cabin mate

Installation, Operation and Maintenance -





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PREFACE

Congratulations on the purchase of your Marine Air Systems' CABIN MATE air conditioner. No matter which of the following features was the reason for your purchase of this air conditioner, we are sure it will meet your needs and will give you many years of efficient and trouble free use. The CABIN MATE units are self-contained direct expansion air conditioners designed for marine applications incorporating the following features:

- High efficiency rotary compressors
- Cupronickel condenser coil
- Raised lance fin designed evaporator coil
- Insulated anti-vibration base pan
- · Pre-charged and pre-wired systems for easy connections
- Electrical box with fire retardant cover mounted on unit for access and service
- Blower can be repositioned for either vertical or horizontal (standard) discharge
- Charge Guard® ensured environmental protection and system integrity

This manual is intended to provide the information necessary to ensure proper installation, operation, and maintenance of the unit. Improper installation or misunderstood operating procedures can result in unsatisfactory performance and/or premature failure of these units, so before proceeding *please read this manual completely.*

The CABIN MATE a/c units are covered under the existing Marine Air Systems' warranty policy contained in this manual. In the interest of product improvement, Marine Air Systems' specifications and design are subject to change without prior notice.

IF YOU HAVE A DIGITAL CONTROL

Please refer to either the Elite Control manual or the Passport I/O Control manual for installation and operation of those digital control panels. Mechanical control information and wiring diagrams for both types of controls are in this manual.

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MARINE AIR SYSTEMS

Marine Air Systems (MAS) is a product of Dometic Environmental Corporation. Dometic is a recognized leader in the design and manufacture of high-performance comfort control systems, refrigeration products and battery charging products for demanding environments, including commercial and recreational marine craft, vehicles and other applications. We offer an unparalleled scope of products, dealer networks, applications support, engineering resources and production capabilities throughout the world. Our team has many years of experience in the design, manufacture, application and support of our products. Our practical experience and design capability allows our application engineers and sales representatives to offer optimum solutions for your environmental control requirements. Product lines also include well known Cruisair, Grunert, and Sentry.

CLEAN AIR ACT AMENDMENTS OF 1990 [TITLE VI - SECTION 608(C-1)]

"Effective July 1, 1992, it shall be unlawful for any person, in the course of maintaining, servicing, repairing, or disposing of an appliance or industrial process refrigeration, to knowingly vent or otherwise knowingly release or dispose of any Class 1* or Class II** substance used as a refrigerant in such appliance (or industrial process refrigeration) in a manner which permits such substance to enter the environment. De minimis releases associated with good faith attempts to recapture and recycle or safely dispose of any such substances shall not be subject to the prohibition set forth in the proceeding sentence."

- * Class I substances include CFC-12
- ** Class II substances include HCFC-22

INSTALLATION

SAFETY CONSIDERATIONS

VERY IMPORTANT: 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.

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 BE-FORE 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 HYDROCHLOROFLUOROCARBON (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 MAN-NER 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.

! 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.

CAUTION! HIGH COMPRESSOR TEMPERATURE IS NORMAL. DO NOT TOUCH!

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 grille as high as possible in the cabin. See diagram below.



Tools required

- Screwdrivers
- Pliers
- Pipe wrench
- Wire cutters/crimpers
- Drill & 7/8" bit
- Jig saw
- Duct tape
- Electrical tape
- Teflon tape
- Beding compound to seal thru-hull fittings
- Hardware to secure unit, pump, strainer, grilles & control panel

The CABIN MATE® 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 and aft from the unit to a suitable drain location sealed away from any exhaust or bilge vapors. Plan all connections which must be made prior to starting installation, including ducting, condensate drain, cooling water in and out, electrical power connections, location of control panel, and seawater pump placement and plumbing, to assure easy access for installation and servicing.



HOW IT WORKS

Your self-contained air conditioner 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 and condenses it 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 grille(s). For reverse cycle heating, the refrigerant flows in the opposite direction through the reversing valve. Heat is transferred from the seawater in the condenser coil to the refrigerant and then to the air blowing through the evaporator into the cabin.

CONDENSATE DRAINS

The Cabin Mates condensate drain pan is 2" high with three drain locations. During conditions of high humidity, condensate may be produced at a rate of approximately 2 gallons 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:

- 1. Remove the aft facing watertight plug from the base pan of the Cabin Mate® 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" 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.
- 7. Two drain fittings may be used and the hoses teed together provided there is a minimum 2" drop from the bottom of the base pan to the tee connection.

NOTE: DO NOT TERMINATE CONDENSATE DRAIN LINE WITHIN THREE (3) FEET OF ANY OUTLET OF EN-GINE OR GENERATOR EXHAUST SYSTEMS, NOR IN A COMPARTMENT HOUSING AN ENGINE OR GENERA-TOR, NOR IN A BILGE, UNLESS THE DRAIN IS CONNECTED PROPERLY TO A SEALED CONDENSATE OR SHOWER SUMP PUMP.

MOUNTING BRACKETS

The a/c 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.

BLOWER ROTATION

The Cabin Mate® blower assembly is capable of either horizontal (as shipped from the factory) or vertical discharge. If vertical discharge is required, then follow these instructions: Disconnect main power supply. Remove self-tapping screws from blower bracket, shown in drawing M1020043 in this manual. Slide blower assembly straight up and out of the slotted mounting brackets on the coil shroud. Rotate

BASE PAN MOUNTING BRACKET MO070002.DWG

blower assembly 90 degrees to desired position. Slide blower assembly back into the mounting slots on both sides of the shroud. Replace the self-tapping screws through the blower bracket into the blower housing. Important: do not use screws longer than those provided.



