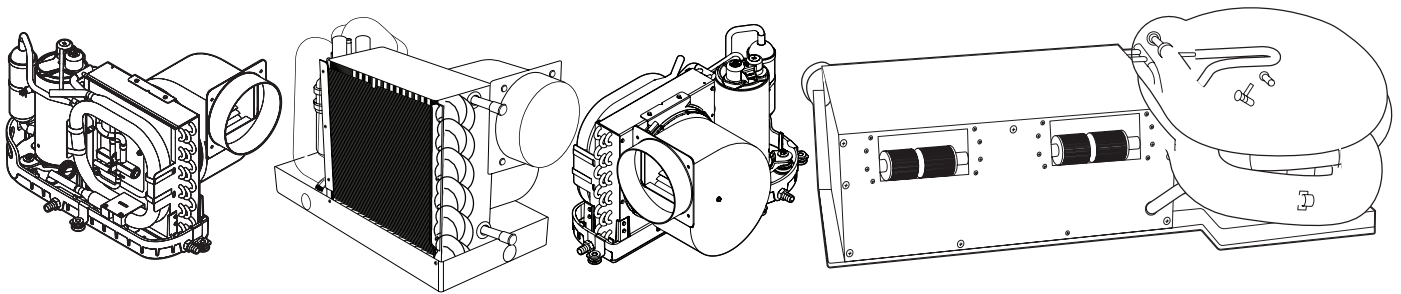


# ↗ DOMETIC MARINE AIR CONDITIONERS



DCG, DCMG, DCU, DLM, DLU, DMT, DTG, DTU, ECD, MCS

<b>EN</b>	<b>Self-Contained Air Conditioning System</b>
	Installation Manual.....2

**⚠ WARNING**

Cancer and Reproductive Harm  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**Service Center & Dealer Locations**

Visit: [www.dometic.com](http://www.dometic.com)

Read these instructions carefully. These instructions **MUST** stay with this product.

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**1 Explanation of Symbols and Safety Instructions**


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


**1.1 Recognize Safety Information**


 **This is the safety alert symbol.** It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

**1.2 Understand Signal Words**


A signal word will identify safety messages and property damage messages, and also will indicate the degree or level of hazard seriousness.

 **DANGER!**  
Indicates a hazardous situation that, if **not** avoided, will result in death or serious injury.

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

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

**NOTICE:** Used to address practices **not** related to physical injury.

 Indicates additional information that is **not** related to physical injury.

**1.3 Supplemental Directives**

To reduce the risk of accidents and injuries, please observe the following directives before proceeding to install this appliance:

- Read and follow all safety information and instructions.
- Read and understand these instructions before installing this product.

- The installation must comply with all applicable local or national codes, including the latest edition of the following standards:
  - American Boat and Yacht Council (ABYC)
  - ANSI/NFPA70, National Electrical Code (NEC)

## 1.4 General Safety Messages

### **WARNING: CARBON MONOXIDE HAZARD.** Failure to obey the following warnings could result in death or serious injury:

- Do **not** install or operate a self-contained air conditioner in the bilge or engine room areas, or near an internal combustion engine. Ensure that the selected location is sealed from direct access to bilge and/or engine room vapors.
- Verify the condensate drain line is properly installed and sealed. Do **not** terminate the condensate drain line within 3 ft. (0.91 m) of any outlet of an engine or generator exhaust system, in a compartment containing an engine or generator, or in a bilge, unless the drain is connected properly to a sealed condensate or shower sump pump. If the drain line is **not** properly installed, dangerous fumes may travel up the drain line and contaminate the living quarters.
- Do **not** install the air conditioning unit in a location where it can circulate carbon monoxide, fuel vapors, or other noxious fumes into the boat's living spaces.

### **WARNING: ELECTRICAL SHOCK, FIRE, AND/OR EXPLOSION HAZARD.**

This appliance is **not** intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do **not** play with the appliance. Cleaning and user maintenance shall **not** be made by children without supervision. This appliance should **not** be accessible to the general public. Failure to follow these precautions could result in death or serious injury.


### **WARNING: EXPLOSION HAZARD.**

Do **not** install the air conditioning 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 obey this warning could result in death or serious injury.

