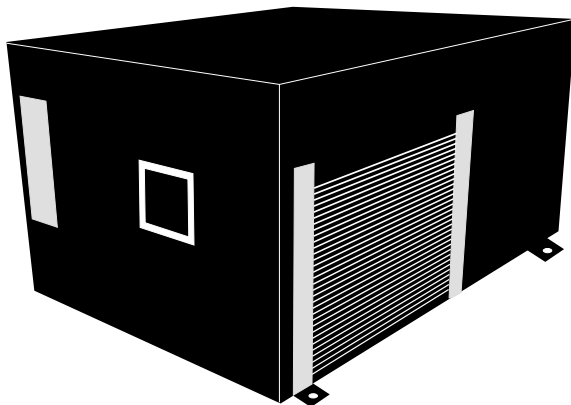


CAB COMFORT™

RECORD THIS INFORMATION FOR FUTURE REFERENCE
BEFORE INSTALLING THE UNIT:

Model Number _____
Serial Number _____
Date Purchased _____
Place of Purchase _____

HEAT PUMP FOR SEMI-SLEEPER



PREWIRED FOR OPTIONAL AUXILIARY HEAT

THIS UNIT IS DESIGNED FOR OEM AND AFTERMARKET INSTALLATION
ALL INITIAL INSTALLATIONS MUST BE APPROVED BY DOMETIC'S SALES DEPT.

USA

SERVICE OFFICE
The Dometic Corp.
509 So. Poplar St.
LaGrange, IN 46761
219-463-4858

CANADA

Dometic Dist.
866 Langs Dr.
Cambridge, Ontario
CANADA N3H 2N7
519-653-4390

For Service Center
Assistance Call:
800-544-4881

WARNING

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

AVERTISSEMENT

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

INSTALLATION INSTRUCTIONS

Duo-Therm
MODELS
42044.503

REVISED

Form No. 3109543.003 6/00
(French 3109615.009)
©2000 The Dometic Corporation
LaGrange, IN 46761

Important: These instructions must
stay with unit.
Owner read carefully.

SAFETY INSTRUCTIONS

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

RECOGNIZE SAFETY INFORMATION



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

Follow recommended precautions and safe operating instructions.

UNDERSTAND SIGNAL WORDS

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

WARNING: means if the safety information is not followed someone could be injured or killed.

CAUTION: means if the safety information is not followed someone might be injured.

Read and follow all safety information and instructions.

1. GENERAL INFORMATION

A. The heat pump is an air conditioner that reverses the flow of refrigerant through a 4-way valve. During the cooling cycle, the compressor pumps high pressure, high temperature vaporized refrigerant to the 4-way valve. The refrigerant vapor is piped from the 4-way valve to the outside coil (condenser coil), where heat is removed and it is changed to liquid. The liquid refrigerant is piped to the inside coil (evaporator coil) through a small tube called the capillary tube. The capillary tube reduces the pressure of the liquid refrigerant. The refrigerant is sprayed into the inside coil (evaporator coil) and heat is picked up from the air flowing over the coil. Resulting effect is the lowering of the temperature inside the conditioned space.

During the heating cycle, the 4-way valve reverses the direction of refrigerant flow through the coils. The outside coil now becomes the evaporator and the inside coil becomes the condenser. The refrigerant process is still the same except heat is given off inside the conditioned space. The heat pump will operate down to 30°F. When the outside temperature reaches 30°F a sensor will shut the system off. When the outside temperature rises to 38°F, the sensor will allow the heat pump operation to begin again.

B. The optional auxiliary heat utilizes the engine heating system. The outlet heater hose from the engine is routed through an add-on heater core, thus providing additional heat when Comfort Control is placed in the heat strip mode of operation.

C. The ability of the unit to maintain the desired inside temperature depends on the heat gain of the semi-sleeper. Some preventative measures can reduce the heat gain and improve the performance of the unit. During extremely high outdoor temperatures, the heat gain of the vehicle can be reduced by:

1. Parking in a shaded area.
2. Use window shades (blinds or curtains).
3. Keep the window and doors closed. Open only when necessary.
4. Avoid the use of heat producing appliances.

Note: The manufacturer of this unit will not be responsible for damage caused by condensed moisture on ceiling or other cool surfaces. Air contains moisture and this moisture tends to condense on cold surfaces. When air enters the semi-sleeper, condensed moisture may appear on the ceiling, window metal parts, etc. The unit will remove this moisture during normal operation. Keeping the doors and windows closed will minimize this condition.