SUPPLY & RETURN AIR GRILLES AND TRANSITION BOXES

Install the supply air grille as high as possible in a location that will provide uniform air distribution throughout the cabin, grille louvers should be directed upward. The return air grille should be installed as low and close to the a/c unit as possible to insure direct uninterrupted airflow to the evaporator. The return air grille should have a minimum four inches (4") of clearance in front of it, free from any furniture or other obstructions. The supply air grille should be installed to blow freely into the cabin. It should not be installed behind a door or in a close proximity to an adjacent bulkhead, as this will cause the system to short cycle. In no instance should a supply air discharge be directed towards a return air grille, as this will also cause the system to short cycle. Allow for adequate clearance behind the supply air grille(s) for the transition box and ducting connection. The following table shows minimum grille sizes. See the MAINTENANCE section of this manual for return air 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%). The following table shows minimum duct diameters and their corresponding supply and return air grille minimum areas in square inches. If a transition box is used, the total area of supply air ducts going out of the box should equal the area of the supply duct feeding the box. To calculate the square inch area of a round duct, multiply the radius by itself (r^2) and multiply that number by 3.1416(π).

MODEL	7К	10K	12K	16K
DUCT DIA	5" dia	6" dia	6" dia	7" dia
DUCT AREA	19.6 sq in	28.3 sq in	28.3 sq in	38.5 sq in
R/A GRILLE	88 sq in	98 sq in	140 sq in	168 sq in
S/A GRILLE	40 sq in	50 sq in	70 sq in	84 sq in

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 grille

All ducting should:

- Be appropriately sized for each application
- Run as smoothly and taut as possible
- Have as few bends or loops as possible
- Be securely fastened to prevent sagging during boat operation
- Have all excess ducting lengths trimmed off
- Not be flattened or kinked
- Insulated when located in high heat load areas (hull side, mechanical compartments, etc.)
- · Be properly protected against potential damage when routed through open areas

SEAWATER PUMP AND PLUMBING

Seawater temperature will directly affect the a/c unit's efficiency. This a/c unit can effectively cool your boat in water temperatures up to 90°F and heat (if reverse cycle option is installed) in water as low as 40°F. 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. The pump may be mounted horizontally or vertically, however the discharge must always be above the inlet. The 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 so that air does not get into the system when the boat heels over. The speed scoop intake must face forward and not be shared with any other pump. A seacock (shut off valve) must be installed directly on the speed scoop outlet. A seawater strainer is mandatory between the seacock and pump. 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 a/c unit's condenser coil. The discharge from the a/c unit should then run to the seawater outlet through 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. Use only reinforced marine grade hose. All hose connections shall use double/reversed stainless steel hose clamps. Below 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 waterline 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 at least one foot below the waterline and above the strainer.
- 5. Connect the seacock, strainer and pump with an uphill run of reinforced marine hose.
- 6. Connect the discharge from the pump uphill to the inlet of the a/c unit's condenser coil. And connect the outlet of the condenser coil to the overboard discharge thru-hull (seawater outlet).
- 7. Avoid loops, vertical bends (high spots) or the use of 90° elbows with seawater hose (each 90° elbow is equivalent to 2.5' of hose and a 90° elbow on the pump is equivalent to 20' of hose).
- 8. Double clamp all hose connections with stainless steel clamps, reversing the clamps.
- 9. Use teflon tape on all threaded connections.
- 10. Connect all metallic parts in contact with seawater to the vessel's bonding system including thespeed scoop inlet, strainer, pump, and the air conditioner. **Failure to do so will void warranty.**







ELECTRICAL CONNECTIONS, GROUNDING AND BONDING & ABYC STANDARDS

All a/c units have a terminal strip mounted either inside or outside the electric box. The terminal strip is labeled for proper connections of the electrical supply, ground wires and pump circuits. A wiring diagram is provided in the electrical box and in this manual. The wiring diagram in the electrical box supersedes the one in this manual. The correct size circuit breaker should be used to protect the system as specified on the a/c unit's data plate label. A minimum of 12 AWG boat cable should be used to supply power to the a/c unit and the seawater pump. All connections shall be made with ring or fork terminals. **Turn off a/c power supply circuit breaker before opening electrical box**.

Each a/c unit installed requires its own dedicated circuit breaker. If there is only one a/c unit installed, the seawater pump does not require a circuit breaker; the wiring from the seawater pump is connected to the terminal strip at the electrical box. If two or more a/c 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 sized for the pump (20 amp max). Please see the wiring diagram furnished with the PRP (NOTE: PRP triac must have mounting screw installed in order to dissipate heat). Connections in the bilge below the waterline should use heat shrink type butt splices.

Field wiring must comply with ABYC electrical codes. Power to the unit must be within the operating voltage range indicated on the data plate. Properly sized fuses or HACR circuit breakers must be installed for branch circuit protection. See data plate for maximum fuse/circuit breaker size (mfs) and minimum circuit ampacity (mca). All units must be effectively grounded to minimize the hazard of electrical shock and personal injury. The following are to be observed:

- 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, or equivalent.
- Connections between the vessel's AC system grounding conductor (green wire) and the vessels DC (direct Current) negative or bonding system should be made as part of the vessel's wiring, per ABYC standard E9, or equivalent.
- 3. When servicing or replacing existing equipment that contains 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
	3069 Solomon's Island Rd.
	Edgewater, MD 21036
	Telephone: (410) 956-1050

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

FAILURE TO PROPERLY GROUND AND BOND THE SYSTEM WILL VOID WARRANTY!

MANUAL CONTROL PANELS (MCP) INSTALLATION

The MCP should be located within cap tube length of the CABIN MATE® unit. The cut out size for the 2 knob MCP is 2.5" wide by 4.5" tall. The 3 knob MCP is configured either vertically or horizontally. The cut out size is 2.5" by 7.0", see MCP for orientation. 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 grille. The sensor must be mounted in the return air stream. Make electrical connections according to the wiring diagrams.

