
Self-contained Air Conditioning Systems Installation Manual For These Product Families:



**Turbo
(DTU/DTM)**



**Vector Compact
(DCU)**



**EnviroCool
(ECD)**



**Low Profile
(DLU)**

Dometic
Rev. 20170HG-H
L-4111 English
P/N 339708

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INTRODUCTION

Improper installation procedures can result in unsatisfactory performance and/or premature failure of these air conditioning (A/C) units. In the interest of product improvement, Dometic's specifications and design are subject to change without prior notice.

This installation can typically be done by one person with brief help from an additional person.

INSTALLATION

SAFETY CONSIDERATIONS

⚠ DANGER Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

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

⚠ CAUTION Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE Indicates a situation which can cause damage to the engine, personal property and/or the environment, or cause the equipment to operate improperly.

⚠ WARNING CARBON MONOXIDE HAZARD. Never install your air conditioner in the bilge or engine room areas. Ensure that the selected location is sealed from direct access to bilge and/or engine room vapors. Do not terminate condensate drain line within 3' (0.91 m) 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. If drain line is not properly installed, then dangerous fumes may travel up drain line and contaminate living quarters. Failure to follow this precaution could result in death or serious injury.

⚠ WARNING CARBON MONOXIDE HAZARD. Never install the A/C unit in a location where it can circulate carbon monoxide, fuel vapors or other noxious fumes into the boat's living spaces. Do not install or operate a self-contained unit in the engine room or near an internal combustion engine. Failure to follow this precaution could result in death or serious injury.

⚠ WARNING EXPLOSION HAZARD. Never install the A/C unit in a location containing gasoline engines, tanks, LPG/CPG cylinders, regulators, valves or fuel line fittings. Unless labeled otherwise, self-contained units do not meet federal requirements for ignition protection. Failure to follow this precaution could result in death or serious injury.

⚠ WARNING ELECTRICAL SHOCK HAZARD. Be sure to effectively ground the A/C unit. The A/C unit must be effectively grounded to minimize electrical shock hazard. Refer to the installation guidelines for further information. Failure to follow this precaution could result in death or serious injury.

NOTICE Contains fluorinated greenhouse gases in hermetically sealed equipment. Refer to the condensing unit's product data plate label for quantity of refrigerant shown in weight and GWP. Refrigerant added should be noted on unit label.