SPECIFICATIONS

MODEL NO	42044.503
Nominal Capacity (Tons/HR)	1/2
Electrical Rating	115 VAC, 60 Hz., 1 ph.
Compressor Rated Load Amps	4.2
Evap. Motor Rated Load Amps	.90
Condenser Motor Rated Amps	.64
Compressor Locked Rotor Amps	29.0
Evap. Motor Locked Rotor Amps	1.40
Cond. Motor Locked Rotor Amps	1.0
Refrigerant R22 Charge (Oz.)	17.0
Minimum Wire Size *	12 AWG Copper Up to 24 ft.
Circuit Protection	15 Amp
Minimum Inverter Size **	1500 Watt
Kwyatt Power	KP2
Generator Size **	3000 Watt

This information is subject to change without notice.

* For distances over 24 ft. consult the National Electrical Code.

** The Dometic Corporation gives **GENERAL** guidelines for inverter and generator requirements. These guidelines come from experiences people have had in actual applications. When sizing the inverter and generator, the total power usage of your vehicle must be considered. Also keep in mind generators lose power at high altitudes and from lack of maintenance.

INSTALLATION INSTRUCTIONS

Covered under patent #5,899,081.

1. PRECAUTIONS

⚠ WARNING

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

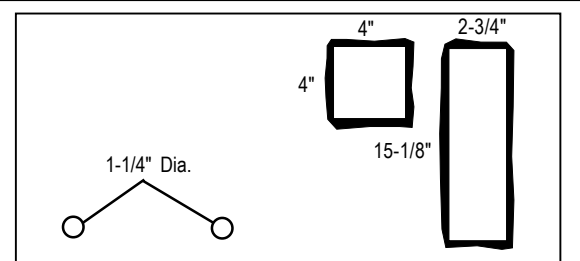
- Read installation and operating instructions carefully before attempting to install and start your heat pump.
- The Dometic Corporation will not be liable for any damages or injury incurred due to failure in following these instructions.
- Installation must comply with the National Electric Code and any State and/or Local Code or Regulations.
- DO NOT add any devices or accessories to this unit except those specifically authorized by Dometic.
- This unit must be serviced by a qualified service technician. Some states require technicians to be licensed.

2. CHOOSING A LOCATION FOR THE HEAT PUMP

This Heat Pump is designed to be installed under the bunk on the floor of a storage compartment of a semi-sleeper. Select an area in the storage compartment under the bunk that will allow the mounting of the unit to the floor (12-1/4" High x 16" Wide x 24" Long). See FIG. 3. The outside coil picks up its supply air through a 2-1/2" x 15-1/8" hole in the bottom of the storage compartment. The discharge air is exhausted to the outside through a 4" x 4" hole in the floor.

Position the unit so floor braces will not be cut when cutting these openings. The inlet air can have up to 8 square inches of restriction. Condensation water is discharged through two (2) round holes in the floor. If optional auxiliary heat is to be installed, see auxiliary heat installation instructions for additional hole locations in floor. See figure 1.

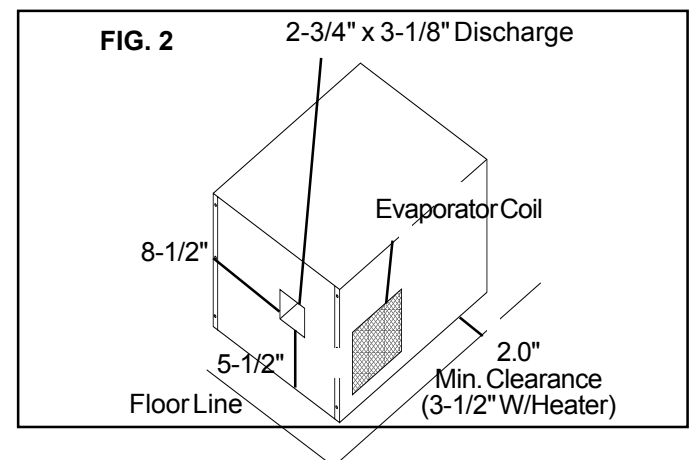
FIG. 1



A. Direct Discharge

Conditioned air is discharged into the sleeper interior through a 2-3/4" x 3-1/8" hole that is 5-1/2" above the floor line. The storage compartment requires a grill that has the free area of 36 square inches for return air. See figures 2 & 3. A grill (chicken wire or 80% open perforated metal) must be installed over the discharge.)

FIG. 2



B. Ducted discharge

The unit is mounted in the storage compartment under the bunk, but the conditioned air is discharged into the existing or supplied 4" flex duct system for distribution into the sleeper.

Note: Existing duct must be a minimum 3" x 4".