INSTALLATION CHECKLIST (review prior to installation)

Seawater cooling system:

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

Mounting

o Not In engine room or bilge areas, must be sealed away from exhaust or fumes

- o Proper spacing allowed around unit for hose and duct connections and for serviceability
- o Attached to solid level platform with hold down clips provided
- o Condensate drain routed aft and down hill to a sealed sump (not bilge)
- o Blower rotated toward supply air grille

Electrical

- o All butt connections on pump wire tightly crimped and heat shrunk
- o AC power source installed and grounded/bonded in accordance with ABYC standards
- o Control wires connected to terminal strip with fork or ring terminals
- o Circuit breakers sized according to specifications on the data plate label
- o Passport II display cable is connected at both ends
- o Pump Relay Panel (if used) has a dedicated circuit breaker sized for the pump but not to exceed 20 amps maximum

Grilles and Ducting

- o Supply air grille mounted as high as possible
- o Return air grille mounted as low and as close to the a/c unit as possible
- o Return air grille mounted away from bilge vapors or exhaust fumes
- o Ducting is pulled taut, straight, smooth and properly connected with no excess

OPERATION

OPERATIONS CHECKLIST

- o Ensure seawater intake ball valve is open
- o Turn on the a/c circuit breaker. If the seawater pump has its own circuit breaker, turn that on
- o Turn the system on
- o Set the desired cabin temperature (set point)
- o Check for a steady solid stream of water from the overboard discharge
- o Verify that there is steady airflow out of the supply air grille
- o If the unit does not appear to be operating properly, refer to troubleshooting guidelines

Note: Do not turn the unit off and immediately turn it back on. Allow at least 30 seconds for refrigerant pressure equalization.

MCP OPERATION: 3-KNOB (3KB) & 2-KNOB (2KB)

- 1) Ensure seawater intake ball valve (seacock) is open.
- 2) Turn SYSTEM SWITCH control knob to OFF.
- 3) Turn on a/c circuit breaker. If the sea water pump has its own circuit breaker, turn that on too.
- 4) Turn the SYSTEM SWITCH control knob to FAN (2KB) or START (3KB), this energizes the fan and seawater pump (3KB, see note). Turn THERMOSTAT control knob to the coolest position by rotating it fully clockwise. If system has reverse cycle, turn knob counterclockwise for heat.
- 5) Turn FAN SPEED control knob to highest setting (3KB).
- 6) Verify that the fan is running and that there is steady airflow out of the supply air grille.
- Turn the SYSTEM SWITCH to RUN, this will start the compressor and seawater pump (2KB, see note). The indicator light on the 3KB control will illuminate.
- 8) Check for a steady solid stream of seawater from the overboard discharge.
- 9) To set the thermostat, allow sufficient time for the unit to cool/heat the area to the desired temperature. When the area is sufficiently cooled/heated, turn the thermostat knob slowly toward the center position until it clicks once (the indicator light on the 3KB will turn off). The thermostat is now set to maintain a constant temperature. While heating, if the ambient temperature is less than 50°F (10°C), set the FAN SPEED control knob to low (3KB) for five to ten minutes until the unit begins to heat well, then increase the fan speed for more heat output.

Note: The seawater pump comes on with the fan on the 3KB (switch set to START) and with the compressor on the 2KB (switch set to RUN).

The thermostat on the MCP control panel serves to cycle the compressor on and off and provide an automatic changeover from cooling to heating (reverse cycle only) with a 3.5° F (6.3° C) differential. Rotating the thermostat to the left after it has been set for cooling will cause the unit to heat. If you rotate the thermostat to the right, the unit will cool. If the thermostat is left stationary after being set, the unit will cycle from cooling to neutral, or heating to neutral depending on the requirement.

IMPORTANT NOTE: Reverse cycle units have a reversing valve that must be energized periodically to keep the internal parts moving freely. To accomplish this, switch the a/c into HEAT for a few seconds once a month.

Note: Do not turn the unit off and immediately turn it back on. Wait at least 30 seconds for system refrigerant pressures to balance.

3 KNOB CONTROL (MCP)







MAINTENANCE

Seawater Strainer

Insure that your 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, using a chemical pump, flush with a 5% muriatic or hydrochloric acid and fresh water solution. Disconnect system hoses and check for fouling. Pump solution through coil (and hoses if need be) 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, if the boat is out of water. If the boat is in the water then the thru-hull should be closed and the system drained then filled back to the unit outlet.
- 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 antifreeze 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.

GENERAL TROUBLESHOOTING

Also see specific digital or mechanical control troubleshooting sections following these general guidelines.

Fault: Will not start.

Possible Reason/Correction

- 1. Air conditioning circuit breaker is off. Turn circuit breaker on at ship's panel.
- Control is not turned on.
 See mechanical control section of this manual for MCP controls, or see the digital control manual for Elite or Passport I/O controls.
- 3. Wrong wiring at terminal strip. Check wiring diagram and correct if necessary.
- 4. Push-on butt connectors became disconnected during installation. Disconnect power supply and open electric box, check wiring diagram, correct if necessary
- 5. Input line voltage is insufficient. Check power source (shore/generator) for proper voltage. Check wiring and terminals for proper sizes and connections. Verify with a voltmeter that the power at the unit is the same as the power source.

Fault: Fan is not running.

Check specific control troubleshooting section.

Fault: No cooling or heating.