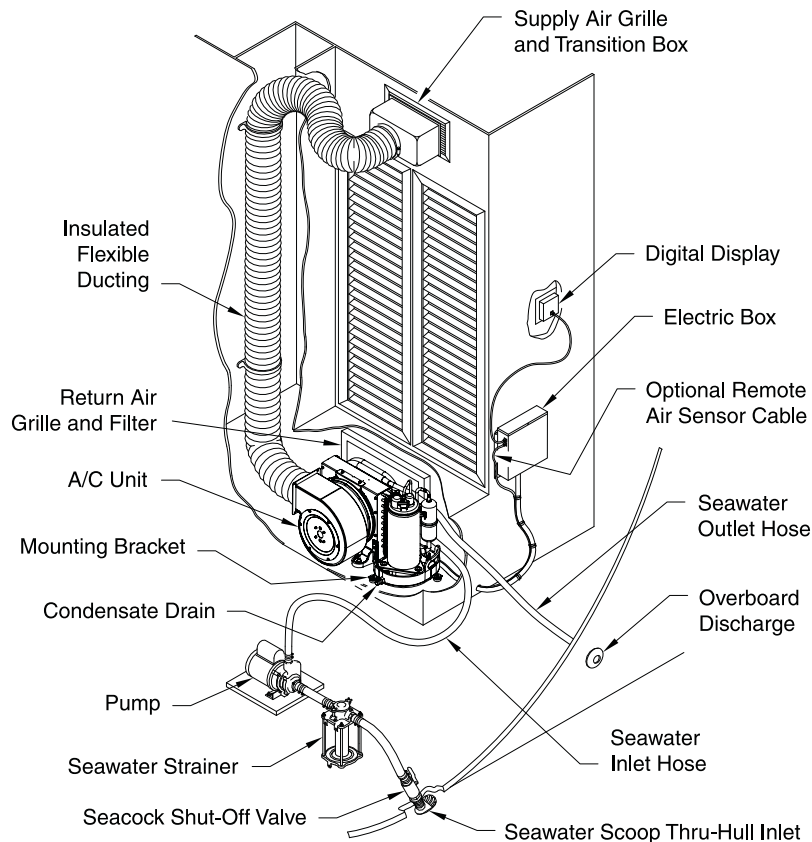
PRIOR TO INSTALLATION

Read these instructions completely and then plan all connections which must be made to the A/C unit including ducting, condensate drain line, seawater inlet and outlet hoses, electrical power connection, location of control, and seawater pump placement, to assure easy access for routing and future servicing.

INSTALLATION OVERVIEW

See Figure 1 for an overview of a typical self-contained A/C system installation.

Figure 1: Installation Overview



BLOWER ROTATION (IF APPLICABLE)

Rotate the blower to the direction which allows the most direct airflow discharge through the ducting.

- **For Turbo blowers** – Loosen the adjustment screw on blower mount ring, rotate blower to desired position, and then tighten adjustment screw. See Figure 2.
- **For EnviroCool/MCS/ECD blowers** – Remove screws on plate, rotate blower to vertical or horizontal position, and fasten plate using self-tapping screws. See Figure 2.
- **For Vector Compact blowers** – Remove mounting-ring screws and screws that attach the blower to the drain pan. Rotate the blower to the desired position, and then install self-tapping mounting screws. Plug any unused screw holes in the blower to prevent air loss. See Figure 2.

PLACEMENT OF A/C UNIT

IMPORTANT INSTALLATION NOTE: The turbo self-contained condensate base pan is equipped with vibration isolators installed in the bottom of the pan. These isolators are designed to dampen the vibration caused by the operating A/C unit from transferring into the mounted surface. Care must be taken when moving the A/C unit across mounting surfaces as isolators can be damaged.

NOTICE

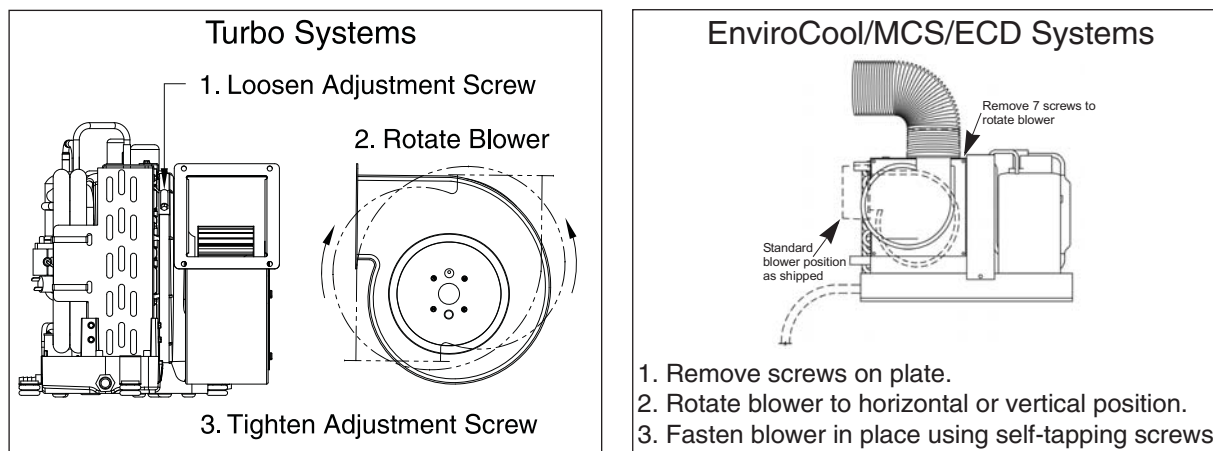
Isolators will not normally pull out of pan, but can turn sideways if dragged and may break if excessive dragging occurs. Unit must be picked up after moving to allow isolator to reset into well or vibration isolation will be ineffective.

