoop to strainer, pump and air conditioning unit
- Water flowing freely from overboard discharge while pump is running

### **Air Conditioner Unit Mounting**

- Not in engine room or bilge areas, must be sealed away from exhaust or fumes
- Proper spacing allowed around unit
- Attached to solid level platform with four hold down clips provided
- Condensate drain routed aft and down hill to a sealed sump (not bilge), and should have a trap

### **Grills and Ducting**

- Supply air grill mounted as high as possible
- Return air grill mounted as low and as close to the unit as possible
- Return air grill mounted away from exhaust and bilge vapors
- Ducting is pulled taut, straight and properly connected with no excess

### **Electrical for AC Powered Zephyr**

- All butt connections on pump wire tightly crimped and heat shrunk
- AC power source installed and grounded/bonded in accordance with ABYC standards
- Control wires connected to terminal strip with ring terminals

### **Electrical for DC Powered Cuddy dc**

- All polarized plugs connected securely with an audible "snap"
- DC power source installed and grounded/bonded in accordance with ABYC standards
- Bonding ground stud on Dedicated Power Module connected to vessel's bonding system per ABYC

# Zephyr and Cuddy dc Units • Operation

## Operation

### Manual Control Panel Operation:

2-knob (2KB), 3.5-5K units; 3-knob (3KB), 10, 12, 16K units, see figures 6 & 7.

1. Ensure seawater intake ball valve (seacock) is open.
2. Turn top (MODE) control knob to OFF.
3. Turn on air conditioning unit circuit breaker. If the seawater pump has its own circuit breaker, turn that on too.
4. Turn top (MODE) control knob to FAN, this energizes the fan (and the DPM in Cuddy dc systems).
5. Turn THERMOSTAT control knob to the coolest position by rotating it fully clockwise.
6. Turn middle (FAN) control knob to highest setting (for 3KB switch only).
7. Verify that the fan is running and that there is steady airflow out of the supply air grill.
8. Turn top (MODE) control knob to RUN (for 2KB switch) and ON (for 3KB switch). This will start the compressor and seawater pump.
9. Check for a steady solid stream of seawater from the overboard discharge.
10. To set the THERMOSTAT, allow sufficient time for the unit to cool the area to the desired temperature. When the area is sufficiently cooled, turn the thermostat knob slowly toward the center position until it clicks once. The thermostat is now set to maintain a constant temperature.

### Important

Do not turn the unit off and immediately turn it back on. Wait at least 30 seconds (2 minutes for the Cuddy dc) for system refrigerant pressures to balance.

## Troubleshooting Guidelines

Before you call for service, review this list. It may save you time and expense. This list contains common occurrences that are not a result of defective workmanship or materials. If you need service after trying these procedures, call your nearest Cruisair dealer.

### Problem: System will not start.

#### Possible Reason/Solution

1. **Air conditioner circuit breaker is off.** Turn circuit breaker on at ship's panel.
2. **Wiring at terminal strip is miswired (VAC unit only).** Check wiring diagram; correct if necessary.
3. **Input line voltage is insufficient (VAC unit only).** Check power source for proper voltage. Check wiring and terminals for proper sizes and connections.

4. **Cuddy dc plugs are not connected tightly (DC unit only).** Check polarized plugs from unit to pump, power module, and control. There should be an audible "snap" when plugs go together.
5. **Batteries are not fully charged (DC unit only).** Turn Cuddy dc unit off and charge battery bank.
6. **DC power wires are incorrectly sized (DC unit only).** See the "Electrical System and Wiring for DC Powered Cuddy dc" section of this manual. Ensure that DC power wires are sized and connected correctly.
7. **Dedicated Power Module (DPM) is in lockout mode (DC unit only).**

The DPM has a protective overload lockout feature that will cause it to shutdown in case of a problem. When this occurs, turn Cuddy dc off and wait 2 minutes before turning back on. If that does not solve the problem, then continue reading:

- a) If DPM has overheated ( $\geq 167^{\circ}\text{F}$  [ $75^{\circ}\text{C}$ ]) then ensure that it has at least one inch of air space above unit for, and is in an area that provides, proper ventilation.
- b) If compressor has overheated then check water pump, strainer and hoses. When operating properly, there should be a steady stream of water from the overboard discharge. Strainer may need cleaning. Ensure that hoses are not kinked or restricted in some other way. Pump should come on with the compressor when control is set to RUN.
- c) If refrigerant pressure is too high, then turning the system off for 2 minutes should correct that by allowing pressure to equalize. Note: Turning the Cuddy dc on and off too quickly may cause a high-pressure shutdown. During normal operation wait at least 2 minutes from the time control is turned off until it is turned back on.
- d) If DC voltage is too high ( $>16\text{-}17\text{VDC}$ ) or too low ( $<10.5\text{VDC}$ ), then check battery bank for correct charge. Charge batteries if need be. Note: Turn Cuddy dc off and charge batteries for 5 minutes. Try turning Cuddy dc on again. If it runs, then that is a good indicator the batteries were low. Fully charge batteries at this time.
- e) If there is a dead short in the wiring, then disconnect power supply and repair wiring.

If, after trying all of the above, the fan runs, but the compress and pump do not, then that is a good indicator there is a problem with the compressor and/or pump. Whereas, if the fan does not come on at this time, then that is a good indicator there is a problem with the fan or the DPM. Either way, call for a service technician – please see listing in back of this manual.

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**Problem: No cooling.**

***Possible Reason/Solution***

1. **Selector knob may not be in “cool” position.** Reset selector knob.
2. **Temperature set point is above ambient temperature.** Lower temperature setting.
3. **Obstructed water flow.** Clean seawater strainer. Check for good steady flow from overboard discharge.
4. **Pump may be air locked.** Remove hose from pump discharge to purge air from line.
5. **Coil iced.** See below.

**Problem: Coil iced.**

***Possible Reason/Solution***

1. **Thermostat set point is too low.** Check setting on temperature knob. If setting is extreme for conditions, raise set point.
2. **Improper air flow.** Clean return air filter or remove obstructions from return air stream. Check for crushed or restricted ducting. Ducting run must be as straight as possible; remove any excess ducting.

**Problem: Short cycling compressor.**

***Possible Reason/Solution***

1. **Cold supply air returning directly to return air grill.**  
Redirect supply air so that it is not directed into the return air stream.

**Problem: System runs continuously.**

***Possible Reason/Solution***

1. **Port hole or hatch open.** Close all port holes and hatches.
2. **Thermostat setting is excessive for conditions.** Raise thermostat setting to cycle compressor.

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# Zephyr and Cuddy dc Units • Maintenance

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## **Seawater Strainer**

Ensure that the pump receives adequate seawater flow by regularly cleaning the strainer basket. Periodically check the overboard discharge for a steady stream of water. Check seawater intake speed scoop for obstructions. Make sure hoses are not looped, kinked or crushed.

## **Condenser Coil Cleaning**

Coils can become fouled over a period of time due to marine growth or scale build-up. This both obstructs water flow and prohibits proper heat transfer. To clean coils, flush with a 5% muriatic or hydrochloric acid and fresh water solution. Disconnect system hoses from coil and pump the solution through until clean. Rinse with fresh water and reconnect hoses. Follow manufacturer's safety guidelines for all cleaning solutions.

## **Return Air Filters**

Check the return air filter about once a month and clean as necessary. To clean the filter, remove it from the unit, rinse with water, air dry and reinstall.

## **Winterization**

There are several methods of winterization, some of which work better than others. The four various methods employed using a 50/50 non-polluting biodegradable anti-freeze/water solution are:

1. Pumping of anti-freeze solution into the overboard thru-hull fitting, and discharging through the intake thru-hull fitting.
2. Use of the seawater pump to pump anti-freeze solution through the system and discharging through the overboard thru-hull fitting. Close seacock, remove hose from strainer discharge, raise hose above pump (so pump does not lose its prime) and pour in anti-freeze solution. Pump solution through system. The strainer and hose to seacock will also need to be drained of water.
3. Use of pressurized air injected at the overboard discharge fitting and the water being discharged through the seawater intake fitting.
4. Use of pressurized air to force water from the intake through the overboard discharge.

### **Note:**

Collect all discharged liquids and recycle or dispose of in a proper manner.

Any method that causes the anti-freeze solution to flow downward is the method of choice. By this means, the anti-freeze solution will displace any water trapped and eliminate the possibility of freezing in hidden areas.

In addition, since the seawater pump utilizes a magnetically driven impeller, the impeller should be removed from the wet end assembly, wiped with an alcohol solution, and stored in a warm, dry area until commissioning takes place.

# Zephyr and Cuddy dc Kits • Parts List

## Cuddy dc Kits

CD3.5HV 12VDC

Condensate hose barb assembly with 4 mounting brackets included with unit.

P/N	Qty	Description
222-110094	1	DPM Dedicated Power Module 12V with MX-Plug
222-110110	1	MCP 2-KB CDH V BL MYL 12V 150L 2-Knob Control
225-410108	1	Pump PML150 with MX150L-Plug 115V no fittings
-OR-		-OR- (kit has one pump, PML150 or PML250)
225-410112	1	Pump PML250 with MX150L-Plug 115V no fittings

## Extension Cables with Plugs for Cuddy dc Systems

P/N	Qty	Description
222-120200	1	3m (9.8') Cable with Plugs from Cuddy dc to DPM
222-120201	1	6m (19.7') Cable with Plugs from Cuddy dc to DPM
222-120202	1	3m (9.8') Cable with Plugs for Cuddy dc to Pump

## Zephyr ZF3.5 Kits

ZF3.5 115V

Condensate hose barb assembly with 4 mounting brackets included with unit.

P/N	Qty	Description
222-110087	1	ZFSA1-XB 2-Knob Control dual voltage
225-500226	1	Pump PML250 115V no fittings

## Air Distribution Kits

Kits (sold separately) are for use with Cuddy dc or Zephyr 3.5K units only:

P/N	Qty	Description
226-000301	Kit	Air Distribution Kit - Black (includes next 3 items)
333437	1	3" Round Plastic Supply Air Grill, Euro, Black
217-000773	1	8x8TRAF Alum Return Air Grill w/Filter, Black
226-600045	10'	3" Ducting, Insulated Flexible
226-000300	Kit	Air Distribution Kit - White (includes next 3 items)
333439	1	3" Round Plastic Supply Air Grill, Euro, White
217-000728	1	8x8 RAF Alum Return Air Grill w/Filter, White
226-600045	10'	3" Ducting, Insulated Flexible

## Zephyr ZF5 Kits

ZF5 115V, or ZF5CK 220V/50Hz

Condensate hose barb assembly with 4 mounting brackets included with unit.

P/N	Qty	Description
226-600014	5'	4" Ducting, Insulated Flexible
330571	1	Grill, Circular Off White
332743	1	Grill, 8x8TRA Anodized
222-110087	1	ZFSA1-XB 2-Knob Control dual voltage
334220	1	Thru Hull, 5/8" Plastic
226-600006	25'	Hose, Seawater 5/8"
335360	1	Bush, PVC Red 1/2" MPT x 1/4" FPT
335120	3	Adapt, PVC 1/2" MPT x 1/2" HB
335080	2	Adapt, PVC 1/2" FPT x 1/2" HB
225-600021	1	Strainer (w/ Bracket 1/2" FPT)
332822		PDS-250 115V Seawater Pump
-OR-	1	-OR- (kit has one pump, 115V or 220V)
332831		PDS-250C 220V Seawater Pump
369617	17	Clamp, Hose #06SS Thin
330482	1	Ball Valve 1/2" SS Hndl (Bronze)
369699	1	Strainer, Speed Scoop 1/2" Bronze
338439	3	Terminal Butt Splice 16-14 Blue
336750	6	Terminal Ring 10-12 Yellow

## Zephyr ZF10 Kits

ZF10 115V, or ZF10CK 220V/50Hz

Condensate hose barb assembly with 4 mounting brackets included with unit.

P/N	Qty	Description
226-600015	10'	6" Ducting, Insulated Flexible
229-800025	1	Transition Box ABS 12x6x4.5
228-700017	1	6" ABS Oblong Transition Ring
217-300131	1	12x6TV Alum Supply Air Grill
217-300125	1	12x12TRA Alum Return Air Grill
222-110088		ZFSA1-ZB 115V 3-Knob Mech. Control
-OR-	1	-OR- (kit has one control, 115V or 220V)
222-110093		ZFSA1-ZCB 220V 3-Knob Mech. Control
334220	1	Thru Hull, 5/8" Plastic
226-600006	25'	Hose, Seawater 5/8"
335360	1	Bush, PVC Red 1/2" MPT x 1/4" FPT
335120	3	Adapt, PVC 1/2" MPT x 1/2" HB
335080	2	Adapt, PVC 1/2" FPT x 1/2" HB
225-600021	1	Strainer (w/ Bracket 1/2" FPT)
332822		PDS-250 115V Seawater Pump
-OR-	1	-OR- (kit has one pump, 115V or 220V)
332831		PDS-250C 220V Seawater Pump
369617	17	Clamp, Hose #06SS Thin
330482	1	Ball Valve 1/2" SS Hndl (Bronze)
369699	1	Strainer, Speed Scoop 1/2" Bronze
338439	3	Terminal Butt Splice 16-14 Blue
336750	6	Terminal Ring 10-12 Yellow

### Optional Dual Duct Kit

P/N	Qty	Description
226-600014	10'	4" Ducting Insulated Flexible
229-000029	1	Plenum Tee Box, 6", 6", 4"
339284	1	4" Plastic Grill, White

## Zephyr ZF12 Kits

ZF12 115V, or ZF12CK 220V/50Hz

Condensate hose barb assembly with 4 mounting brackets included with unit.