Possible Reason/Correction

- 1. Temperature set point is satisfied. Lower or raise set point.
- Obstructed seawater flow. Clean seawater strainer. Check for obstructions at speed scoop thru-hull inlet. Check for a good steady flow from the overboard discharge.
- 3. Seawater pump may be air-locked.

Remove hose from pump discharge to purge air from line.

4. Loss refrigerant gas.

Check air conditioning unit for refrigerant oil leakage, call service technician.

5. Seawater temperature too high for cooling or too low for heating.

Seawater temperature will directly affect air conditioning unit's efficiency. This air conditioning unit can effectively cool your boat in water temperature up to 90°F (32.2°C) and heat (if reverse cycle option is installed) in water as low as 40°F (4.4°C).

6. Fan coil is iced (in cooling). Check your specific control troubleshooting section.

7. Fan is not running.

Check your specific control troubleshooting section.

8. Seawater plumbing is air-locked.

Ensure that seawater plumbing is installed per the guidelines in this manual.

9. Digital control is programmed for Cool or Heat only, or mechanical control thermostat is rotated too far towards either Cooler or Warmer setting.

See digital control manual for reprogramming or see mechanical control operation section in this manual.

10. High pressure switch open (in cooling) due to improper seawater flow.

Strainer or intake may be plugged, seacock may be closed, check seawater hose for kinks or collapses. Verify pump operation. Check the pump circuit breaker if applicable.

- 11. High pressure switch open (in heating) due to improper airflow. Remove any obstructions in return air stream. Clean return air filter and grille. Check for crushed or restricted ducting, ducting must be as straight, smooth and taut as possible.
- **12. High-pressure switch is open in heating mode.** System may cycle on high-pressure if seawater temperature is above 55°F (12.8°C).
- **13. Compressor's thermal overload is open due to either of the above reasons.** Compressor needs to cool down. Turn system off for a while (it may take up to three hours to reset thermal overload).

Fault: No heating.

Possible Reason/Correction

 Unit is "cool only", or if reverse cycle, reversing valve may be stuck. Tap reversing valve lightly with rubber mallet while unit is in heat mode. Call for service if that does not correct the problem.

Fault: Low airflow.

Possible Reason/Correction

1. Airflow is blocked.

Remove any obstructions in return air stream. Clean return air filter and grille. Check for crushed or restricted ducting, ducting must be as straight, smooth and taut as possible.

2. Fan coil is iced. See below.

Fault: Fan coil is iced.

Possible Reason/Correction

- 1. Thermostat set point is too low. Raise set point.
- 2. Improper airflow.

Remove any obstructions in return air stream. Clean return air filter and grille. Check for crushed or restricted ducting, must be as straight, smooth and taut as possible. See the Digital Controls Troubleshooting section below for reprogramming options.

3. Supply air is short-cycling.

Redirect supply air so that it is not blowing into the return air stream. Seal any air leaks on duct.

4. Humidity level too high.

Close hatches and doors.

5. When all else fails.

Switch air conditining to heat until ice melts or use hair dryer to melt.

Fault: Water coil is iced in the heating mode.

Possible Reason/Correction

1. Seawater temperature is below 40°F 4.4°C. Shut down system to prevent damage to condenser. Allow coil to defrost.

Fault: System runs continuously.

Possible Reason/Correction

- 1. Set point temperature is improperly set: too low for cooling or too high for heating. Raise or lower set point.
- 2. Porthole or hatches open. Close all port holes and hatches.
- **3.** Seawater temperature too high for cooling or to low for heating. Seawater temperature will directly affect the a/c unit's efficiency. This a/c unit can effectively cool your boat in water temperatures up to 90°F (32.3°C) and heat (if reverse cycle option is installed) in water as low as 40°F (4.4°C).
- **4. Improper air sensor location.** Check your specific control troubleshooting section.

Digital Controls Troubleshooting

Fault: Digital display panel is not lit.

Possible Reason/Correction

1. 8-pin display cable plugs are not making contact (unplugged, dirty, bent, or broken pins). With POWER OFF at the circuit breaker, remove connector and inspect. If damaged, replace connector or entire display cable.

Fault: Fan is not running or runs continuously.

Possible Reason/Correction

1. Digital control is programmed for either fan cycling with compressor or continuous fan operation. Elite Control: Press and hold the fan button for five seconds to change to "con" so fan will stay on continuously or to "CYC" so the fan cycles with the compressor.

Passport I/O Control: Reprogram parameter P-14.

Note: After the compressor cycles off, the fan will continue to run for two minutes in Cool Mode and four minutes in Heat Mode regardless of parameter setting.

Fault: Fan is not running but the compressor is.

Possible Reason/Correction

1. Failed triac on Passport I/O circuit board. Send for repair or call local service technician (see distributor listing).

Fault: Fan runs continuously although it is set to cycle with compressor.

Possible Reason/Correction

 Failed triac on Passport I/O circuit board. Send for repair or call local service technician (see distributor listing).

Fault: No cooling or heating.

Possible Reason/Correction

- Digital control programmed for heat or cool only. Elite Control: Press and release the Mode button (bottom right corner of display) until the desired mode LED is lit. Passport I/O Control: Reprogram parameter P-1.
- 2. "HPF" or "LPF" is displayed. See below.

Fault: No heat.

Possible Reason/Correction

1. Digital Control may be set to Electric Heat, not Reverse Cycle. Elite Control: Reprogram parameter P-13

Passport I/O Control: Reprogram parameter P-15

Fault: Unit switches to heat while in cool mode.

Possible Reason/Correction

1. De-icing feature enabled due to coil icing up. Elite Control: Reprogram parameter P-7

Passport I/O Control: Reprogram parameter P-8

Fault: Fan coil is iced.

Possible Reason/Correction

1. Improper airflow.

See the General Troubleshooting section above first, before reprogramming digital control.