The A/C unit must be mounted to a low flat level surface, in bottom of locker, under a bunk or dinette seat, or in a similar location. See Figure 1 before mounting unit.

WARNING

CARBON MONOXIDE HAZARD. Never install the A/C unit in the bilge or engine room areas. Read the safety considerations on page 2 and see Figure 1 before mounting unit.

Figure 2: Blower Rotation Procedures for Each System Type



Vector Compact Systems

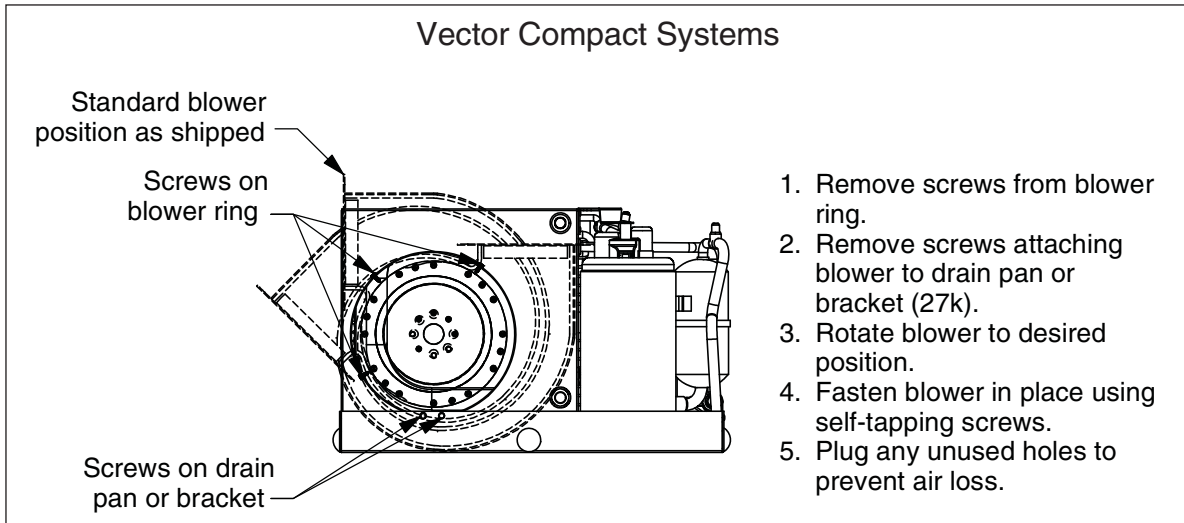
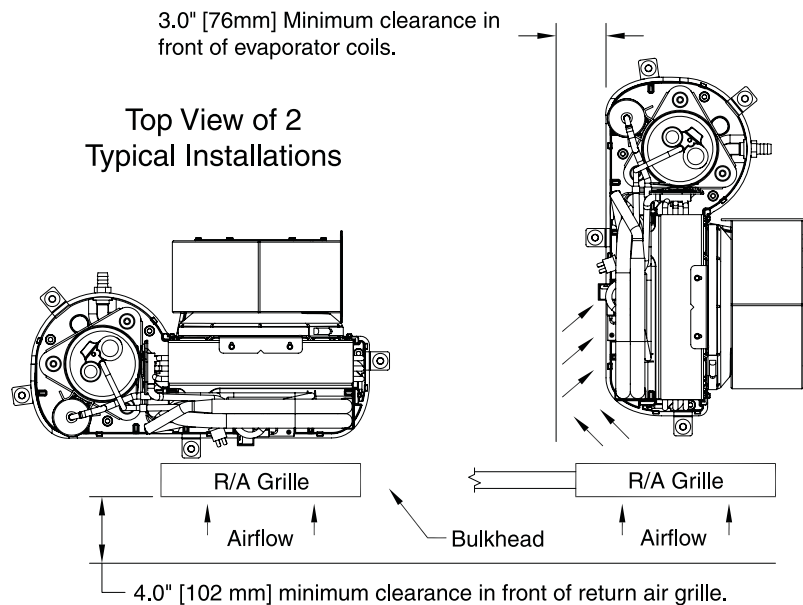