### **WARNING: ELECTRICAL SHOCK HAZARD.** Failure to obey the following warnings could result in death or serious injury:

- Be sure to effectively ground the air conditioning unit to minimize the electrical shock hazard. Refer to the installation guidelines for further information.
- Each air conditioning unit installed requires a dedicated circuit breaker. If there is only one air conditioning unit installed, the seawater pump does not require a circuit breaker. 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 sized for the pump (20 A max). Refer to the the wiring diagram furnished with the PRP. 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 the data plate for the maximum fuse/circuit breaker size (mfs) and minimum circuit capacity (mca).

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

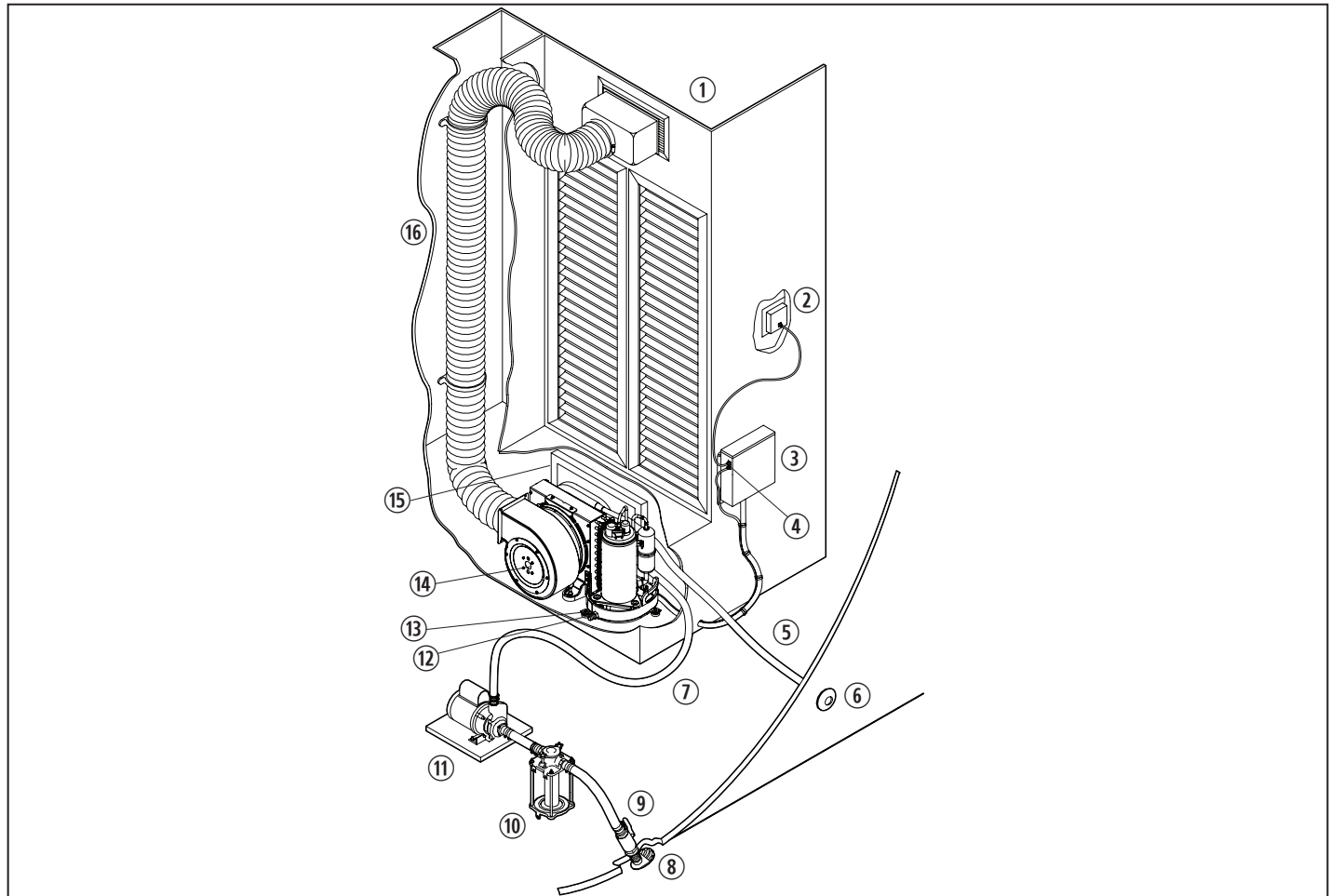
-  The PRP triac must have its mounting screw installed in order to dissipate heat.