3. COMPARTMENT PREPARATION

Auxiliary heat is available and bolts over the evaporator coil. It is 1-1/2" thick and must be considered when locating the unit. Mark cut-out pattern on the floor of the compartment, make sure the cuts will miss the structural framing under the floor. See figure 1.

Use a square to mark the location for the conditioned air distribution hole in the front of the storage compartment bulkhead. See figure 2.

Note: The coil side must have 2.0" (3.5 with Auxiliary heat installed) clear of all obstruction, to allow return air to the coil.

⚠ WARNING

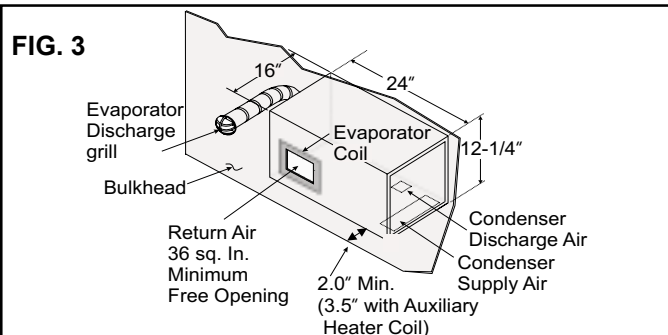
Disconnect 115 volt AC power and the 12 volt DC positive (+) terminal at the supply source. Failure to follow these instructions could create a shock hazard causing death or severe personal injury.

Carefully cut the two openings and drain holes through the floor of the sleeper. See figure 1.

⚠ CAUTION

There may be electrical wiring under the floor. Disconnect 115 volt AC power cord and the positive (+) 12 volt DC terminal at the supply battery. Failure to follow this instruction may create a shock hazard causing death or severe personal injury.

The discharge and return for the evaporator air should be located as far as possible from each other to prevent recirculation, while keeping the return close to the evaporator coil. See FIG. 3.



Cut the bulkhead openings to the sizes required for the discharge and return air grills. Mount the return air grill over the hole in the bulkhead. If return air grill is located directly in front of evaporator coil, the distance between bulkhead and

unit can be reduced to 1" min, 2-1/2" if auxiliary heat will be installed.

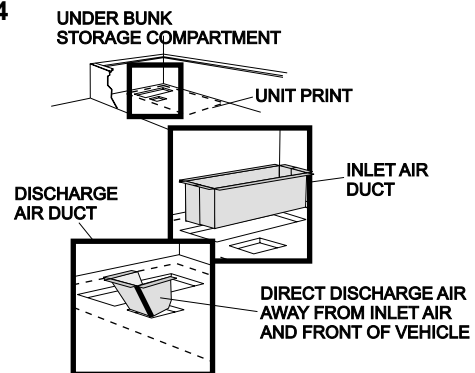
Route a fused 12 AWG with ground from the inverter/generator to a 15 amp outlet close enough for the heat pump's power cord to connect. The outlet must be secured to floor/wall etc.

Note: Wiring must comply with all National, State and Local wiring codes.

4. INSTALLATION OF THE CAB COMFORT UNIT

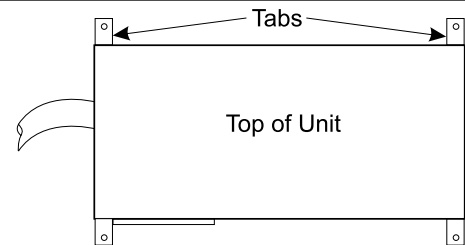
Remove the unit from the carton and discard the carton. Locate the intake (2 identical parts) and discharge air ducts. Apply sealant around intake and discharge air openings in the floor of the compartment. Insert the discharge air duct through the floor, if the structure under the compartment will not allow use of both parts of the return air duct, position it so it will not pick up residual heat radiated of the engine when it is shut down. The discharge air duct is inserted through the 4" x 4" opening. Make sure the open side of the discharge duct is not toward the front of the vehicle or directed at the intake air. See figure 4.

FIG. 4



After the ducts are installed, put a seal (foam tape) around each hole to prevent water leakage between the unit and the floor. Align the unit over the holes cut in the floor and screw the tabs to the floor. This will secure the unit in the storage compartment. See figure 5.

FIG. 5



The conditioned discharge opening should be sealed to the storage compartment bulkhead. This will prevent conditioned air recirculation. The best methods are listed below. One 4" adapter, insulated flex duct and discharge vent are supplied to make installation easier.

- Use closed cell foam tape/weather stripping, etc. around the discharge opening of the unit. This will seal the gap between the bulkhead and the unit. An alternative decorative grill (installer supplied) can be installed

on the bulkhead in place of 4" discharge grill. It must have 8 square inches of free opening.