P/N	Qty	Description
226-600015	10'	6" Ducting, Insulated Flexible
229-800025	1	Transition Box ABS 12x6x4.5
228-700017	1	6" ABS Oblong Transition Ring
217-300131	1	12x6TV Alum Supply Air Grill
217-300125	1	12x12TRA Alum Return Air Grill
222-110088		ZFSA1-ZB 115V 3-Knob Mech. Control
-OR-	1	-OR- (kit has one control, 115V or 220V)
222-110093		ZFSA1-ZCB 220V 3-Knob Mech. Control
334220	1	Thru Hull, 5/8" Plastic
226-600006	25'	Hose, Seawater 5/8"
335360	1	Bush, PVC Red 1/2" MPT x 1/4" FPT
335120	3	Adapt, PVC 1/2" MPT x 1/2" HB
335080	2	Adapt, PVC 1/2" FPT x 1/2" HB
225-600021	1	Strainer (w/ Bracket 1/2" FPT)
332822		PDS-250 115V Seawater Pump
-OR-	1	-OR- (kit has one pump, 115V or 220V)
332831		PDS-250C 220V Seawater Pump
369617	17	Clamp, Hose #06SS Thin
330482	1	Ball Valve 1/2" SS Hndl (Bronze)
369699	1	Strainer, Speed Scoop 1/2" Bronze
338439	3	Terminal Butt Splice 16-14 Blue
336750	6	Terminal Ring 10-12 Yellow

### Optional Dual Duct Kit

226-600014	10'	4" Ducting Insulated Flexible
229-000029	1	Plenum Tee Box, 6", 6", 4"
339284	1	4" Plastic Grill, White

## Zephyr ZF16 Kits

ZF16 115V, or ZF16CK 220V/50Hz

Condensate hose barb assembly with 4 mounting brackets included with unit.

P/N	Qty	Description
226-600000	10'	7" Ducting, Insulated Flexible
229-800026	1	Transition Box ABS 14x6x4.5
228-700019	1	7" ABS Oblong Transition Ring
217-300134	1	14x6TV Alum Supply Air Grill
217-000221	1	14x12TRA Alum Return Air Grill
222-110088		ZFSA1-ZB 115V 3-Knob Mech. Control
-OR-	1	-OR- (kit has one control, 115V or 220V)
222-110093		ZFSA1-ZCB 220V 3-Knob Mech. Control
334220	1	Thru Hull, 5/8" Plastic
226-600006	25'	Hose, Seawater 5/8"
335120	3	Adapt, PVC 1/2" MPT x 1/2" HB
335080	2	Adapt, PVC 1/2" FPT x 1/2" HB
225-600021	1	Strainer (w/ Bracket 1/2" FPT)
300823	1	Adapt, PVC 3/4" MPT x 1/2" HB
332724	1	Coupling, PVC 3/4" FPT x 3/4" FPT
332823		PDS-500 115V Seawater Pump
-OR-	1	-OR- (kit has one pump, 115V or 220V)
332824		PDS-500C 220V Seawater Pump
369617	17	Clamp, Hose #06SS Thin
330482	1	Ball Valve 1/2" SS Hndl (Bronze)
369699	1	Strainer, Speed Scoop 1/2" Bronze
338439	3	Terminal Butt Splice 16-14 Blue
336750	6	Terminal Ring 10-12 Yellow

### Optional Dual Duct Kit

226-600014	10'	4" Ducting Insulated Flexible
229-800428	1	Plenum Tee Box, 7", 7", 4"
339284	1	4" Plastic Grill, White

# Owner's Limited Warranty

As hereinafter described, Dometic Environmental Corporation limits the duration of any implied warranty to the duration of the underlying express warranty and also disclaims any liability for consequential or incidental damages arising from any application, installation, use or malfunction of any warranted product.

## Section I

### What does the Limited Warranty cover?

Products manufactured by Dometic Environmental Corporation (Dometic) are under limited warranty to be free from defects in workmanship or materials under normal use and service with the obligation of Dometic under this limited warranty being limited to replacing or repairing any component(s) which shall disclose defects within the time limits defined in **Section III** and which, upon examination by Dometic, shall appear to the satisfaction of Dometic to be defective or not up to specifications.

***This Limited Warranty is made in lieu of all other express warranties, obligations, or liabilities on the part of Dometic. In addition, Dometic shall not be responsible for any incidental or consequential damages.*** In those instances in which a cash refund is made, such refund shall effect the cancellation of the contract of sale without reservation of rights on the part of the purchaser. **Such refund shall constitute full and final satisfaction of all claims which purchaser has or may have against Dometic due to any actual or alleged breach of warranty, either express or implied, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose.** Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation may not apply to you. The terms and conditions of this warranty shall be governed by the laws of the Commonwealth of Virginia.

The Dealer is not an agent for Dometic except for the purpose of administering the above warranty to the extent herein provided, and Dometic does not authorize the dealer or any other person to assume for Dometic any liability in connection with such warranty, or any liability or expense incurred in the replacement or repair of its products other than those expressly authorized herein. Dometic shall not be responsible for any liability or expense except as is specifically authorized and provided in this section.

Dometic reserves the right to improve its products through changes in design or material without being obligated to incorporate such changes in products of prior manufacture, and to make changes at any time in design, materials, or part of units of any one year's model, without obligation or liability to owners of units of the same year's model of prior manufacture.

This warranty gives you, the purchaser, specific legal rights, and you may also have other rights which vary from state to state. You also have implied warranty rights, including an implied warranty of merchantability, which means that your product must be fit for the ordinary purposes for which such goods are used. ***The duration of any implied warranty rights is limited to the duration of the express warranty as found in Section III.*** Some states do not allow limitations on how long

an implied warranty lasts, so the above limitation may not apply to you.

## Section II

### What does this Limited Warranty not cover?

#### ***This Warranty Shall Not Apply to:***

1. Failures resulting from improper installation or use contrary to instructions.
2. Failures resulting from abuse, misuse, accident, fire, or submergence.
3. Any part manufactured by Dometic which shall have been altered so as to impair its original characteristics.
4. Any parts which fail as a result of misuse, improper application or improper installation.
5. Items not manufactured by Dometic, i.e., items which are purchased from another manufacturer and supplied as received by Dometic without alteration or modification except as any part of a Dometic-manufactured unit or component.
6. Components or parts used by or applied by the purchaser as an integral part of products not manufactured by Dometic.
7. Warranty does not cover damage to components that comprise a Custom Wrapped Box Evaporator refrigeration system (aka: catch boxes, fish boxes, etc.) when the box is installed in such a way that the customer can move it. These damages may include, but are not limited to: crimped refrigerant linesets (copper tubing or flexible linesets), refrigerant leaks, moisture ingress into the refrigeration system, subsequent damage to condensing unit from being operated with low refrigerant charge or moisture in the system, broken refrigerant connections, broken thermostat sensors, and/or broken constant pressure valves.

Installation and application of Dometic components is not warranted by Dometic because Dometic has no control or authority over the selection, location, application, or installation of these components.

## Section III

### What is the period of coverage?

See the Limited Warranty Periods, document # L-0694, for the period of coverage.

All Dometic components bear a data plate on which there are model and serial numbers. The serial number is date coded. To determine whether or not any Dometic component is in warran-

ty, proceed as follows:

1. Determine the manufacture date of the component from the serial number on the data plate. If you are not familiar with the date code, write or call the Dometic Customer Service Department at (804)746-1313, to obtain the manufacture date. The hours of the Customer Service Department are 8:00 am - 5:00 pm (USA, Eastern Time Zone) Monday through Friday excluding holidays.
2. It is possible that there might exist a considerable time lag between the date a component is manufactured and the date it is put in service. In such instances, the date of manufacture could indicate that the item is out of warranty. However, based on the date the equipment is first put in service, the item may still be covered by the Dometic warranty described in **Section I**. For proof of date put in service, Dometic will require a copy of the bill of sale of the Dometic equipment from the installer or new boat dealer to the original owner.

## Section IV

**How do you get service? Please Read the following Warranty Procedure.**

### WARRANTY PROCEDURE

If the failure of a Dometic component is determined to be covered under the Dometic warranty and the time in service is determined to be within the warranty time limit, the owner has the following three options:

1. Preferred option: Have a Dometic authorized Servicing Dealer perform the work needed. The customer should call Dometic's Service Department for a recommendation as to the closest dealer. If the customer already knows an authorized servicing dealer, the dealer should be contacted directly.
2. If the customer contacts Dometic's Service Department for a Servicing Dealer and Dometic has no one in that particular area, Dometic will authorize the use of a local service company and Dometic will work with the local company to assist in any way possible.
3. The customer may send his equipment back to the factory to have the repair work done. Dometic will make every effort to return the equipment to the customer within a three week time period. If the claim represents a legitimate warranty problem, Dometic will pay the freight both ways. Dometic prefers option one and two, if at all possible.

The customer may contact the Dometic Service Department at (804) 746-1313.

## WARNING

Dometic Environmental Corporation (Dometic) manufacturers of Cruisair, Dometic Auxiliary A/C, Dometic Refrigerators and Freezers, Eskimo Ice, Grunert, Marine Air, and Sentry products, makes the following safety warnings concerning the application, installation, use and care of its products. Although these warnings are extensive, there may be specific hazards which may arise out of circumstances which we have not outlined herein. Use this as a guide for developing an awareness of potential hazards of all kinds. Such an awareness will be a key factor in assuring your SAFETY and comfort.

**ELECTRICITY** - Many Dometic products operate on 115, 230 or 440 volt AC power. Such voltages can be LETHAL; therefore, the chassis, cabinets, bases, etc., on all components must be grounded together and connected to the vessel's grounding system. Sparks can occur as switches, thermostats and relays open and close in the normal operation of the equipment. Since this is the case, ventilating blowers for the removal of hazardous fumes or vapors should be operated at least 5 minutes before and during operation of any Dometic product or group of Dometic products. All electrical connections must be covered and protected so accidental contact cannot be made by persons using the equipment, as such contact could be LETHAL.

**ELECTROLYSIS** - Electrical leakage of any component can cause electrolytic deterioration (electrolysis) of thru-hull components which could result in leakage serious enough to sink a vessel which could result in loss of life. All Dometic components must be kept clean and dry and checked periodically for electrical leakage. If any electrical leakage is detected, the component should be replaced or the fault causing the leakage corrected before the component is put back into service.

**GAS** - Dometic Air Conditioning and Refrigeration components utilize R-22 (Chlorodifluoromethane), R134a refrigerant (Tetrafluoroethane), R-407C (which contains Difluoromethane [HFC-32], Pentafluoroethane [HFC125], and 1.1.1.2 - Tetrafluoroethane [HFC134a]), R404A (R125/R143a/R134 [44%/52%/4%]), or R417a, which are non-toxic, non-flammable gases; however, these gases contain no oxygen and will not support life. Refrigerant gas tends to settle in the lowest areas of the compartment. If you experience a leak, evacuate all personnel, and ventilate area. Do not allow open flames in the area of leaks because refrigerant gas, when burned, decomposes into other potentially LETHAL gases. Refrigerant components operate at high pressure and no servicing should be attempted without gloves, long-sleeved clothing and eye protection. Liquid refrigerant gas can cause severe frost burns to the skin and eyes.

**VENTILATION** - To cool or heat air, Dometic Air Conditioning and Refrigeration components are designed to move air through a heat exchanger by a blower or propeller fan. This design necessarily produces a suction on one side of the air handling component and a pressure on the other side. Air handling components must be installed so that the suction-pressure action does not: (1) pressurize an area to the extent that structural failure occurs which could cause harm to occupants or bystanders, or (2) cause a suction or low pressure in an area where hydrogen gas from batteries, raw fuel vapor from fuel tanks, carbon monoxide from operating propulsion engines, power generators or heaters, methane gas from sewage holding tanks, or any other dangerous gas or vapor could exist. If an air handling unit is installed in such a manner that allows potentially lethal gases or vapors to be discharged by the air handling unit into the living space, this could result in loss of life.

Maximum protection against the introduction of dangerous gases or vapors into living spaces can be obtained by providing living spaces which are sealed from all other spaces by use of airtight bulkheads and decks, etc., and through the introduction of clean air into the living space. Bear in mind that the advent of air conditioning, whether it be for cooling or for heating, naturally leads to the practice of closing a living space tightly. Never close all windows and doors unless auxiliary ventilating systems, which introduce clean outside air into the living space, are used. Always leave enough window and door openings to provide adequate ventilation in the event potentially lethal gases or fumes should escape from any source.

**CONDENSATE** - All cooling units produce water condensate when operating on the cooling cycle. This water must be drained from the cooling unit overboard. If condensate is allowed to drip on a wooden structure, rotting or decay and structural failure may occur which could result in loss of life. If condensate is allowed to drip on electrical components, deterioration of the electrical components could result in hazardous conditions. When an air conditioning system is in operation, condensate drains may be subjected to negative pressure. Always locate condensate drains as far as possible from points where engine waste and other dangerous gases are exhausted so no such dangerous gases can be drawn into the condensate drains.

## Warning

Never sleep in a closed area on a boat when any equipment, which functions as a result of the combustion of a volatile fuel, is in operation (such as engines, generators, power plants, or oil-fired heaters, etc.). At any time, the exhaust system of such devices could fail, resulting in a build-up of LETHAL gases within the closed area.

Warning Revised: 6-5-06



# Limited Warranty Periods

Please read and keep this document with your important paperwork. Use it as a reference in the future. If you have any questions, please contact the Dometic Environmental Corporation Service Department at (804)746-1313 for clarification.

**Note:** Any model or replacement part that has been installed due to a warranty failure will carry only the remainder of the original warranty. All warranties begin when the customer takes possession of the equipment. The warranty is extended to all owners of the equipment commencing the date the original owner takes possession of it. Proof of original purchase may be required. **Replacement parts, such as filters, fuses and MOVs, are not covered under our warranty.** Fuses and MOVs are used as safety devices to protect Cruisair equipment against over-current conditions caused by lightning or inductive switching environments. We reserve the right to change our warranty policies and procedures as well as our warranty allowances without notice.

## Cruisair Direct Expansion (DX) and Modulating Systems

- New, complete system installation using any member of the SMX family.

The warranty includes the pump.

**2 year warranty including Parts and Labor**

- New, complete system installation using an electro-mechanical control (3-knob).

The warranty includes the pump.

**1 year warranty including Parts and Labor**

- New, complete model sold as a partial system retrofit to an existing system.

Includes SMX family.

**1 year warranty including Parts and Labor**

## Cruisair Tempered Water

- New, complete system installation using any member of the SMX family.

**2 year warranty including Parts and Labor**

NOTE: Excludes pump which has a 1 year warranty

- New, complete model sold as a partial system retrofit to an existing system.

Includes SMX family.