## 2 General Information

**i** The images used in this document are for reference purposes only. Components and component locations may vary according to specific product models. Measurements may vary  $\pm 0.38$  in. (10 mm).

Read these instructions completely and then plan the connections that must be made to the air conditioning unit (including ducting, condensate drain line, seawater inlet and outlet hoses, electrical power connections, location of the control, and seawater pump placement), to assure easy access for routing and future servicing.

See Figure 1 for an overview of the components in a typical self-contained air conditioning system installation.



### 1 Component Identification

- |  |                                |
|--|--------------------------------|
| ① Supply Air Grille and Transition Box | ⑨ Seacock Shut-Off Valve       |
| ② Digital Display                      | ⑩ Seawater Strainer            |
| ③ Electric Box                         | ⑪ Pump                         |
| ④ Optional Remote Air Sensor Cable     | ⑫ Condensate Drain             |
| ⑤ Seawater Outlet Hose                 | ⑬ Mounting Bracket             |
| ⑥ Overboard Discharge                  | ⑭ Air Conditioning Unit        |
| ⑦ Seawater Inlet Hose                  | ⑮ Return Air Grille and Filter |
| ⑧ Seawater Scoop Thru-Hull Inlet       | ⑯ Insulated Flexible Ducting   |

### 3 Intended Use

This manual is intended for the installation of Turbo, Vector Compact, EnviroCool, and Low Profile self-contained air conditioning systems. Improper installation procedures can result in unsatisfactory performance or premature failure of these air conditioning units. Installation can typically be performed by one person, with brief help from an additional person.

The manufacturer accepts no liability for damage in the following cases:

- Faulty assembly or connection

- Damage to the product resulting from mechanical influences and excess voltage
- Alterations to the product without express permission from the manufacturer
- Use for purposes other than those described in the operating manual

Dometic Corporation reserves the right to modify appearances and specifications without notice.

### 4 Specifications


This section contains specification data for the self-contained air conditioning system.

#### Minimum Duct and Grille Sizes per BTU Capacity

	3.5 k BTU	6 k BTU	8 k BTU	10 k BTU	12 k BTU	16 k BTU	18 k BTU	27 k BTU
<b>Minimum Duct Diameter [in. (mm)]</b>	3.0 (76)	4.0 (102)	5.0 (127)	6.0 (152)	6.0 (152)	7.0 (178)	7.0 (178)	8.0 (203)
<b>Minimum Duct Area [sq. in. (sq. cm)]</b>	6.8 (44)	12.6 (81)	19.6 (126)	28.3 (183)	28.3 (183)	38.5 (248)	38.5 (248)	50.3 (325)
<b>Minimum Return Air Grille [sq. in. (sq. cm)]</b>	64.0 (413)	64.0 (413)	80.0 (516)	100.0 (645)	130.0 (839)	200.0 (1290)	200.0 (1290)	240.0 (1548)
<b>Minimum Supply Air Grille [sq. in. (sq. cm)]</b>	12.0 (77)	32.0 (206)	48.0 (310)	60.0 (387)	70.0 (452)	80.0 (516)	100.0 (165)	140.0 (903)

#### Operating Water Temperature and Pressure

<b>Minimum Operating Water Temperature</b>	40.0 °F (4 °C)
<b>Maximum Operating Water Temperature</b>	80.0 °F (27 °C)
<b>Minimum Operating Water Pressure</b>	4.2 psi (29 kPa)
<b>Maximum Operating Water Pressure</b>	6.0 psi (41.4 kPa)

 The unit can operate outside these conditions with reduced capacity.

### 5 Pre-Installation

**NOTICE:** Failure to obey these notices could result in damage to the product:

- The Turbo self-contained condensate base pan is equipped with vibration isolators installed in the