Figure 3: Placement Relating to Airflow



MOUNTING BRACKETS AND CONDENSATE DRAIN

Figure 4: Mounting Brackets and Condensate Drains

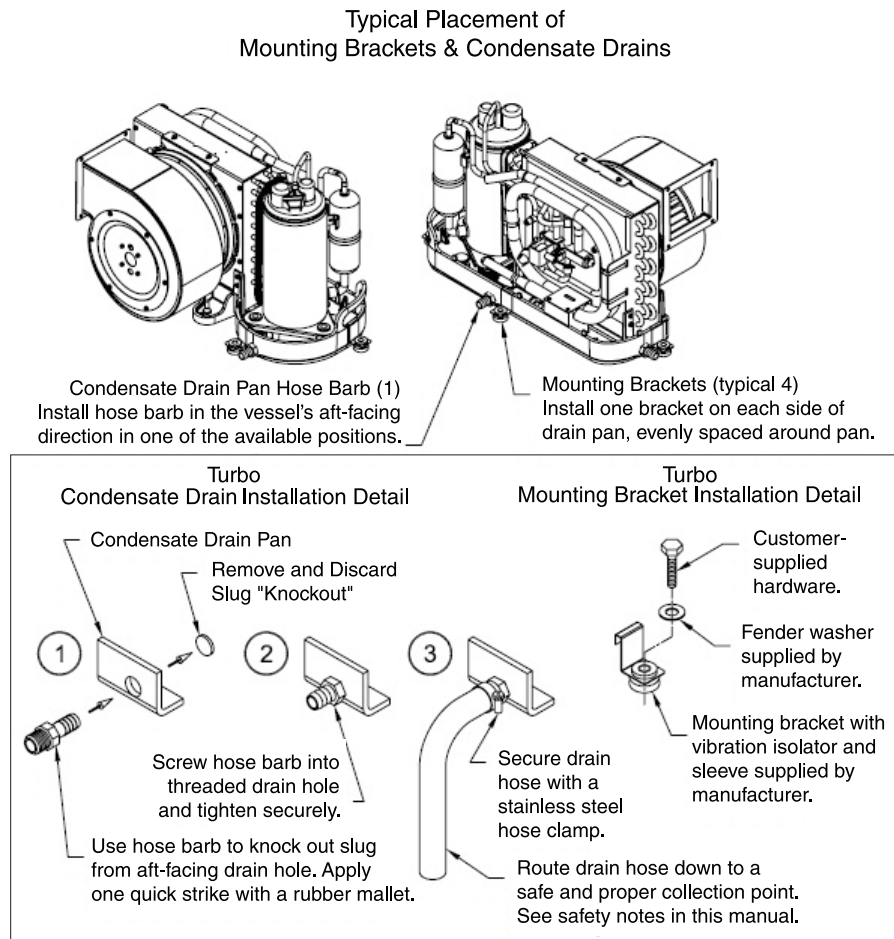
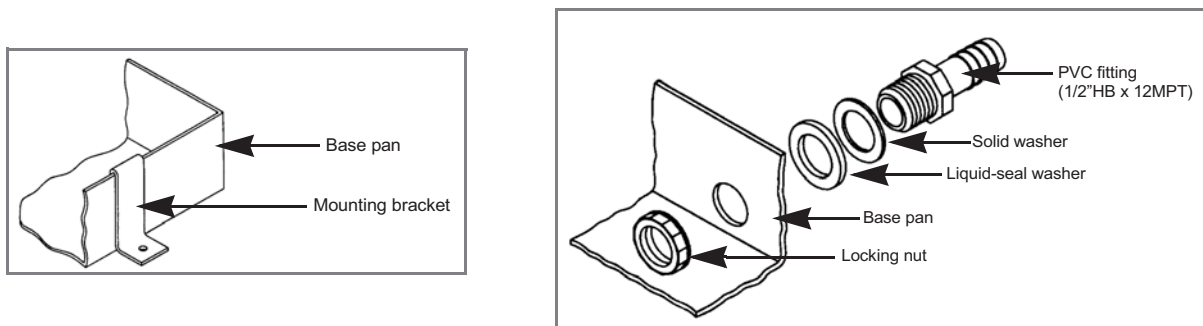