**1 year warranty including Parts and Labor**

## Refrigerators/Freezers/Fish Boxes

The below warranty periods do not apply to systems that are installed as described in Section II, item #7, of the Owner's Limited Warranty, document # L-0123.

- New installation of entire system including condensing unit, line sets, evaporator, etc.

**1 year warranty including Parts and Labor**

- New complete model sold as a partial system retrofit to an existing Cruisair system.

**1 year warranty including Parts and Labor**

- New installation of condensing unit only, with line sets, evaporators, etc. done by others i.e. not Cruisair pre-charged line sets and evaporators.

**1 year warranty including parts and labor on mechanical and electrical parts of condensing unit only.**

## Ice Makers, Remote and Self-Contained

- New installation of an entire Self-Contained Ice Maker

**1 year warranty including Parts and Labor, including water pump.**

- New installation of an entire Remote Ice Maker, including condensing unit, remote display, auger unit, linesets

**1 year warranty including Parts and Labor, including water pump.**

- New installation of an Remote Ice Maker Auger and Condensing unit only, with linesets done by others i.e. not Eskimo pre-charged linesets

**1 year warranty including Parts and Labor on mechanical and electrical parts of the auger and condensing unit only.**

- New complete component sold as a partial system retro-fit to an existing Eskimo system

**1 year warranty including Parts and Labor on new component only.**

**Note:** Use of saltwater as feedwater to make ice will void warranty on the auger section of the unit.

## Sentry Battery Chargers

- New SM and FR series installation.

**2 year warranty including Parts and Labor**

- New G-series installation.

**1 year warranty including Parts and Labor**

## Replacement Parts

- Replacement parts and components  
Example: A-509, 40401-30.

**90 day warranty, Parts only**

- Replacement Compressors for other than Tempered Water Systems - example: R3101-16T, DX equipment - installed in an existing Cruisair system or a competitor's system.

**1 year warranty including Parts and Labor**

- Replacement compressors for Tempered Water - example: 30130-36 installed in an existing Cruisair system.

**1 year warranty including Parts and Labor**

- A Tempered Water compressor - example: 30130-36 installed with competitor's equipment.

**90 day warranty, Parts only**

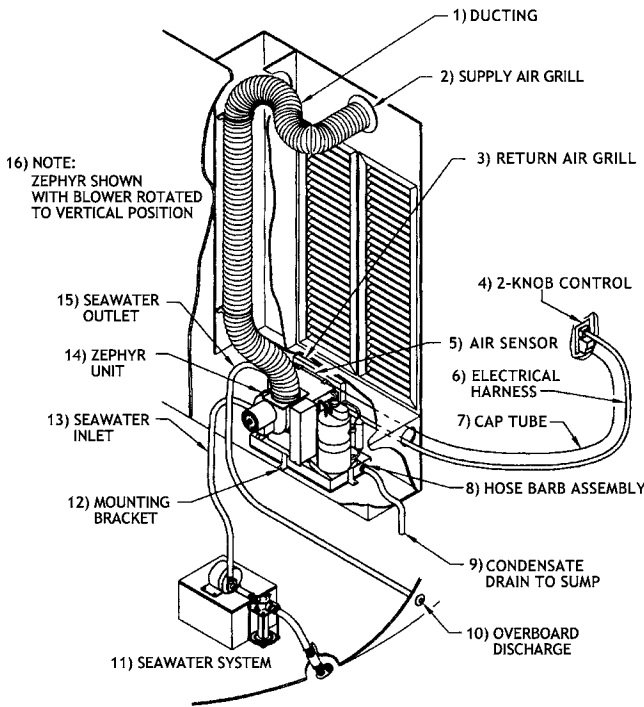
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# Descriptions of Figures

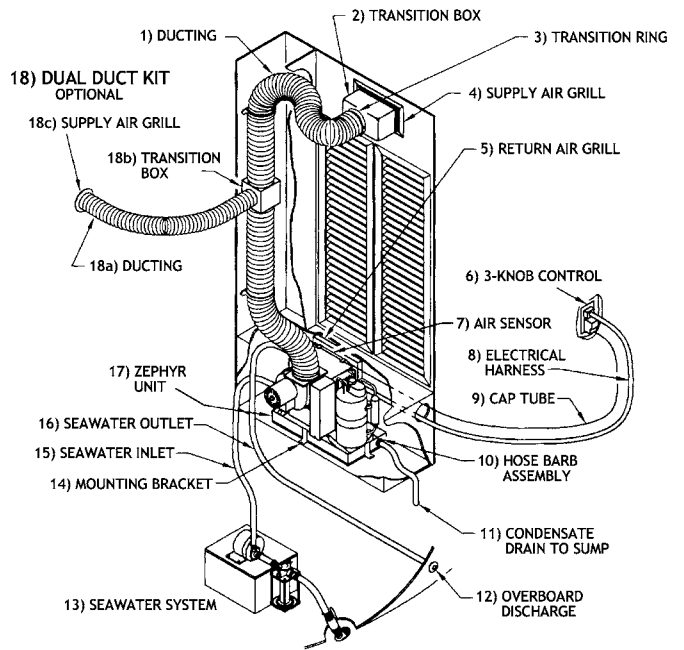
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- Fig. 1a** Single Duct Installation
- Fig. 1b** Dual Duct Installation
- Fig. 2** Spacing Allowances & Unit Dimensions for Mounting
- Fig. 3** Component Identification
- Fig. 4** Mounting Bracket Drawing
- Fig. 5** Condensate Drain Drawing
- Fig. 6** Three-Knob Switch Assembly
- Fig. 7** Two-Knob Switch Assembly
- Fig. 8** Wiring Diagram of ZF3.5
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- Fig. 12** Seawater Pump and Plumbing Drawings
- Fig. 13a** Seawater Installation for ZF3.5-12
- Fig. 13b** Seawater Installation for ZF16
- Fig. 14** Dedicated Power Module (DPM) Specs Tables for Use With Cuddy dc Systems Only
- Fig. 15** DC Wire Sizing Table

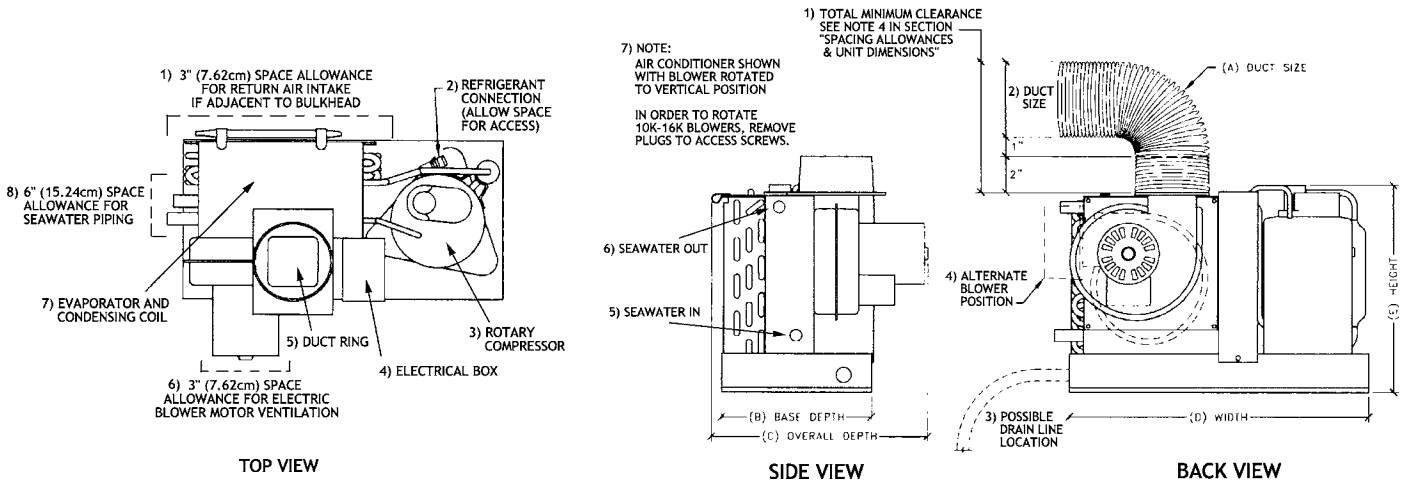
**Fig. 1a - Typical Single Duct Installation for ZF3.5-5**



**Fig. 1b- Typical Dual Duct Installation for ZF10-16**



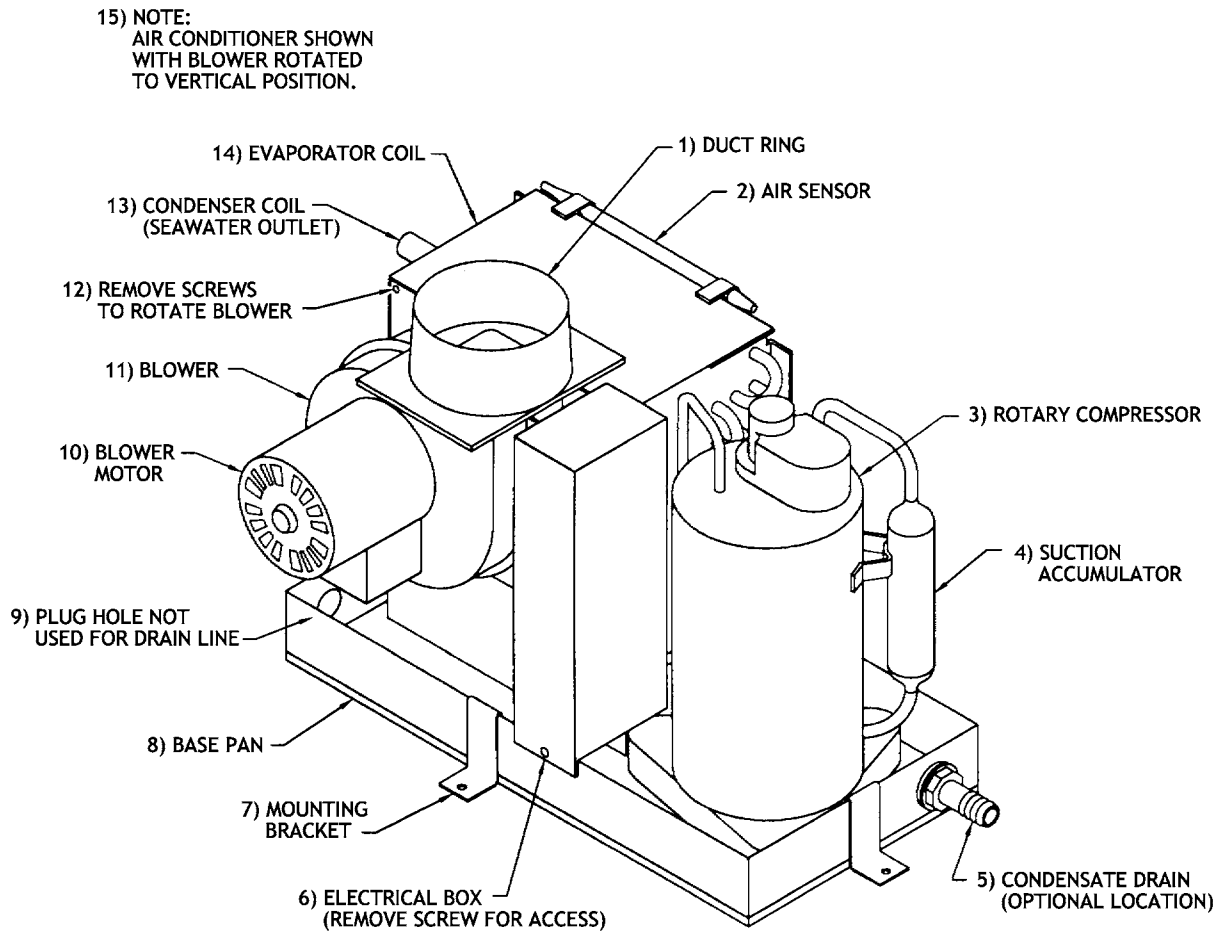
**Fig. 2 - Spacing Allowances & Unit Dimensions for Mounting**



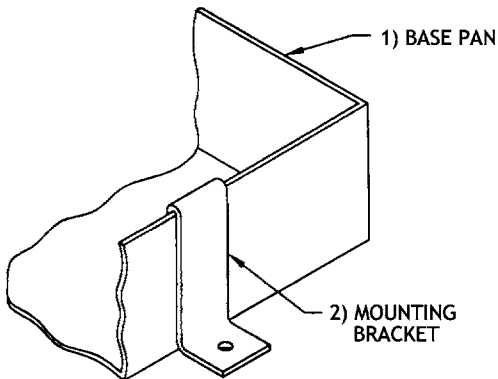
**DIMENSIONS**

Unit Capacity	3,500 BTU	5,000 BTU	10,000 BTU	12,000 BTU	16,000 BTU
	(in/mm)	(in/mm)	(in/mm)	(in/mm)	(in/mm)
A – Duct Size	3.0/76	4.0/102	6.0/152	6.0/152	7.0/178
B – Base Depth	8.0/203	8.0/203	8.4/213	8.4/213	10.3/261
C – Overall Depth	9.0/229	11.6/294	12.2/310	12.2/310	14.2/361
D – Width	15.0/381	16.0/407	19.0/483	19.0/483	20.0/508
E – Height	9.3/235	11.6/294	12.9/328	13.3/337	13.5/343