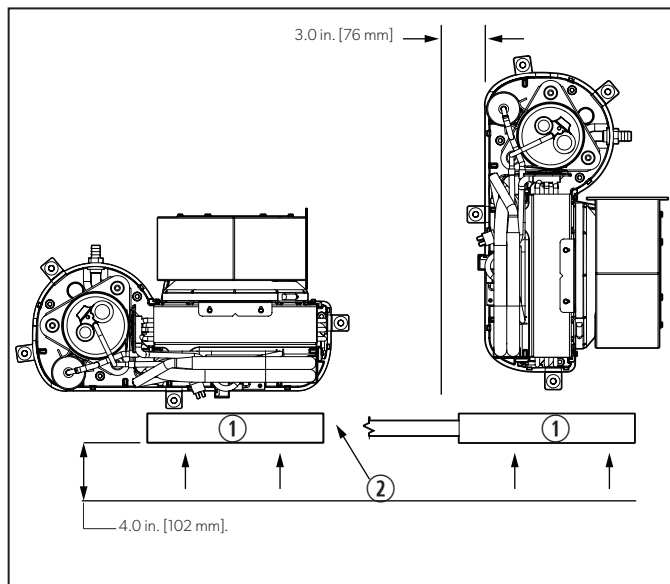
bottom of the pan. These isolators are designed to dampen the vibration caused by the operating air conditioning unit from transferring into the mounted surface. Care must be taken when moving the air conditioning unit across mounting surfaces as isolators can be damaged.

- Clean the air filter regularly according to the instructions in the owner's control manual to ensure proper operation.

- The air conditioning unit must be mounted to a low, flat, level surface, like in the bottom of a locker, under a bunk or dinette seat, or in a similar location. Refer to Figure 1 for a standard installation configuration before mounting the unit.
- To ensure proper airflow, the return air grille should have a minimum of 4.0 in. (101.6 mm) of air circulation clearance in front of it, free from any obstruction.

This section explains how to prepare the air conditioning unit for installation.

## 5.1 Determining the Installation Location



**2** Placement Relating to Airflow

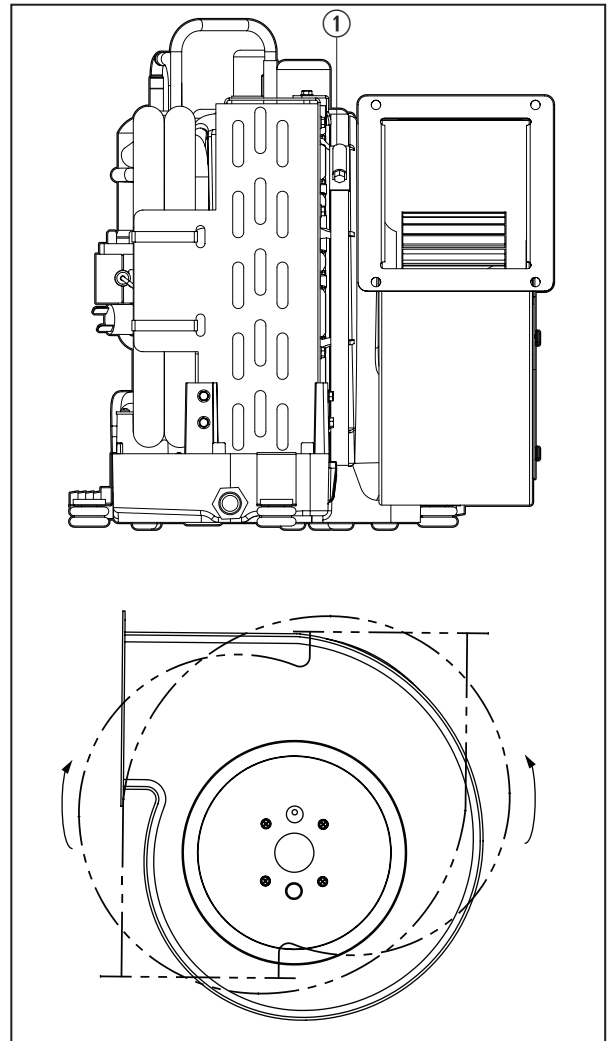
- ① Return Air Grille      ② Bulkhead

Allow for 3.0 in. (76 mm) minimum clearance in front of the evaporator coils and 4.0 in. (102 mm) minimum clearance in front of the return air grille.

## 5.2 Rotating the Blower

If needed, rotate the blower to the direction that allows the most direct airflow discharge through the ducting. This section explains how to rotate the blower for each product family.