Figure 5: Mounting Brackets and Condensate Drains on Other Self-Contained Systems



⚠ WARNING CARBON MONOXIDE HAZARD. Verify the condensate drain line is properly installed and sealed. Do not terminate condensate drain line within 3' (0.91 m) 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. If drain line is not properly installed, then dangerous fumes may travel up drain line and contaminate living quarters.

AIR FILTERS

Air filters remove airborne particulates from the cabin air and keep the evaporator coil clean. One, and only one, air filter must be installed for each air conditioner unit – either on the A/C unit or in the return air (RA) grille.

NOTICE Clean the air filter regularly per instructions in Owner's Control Manual to ensure proper operation.

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.

NOTICE To ensure proper airflow, the return air grille should have a minimum 4" (101.6 mm) of air circulation clearance in front of it, free from any furniture or other obstructions. See Figure 3.

In no instance should a supply air discharge be directed towards a return air grille, as this will cause the system to short cycle. Allow for adequate clearance behind the supply air grille(s) for the transition box and ducting connection. See Table 1 for minimum grille sizes.

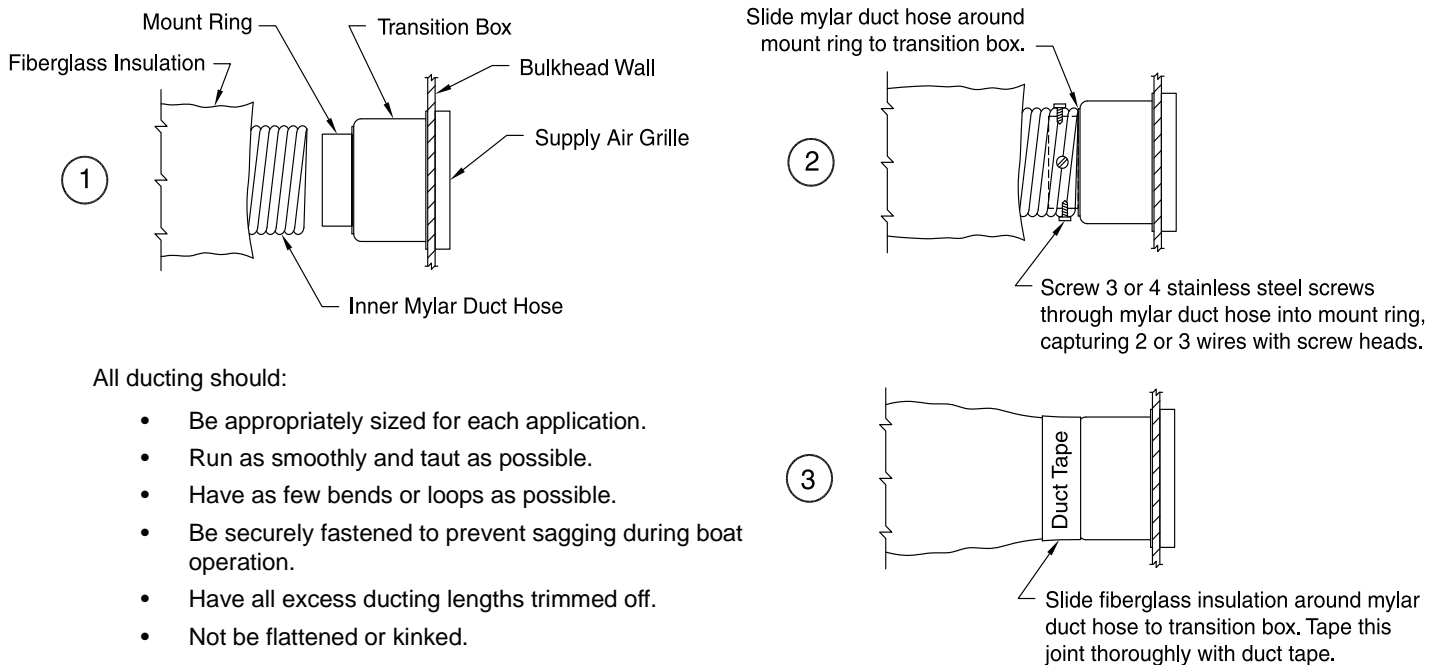
DUCTING

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° bends (two 90° bends can reduce airflow by 25%). Table 1 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 at least equal the area of the supply duct going into the box.

Table 1: Minimum Duct and Grille Sizes per BTU Capacity

	3.5K BTU	6K BTU	8K BTU	10K BTU	12K BTU	16K BTU	18K BTU	27K BTU
Minimum Duct Diameter (in/mm)	3/76	4/102	5/127	6/152	6/152	7/178	7/178	8/203
Minimum Duct Area (sq in/cm)	6.8/44	12.6/81	19.6/126	28.3/183	28.3/183	38.5/248	38.5/248	50.3/325
Minimum Return Air Grille (sq in/cm)	64/413	64/413	80/516	100/645	130/839	160/1032	200/1290	240/1548
Minimum Supply Air Grille (sq in/cm)	12/77	32/206	48/310	60/387	70/452	80/516	100/645	140/903

Figure 6: Proper Ducting Connections



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.

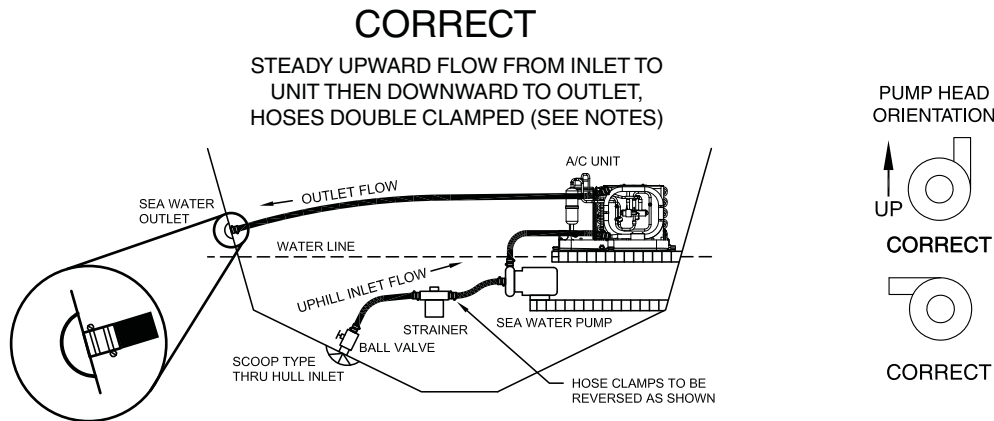
- Insulated when located in high heat load areas (hull side, mechanical compartments, etc.).
- Be properly protected against potential damage when routed through open areas.
- Not be routed through engine room or any area where it may be exposed to dangerous vapors or exhaust fumes.