**Fig. 3 - Component Identification**



**Fig. 4 - Mounting Bracket**



**Fig. 5 - Condensate Drain**

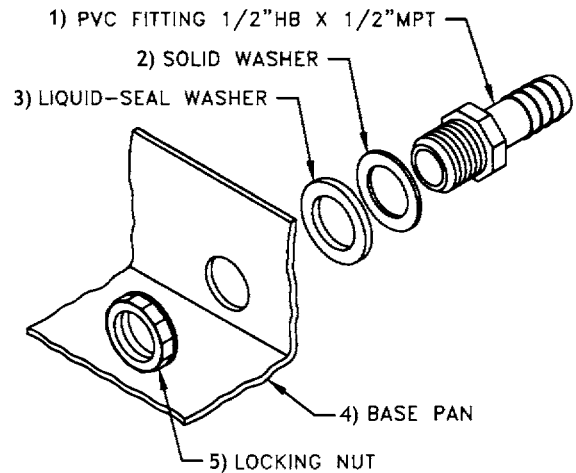
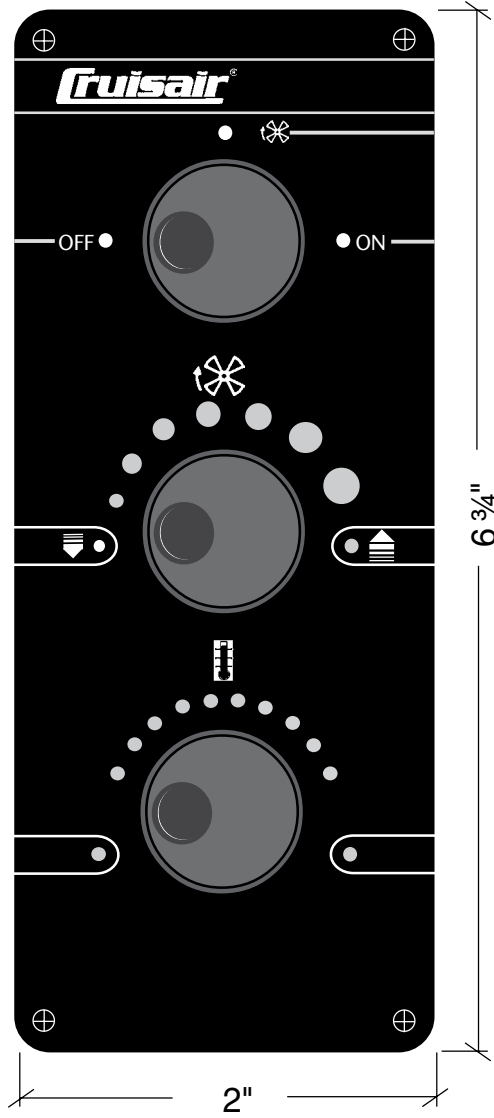
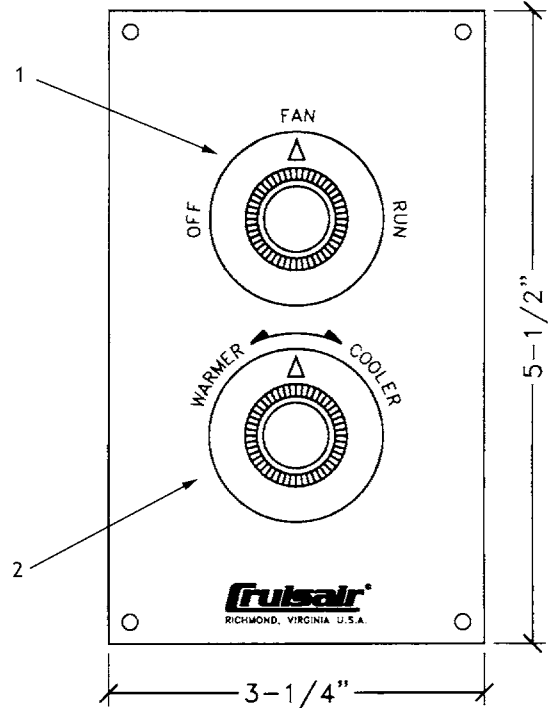