Reprogram parameter P-7 for Elite or P-8 for Passport I/O. If de-icing cycle does not melt ice, switch air conditioning unit to heat until ice melts or use hair dryer to melt ice.

If problem persists, reprogram Low Fan Speed Limit for maximum value. Set P-2 to 55 for Elite or set P-3 to 64 for Passport I/O.

Fault: System runs continuously.

Possible Reason/Correction

1. Improper air sensor location.

Verify display head location with criteria found in the control manual. Install alternate air sensor if necessary.

Fault: "HPF" is displayed.

Possible Reason/Correction

1. High-pressure switch is open (in cooling) due to improper seawater flow.

Strainer or intake may be plugged, seacock may be closed, check seawater hose for kinks or collapses. Verify pump operation; check pump circuit breaker if applicable.

2. High-pressure switch open (in heating) due to improper airflow.

Remove obstructions in return air stream. Clean air filter and grille. Check for crushed or restricted ducting, ducting must be as straight, smooth and taut as possible.

If problem persists, reprogram Low Fan Speed Limit for maximum value. Set P-2 to 55 for Elite or set P-3 to 64 for Passport I/O. And, set the Reverse Fan Speeds During Heating Mode parameter to "rEF" (P-12 for Elite or P-13 for Passport I/O), or manually set fan speed to high.

Fault: "LPF" is displayed.

Possible Reason/Correction

- Low-pressure switch is open due to low seawater and/or low return air temperatures. Try restarting the a/c unit; the optional low-pressure switch has a ten minute shutdown time delay that may be in affect.
- Low pressure switch is open due to loss of refrigerant. Check air conditioning unit for refrigerant oil leakage, call service technician.

Fault: "ASF" is displayed.

Possible Reason/Correction

- 1. Indicates failed faceplate air sensor, alternate air sensor or display cable. Unplug alternate air sensor if installed or plug in alternate air sensor if not installed. Try another display cable.
- Damaged jack/socket in display head or on circuit board. Visually check to see that pins inside socket are not bent or corroded. Repair or replace display or circuit board if needed.

Fault: "PLF" is displayed (Elite Digital Control only).

Possible Reason/Correction

1. Indicates that seawater flow through the condenser coil is insufficient.

Check for adequate seawater flow. Verify pump operation. Inspect the condenser coil; it may need cleaning (see MAINTENANCE section). Sensor may be faulty, replace if necessary. Call for service technician.

MCP Mechanical Control Panel

Fault: Fan is not running.

Possible Reason/Correction

- 1. 3-Knob MCP system switch is not set properly. Set MCP system switch to "START" for fan only or "RUN" for cooling and heating (if reverse cycle).
- 2. 3-Knob MCP fuse blown. Replace 10-amp fuse behind MCP panel.
- **3. 2-knob MCP system switch is not set properly.** Set system switch to "FAN" for fan only or "COOL" for cooling and heating.
- 4. Wire became disconnected or loosened during installation. Reconnect or tighten, verify with wring diagram in this manual.

Fault: System runs continuously.

Possible Reason/Correction

1. Improper MCP air sensor location. Verify return air sensing bulb location with criteria found in this manual.

Fault: No cooling or heating.

Possible Reason/Correction

- 1. High-pressure switch is open (in cooling) due to improper seawater flow. Strainer or intake may be plugged, seacock may be closed, check seawater hose for kinks or collapses. Verify pump operation. Check the pump circuit breaker if applicable.
- 2. High-pressure switch open (in heating) due to improper airflow. Remove any obstructions in return air stream. Clean return air filter and grille. Check for crushed or restricted ducting, ducting must be as straight, smooth and taut as possible.
- 3. MCP is not set properly.

3-knob should be set to "RUN". 2-knob should be set to "COOL".

MANUFACTURERS LIMITED WARRANTY AGREEMENT

The following warranty is extended to cover marine air conditioners manufactured or supplied by Dometic Environmental Corporation, and is subject to qualifications indicated. Dometic warrants for the periods set forth below that products manufactured or supplied by it will be free from defects in workmanship and material, provided such products are installed, operated, and maintained in accordance with Dometic's written instruction.

ALL IMPLIED WARRANTIES INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE TERMS AND PERIODS OF WARRANTY SET FORTH BELOW AND, TO THE EXTENT PERMITTED BY LAW, ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED.

Warranty with the Elite or Passport I/O digital controls (Coverage applies to units manufactured on or after 03/01/ 03 and applies only to units equipped with Elite or Passport I/O digital controls at the Dometic factory.): Components comprising of the Passport I/O circuit boards, Elite or Passport I/O digital displays, and associated cables are warranted for a period of three (3) years from the date of installation, but not to exceed four (4) years from the date of manufacture at the Dometic factory. All other components comprising a complete system (excluding pumps and pump relay panels) on a new installation are warranted for a period of two (2) years from the date of installation, but not to exceed three (3) years from the date of manufacture at the Dometic factory. Pumps and pump relay panels are warranted for a period of one (1) year from the date of installation, but not to exceed two (2) years from the date of purchase. OEM installed equipment warranties begin with the purchase of the vessel, not from the date of installation.

Warranty with MCP (Mechanical Control Panel) control: Components comprising a complete system on a new installation are warranted for a period of one (1) year from the date of installation, but not to exceed two (2) years from the date of manufacture at the Dometic factory. OEM installed equipment warranties begin with the purchase of the vessel, not from the date of installation.

In addition, Dometic will pay labor costs and travel as outlined in its **Schedule of Limited Warranty Allowances** for removal and reinstallation of such components for a period of one (1) year from the date of installation, but not to exceed two (2) years from the date of manufacture at the Dometic factory. OEM installed equipment warranties begin with the purchase of the vessel, not from the date of installation. Warranty will be paid in accordance with our established schedule of allowances. Compensation for warranty repairs is only made to Dometic authorized service companies.