SEAWATER SYSTEM

1. Install the seawater 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 seawater 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 reinforced marine grade hose.
6. Connect the discharge from the pump uphill to the bottom inlet of the A/C unit's condenser coil with 5/8" (15.9 mm) reinforced marine grade hose. Connect the discharge from the condenser coil to the overboard discharge thru-hull fitting with 5/8" (15.9 mm) reinforced marine grade hose.
7. Avoid loops, high spots or the use of 90° elbows with seawater hose. Each 90° elbow is equivalent to 2.5' (0.762 m) of hose and a 90° elbow on the pump outlet is equivalent to 20' (6.1 m) of hose.
8. Double clamp all hose connections with two 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.

NOTICE Failure to follow the above procedure will void warranty.

Figure 7: Seawater System



- STRAINER MUST BE BELOW PUMP, HOSES MUST BE DOUBLE CLAMPED
- HOSES MUST NOT HAVE KINKS, LOOPS OR HIGH SPOTS WHERE AIR CAN BE TRAPPED
- PUMP & STRAINER MUST BE BELOW WATER LINE

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.

ELECTRICAL CONNECTIONS, GROUNDING AND BONDING

All A/C units have a terminal strip mounted inside 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. The wiring diagram in the electrical box supersedes ABYC standards. 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 captive fork terminals.

⚠ WARNING ELECTRICAL SHOCK HAZARD. Always turn off the A/C power supply breaker before opening the electrical box. All A/C units have a terminal strip mounted inside 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. The wiring diagram in the electrical box supersedes ABYC standards. 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 captive fork terminals.

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 in the electric 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 its mounting screw installed in order to dissipate heat). Electrical connections in the bilge and/or 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).

⚠ WARNING ELECTRICAL SHOCK HAZARD. The A/C unit must be effectively grounded to minimize electrical shock. 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).

The following are to be observed:

1. Alternating Current (AC) 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.
2. Connections between the vessel's AC system grounding conductor (green wire) and the vessel's Direct Current (DC) negative or bonding system should be made as part of the vessel's wiring, per ABYC standard E-9, 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
613 Third Street, Suite 10
Annapolis, MD 21403
Phone: (410) 990-4460
Fax: (410) 990-4466

The air conditioning unit must be connected to the boat's bonding system to prevent corrosion due to stray electrical current. Ensure that the AC ground of the air conditioning unit is properly connected to the AC ground of the boat. Within the boat itself, ensure that the AC ground bus is connected to the DC ground bus at exactly one place (no more, no less). 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 electrical current.

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

OWNER'S LIMITED WARRANTY

As hereinafter described, Dometic 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'S COVERED

What does the Limited Warranty cover?

Products manufactured by Dometic Corporation (Dometic) are under limited warranty to be free from defects in workmanship or materials at the time of sale. This being under normal use and service, with the obligation of Dometic under this limited warranty, being limited to replacing or repairing – at Dometic's sole choice – any component(s) which shall disclose defects within the limits defined in **Section III** 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 those instances in which a cash refund of original purchase price 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 the 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.** The remedies described above are your sole and exclusive remedies and Dometic's entire liability for any breach of this limited warranty. Dometic's liability shall under no circumstances exceed the actual amount paid by you for the defective product, nor shall Dometic under any circumstances be liable for any consequential, incidental, special or punitive damages or losses, whether direct or indirect. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation may not apply to you.

The Dealer is not an agent for Dometic, except for the purpose of administering the above warranty to the extent herein provided. 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. Dometic can make changes at any time in design, materials, or part of units of any one, model year, 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'S NOT COVERED

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. Labor resulting from difficult access to a Dometic product. The original installer or OEM is responsible for accessibility of unit.
8. Leaks due to improper installation of split systems and refrigeration systems, for example; packing glands, flare nuts, quick disconnects. The adjustment of the refrigerant charge on a split system should be charged to the original installer or OEM.
9. Freight Damage.
10. Pumps that have been run dry, are water damaged or have blown freeze plugs.