Fig. 6 - Three-Knob Switch Assembly



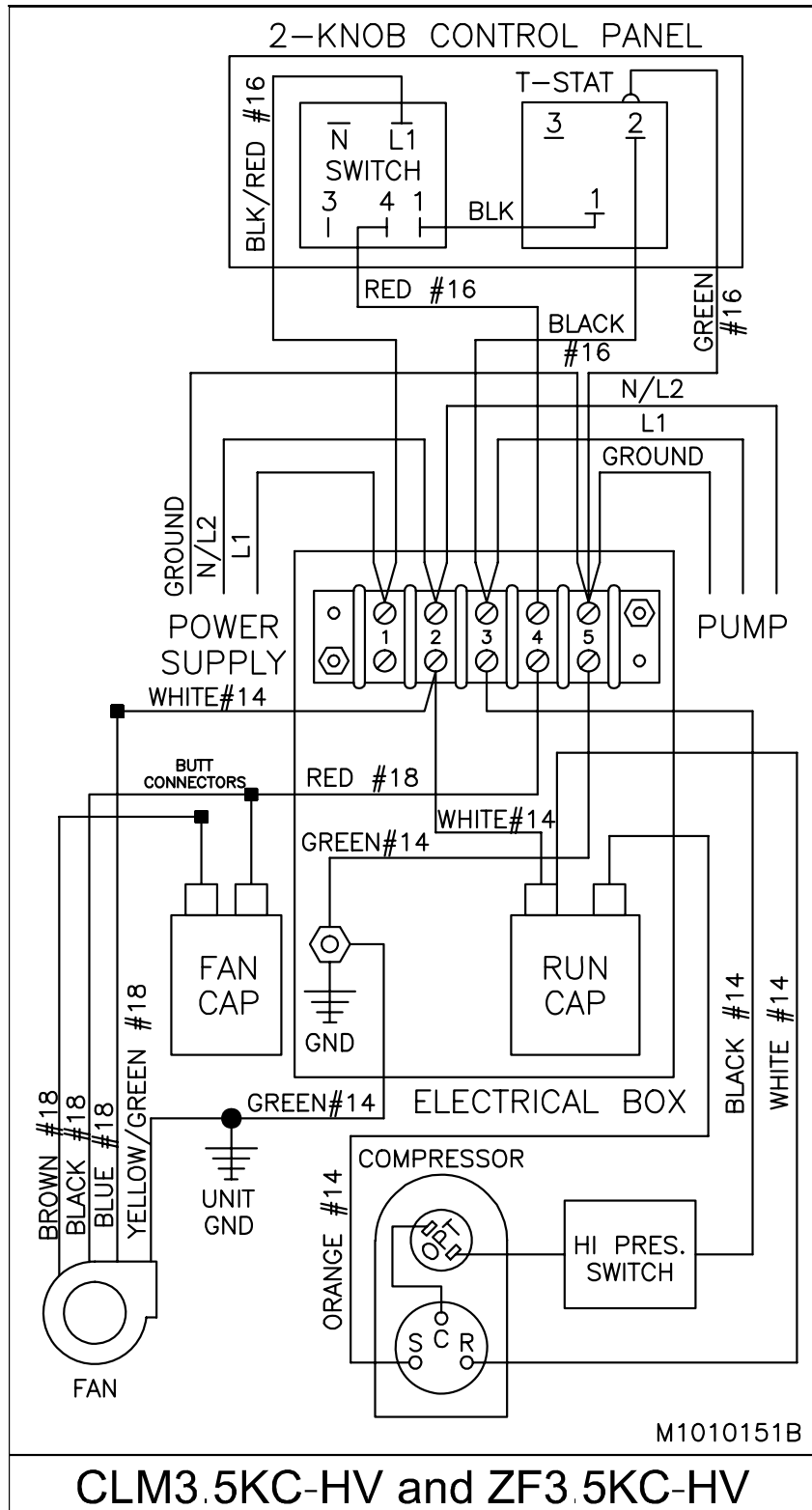
3 Knob Switch

Fig. 7 - Two-Knob Switch Assembly

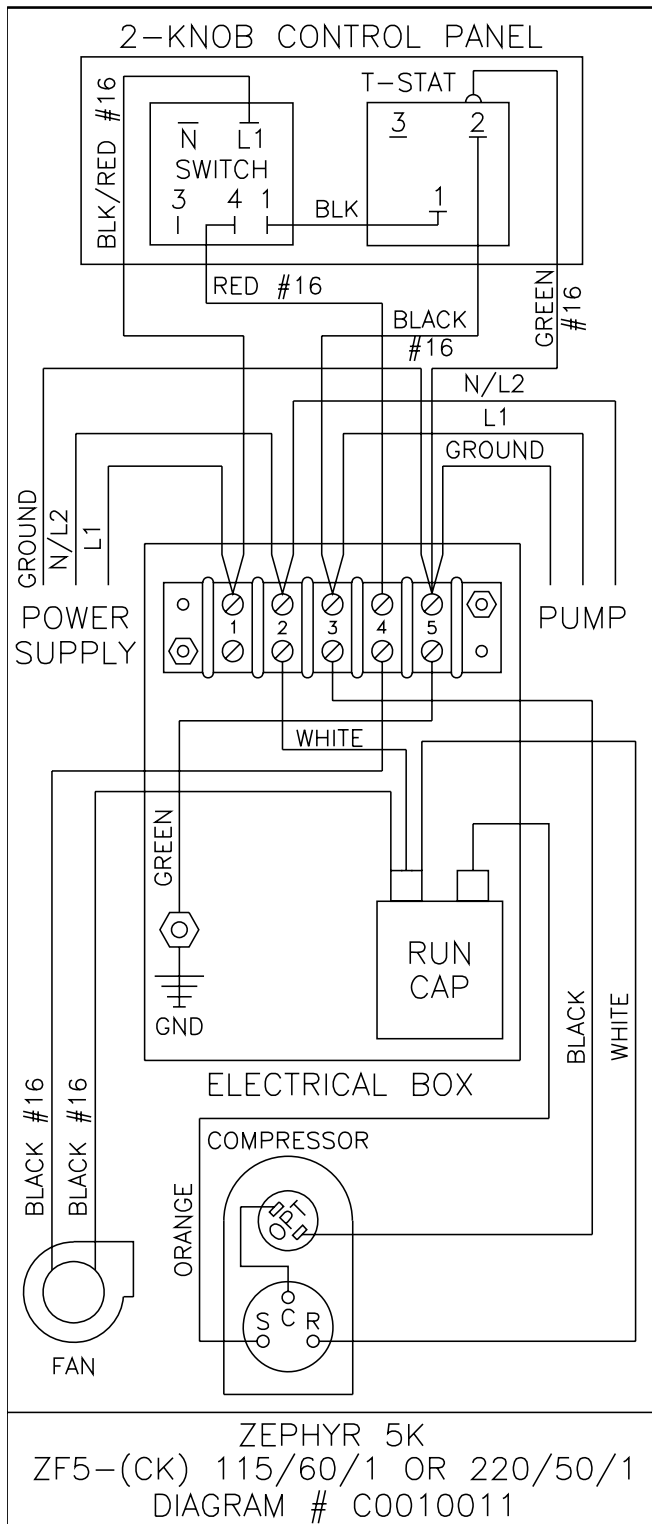


2 Knob Switch

Fig. 8 - Wiring Diagram of ZF3.5

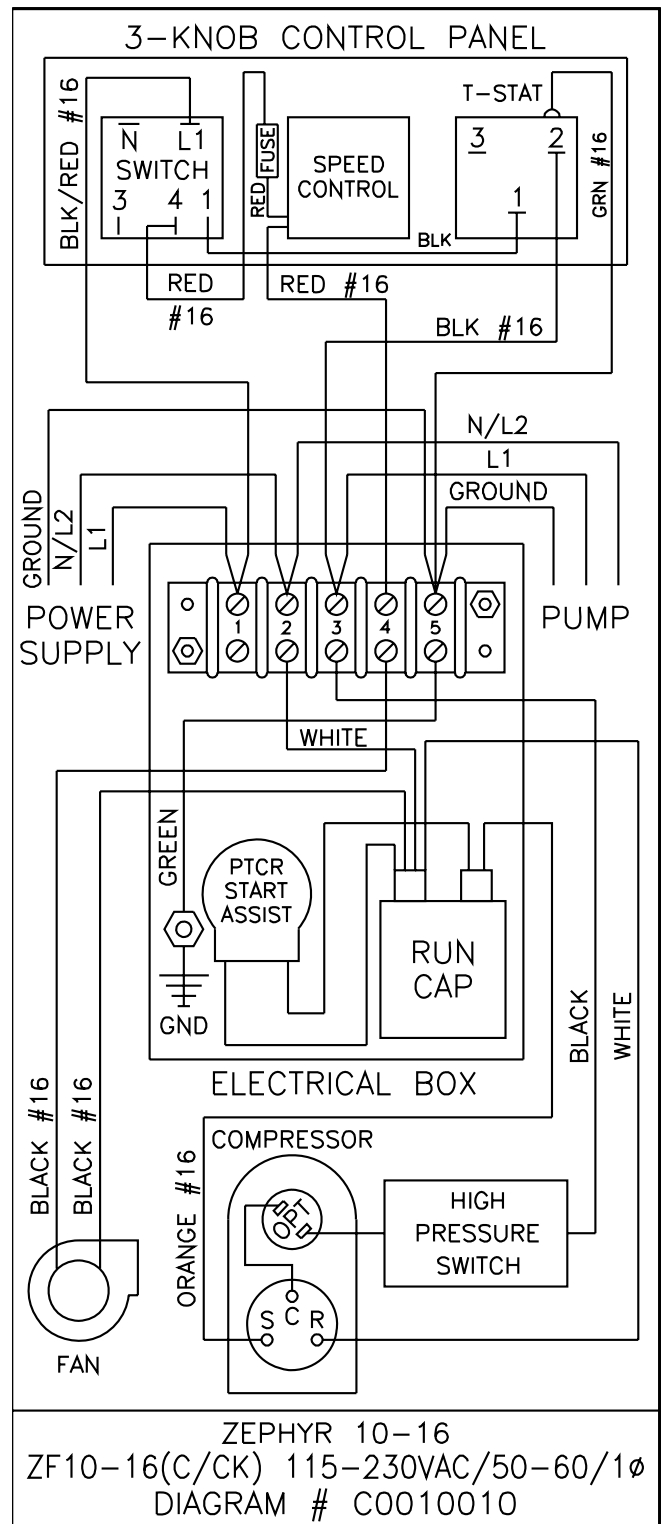


**Fig. 9 - ZF5 Wiring Diagram**



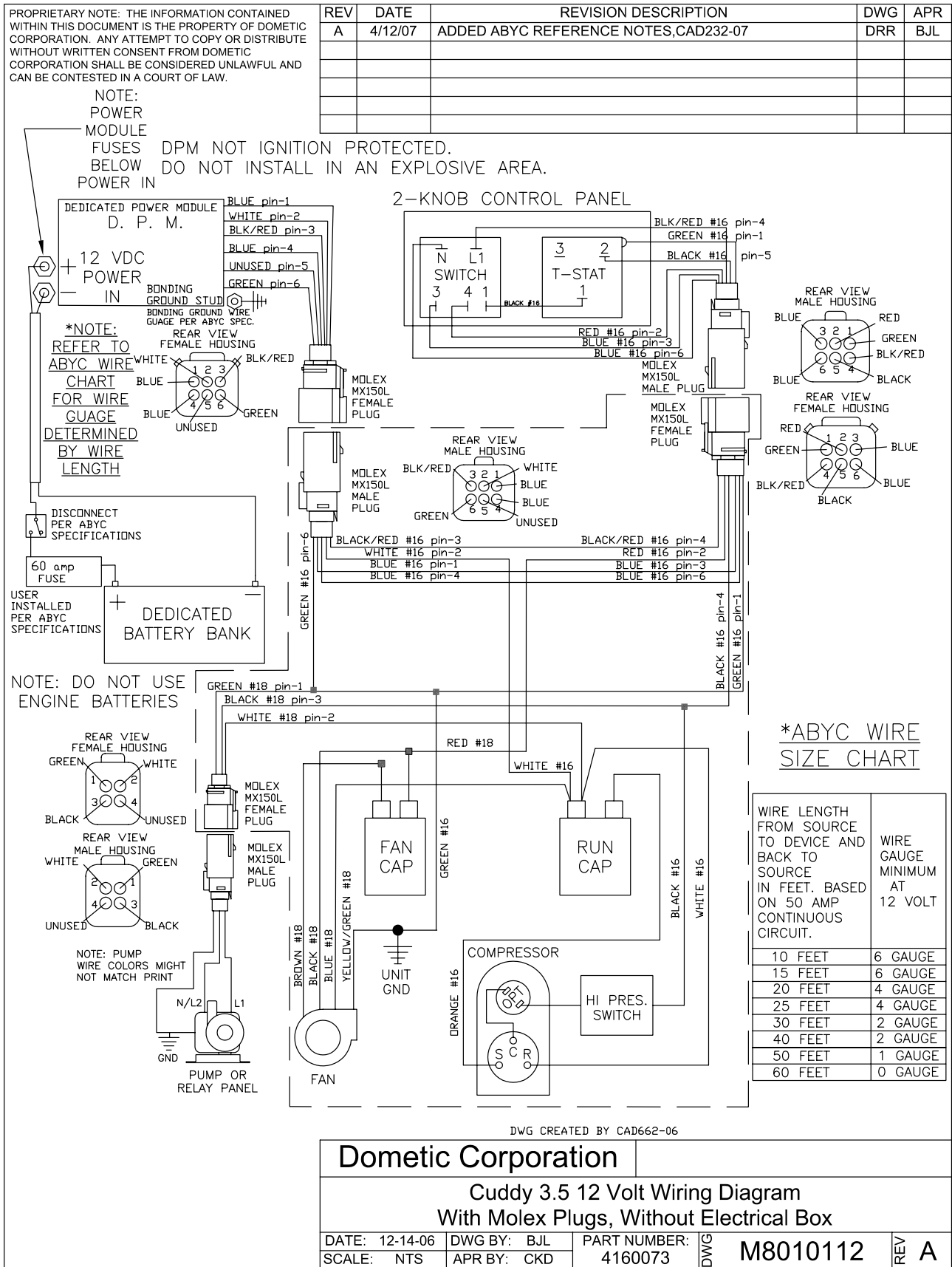
ALL WIRES 12 GA  
UNLESS OTHERWISE NOTED

**Fig. 10 - ZF10-16 Wiring Diagram**



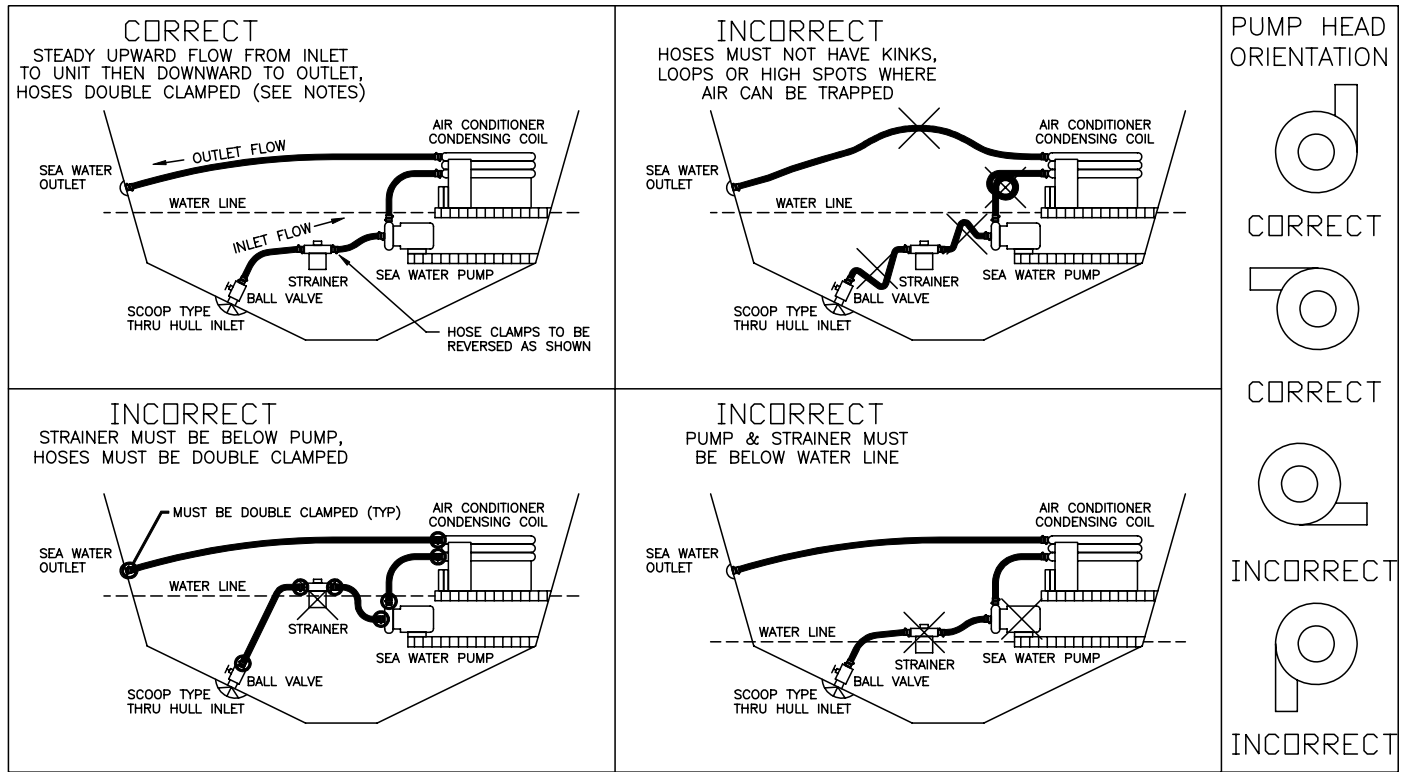
ALL WIRES 12 GA  
UNLESS OTHERWISE NOTED

**Fig. 11- Wiring Diagram for Cuddy dc CD3.5HV 12VDC**





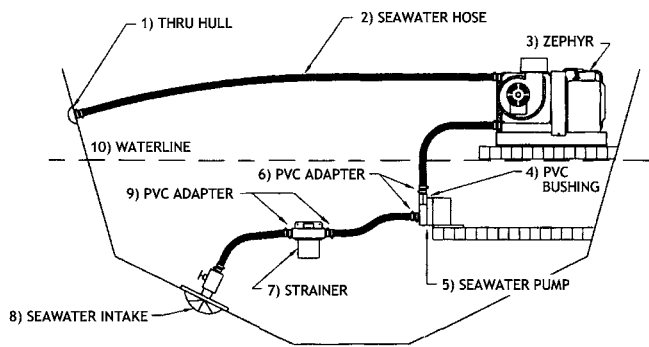
**Fig. 12- Seawater Pump & Plumbing Diagrams**



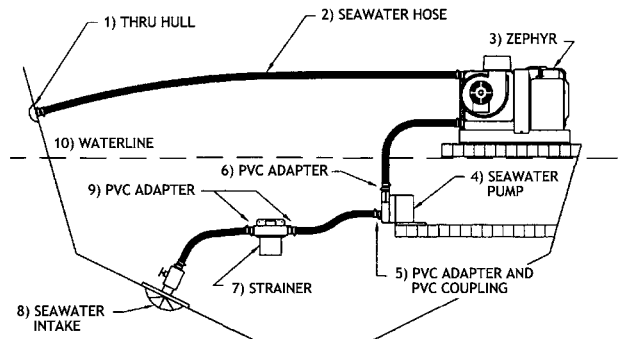
**NOTES:**

- 1) THRU HULL INLET, BALL VALVE, HOSE AND STRAINER SHOULD BE SIZED NO SMALLER THAN PUMP INLET.
- 2) INSTALL THRU HULL FITTING AS FAR BELOW THE WATER LINE AS POSSIBLE.
- 3) PUMP NEEDS DEDICATED THRU HULL NOT SHARED WITH OTHER PUMPS.
- 4) AVOID OR MINIMIZE 90° ELBOW FITTINGS AS MUCH AS POSSIBLE, ROTATE PUMP HEAD TOWARDS DIRECTION OF WATER FLOW.

**Fig. 13a - Seawater Kit Installation for ZF3.5-12**



**Fig. 13b - Seawater Kit Installation for ZF16**



**Fig. 14 - Dedicated Power Module (DPM) Specs Tables for Use With Cuddy dc Systems Only**

**Electrical Specifications**

Output Waveform.....Modified Sine-Wave  
 Output Power.....600W Continuous  
 Output Surge Rating.....1200W for 1 sec  
 Output Voltage.....115VAC ± 10%  
 Output Frequency.....60Hz (±4Hz)  
 Input DC Voltage Range.....11 - 15VDC  
 Input Low Voltage Shutdown.....< 10.5VDC ± 0.2VDC  
 High Temperature Shutdown.....Thermistor ≥167°F (75°C)  
 Reverse Polarity Protection.....External Fuse  
 No Load Current Draw.....0.75A~0.95A  
 Efficiency.....~90%  
 Over-voltage Shut-down.....16-17VDC, restart below 16VDC

**General Specifications**

Isolation Voltage.....Non-isolated  
 Operating Temperature Range.....-13 ~ 122°F (-25 ~ +50°C)  
 Storage Temperature Range.....-40 ~ 167°F (-40 ~ +75°C)  
 External Fuse.....30A x 2  
 Safety.....CE  
 Dimensions (L x W x H).....9.5 x 5.1 x 2.7" (241 x 130 x 69mm)  
 DC Input Connections (IN).....Ring Terminals  
 Net Weight.....~2.9 lbs (1.3kg)  
 AC Output Connections.....Per Dometic Wiring Diagram M8010112 in this manual  
 Ventilation.....Allow at least 1" (25mm) above unit for adequate airflow.

**LED Lights Scheme for DPM (see note)**

Battery Energy Level	No Load	With Load
Full (Battery Voltage>13V)	Green	Green
Intermediate(12-13V)	Green	Orange
Low(<12V)	Red	Red

Note: LED lights may or may not be readily visible, depending on DPM installation location. This table is included as a convenience, but is not necessary for troubleshooting the system.

**Fig. 15 - DC Wire Sizing Table**

DC Wire Size Table*		
Distance from battery (power source) to Cuddy dc unit	Total length of both positive and negative wires added together	Wire Size AWG
5 ft and under (1.5m and under)	10 ft and under (3.0m and under)	#6
5 ft to 7.5 ft (1.5m to 2.3m)	10 ft to 15 ft (3.0m to 4.6m)	#6
7.5 ft to 10 ft (2.3m to 3.0m)	15 ft to 20 ft (4.6m to 6.1m)	#4
10 ft to 12.5 ft (3.0m to 3.8m)	20 ft to 25 ft (6.1m to 7.6m)	#4
12.5 ft to 15 ft (3.8m to 4.6m)	25 ft to 30 ft (7.6m to 9.1m)	#2
15 ft to 20 ft (4.6m to 6.1m)	30 ft to 40 ft (9.1m to 12.2m)	#2
20 ft to 25 ft (6.1m to 7.6m)	40 ft to 50 ft (12.2m to 15.2m)	#1
25 ft to 30 ft (7.6m to 9.1m)	50 ft to 60 ft (15.2m to 18.3m)	#0

\* Table derived from ABYC section E9, table 9 for 12 VDC systems. These specifications were calculated using 3% voltage drop and a maximum current draw of 50 amps for Cuddy dc air conditioner and pump.

# Cruisair Worldwide Service Dealer Locator

The majority of the service listings displayed for the United States are key members of the national Cruisair distributor or master dealer network. If you need service, please contact the closest company shown. In most cases they will direct you to a local dealer or service port. We have over 500 Cruisair dealers in the national Cruisair network, and one should be convenient to you.

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You may also contact us directly via the web site or call us in the US at (804) 746-1313.