Dometic will repair, or replace at its option, components found to be defective due to faulty materials or workmanship, when such components, examined by an authorized service dealer or a factory service representative, are found to have a defect for which the company is responsible. **Refer to Manufacturer's Limited Warranty Policy** for complete coverage and exclusions. Replacement components are warranted for the duration of the remaining warranty period in effect on the original component. In the event that a unit has to be returned to the factory, it must be properly packaged to prevent shipping damages. If packaging is not available, Dometic will provide it at no charge. The warranty may be voided on any piece of equipment or component that is damaged due to improper packaging.

This limited warranty is extended in lieu of all other warranties, agreements or obligations, expressed or implied, concerning Dometic's components. This warranty is extended only to the original purchaser and is not transferable. This warranty shall be governed by the laws of the State of Florida and gives the original first end user definite legal rights.

This warranty does not cover damages incidental and/or consequential to the failure of Dometic's equipment including but not limited to; normal wear, accident, misuse, abuse, negligence, improper installation, lack of reasonable and necessary maintenance, alteration, civil disturbance or acts of God.

No person or dealer is authorized to extend any other warranties or to assume any other liabilities on Dometic's behalf, unless made or assumed in writing by an officer of Dometic.

Marine Air Worldwide Service Dealer Locator

The majority of the service listings displayed for the United States are key members of the national Marine Air distributor 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 Marine Air dealers in the national Marine Air network, and one should be convenient to you.

The international companies listed are, in many cases, distributors and are capable of managing the majority of service requests for the countries listed. In some cases they will refer you to a local dealer.

You may also contact us directly via the web site or call us in the US at (954) 973-2477.

Fax.

E-mail

Web:

For a complete and up-to-date Dealer locator list, please visit our website at http://www.marineair.com/locator/index.html

USA

Alabama

AER Marine Supply Location: Seabrook, TX, USA (281) 474-3276 Phone: (281) 474-2714 Fax: E-mail: rsmiller@aersupply.com Alaska

American Marine Contractors

Location: Seattle, WA, USA Phone: (206) 660-2240 (206) 548-5008 Fax: gene@nwmarineair.com E-mail:

Arizona

Southern California Marine Enterprises

Location:	San Diego, CA, USA
Phone:	619-224-2869
Fax:	619-226-0496
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Web:	www.southerncalmarine.com

Arkansas

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California

Southern California Marine Enterprises

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

Colorado

AER Marine Supply Location: Seabrook, TX, USA

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Ocean Options

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Phone:	(401) 624-7334
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Delaware

Ocean Options - Mid Atlantic

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Fax:	(410) 268-8199
E-mail:	Sales@oceanoptions.com
Web:	www.oceanoptions.com

Florida (North)

Beard Marine Savannah - Distributor Location: Savannah, GA, USA Phone:

(912) 356-5222 (912) 692-1006 beardsav@aol.com www.beardmarine.com Florida (South)

ARW Maritime - Dealer

Location: Ft. Lauderdale, Florida, USA Territory: Fort Lauderdale Phone: (954) 463-0110 Fax: (954) 522-1139 E-mail: arwgroup@earthlink.net

Beard Marine - Ft. Lauderdale - Dealer

(954) 463-2288 (954) 527-0362 info@beardmarine.com www.beardmarine.com

Beard Marine of the Palm Beaches - Dealer

Location: Riviera Beach, Florida, USA Territory: Riviera Beach (561) 881-9598 Phone: (561) 881-9599 Fax: E-mail: bmpb@beardmarine.com

Cable Marine - Dealer

Location: Ft. Lauderdale, Florida, USA Territory: Fort Lauderdale Phone: (954) 462-2840 (954) 523-3686 Fax: Web: www.cablemarine.com

Comfort Marine - Dealer

Location: Ft. Lauderdale, FL, USA Territory: Ft. Lauderdale Phone: (954) 257-9848 Fax: (954) 689-7332

Cowherd Marine - Dealer

Location: Lake Park, Florida, USA Territory: West Palm Beach (561) 844-1666 Phone: Fax. (561) 844-1628

Dometic Corporation-Environmental Systems, Distributor

Location: Pompano Beach, FL, USA Territory: South Florida (954) 973-2477 Phone: Fax: (954) 979-4414 E-mail: sales@dometicenviro.com www.dometicenviro.com Web:

Edd Helms Marine Air Conditioning - Dealer

Location: Miami, Florida, USA Territory: Ft. Lauderdale, Miami Phone: 954 522 2520 954 522 1331 Fax: srogers@eddhelms.com E-mail:

Florida (South)

IYS Marine - Dealer Location: Pinellas Park, Florida, USA Territory: Tampa-St Petersburg Phone: (727) 521-6650 (727) 520-0844 Fax: E-mail: iysmarine2002@aol.com

.lim's Marine A/C - Dealer

Location: Port Charlotte Florida USA Territory: Port Charlotte Phone: (941) 629-8788

Marine Air Conditioning - Dealer

Location: Ft. Pierce, Florida, USA Territory: Port St. Lucie Phone: (772) 464-7896 (772) 464-8697 Fax:

Masters Marine Center, Inc. - Dealer

Location: Miami, Florida, USA Territory: Miami Phone: (305) 891-1236 Fax: (305) 891-8700

Neptune Air Corporation - Dealer

Location: Ft. Lauderdale, Florida, USA Territory: Fort Lauderdale Phone: (954) 792-6550 Fax: (954) 792-6551