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11. Pumps with cracked heads.
 12. Pump seals are not covered.
 13. UV light bulbs are not covered.
 14. Liquid line filter dryers are not covered.
 15. Blowers with water damage.
 16. Logic boards with water damage.
 17. Logic boards with blown MOV's (Power Surge)
 18. Mis-programmed displays.
 19. Display heads with water damage.
 20. Dirty Condensers and/or Evaporators.
 21. Failures due to improper winterization.
 22. Unit damage as a result of improper return packaging.
 23. Replacement of freon with substitute without authorization from factory.
 24. Environmental and/or Recovery Fees.
 25. Welding and Nitrogen Fees.
 26. Travel costs are included in the hourly labor allowances and should not be billed as a separate item without preapproval from the factory.

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 - COVERAGE PERIOD

What is the period of coverage?

(See the **Table of Warranty Periods.**)

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 warranty, 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 to obtain the manufacture date. The hours of the Customer Service Department are 8:00 a.m. - 5:00 p.m. (USA, Eastern Standard 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 as 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 - GETTING SERVICE

How do you get service?

Please read the following Warranty Procedure:

If the failure of a Dometic component is determined by Dometic 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 needs to call Dometic Customer 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. Second option: If the customer contacts Dometic 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. Third option: 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 first, option two second, and option three only if one and two are not available.

The customer may contact the Dometic Service Department at (954) 973-2477 Monday through Friday, 8:00am - 5:00pm Eastern Time. After hours (evenings and weekends) technical support is offered through Dometic's 24/7 Hotline at (888) 440-4494.

TABLE OF WARRANTY PERIODS

DOMETIC SELF-CONTAINED AIR CONDITIONING		
Important Notes:		
<ol style="list-style-type: none"> Warranty periods begin from the date of possession of the boat by the first owner if OEM installed or date of installation if dealer installed, but not to exceed three (3) years from date of production. The warranty is transferable and will carry the remainder of the original owner's warranty based on the original date of purchase or date of installation. Proof of purchase or installation may be required to verify warranty coverage. Any unit or replacement part installed due to a warranty failure carries the remainder of the original warranty. Warranty coverage does not start over from the repair/replacement date. Warranty coverage shall not exceed three (3) years from the date of production. These warranty periods are effective March 1, 2010. 		
Dometic Direct Expansion, Self-Contained Systems		
Product	Sale Type	Warranty Coverage
Turbo Compact Low Profile	OEM or Dealer Installed with Passport I/O or Elite or mechanical controls.	2-Year Warranty 1st Year parts and labor, 2nd Year parts only. Not to exceed three (3) years from date of production. Pump warranty, see Pump section.
ECD ECM MCS	Catalog Sales	Parts: 1 year from date of purchase of unit. Labor: 6 months from date of purchase of unit. Not to exceed three (3) years from the date of manufacture.
	OEM or Dealer Installed	1-Year Warranty, parts and labor. Not to exceed three (3) years from date of manufacture.
Dometic Pumps, Compressors, Replacement Parts		
Product	Sale Type	Warranty Coverage
Pumps	OEM or Dealer Installed with complete system.	1-Year warranty, parts and labor. Pump seals are not covered under warranty and are sold "AS IS".
	Dealer Installed and Aftermarket sales.	1-Year warranty, parts only. Pump seals are not covered under warranty and are sold "AS IS".
Compressors	Aftermarket sales	1-Year warranty, parts only
Replacement parts and components	Aftermarket sales	90-Day warranty, parts only
Dometic Air Conditioning Accessories		
Product	Sale Type	Warranty Coverage
In-Duct Breathe Easy Air Purifiers	Aftermarket sales	1-Year warranty, parts only UV bulb is not covered under warranty and is sold "AS IS".
SmartStart Control	Aftermarket sales	1-Year warranty, parts only

DOMETIC MARINE DIVISION

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For all other areas visit our website to find your nearest distributor.

dometic.com