**For a complete and up-to-date Dealer locator list, please visit our website at <http://www.cruisair.com/cruisair/dealer.html>**

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#### **AAP Inc.**

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Territory: National Coach & Mobile Products Only  
Phone: 804-633-9454  
Fax: 804-633-5499  
Web: [www.aap.com](http://www.aap.com)

#### Alabama

#### **AER Marine Supply**

Location: Seabrook, Texas, USA  
Phone: (281) 474-3276  
Fax: (281) 474-2714  
E-mail: [rsmiller@aersupply.com](mailto:rsmiller@aersupply.com)  
Web: [www.aersupply.com](http://www.aersupply.com)

#### **Thom Chase Marine**

Location: Chattanooga, Tennessee, USA  
Territory: Northern Alabama, Northern Mississippi, Tennessee, Western Kentucky  
Phone: 423-344-6356  
Fax: 423-344-6356  
E-mail: [thomchase@aol.com](mailto:thomchase@aol.com)

#### Alaska

#### **Southern California Marine Enterprises**

Location: San Diego, California, USA  
Phone: 619-224-2869  
Fax: 619-226-0496  
E-mail: [sales@southerncalmarine.com](mailto:sales@southerncalmarine.com)  
Web: [www.southerncalmarine.com](http://www.southerncalmarine.com)

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E-mail: [sales@southerncalmarine.com](mailto:sales@southerncalmarine.com)  
Web: [www.southerncalmarine.com](http://www.southerncalmarine.com)

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#### California

#### **Southern California Marine Enterprises**

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Web: [www.southerncalmarine.com](http://www.southerncalmarine.com)

#### Colorado

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Phone: (281) 474-3276  
Fax: (281) 474-2714  
E-mail: [rsmiller@aersupply.com](mailto:rsmiller@aersupply.com)  
Web: [www.aersupply.com](http://www.aersupply.com)

#### Connecticut

#### **GDL Services, LLC**

Location: Clinton, CT, USA  
Territory: Connecticut River Area  
Phone: 860-669-5179  
Fax: 860-669-5806

#### **Nautical Air, Inc.**

Location: Farmingdale, New York, USA  
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N. of Baltimore), NJ, NY, PA, OH, RI  
Phone: (516) 586-5244  
Fax: (516) 586-5241  
E-mail: [sales@nauticalair.com](mailto:sales@nauticalair.com)  
Web: [www.nauticalair.com](http://www.nauticalair.com)

#### Delaware

#### **Annapolis Cruisair**

Location: Annapolis, Maryland, USA  
Territory: In Md: Baltimore & Areas South; In Delaware: South of the Sassafras River  
Phone: 410-224-0970  
Fax: 410-224-0050  
E-mail: [cruisair45@aol.com](mailto:cruisair45@aol.com)  
Web: [www.annapolis-cruisair.com](http://www.annapolis-cruisair.com)

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Web: [www.nauticalair.com](http://www.nauticalair.com)

#### Florida

#### **Cruisair Southeast, A Division of T.K. Alley, Inc.**

Location: Dania Beach, Florida, USA  
Territory: Southeast Florida  
Phone: 954-920-0300  
Fax: 954-920-0301  
E-mail: [tkalley@aol.com](mailto:tkalley@aol.com)  
Web: [www.cruisair-southeast.com](http://www.cruisair-southeast.com)

#### **Ward's Marine Electric, Inc.**

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Territory: Battery Chargers Only  
Phone: 954-523-2815  
Fax: 954-523-1967  
E-mail: [info@wardsmarine.com](mailto:info@wardsmarine.com)

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Territory: Tampa, St. Petersburg and surrounding areas  
Phone: 727-526-7875  
Fax: 727-528-9519  
E-mail: [cruisairsuncoast@yahoo.com](mailto:cruisairsuncoast@yahoo.com)

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#### **Beard Marine Savannah - Distributor**

Location: Savannah, Georgia, USA  
Phone: (912) 356-5222  
Fax: (912) 692-1006  
E-mail: [infosavannah@beardmarine.com](mailto:infosavannah@beardmarine.com)  
Web: [www.beardmarine.com](http://www.beardmarine.com)

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Fax: 619-226-0496  
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Web: [www.southerncalmarine.com](http://www.southerncalmarine.com)

#### Idaho

#### **Sure Marine Services Inc.**

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Phone: 206-784-9903  
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E-mail: [sales@suremarine.com](mailto:sales@suremarine.com)

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Fax: (586) 463-1762  
E-mail: [jandsmarine@sbcglobal.net](mailto:jandsmarine@sbcglobal.net)  
Web: [www.jandsmarine.com](http://www.jandsmarine.com)

#### **Midwest Marine Supply**

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Web: [www.midwestmarinesupply.com](http://www.midwestmarinesupply.com)

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Web: [www.nauticalair.com](http://www.nauticalair.com)

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Web: [www.jandsmarine.com](http://www.jandsmarine.com)

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E-mail: [sales@nauticalair.com](mailto:sales@nauticalair.com)  
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Louisiana

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Fax: (281) 474-2714  
E-mail: rsmiller@aersupply.com  
Web: www.aersupply.com

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Territory: Gulf Coast (LA & MS)  
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Fax: (504) 288-1758  
E-mail: lsintes@seachest.us

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Fax: 410-224-0050  
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Web: www.annapolis cruisair.com

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Web: www.aersupply.com

Montana

**Sure Marine Services Inc.**

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E-mail: sales@suremarine.com

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Fax: (281) 474-2714  
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Web: www.aersupply.com

Nevada

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Fax: (281) 474-2714  
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Web: www.aersupply.com

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Fax: 619-226-0496  
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Web: www.southern calmarine.com

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Fax: (516) 586-5241  
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Web: www.nauticalair.com

New Mexico

**AER Marine Supply**

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Fax: (281) 474-2714  
E-mail: rsmiller@aersupply.com  
Web: www.aersupply.com

New York

**Nautical Air, Inc.**

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Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N. of Baltimore), NJ, NY, PA, OH, RI  
Phone: (516) 586-5244  
Fax: (516) 586-5241  
E-mail: sales@nauticalair.com  
Web: www.nauticalair.com

North Carolina

**Martin's Marine**

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Territory: North Carolina and Myrtle Beach, SC  
Phone: (910) 799-9362  
Fax: (910) 799-9122

North Dakota

**AER Marine Supply**

Location: Seabrook, Texas, USA  
Phone: (281) 474-3276  
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Web: www.aersupply.com

Ohio

**Nautical Air, Inc.**

Location: Farmingdale, New York, USA  
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N. of Baltimore), NJ, NY, PA, OH, RI  
Phone: (516) 586-5244  
Fax: (516) 586-5241  
E-mail: sales@nauticalair.com  
Web: www.nauticalair.com

Oklahoma

**AER Marine Supply**

Location: Seabrook, Texas, USA  
Phone: (281) 474-3276  
Fax: (281) 474-2714  
E-mail: rsmiller@aersupply.com  
Web: www.aersupply.com

Oregon

**Sure Marine Services Inc.**

Location: Seattle, Washington, USA  
Phone: 206-784-9903  
Fax: 206-784-0506  
E-mail: sales@suremarine.com

Pennsylvania

**Nautical Air, Inc.**

Location: Farmingdale, New York, USA  
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N. of Baltimore), NJ, NY, PA, OH, RI  
Phone: (516) 586-5244  
Fax: (516) 586-5241  
E-mail: sales@nauticalair.com  
Web: www.nauticalair.com

Rhode Island

**Cay Electronics**

Location: Portsmouth, Rhode Island, USA  
Territory: Rhode Island  
Phone: 401-683-3520  
Fax: 401-683-3633  
Web: www.cayelectronics.com

**Nautical Air, Inc.**

Location: Farmingdale, New York, USA  
Territory: CT, DE (N. of Sassafras River), IO, IL, MD (N. of Baltimore), NJ, NY, PA, OH, RI  
Phone: (516) 586-5244  
Fax: (516) 586-5241  
E-mail: sales@nauticalair.com  
Web: www.nauticalair.com

South Carolina

**Atlantic Boat ACR**

Location: Johns Island, South Carolina, USA  
Phone: (843) 557-0788  
Fax: (843) 557-0786  
E-mail: info@atlanticboatacr.com  
Web: www.atlanticboatacr.com

## South Carolina

### **Martin's Marine**

Location: Wilmington, North Carolina, USA  
Territory: North Carolina and Myrtle Beach, SC  
Phone: (910) 799-9362  
Fax: (910) 799-9122

## South Dakota

### **AER Marine Supply**

Location: Seabrook, Texas, USA  
Phone: (281) 474-3276  
Fax: (281) 474-2714  
E-mail: rsmiller@aersupply.com  
Web: www.aersupply.com

## Tennessee

### **Thom Chase Marine**

Location: Chattanooga, Tennessee, USA  
Territory: Northern Alabama, Northern Mississippi, Tennessee, Western Kentucky  
Phone: 423-344-6356  
Fax: 423-344-6356  
E-mail: thomchase@aol.com

## Texas

### **AER Marine Supply**

Location: Seabrook, Texas, USA  
Phone: (281) 474-3276  
Fax: (281) 474-2714  
E-mail: rsmiller@aersupply.com  
Web: www.aersupply.com

## Utah

### **AER Marine Supply**

Location: Seabrook, Texas, USA  
Phone: (281) 474-3276  
Fax: (281) 474-2714  
E-mail: rsmiller@aersupply.com  
Web: www.aersupply.com

### **Southern California Marine Enterprises**

Location: San Diego, California, USA  
Phone: 619-224-2869  
Fax: 619-226-0496  
E-mail: sales@southerncalmarine.com  
Web: www.southerncalmarine.com

## Virginia

### **Lamy Marine, Inc.**

Location: Chesapeake, Virginia, USA  
Phone: 757-494-3747  
Fax: 757-494-3740  
E-mail: lamy.marine@verizon.net

## Washington

### **Sure Marine Services Inc.**

Location: Seattle, Washington, USA  
Phone: 206-784-9903  
Fax: 206-784-0506  
E-mail: sales@suremarine.com

## Wisconsin (East)

### **J & S Marine Sales & Service**

Location: Detroit, Michigan, USA  
Phone: (586) 463-3400  
Fax: (586) 463-1762  
E-mail: jandsmarine@sbcglobal.net  
Web: www.jandsmarine.com

### **Midwest Marine Supply**

Location: St. Clair Shores, Michigan, USA  
Phone: (586) 778-8950  
Fax: (586) 778-6108  
E-mail: sales@midwestmarinesupply.com  
Web: www.midwestmarinesupply.com

## Wisconsin (West)

### **Midwest Cruisair**

Location: Red Wing, Minnesota, USA  
Territory: Minnesota and Western Wisconsin  
Phone: 651-388-4881  
Fax: 651-388-9186  
E-mail: estelter@redwing.net

## Wyoming

### **AER Marine Supply**

Location: Seabrook, Texas, USA  
Phone: (281) 474-3276  
Fax: (281) 474-2714  
E-mail: rsmiller@aersupply.com  
Web: www.aersupply.com

## International

### **Angola**

#### **Southern Power Products**

Location: Cape Town, South Africa  
Phone: 27-21-511-0653  
Fax: 27-21-510-3049  
E-mail: sales@southernpower.co.za

### **Argentina**

#### **Trimer S.A.**

Location: Buenos Aires, Argentina  
Phone: 5411-4580-0444  
Fax: 5411-4580-0440  
E-mail: trimer@trimer.com.ar  
Web: www.trimer.com.ar

### **Australia**

#### **Seabreeze Industries**

Location: Coomera, Queensland, Australia  
Phone: 61-7-55806371  
Fax: 61-7-55806372  
E-mail: sales@seabreeze-industries.com.au  
Web: www.seabreeze-industries.com.au

### **Austria**

#### **Domestic Marine – Italy, Sales Company**

Location: Milano, Italy  
Phone: 39 0362 44182  
Fax: 39 0362 452226  
E-mail: marine.info@dometic.it  
Web: www.dometic.com

#### **Nautica Centis di Nespolo Cinzia & C. Sne**

Location: Bevazzana de Latisana (UD), Italy  
Territory: Northeast Italy, Austria, Croatia, Slovenia  
Phone: 390-431-53-644  
Fax: 390-431-53-460  
E-mail: nautica.centis@nauticacentis.it  
Web: www.nauticacentis.it

### **Bahamas**

#### **Bradford Grand Bahama, Ltd.**

Location: Freeport, Grand Bahama, Bahamas  
Phone: +242-352-7711  
Fax: +242-352-7695  
E-mail: dan@bradford-grand-bahama.com  
Web: www.bradford-grand-bahama.com

#### **Freezing Point, Ltd.**

Location: Nassau, Bahamas  
Phone: (242) 325-3589  
Fax: (242) 356-5271  
E-mail: rolandknowles@bahamas.net.bs

#### **Nixon's Refrigeration**

Location: Abaco, Bahamas  
Territory: Abaco Island only  
Phone: 242-367-5219  
Fax: 242-367-5219  
E-mail: seannixon@email.com

### **Bahrain**

#### **Mantech**

Location: Dubai, United Arab Emirates  
Phone: +(971) 4-3332-542  
Fax: +(971) 4-3330-649  
E-mail: mge@emirates.net.ae

## **Belgium**

### **Eberca**

Location: , Netherlands  
Phone: 31 1866 21955  
Fax: 31 1866 21818  
E-mail: info@eberca.nl

## **Bermuda**

### **Flatt's Marine**

Location: St. Georges, Bermuda  
Phone: +441-293-5740  
Fax: +441-293-5740

## **Botswana**

### **Southern Power Products**

Location: Cape Town, South Africa  
Phone: 27-21-511-0653  
Fax: 27-21-510-3049  
E-mail: sales@southernpower.co.za

## **Brazil**

### **Sailing Products**

Location: Sao Paulo, Brazil  
Phone: +55 (0) 11 33546734 Technical  
Fax: +55 (0) 11 81 1936

### **Sailing Products**

Location: Rio de Janeiro, Brazil  
Phone: 55 (0) 21 3154-9990  
Fax: 55 (0) 21 2494-7223  
E-mail: sailing@sailing.com.br

## **British Virgin Islands**

### **Cay Electronics Ltd.**

Location: Tortola, British Virgin Islands  
Phone: 284-494-2400  
Fax: 284-494-5389  
E-mail: caybvi@candwbvi.net  
Web: www.cayelectronics.com

### **Parts And Power**

Location: Tortola, British Virgin Islands  
Phone: 284-494-2830  
Fax: 284-494-1584  
E-mail: info@partsandpower.com  
Web: www.partsandpower.com

## **British West Indies**

### **Caribbean Marine & Diesel**

Location: Turks and Caicos Islands, British West Indies  
Phone: 649-941-5903  
Fax: 649-941-5902  
E-mail: caribmarinediesel@tcway.tz

## **Canada**

### British Columbia

#### **Accutemp Refrigeration and Air Conditioning**

Location: Victoria, BC, Canada  
Territory: Western Canada  
Phone: 250-475-2665  
Fax: 250-475-1957  
E-mail: info@accutemp.ca  
Web: www.accutemp.ca

#### **Airon Heating & Air Conditioning**

Location: Richmond, British Columbia, Canada  
Phone: (604) 270-2040  
Fax: (604) 270-3888  
E-mail: info@aironhvac.com  
Web: www.aironhvac.com