- B.** A sheet-metal adapter (square or round) can be screwed over the discharge opening of the unit. Use screws that are 1/2" or less in length.

Note: Alternate ducting can be used if approved by Dometic's sales department.

5. DOMETIC COMFORT CONTROL CENTER™ & CABLE INSTALLATION

A. LOCATION

1. If the system is to be used **with a remote temperature sensor**, the Comfort Control Center may be mounted anywhere that is convenient in the sleeper. Try to avoid hard to reach and hard to see areas.
 - a. Refer to the instructions provided with the **remote temperature sensor** for location and installation details.
2. If the system is to be used **without remote temperature sensor**, the proper location of the **Comfort Control Center** is very important to insure that it will provide a comfortable temperature. Observe the following rules when selecting location:
 - a. The Comfort Control Center™ (CCC) must be placed approximately 54" above the floor of the sleeper, on a partition, not on an outside wall and within reach of the driver when bunked.
 - b. Never expose to direct heat or cooling devices, ie: **lights**, which can influence the operation of the unit.
 - c. Avoid areas where air is stagnant. Placing the CCC in corners or under cupboards can result in large temperature swings.

B. Control Cable Installation

1. Route the 4-conductor control cable from the heat pump to the CCC location.
2. Choose the shortest, most direct route from the

heat pump to the **Comfort Control Center™** location selected. Leave 6" of cable extending through wall.

C. Comfort Control Center™ Installation

1. Carefully remove the base plate from the CCC. This may be accomplished by inserting a screw driver under the tab on the bottom of the front cover and gently prying. See figure 6.
2. Insert the telephone cable through the hole in the base plate. Mount the plate to the wall with the two screws provided.
3. Install the control cable RJ-11 connector into the back of the CCC. Press the CCC back onto the base plate.

6. 120 VOLT AC CONNECTION

Plug the power cord into the outlet or Inverter installed in the storage compartment. Complete Operating Instructions are provided in Dometic's Comfort Control Center User's Guide (Form No. OS1908) and Comfort Control Center Operating Instructions (Form No. 3108664.XXX latest revision). Please refer to this literature for detailed Operating Instructions.

7. SYSTEM CHECKOUT & RESET

Now that the system is installed, it is necessary to check the operation and reset the electronics if needed.

A. SYSTEM CHECKOUT

Verify that all features of the installed system work. Check fan speeds, cooling mode and heat pump mode of operation.

B. SYSTEM RESET

After verification of operation is complete do a system reset of the electronic controls.

1. Turn the ON/OFF switch to the "OFF" position.
2. Simultaneously depress and hold the MODE and ZONE push-buttons while turning the ON/OFF switch to "ON". FF should appear in LCD display until the mode and zone push-buttons are released.
3. When a dip switch is turned on after initial configuration, a system reset will need to be done before the Comfort Control Center will recognize the updated selection.

1. AIR FILTER

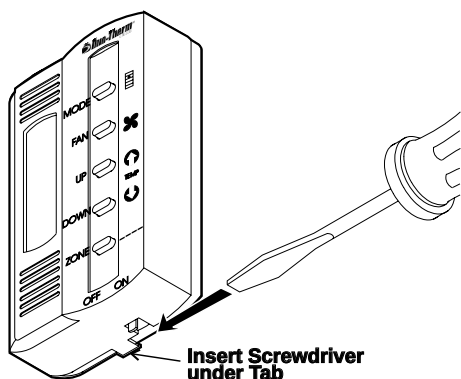
Periodically remove the return air filter located on the side of the unit. Wash the filter with warm soapy water and let dry before reinstalling.

Note: Never run the unit without the return air filter in place. This may plug the inside coil with dirt and may substantially reduce the performance.

2. FAN MOTOR

Factory lubricated and requires no service under normal use.

FIG. 6



3. FROST FORMATION ON COOLING COIL

Under certain conditions frost may form on the evaporator coil. If this should occur, inspect the air filter and clean if its dirty. Make sure the air return and discharge are clear from blockage. Air conditioners have a greater tendency to frost when the outside temperature is relatively low. This can be prevented by adjusting the CCC to a warmer setting and a high blower speed.

SERVICE - Unit Does Not Operate

If your unit fails to operate or operates improperly, check the following before calling your service agent:

1. Make sure the inverter/generator is producing power.
2. If the semi tractor is connected to an AC power source by a land line. Make sure the wire size will handle the load and it is plugged into the supply.
3. Check fuses/breakers to see if it is open.
4. After the above checks, call your service center for further help. This unit must be serviced by qualified service technicians.

When calling for service, always give the unit model and serial number.

Field Wiring Diagram