Palm Beach Aqua Air - Dealer

Location: West Palm Beach Florida USA Territory: West Palm Beach (561) 832-8820 Phone: Fax: (561) 659-7918

Sea Air Land Technologies - Dealer

Location: Marathon, Florida, USA Territory: Florida Keys Phone: (305) 289-1150 Fax: (305) 359-5272 E-mail: saltmail@aol.com www.salt-systems.com Web:

Sea Breeze Marine - Dealer

Location: Lighthouse Point, Florida, USA Territory: Lighthouse Point (954) 427-3843 Phone: (561) 368-0463 Fax:

Tropica Boats & Marine, Inc. - Dealer

Location: Fort Myers, Florida, USA Territory: Fort Myers Phone: (239) 694-5259 Fax: (239) 694-5243 E-mail: info@tropica.net Web: www.tropica.net

Ty Cobb Services, Inc. - Dealer

Location: Sebastian, Florida, USA Territory: Sebastian Phone: (772) 388-5966 (772) 581-0056 Fax:

Location: Ft. Lauderdale, Florida, USA Territory: Fort Lauderdale Phone: Fax: E-mail: Web:

<u>Georgia</u>

Beard Marine Savannah - Distributor

Location: Savannah, GA, USA Phone: (912) 356-5222 Fax: (912) 692-1006 E-mail: beardsav@aol.com Web: www.beardmarine.com Hawaii

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Southern California Marine Enterprises

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Midwest Marine Supply

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 Indiana

Midwest Marine Supply

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 New Jersey

Marine Specialists

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<u>Oklahoma</u>

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 Oregon

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Rhode Island

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<u>Wisconsin</u>

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Tyoning

American Marine Contractors

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Antigua

Aboard Refrigeration

 Location:
 Antigua, West Indies

 Phone:
 (268) 460-1690

 Fax:
 (419) 858-0544

 E-mail:
 aboardrf@candw.ag

 Web:
 www.aboardrefrigeration.com

Argentina

Baron SRL

Location: San Fernando, Buenos Aires, Argentina Phone: (54) 11-4-580-5556 Fax: (54) 11-4-746-1696 E-mail: rosito@baron.com.ar Web: www.baron.com.ar

<u>Australia</u>

Seairland Systems, Inc.

Location:	Brisbane, Queensland, Australia
Phone:	(61) 7-3268-7511
Fax:	(61) 7-3268-1445
E-mail:	hadyn@seairland.com.au

Austria

Dometic Marine – Italy, Sales Company

Location: Milano, Italy Phone: 390 26172583 Fax: 390 266010223 E-mail: marine.info@dometic.it Web: www.dometic.com

Bahamas

Freezing Point, Ltd.

 Location:
 Nassau, Bahamas

 Territory:
 Nassau

 Phone:
 (242) 325-3589

 Fax:
 (242) 356-5271

 E-mail:
 rolandknowles@bahamas.net.bs

Bahrain

Mantech

 Location:
 Dubai, United Arab Emirates

 Phone:
 (971) 4-3332-542

 Fax:
 (971) 4-3330-649

Brazil

Marine Express

 Location:
 Sao Paulo, Brazil

 Phone:
 55-11-5182-7166

 Fax:
 55-11-5183-3636

 E-mail:
 fabrizio@marinexpress.com.br

 Web:
 www.marinexpress.com.br

British Virgin Islands

BVI Marine Management

 Location:
 Roadtown, Tortola, British Virgin Islands

 Phone:
 (284) 494-2938

 Fax:
 (284) 494-5006

C & G Refrigeration

Location: , Tortola, British Virgin Islands Phone: (284) 776-0038

Canada

British Columbia

American Marine Contractors

 Location:
 Seattle, WA, USA

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 Fax:
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 E-mail:
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 Ontario

Northland Supply Company

 Location
 Queensville, Ontario, Canada

 Territory
 Queensville

 Phone:
 (905) 478-2244

 Fax:
 (905) 478-2295

 E-mail:
 norsupco@aol.com

 Web:
 www.norsupco.com

Woodard and Company - Manufacturer's Rep.

Location:	Concord, Ontario, Canada
Territory:	All Canadian Provinces except BC
Phone:	(905)760-0245
Fax:	(905)760-0250
E-mail:	john.reid@woodardcompany.com
	Quebec

Kimpex, Inc.

anada
om

Caribbean Islands

Aboard Refrigeration

 Location:
 , Antigua, West Indies

 Phone:
 (268) 460-1690

 Fax:
 (419) 858-0544

 E-mail:
 aboardrf@candw.ag

 Web:
 www.aboardrefrigeration.com

BVI Marine Management

Location: Roadtown, Tortola, British Virgin Islands Phone: (284) 494-2938 Fax: (284) 494-5006

C & G Refrigeration

Location: , Tortola, British Virgin Islands Phone: (284) 776-0038

Caraibes Distribution

 Location:
 Marin, Martinique, French West Indies

 Phone:
 0596.257292

 Fax:
 0596.747353

Centro Cruisair de Puerto Rico

Location: San Turce, 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

 E-mail:
 cooltech@isppr.com

 Web:
 www.isppr.net/cooltech

Enertech N.V.

Location: Simpson Bay, St. Maarten/St. Martin, Netherland Antilles Phone: 599-551-2145 Fax: 305-675-5857 (USA)

E-mail: service@entertechnv.com

Freezing Point, Ltd.

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

May Day Marine

Location: San Juan, Puerto Rico Phone: 787-751-0490 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

Reefco, Inc.