### Ontario

#### **J & S Marine Sales & Service**

Location: Detroit, Michigan, USA  
Phone: (586) 463-3400  
Fax: (586) 463-1762  
E-mail: jandsmarine@sbcglobal.net  
Web: www.jandsmarine.com

## Ontario

### Northland Supply Company

Location: Queensville, Ontario, Canada  
Phone: (905) 478-2244  
Fax: (905) 478-2295  
E-mail: norsupco@aol.com  
Web: www.norsupco.com

### Caribbean Islands

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#### B & R

Location: Centro Comercial Naco, Santo Domingo, Dominican Republic  
Phone: (809) 562-1661  
Fax: (809) 562-1521  
E-mail: hsosa@navierasbr.com

#### C.S. Services

Location: Martinique, French West Indies  
Phone: 596-749113  
Fax: 596-749174

#### Caraibe Greemant

Location: Le Marin, Martinique, French West Indies  
Phone: 596 596 74 80 33  
E-mail: cgmar@wanadoo.fr

#### Caribbean Marine & Diesel

Location: Turks and Caicos Islands, British West Indies  
Phone: 649-941-5903  
Fax: 649-941-5902  
E-mail: caribmarinediesel@tcivaw.tc

#### Cay Electronics Ltd.

Location: Tortola, British Virgin Islands  
Phone: 284-494-2400  
Fax: 284-494-5389  
E-mail: caybvi@candwbvi.net  
Web: www.cayelectronics.com

#### Centro Cruisair de Puerto Rico

Location: Santurce, Puerto Rico  
Phone: 787-727-3637  
Fax: 787-727-3637  
E-mail: fernan\_moreno@hotmail.com

#### Cool-Tech Air Condition

Location: Fajardo, Puerto Rico  
Phone: (787) 860-2615  
Fax: (787) 801-2050  
Web: http://www.cooltechac.com/

#### Coral Bay Marine Service

Location: St. John, U.S. Virgin Islands  
Phone: 340-776-6859  
Fax: 340-776-6859

#### Dr. Ice

Location: St. Thomas, US Virgin Islands  
Territory: St. Thomas  
Phone: 340-513-9072  
Fax: 340-775-6576  
E-mail: davidgott@hotmail.com;

#### Enertech N.V.

Location: Simpson Bay, St. Maarten/St. Martin, Netherlands Antilles  
Phone: +599-551-2145  
Fax: +599-544-4608  
E-mail: service@enertechnv.com  
Web: www.enertechnv.com

#### Freezing Point, Ltd.

Location: Nassau, Bahamas  
Phone: (242) 325-3589  
Fax: (242) 356-5271  
E-mail: rolandknowles@bahamas.net.bs

#### Frostline

Location: Cole Bay, St. Maarten/St. Martin, Netherlands Antilles  
Phone: 599 522 9610 (Technical)  
Fax: 599 544 3263  
E-mail: paul@frostline.biz (technical); glyn@frostline.biz

#### Hitchcraft Co.

Location: Curacao, Netherlands Antilles  
Phone: 5999 667 3349  
Fax: 501-641-2708 (US Line)  
E-mail: Hcraft@atpglobal.net

#### May Day Marine

Location: San Juan, Puerto Rico  
Territory: Puerto Rico, Dominican Republic  
Phone: 787-637-0756  
Fax: 787-790-2551

#### Nau-T-Kol Marine Refrigeration

Location: Chaguaramas, Trinidad  
Phone: 868-634-2174  
Fax: 868-634-2174  
E-mail: nautkol@cablenett.net  
Web: www.nautkol.com

#### Nixon's Refrigeration

Location: Abaco, Bahamas  
Territory: Abaco Island only  
Phone: 242-367-5219  
Fax: 242-367-5219  
E-mail: seannixon@email.com

#### Outfitters International

Location: St. Georges, Grenada  
Phone: 473-440-7949  
Fax: 473-440-6680  
E-mail: footloos@caribsurf.com

#### Parts And Power

Location: Tortola, British Virgin Islands  
Phone: 284-494-2830  
Fax: 284-494-1584  
E-mail: info@partsandpower.com  
Web: www.partsandpower.com

#### Reefco, Inc.

Location: , St. Thomas, US Virgin Islands  
Phone: (340) 776-0038  
Fax: (340) 776-0038  
E-mail: dennedyd@viaccess.net  
Web: www.reefco.net

#### Regis Electronics (St Lucia) LTD.

Location: St. Lucia, West Indies  
Phone: 758-452-0205  
Fax: 758-452-0206  
E-mail: stlucia@regiselectronics.com  
Web: www.regiselectronics.com

#### St. Croix Marine Corp.

Location: St. Croix, U.S. Virgin Islands  
Phone: 340-773-0289  
Fax: 340-778-8974  
E-mail: stcroixmarine@hotmail.com

#### Suncool Air Conditioning

Location: Carolina, Puerto Rico, Puerto Rico  
Phone: (787) 791-6971  
Fax: (787) 791-3885  
E-mail: suncool1@coqui.net

#### Technical House (E.T.S. Inc.)

Location: San Juan, Puerto Rico  
Territory: Sentry Battery Chargers Only  
Phone: 787-781-1313  
Fax: 787-781-2020  
E-mail: jdonato@technicalhouse.com  
Web: www.technicalhouse.com

#### The Signal Locker

Location: English Harbour, Antigua, West Indies  
Phone: (268) 460-1528  
Fax: (268) 460-1148  
E-mail: lockers@candw.aq

### China

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#### Chi-Mo Inc.

Location: Shanghai, China  
Phone: 8621-5917-1111  
Fax: 8621-5917-1166  
E-mail: sales@springfieldmarine.com.cn  
Web: www.springfieldmarine.com.cn

#### Tripower Beijing

Location: Beijing, China  
Phone: (86) 10 6426 3335  
Fax: (86) 10 64248862  
E-mail: BJ-sales@tripower.com.sg; bitritex@263.net.cn  
Web: www.tritex.com.sg

#### Tripower Guangzhou

Location: Guangzhou, China  
Phone: 86-20-8136 0955  
Fax: 86-20 8136 6596  
E-mail: GZ-sales@tripower.com.sg;  
Web: www.tritex.com.sg

#### Tripower Hangzhou

Location: Hangzhou, China  
Phone: 86 571 86414317  
Fax: 86-571-86414317  
E-mail: HZ-admin@tripower.com.sg; HZ-  
Web: www.tritex.com.sg

#### Tripower Shanghai

Location: Shanghai, China  
Phone: 86 21 5240 2638  
Fax: 86 21 5240 2153  
E-mail: info@tripower.com.sg  
Web: www.tritex.com.sg

#### Tripower Xiamen

Location: Xiamen, China  
Phone: (86) 592 5376000  
Fax: (86) 592 5376013  
E-mail: xm-oem@tripower.com.sg, xm-  
Web: www.tritex.com.sg

#### Tripower Zhuhai

Location: C.Zhuhai, China  
Phone: 86-756 3222470  
Fax: 86-756 3222471  
E-mail: zh-sales@tripower.com; zhtritex@vip.163.com  
Web: www.tritex.com.sg

### Columbia

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#### Todomar CHL Marina S.A.

Location: Cartagena, Colombia  
Phone: +57-5-6654177  
Fax: +57-5-6655118  
E-mail: flondono@todomarchl.com

### Costa Rica

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#### CR Marine Supply S.A.

Location: Garrabito, Costa Rica  
Territory: Costa Rica  
Phone: 506-637-7419  
Fax: 506-637-7180  
E-mail: info@crmarinesupply.com

#### Metro Marine

Location: Herradura Bay, Costa Rica  
Phone: 506-643-2409  
Fax: 506-643-2409  
Web: marinemetro@racsa.co.cr

### Croatia

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#### Dometic Marine – Italy, Sales Company

Location: Milano, Italy  
Phone: 39 0362 44182  
Fax: 39 0362 452226  
E-mail: marine.info@dometic.it  
Web: www.dometic.com

#### Nautica Centis di Nespolo Cinzia & C. Sne

Location: Bevazzana de Latisana (UD), Italy  
Territory: Northeast Italy, Austria, Croatia, Slovenia  
Phone: 390-431-53-644  
Fax: 390-431-53-460  
E-mail: nautica.centis@nauticacentis.it  
Web: www.nauticacentis.it

## Cyprus

### Dometic Marine - United Kingdom, Sales Company

Location: Poole, Dorset, England  
Phone: 44 870 3306101  
Fax: 44 870 3306102  
E-mail: sales@dometicmarine.com  
Web: www.dometic.com

### Tuti Mare Trading

Location: Limassol, Cyprus  
Phone: (35) 725.43.1313  
Fax: (35) 725.43.1300  
E-mail: tutimare@cytanet.com.cy

## Dominican Republic

### May Day Marine

Location: San Juan, Puerto Rico  
Territory: Puerto Rico, Dominican Republic  
Phone: 787-637-0756  
Fax: 787-790-2551

Santo Domingo

## B & R

Location: Centro Comercial Naco, Santo Domingo, Dominican Republic  
Phone: (809) 562-1661  
Fax: (809) 562-1521  
E-mail: hsosa@navierasbr.com

## Ecuador

### Navas-Bustos Representaciones

Location: Guayaquil, Ecuador  
Phone: 593-2-252542  
Fax: 593-2-251-421

## Egypt

### Climate Company

Location: Cairo, Egypt  
Phone: 20-2-2598092  
Fax: 20-2-4523028  
E-mail: climate@tedata.net.eg

## Eritrea

### DM Electrical Engineering

Location: Asmara, Eritrea  
Phone: 291-1-126737  
Fax: 291-1-127650

## France

### Dometic Marine – France, Sales Company

Location: Plailly, France  
Phone: Cell: 0033 (0)680 415 543  
Fax: 0033 (0)344 633 518  
E-mail: marine.sales@dometic.fr  
Web: www.dometic.com

### PolyMarine Distribution (C/O Occas Marine)

Location: Le Cannet, Rocheville, France  
Phone: 0033 493463634  
Fax: 0033 493463634  
E-mail: polymarine.bayle@free.fr

## French West Indies

### C.S. Services

Location: Martinique, French West Indies  
Phone: 596-749113  
Fax: 596-749174

### Caraibe Greemant

Location: Le Marin, Martinique, French West Indies  
Phone: 596 596 74 80 33  
E-mail: cmar@wanadoo.fr

## Germany

### GEMO Service GmbH

Location: Lubeck – Travemunde, Germany  
Phone: (49) 4502 2466  
Fax: (49) 4502 2425  
E-mail: qemo\_qmbh@t-online.de  
Web: www.qemo online.de

## Greece

### Dometic Marine - United Kingdom, Sales Company

Location: Poole, Dorset, England  
Phone: 44 870 3306101  
Fax: 44 870 3306102  
E-mail: sales@dometicmarine.com  
Web: www.dometic.com

### Polifrost Technical Ltd.

Location: Piraeus, Greece  
Phone: 30-210-461-3370  
Fax: 30-210-461-4376

Athens

### Aegean Diesel Electric Ltd.

Location: Athens, Piraeus, Greece  
Phone: +30 210 42 22 484  
Fax: +30 210 41 75 201  
E-mail: info@ade-marine.gr

## Grenada

### Outfitters International

Location: St. Georges, Grenada  
Phone: 473-440-7949  
Fax: 473-440-6680  
E-mail: footloos@caribsurf.com

## Guam

### Fentress Refrigeration Service Co.

Location: Tamuning, Guam  
Phone: 671-565-4038  
Fax: 671-565-3315  
E-mail: fenres@guam.net

## Guatemala

### Automotores y Marina, S.A.

Location: Villa Nueva, Guatemala  
Phone: (502) 6628-6400  
Fax: (502) 6628-6401  
E-mail: info@automotoresy marina.com

## Hong Kong

### Alan Reid

Location: Sai Kung, NT, Hong Kong  
Phone: 852-271 959 82  
Fax: 852-219 444 63  
E-mail: funcle@pacific.net.hk

### Tripower Hong Kong

Location: Kowloon, Hong Kong  
Phone: (852) 2341-3329  
Fax: (852) 2343-1830  
E-mail: hk-sales@tripower.com.sg; tritex@pacific.net.hk  
Web: www.tritex.com.sg

## Indonesia

### PT.TriMarine Indonesia

Location: Lippo Karawachi, Tangerang, Jakarta, Indonesia  
Phone: +6221-5512635  
Fax: +6221-5513382  
E-mail: pt-trimarine@tripower.com.sg; liben@cbn.net.id  
Web: www.tritex.com.sg

## Israel

### Yamit Mil Ltd.

Location: Ramat-Gan, Israel  
Phone: 972 3 6123192  
Fax: 972 3 6123197  
E-mail: nathan@yamit-mil.com  
Web: www.yamit-mil.com

## Italy

### Cummins Diesel Italia S.P.A

Location: Milan, Italy  
Territory: Central & Southern Italy  
Phone: 39 02 51 655 856  
Fax: 39 02 51 65 58 55  
E-mail: eugenio.magni@cummins.com

## Dometic Marine – Italy, Sales Company

Location: Milano, Italy  
Phone: 39 0362 44182  
Fax: 39 0362 452226  
E-mail: marine.info@dometic.it  
Web: www.dometic.com

## Nautica Centis di Nespolo Cinzia & C. Sne

Location: Bevazzana de Latisana (UD), Italy  
Territory: Northeast Italy, Austria, Croatia, Slovenia  
Phone: 390-431-53-644  
Fax: 390-431-53-460  
E-mail: nautica.centis@nautiacentis.it  
Web: www.nautiacentis.it

## Japan

### Gunji Corporation

Location: Osaka, Japan  
Phone: 81-6-6451-5615  
Fax: 81-6-6454-0056  
E-mail: gunji@gunji.com  
Web: www.gunji.com

## Kuwait

### Mantech

Location: Dubai, United Arab Emirates  
Phone: +(971) 4-3332-542  
Fax: +(971) 4-3330-649  
E-mail: mge@emirates.net.ae

### Seas & Deserts Group

Location: Al-shawikh, Kuwait  
Phone: 965-4849212  
Fax: 965-4820913

## Luxembourg

### Eberca

Location: , Netherlands  
Phone: 31 1866 21955  
Fax: 31 1866 21818  
E-mail: info@eberca.nl