### 5.2.1 Turbo Blowers

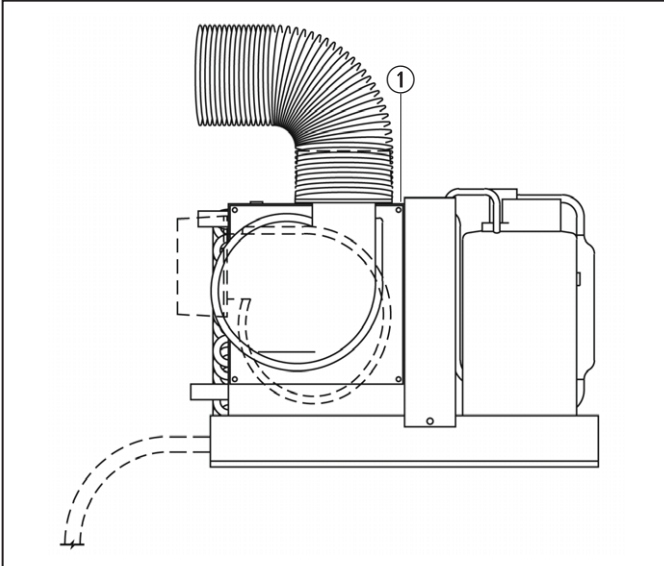


**3** Turbo System Blower Rotation

- ① Adjustment Screws

1. Loosen the adjustment screw on the blower mount ring.
2. Rotate the blower to the desired position.
3. Tighten the adjustment screw.

### 5.2.2 EnviroCool, MCS, and ECD Blowers

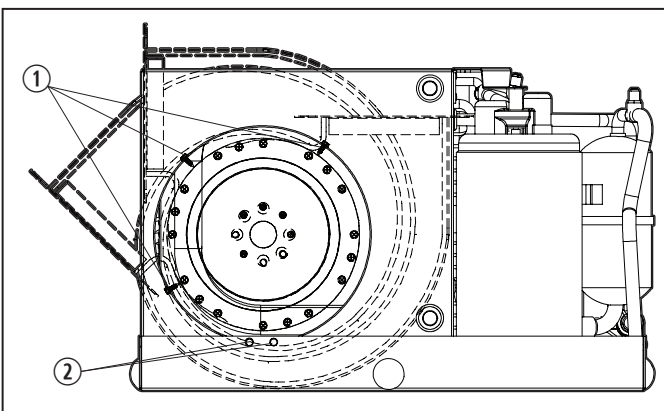


**4** EnviroCool, MCS, and ECD System Blower Rotation

① Screws

1. Remove the seven screws on the plate.
2. Rotate the blower to the desired position.
3. Secure the blower in place using self-tapping screws (not provided).

### 5.2.3 Vector Compact Blowers



**5** Vector Compact System Blower Rotation

① Screws on Blower Ring

② Screws on Drain Pan or Bracket

1. Remove the screws from the blower ring.
2. Remove the screws attaching the blower to the drain pan or bracket.

3. Rotate the blower to the desired position.
4. Secure the blower in place using self-tapping screws (not provided).
5. Plug any unused holes to prevent air loss.

### 5.3 Placing the Air Filters

Air filters remove airborne particles from the cabin air and keep the evaporator coil clean. Place one air filter, either on the air conditioning unit or in the return air grille, for each air conditioner unit. Refer to "General Information" on page 4 for air filter placement.

### 5.4 Placing the Grilles and Transition Boxes

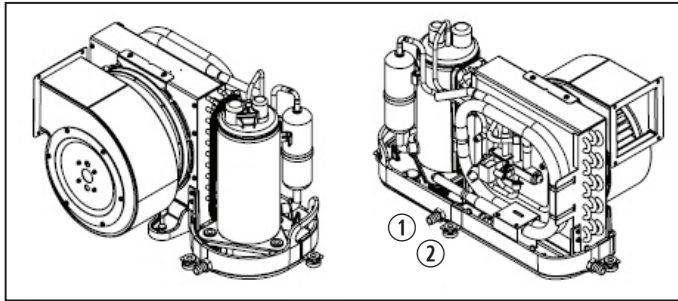
Install the supply air grille as high as possible in a location that will provide uniform air distribution throughout the cabin. Direct the grille louvres upward. Install the return air grille as low and close to the air conditioning unit as possible to ensure airflow to the evaporator.

Do not direct the supply air discharge towards the return air grille, as this will cause the system to short cycle. Allow for adequate clearance behind the supply air grille for the transition box and ducting connection. Refer to "Minimum Duct and Grille Sizes per BTU Capacity" on page 5.