 Location:
 , St. Thomas, US Virgin Islands

 Phone:
 (340) 776-0038

 Fax:
 (340) 776-0038

 E-mail:
 denny@reefco.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

Sun Cool Air Conditioning

 Location:
 Carolina, Puerto Rico, Puerto Rico

 Territory:
 Carolin

 Phone:
 (787) 791-6971

 Fax:
 (787) 791-3885

 E-mail:
 suncool1@coqui.net

China

Flash Marine Trading Pte.Ltd.

 Location:
 Shanghai, China

 Phone:
 (86 21) 509 04120

 Fax:
 (86 21) 509 04789

 E-mail:
 fmtmasb@online.sh.cn

Costa Rica

Gato Frío Location: Plava Jaco, Costa Rica

Territory: Costa Rica, Panama Phone: 506-637-7181 Fax: 506-637-7180 E-mail: eric@yachtshare.net

Croatia

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Location: Milano, Italy Phone: 390 26172583 Fax: 390 266010223 E-mail: marine.info@dometic.it Web: www.dometic.com

Cyprus

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 Fax:
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 sales@dometic.marine.com

 Web:
 www.dometic.com

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May Day Marine

 Location:
 San Juan, Puerto Rico

 Phone:
 787-751-0490

 Fax:
 787-790-2551

Ecuador

Quasar Nautica, S.A.

 Location:
 P.O. Box 17-01-0069, Quito, Ecuador

 Phone:
 (593) 2-446-996/997

 Fax:
 (593) 2-436-625

Egypt

Engineering Air

Location: Abasia, Cairo, Eygpt Phone: 202 4829341 Fax: 202 4829341

France

Dometic Marine – France, Sales Company

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 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

Caraibes Distribution

Location:	Marin, Martinique, French West Indies
Phone:	0596.257292
Fax:	0596.747353

Greece

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 E-mail:
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 www.dometic.com

Athens

Aegean Diesel Electric Ltd.

Location: Athens, Piraeus, Greece Territory: Athens Phone: 0030-1-4222484 Fax: 0030-1-4175201 E-mail: info@ade-marine.gr

Hong Kong

Piercey Marine Limited

 Location:
 Sai Kung, NT, Hong Kong

 Phone:
 (852) 2791-4106

 Fax:
 (852) 2791-4124

 E-mail:
 pmltd@attglobal.net

Italy

 Condaria 87 SRL

 Location:
 Nova Milanese (MI), Italy

 Phone:
 39 0362 44182

 Fax:
 39 0362 452226

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Location: Milano, Italy Phone: 390 26172583 Fax: 390 266010223 E-mail: marine.info@dometic.it Web: www.dometic.com

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Tominaga & Company, Ltd.

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 Osaka, Japan

 Phone:
 816.6365.5010

 Fax:
 816.6365.6294

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 nishi@mail.tomco.co.jp

Kuwait

Mantech

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

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Inmartech Ltd.

Location: Swieqi, STJ 04, Malta Phone: 00356 21376476 Fax: 00356 21376476

Mexico

Southern California Marine Enterprises

 Location:
 San Diego, CA, USA

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 619-224-2869

 Fax:
 619-226-0496

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 sales@southerncalmarine.com

 Web:
 www.southerncalmarine.com

Netherlands

Eberca

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

Heinen & Hopman Eng. Bv.

Location:	Spakenburg, Netherlands
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Fax:	(31) (0) 33 299 2599
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Web:	www.heinenhopman.com

Netherlands Antilles

Enertech N.V.

Simpson Bay, St. Maarten/St. Martin, Netherland Antilles
599-551-2145
305-675-5857 (USA)
service@entertechnv.com

New Zealand

Whiting Power Systems

 Location:
 192 Herne Bay, Auckland, New Zealand

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 649.358.2050

 Fax:
 649.358.0285

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 sales@whiting.co.nz

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Panama

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 Playa Jaco, Costa Rica

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 506-637-7181

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Productos Marine Air

Location: La Chorrea, Panama Territory: Panama Phone: 507-232-5406 Fax: 507-232-7648 E-mail: masters@sinfo.net

Portugal

PowerCool Lda

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 Portimao, Portugal

 Territory
 Portugal

 Phone:
 351 91 786 63 73

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Puerto Rico

Centro Cruisair de Puerto Rico

Location: San Turce, Puerto Rico Phone: 787-727-3637 Fax: 787-727-3637 E-mail: fernan moreno@hotmail.com

Cool-Tech Air Condition

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 Web:
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May Day Marine

Location: San Juan, Puerto Rico Phone: 787-751-0490 Fax: 787-790-2551

Sun Cool Air Conditioning

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

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 Phone:
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Russia

StandarteLocation:Starbeevo, Moscow region, RussiaPhone:7 095 575 67 23Fax:7 095 575 39 77E-mail:info@standarte.ruWeb:www.standarte.ru

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Scandinavia

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Singapore

Tritex Equipment	PTE, Ltd.	
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Location:	, Singapore
Territory:	Singapore
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Fax:	(65) 6861-4263
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www.dometic.com

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Location:	Cape Town, South Africa	
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Fax:	27 21 555 3230	
E-mail:	info@c-dynamics.co.za	
Web:	www.c-dynamics.co.za	

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Acastimar

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Fax:	349-77-362687
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 Web:
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Techno Electronica Naval, S.A.

Location:	Barcelona, Spain
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Fax:	34 (93) 665-76-26
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Sri Lanka

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 Location:
 Borella-Colombo 8, Sri Lanka

 Phone:
 94 11 2691966

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Thai Kolon Co. Ltd.

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 Bangkok, Thailand

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 66-2-745-6468-77 (10 lines)

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Trinidad & Tobago

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U.S. Virgin Islands

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 , St. Thomas, US Virgin Islands

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Yemen Mantech

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For service of product purchased through a catalog or chain store, please call our Ocean Marketing Customer Service Hot Line: (888) 452-0349



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