## Malaysia

### Gypsie Marine Sdn Bhd

Location: Langkawi, Malaysia  
Phone: 604 9553006  
Fax: 604 9553006  
E-mail: randall@gypsiemarine.com

### Pen-Marine Sdn Bhd

Location: Kuala Lumpur, Malaysia  
Phone: +6 06 6462792  
Fax: +6 06 6462793  
E-mail: penmarinepd@penmarine.com

### Pen-Marine Sdn Bhd

Location: Penang, Malaysia  
Phone: 604-6262628  
Fax: 604-6262688  
E-mail: penmarine@pd.iaring.my

## Maldives

### TriMarine Maldives Pvt. Ltd.

Location: Male', Maldives  
Phone: (960) 778-1818  
E-mail: trimarine@dhivehinet.net.mv  
Web: www.tritex.com.sg

### Wheel Engineering Services

Location: Malé, Maldives  
Territory: Maldives  
Phone: 960-3327806  
Fax: 960-3324145  
E-mail: wes@avasmal.com.mv

## Malta

### Dometic Marine - United Kingdom, Sales Company

Location: Poole, Dorset, England  
Phone: 44 870 3306101  
Fax: 44 870 3306102  
E-mail: sales@dometicmarine.com  
Web: www.dometic.com

## Inmartech Ltd.

Location: Swieqi, STJ 04, Malta  
Territory: Malta  
Phone: 00356 21376476  
Fax: 00356 21376476  
E-mail: inmartech@waldonet.net.mt

## Mexico

### Southern California Marine Enterprises

Location: San Diego, California, USA  
Phone: 619-224-2869  
Fax: 619-226-0496  
E-mail: sales@southernmarine.com  
Web: www.southernmarine.com

## Monaco

### PolyMarine Distribution (C/O Occas Marine)

Location: Le Cannet, Rocheville, France  
Phone: 0033 493463634  
Fax: 0033 493463634  
E-mail: polymarine.bayle@free.fr

## Mozambique

### Southern Power Products

Location: Cape Town, South Africa  
Phone: 27-21-511-0653  
Fax: 27-21-510-3049  
E-mail: sales@southernpower.co.za

## Myanmar

### TriMarine Myanmar

Location: Mayangon Township, Yangon Union of Myanmar  
Phone: 95-1-681753  
Fax: 95-1-681813  
E-mail: MM-sales@tritex.com.sg; Multilink@tritex.com.sg  
Web: www.tritex.com.sg

## Namibia

### Southern Power Products

Location: Cape Town, South Africa  
Phone: 27-21-511-0653  
Fax: 27-21-510-3049  
E-mail: sales@southernpower.co.za

## Netherlands

### Eberca

Location: , Netherlands  
Phone: 31 1866 21955  
Fax: 31 1866 21818  
E-mail: info@eberca.nl

## Netherlands Antilles

### Enertech N.V.

Location: Simpson Bay, St. Maarten/St. Martin, Netherlands Antilles  
Phone: +599-551-2145  
Fax: +599-544-4608  
E-mail: service@enertechnv.com  
Web: www.enertechnv.com

### Frostline

Location: Cole Bay, St. Maarten/St. Martin, Netherlands Antilles  
Phone: 599 522 9610 (Technical)  
Fax: 599 544 3263  
E-mail: paul@frostline.biz (technical); glyn@frostline.biz

### Hitchcraft Co.

Location: Curacao, Netherlands Antilles  
Phone: 5999 667 3349  
Fax: 501-641-2708 (US Line)  
E-mail: Hcraft@attglobal.net

## New Caledonia

### Altomarine

Location: Noumea, New Caledonia  
Phone: 687 25 96 12  
Fax: 687 25 43 30

## New Zealand

### Whiting Power Systems

Location: 192 Herne Bay, Auckland, New Zealand  
Phone: 649.358.2050  
Fax: 649.358.0285  
E-mail: sales@whiting.co.nz  
Web: www.whiting.co.nz

## Norway

### Refnor A.S.

Location: Østerås, Norway  
Phone: 47-67 14 07 50  
Fax: 47-67 14 70 88  
E-mail: refnor.as@c2i.net

## Oman

### Mantech

Location: Dubai, United Arab Emirates  
Phone: +(971) 4-3332-542  
Fax: +(971) 4-3330-649  
E-mail: mqe@emirates.net.ae

### OHI Marine LLC

Location: Muscat, Oman  
Phone: 968-712240  
Fax: 968-712085

## Pakistan

### Breeze Marketing

Location: Karachi, Pakistan  
Phone: +(92-21) 5883662, 5380735 & 5883824  
Fax: +(92-21) 5883813  
E-mail: m-a@cyber.net.pk

### Mantech

Location: Dubai, United Arab Emirates  
Phone: +(971) 4-3332-542  
Fax: +(971) 4-3330-649  
E-mail: mqe@emirates.net.ae

## Panama

### Evans International Services SA

Location: Panama City, Panama  
Territory: Panama  
Phone: 507-232-5406  
Fax: 507-232-7648  
E-mail: info@evansint.com  
Web: www.evansint.com

### Panama Yacht Sales and Service

Location: Panama City, Panama  
Territory: Panama  
Phone: 507-314-3345  
Fax: 507-314-3346  
E-mail: info@panamayachtsales.com

## Papua New Guinea

### Lohberger Engineering Pty

Location: Port Moresby, NCD, Papua New Guinea  
Phone: 675-321-2122  
Fax: 675-321-2704  
E-mail: loheng@online.net.pg  
Web: www.lohberger.com.pg

## Peru

### Corporación Frío Novo SAC

Location: Lima (La Molina), Peru  
Phone: (511) 451-5052  
E-mail: frionovo@infonegocios.net.pe

## Philippines

### Harbour Yacht Trading & Services Corp.

Location: Subic Bay, Philippines  
Phone: +63 9178 426166  
Fax: +63 47 2525523  
E-mail: hyscorp1@mac.com

## Portugal

### PowerCool LDA

Location: Portimao, Portugal  
Phone: 351 91 786 63 73  
Fax: 351 282 461 818  
E-mail: info@powercool.org  
Web: www.powercool.org

## Puerto Rico

### Centro Cruisair de Puerto Rico

Location: Santurce, Puerto Rico  
Phone: 787-727-3637  
Fax: 787-727-3637  
E-mail: fernan\_moreno@hotmail.com

### Cool-Tech Air Condition

Location: Fajardo, Puerto Rico  
Phone: (787) 860-2615  
Fax: (787) 801-2050  
Web: http://www.cooltechac.com/

### May Day Marine

Location: San Juan, Puerto Rico  
Territory: Puerto Rico, Dominican Republic  
Phone: 787-637-0756  
Fax: 787-790-2551

### Suncool Air Conditioning

Location: Carolina, Puerto Rico, Puerto Rico  
Phone: (787) 791-6971  
Fax: (787) 791-3885  
E-mail: suncool1@coqui.net

### Technical House (E.T.S. Inc.)

Location: San Juan, Puerto Rico  
Territory: Sentry Battery Chargers Only  
Phone: 787-781-1313  
Fax: 787-781-2020  
E-mail: jdonato@technicalhouse.com  
Web: www.technicalhouse.com

## Qatar

### Al-Badi Trading Co.

Location: Doha, Qatar  
Phone: 974-4320715  
Fax: 974-4442888  
E-mail: albadi@qatar.net.qa

### Mantech

Location: Dubai, United Arab Emirates  
Phone: +(971) 4-3332-542  
Fax: +(971) 4-3330-649  
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## Russia

### Standarte

Location: Starbevo, Moscow region, Russia  
Phone: 7 095 575 67 23  
Fax: 7 095 575 39 77  
E-mail: info@standarte.ru  
Web: www.standarte.ru

## Saudi Arabia

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### Samaco Marine Division

Location: Alnahdah dis Jeddah, Saudi Arabia  
Phone: (966) 2-699-2300  
Fax: (966) 2-699-1024

## Scandinavia

### Dometic Marine – Nordic Sales, Sales Company

Location: Halmstad, Sweden  
Phone: 46 35165700  
Fax: 46 35165710  
E-mail: marine.info@dometic.se  
Web: www.dometic.com



## Refnor A.S.

Location: Østerås, Norway  
Phone: 47-67 14 07 50  
Fax: 47-67 14 70 88  
E-mail: refnor.as@c2i.net

## Singapore

### Tripower Corporation Pte Ltd

Location: , Singapore  
Phone: (65) 6861 1188  
Fax: (65) 6861 4263  
E-mail: mgt@tritex.com.sg; mgt@tripower.com.sg  
Web: www.tritex.com.sg

## Slovenia

### Dometic Marine – Italy, Sales Company

Location: Milano, Italy  
Phone: 39 0362 44182  
Fax: 39 0362 452226  
E-mail: marine.info@dometic.it  
Web: www.dometic.com

### Nautica Centis di Nespolo Cinzia & C. Sne

Location: Bevazzana de Latisana (UD), Italy  
Territory: Northeast Italy, Austria, Croatia, Slovenia  
Phone: 390-431-53-644  
Fax: 390-431-53-460  
E-mail: nautica.centis@nauticacentis.it  
Web: www.nauticacentis.it

## South Africa

### Southern Power Products

Location: Cape Town, South Africa  
Phone: 27-21-511-0653  
Fax: 27-21-510-3049  
E-mail: sales@southernpower.co.za

## Spain

### Acastimar

Location: Tarragona, Spain  
Phone: 349-77-362118  
Fax: 349-77-362687  
E-mail: acastimar@acastimar.com

## Sri Lanka

### G&M Enterprises

Location: Borella-Colombo 8, Sri Lanka  
Phone: 94 11 2691966  
Fax: 94 11 2691751  
E-mail: gandM@slt.net.lk

## Sweden

### Dometic Marine – Nordic Sales, Sales Company

Location: Halmstad, Sweden  
Phone: 46 35165700  
Fax: 46 35165710  
E-mail: marine.info@dometic.se  
Web: www.dometic.com

## Switzerland

### Marine Parts Heimgartner

Location: Volketswil, Switzerland  
Phone: 41-1-997 40 90  
Fax: 41-1-997 40 94  
E-mail: info@marineparts.ch  
Web: www.marineparts.ch

## Taiwan

### Ing Hai Company, Ltd.

Location: Kaohsiung, Taiwan  
Phone: 886-7-802-1809  
Fax: 886-7-802-1809  
E-mail: inghai@tpts6.seed.net.tw

### Ing Hai Company, Ltd.

Location: Taipei, Taiwan  
Phone: 886-2-2531-2088  
Fax: 886-2-2523-6531

## Thailand

### Thai Kolon Co. Ltd.

Location: Bangkok, Thailand  
Phone: 66-2-745-6468-77 (10 lines)  
Fax: 66-2-745-6152  
E-mail: thaikolon@thaikolon.co.th  
Web: www.thaikolon.com

## Trinidad

### Nau-T-Kol Marine Refrigeration

Location: Chaguaramas, Trinidad  
Phone: 868-634-2174  
Fax: 868-634-2174  
E-mail: nautkol@cabenett.net  
Web: www.nautkol.com

## Turkey

### Dometic Marine - United Kingdom, Sales Company

Location: Poole, Dorset, England  
Phone: 44 870 3306101  
Fax: 44 870 3306102  
E-mail: sales@dometicmarine.com  
Web: www.dometic.com

### Egemar Muhendiscik Ltd.

Location: Tuzla, Istanbul, Turkey  
Phone: 90 216 494 2168  
Fax: 90 216 494 2218  
E-mail: sales@egemar.com.tr  
Web: www.egemar.com.tr

## U.S. Virgin Islands

### Coral Bay Marine Service

Location: St. John, U.S. Virgin Islands  
Phone: 340-776-6859  
Fax: 340-776-6859

### Dr. Ice

Location: St. Thomas, US Virgin Islands  
Territory: St. Thomas  
Phone: 340-513-9072  
Fax: 340-775-6576  
E-mail: davidqott@hotmail.com;

### Reefco, Inc.

Location: , St. Thomas, US Virgin Islands  
Phone: (340) 776-0038  
Fax: (340) 776-0038  
E-mail: dennyedy@viaccess.net  
Web: www.reefco.net

### St. Croix Marine Corp.

Location: St. Croix, U.S. Virgin Islands  
Phone: 340-773-0289  
Fax: 340-778-8974  
E-mail: stcroixmarine@hotmail.com

## Ukraine

### Standarte

Location: Starbevo, Moscow region, Russia  
Phone: 7 095 575 67 23  
Fax: 7 095 575 39 77  
E-mail: info@standarte.ru  
Web: www.standarte.ru

## United Arab Emirates

### Mantech

Location: Dubai, United Arab Emirates  
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Fax: +(971) 4-3330-649  
E-mail: mae@emirates.net.ae

## United Kingdom

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Phone: 44 870 3306101  
Fax: 44 870 3306102  
E-mail: sales@dometicmarine.com  
Web: www.dometic.com

## Uruguay

### Trimer S.A.

Location: Buenos Aires, Argentina  
Phone: 5411-4580-0444  
Fax: 5411-4580-0440  
E-mail: trimer@trimer.com.ar  
Web: www.trimer.com.ar

## Venezuela

### Rich Marine Center

Location: Complejo Turístico El Morro, Venezuela, South America  
Phone: (58) 281 2181630  
Fax: (58) 281-2811630  
E-mail: richmarine@telcel.net.ve

## West Indies

### Regis Electronics (St Lucia) LTD.

Location: St. Lucia, West Indies  
Phone: 758-452-0205  
Fax: 758-452-0206  
E-mail: stlucia@regiselectronics.com  
Web: www.regiselectronics.com

## Antigua

### The Signal Locker

Location: English Harbour, Antigua, West Indies  
Phone: (268) 460-1528  
Fax: (268) 460-1148  
E-mail: lockers@candw.aq

## Zambia

### Southern Power Products

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Phone: 27-21-511-0653  
Fax: 27-21-510-3049  
E-mail: sales@southernpower.co.za

## Zimbabwe

### Southern Power Products

Location: Cape Town, South Africa  
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E-mail: sales@southernpower.co.za







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