## 6 Installation

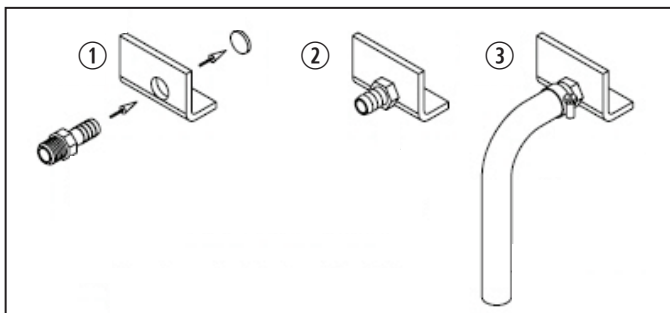
This section explains how to install the self-contained air conditioning unit.

## 6.5 Installing the Mounting Brackets and Condensate Drain



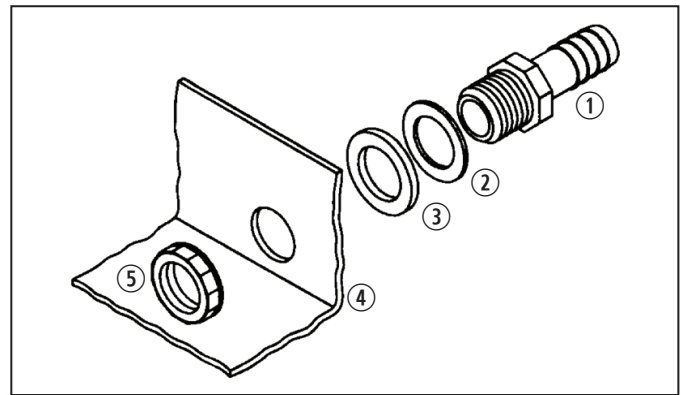
**6** Typical Placement of Mounting Brackets and Condensate Drains

- ① Condensate Drain Pan Hose Barb
- ② Mounting Bracket (Provided)



**7** Condensate Drain Installation for Turbo Systems

- ① Hose Barb
- ② Drain Pan
- ③ Slug "Knockout"

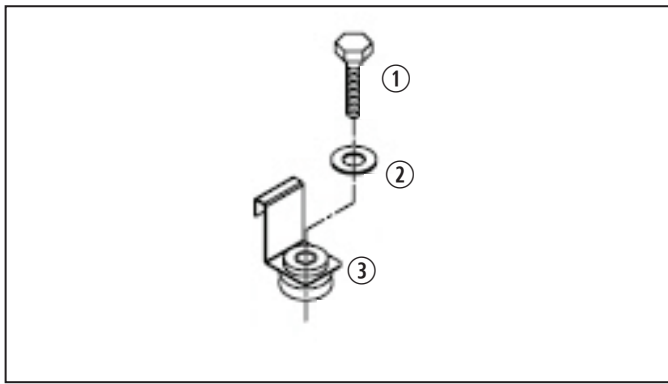


**8** Condensate Drain Installation for Other Self-Contained Systems

- ① PVC Fitting (1/2 in. HB x 12 MPT)
- ④ Drain Pan
- ② Solid Washer
- ⑤ Locking Nut
- ③ Liquid-Seal Washer

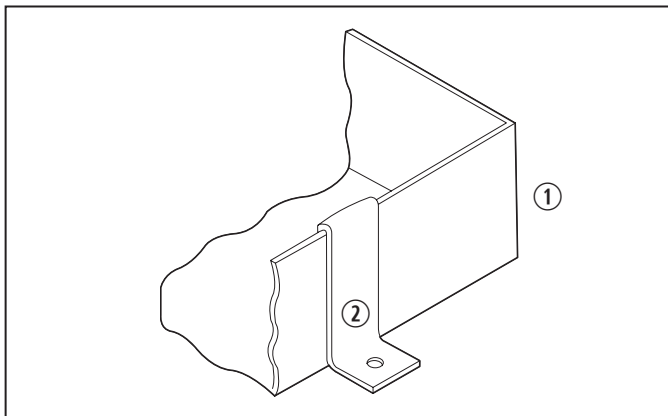
1. Using the hose barb, knock out a slug from an aft-facing drain hole by applying one quick strike with a rubber mallet. Discard the slug knockout.
2. Install the hose barb:
  - For Turbo systems: screw the hose barb into the threaded drain hole and tighten securely.
  - For all other systems: thread the hose barb through a solid washer and liquid-seal washer and insert it into the drain hole. Secure with a locking nut.
3. Secure the condensate drain hose with a stainless steel hose clamp.
4. Route the drain hose to a safe and proper collection point.





**9** Mounting Bracket Installation for Turbo Systems

- ① Customer-Supplied Hardware
- ② Fender Washer (Provided)
- ③ Mounting Bracket (Provided)



**10** Mounting Bracket Installation for Other Self-Contained Systems

- ① Drain Pan
- ② Mounting Bracket

5. Install one mounting bracket on each side of the drain pan, evenly spaced.

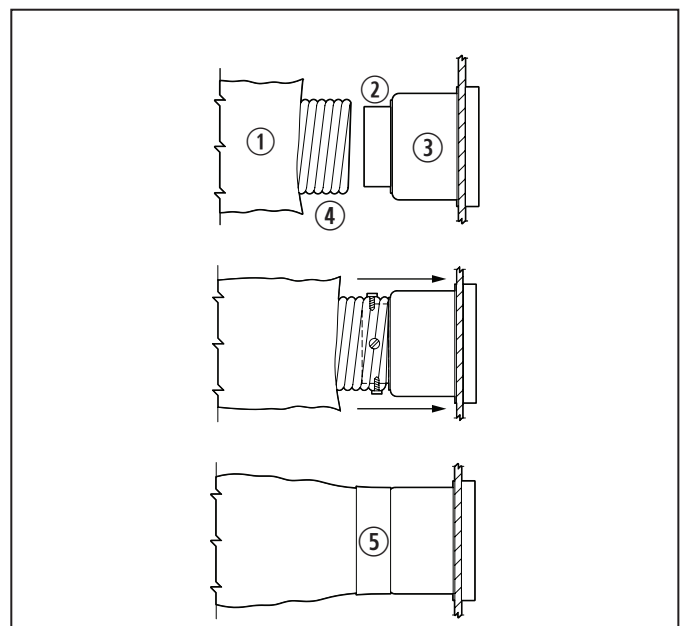
## 6.6 Installing the Ducting

Observe the following conditions when installing the ducting:

- Ducting must be appropriately sized for your application.
- Run ducting as straight, smooth, and taut as possible, minimizing the number of 90° bends and loops, which can reduce airflow.
- Fasten the ducting securely to prevent sagging.
- Do not allow ducting to be flattened or kinked.

- Trim excess ducting lengths following installation.
- Insulate ducting when it is located in high-heat areas.
- Ensure that ducting is properly protected against damage when routed through open areas.
- Do not route ducting through an engine room or any area where it may be exposed to dangerous vapors or exhaust fumes.

If a transition box is used, the total area of supply air ducts going out of the box should be at least equal to the total area of the supply ducts going into the box. Refer to "Minimum Duct and Grille Sizes per BTU Capacity" on page 5 for minimum duct diameters.



**11** Ducting Connections

- ① Fiberglass Insulation
- ② Mount Ring
- ③ Transition Box
- ④ Inner Mylar Duct Hose
- ⑤ Duct Tape

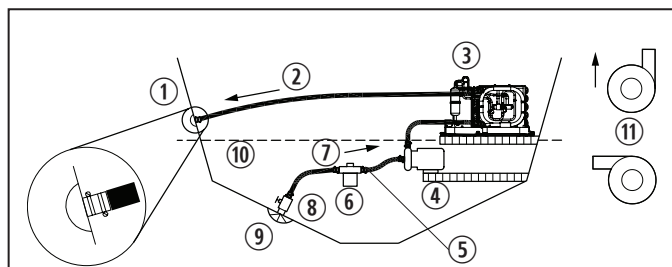
1. Slide the inner mylar duct hose around the mount ring to the transition box.
2. Screw three or four stainless steel screws through the mylar duct hose into the mount ring, capturing two or three wires with screw heads.
3. Slide the fiberglass insulation around the inner mylar duct hose to the transition box. Secure with duct tape.

## 6.7 Installing the Seawater System

**i** Failure to follow this procedure will void the warranty.

Observe the following considerations when setting up the seawater system:

- The strainer must be below the pump.
- Hoses must be double clamped.
- Hoses must not have kinks, loops, or high spots where air can become trapped.
- The pump and strainer must be below the water line.
- The thru-hull inlet, ball valve, hose, and strainer should be no smaller than the pump inlet.
- Install the thru-hull fitting as far below the water line as possible.
- The pump must have a dedicated thru-hull.
- Avoid 90° elbow fittings as much as possible.
- Ensure that the pump head is rotated toward the direction of water flow.
- Use threaded seal tape on all threaded connections.



**12** Seawater System

- |                         |                                  |
|-------------------------|----------------------------------|
| ① Seawater Outlet       | ⑦ Uphill Inlet Flow              |
| ② Outlet Flow           | ⑧ Ball Valve                     |
| ③ Air Conditioning Unit | ⑨ Scoop Thru-Hull Inlet          |
| ④ Seawater Pump         | ⑩ Water Line                     |
| ⑤ Hose Clamps           | ⑪ Correct Pump Head Orientations |
| ⑥ Strainer              |                                  |

1. Install a seawater scoop thru-hull inlet as close to the keel and as far below the water line as possible. Secure the scoop thru-hull inlet using 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 the 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 air conditioning unit's condenser coil with a 5/8 in. (15.9 mm) reinforced, marine-grade hose.
7. Connect the discharge from the condenser coil to the overboard discharge thru-hull fitting with a 5/8 in. (15.9 mm) reinforced marine-grade hose.
8. Avoid loops, high spots, or the use of 90° elbows with the seawater hose. Each 90° elbow is equivalent to 2.5 in. (0.762 m) of hose and a 90° elbow on the pump outlet is equivalent to 20.0 in. (61 m) of hose.
9. Double-clamp all hose connections using two stainless steel clamps, reversing the clamps where necessary.
10. Connect all metallic parts in contact with seawater to the vessel's bonding system.

Refer to "Operating Water Temperature and Pressure" on page 5 for maximum and minimum water temperature and pressure values.

## 6.8 Making the Electrical Connections

### **⚠ WARNING: ELECTRICAL SHOCK HAZARD.**

Always turn off the air conditioning power supply breaker before opening the electrical box. Failure to obey this warning could result in death or serious injury.

**i** Failure to properly ground and bond the system will void the warranty.

All conditioning units have a terminal strip, labeled for proper connections, inside the electric box. The wiring diagram inside the electric box supersedes ABYC standards. Use the correct size circuit breaker to protect the system as specified by the air conditioning units data plate label. A minimum of 12 AWG boat cable should be used to supply power to the air conditioning unit and the seawater pump. Make all connections using ring or captive fork terminals.

Observe the following when making electrical connections:

- Alternating current (AC) grounding must be connected to the ground terminal (GRND) at the AC power input terminal block.
- Connections between the vessel's AC system grounding conductor and the vessel's direct current (DC) negative or bonding system should be made as part of the vessel's wiring. When servicing or replacing existing equipment that contains a chassis-mounted ground stud, check the vessel's wiring for these connections.

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. 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.

## 7 Disposal



Place the packaging material in the appropriate recycling waste bins, whenever possible. Consult a local recycling center or specialist dealer for details about how to dispose of the product in accordance with all applicable national and local regulations.

## 8 Warranty Information

Refer to the sections below for information about warranty and warranty support in the US, Canada, and all other regions.

### 8.1 United States and Canada

LIMITED WARRANTY AVAILABLE AT [WWW.DOMETIC.COM/WARRANTY](http://WWW.DOMETIC.COM/WARRANTY).

IF YOU HAVE QUESTIONS, OR TO OBTAIN A COPY OF THE LIMITED WARRANTY FREE OF CHARGE, CONTACT:

DOMETIC CORPORATION  
MARINE CUSTOMER SUPPORT CENTER  
2000 NORTH ANDREWS AVENUE  
POMPANO BEACH, FLORIDA, USA 33069  
1-800-542-2477

### 8.2 All Other Regions

The statutory warranty period applies. If the product is defective, please contact the manufacturer's branch in your region (see the back of the instruction manual for the addresses) or your retailer.

For repair and guarantee processing, please include the following documents when you send in the device:

- A copy of the receipt with purchasing date
- A reason for the claim or description of the fault

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A complete list of Dometic companies, which comprise the Dometic Group, can be found in the public filings of:  
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