



RECORD THIS UNIT INFORMATION
FOR FUTURE REFERENCE:
Model Number _____
Serial Number _____
ADB Model Number _____
ADB Serial Number _____
Date Purchased _____

Roof Top Unit			
Description	Model	Use With Air Distribution Box	
		Model	Control
Air Conditioner	457915 459516	3107206.XXX	Integral Mechanical

USA
SERVICE OFFICE
Dometic, LLC
2320 Industrial Parkway
Elkhart, IN 46516
574-294-2511

CANADA
Dometic, LLC
46 Zatonski, Unit 3
Brantford, Ontario
CANADA N3T 5L8
519-720-9578

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 & OPERATING INSTRUCTIONS

MODELS

457915.301
457915.701
459516.701

3313219.000

Form No. 3313219.000 8/09
(French 3313220.000)
©2009 Dometic, LLC
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 indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION used without the safety alert symbol indicates, a potentially hazardous situation which, if not avoided, may result in property damage.

Read and follow all safety information and instructions.

GENERAL INFORMATION

- A.** Product features or specifications as described or illustrated are subject to change without notice.
- B.** This air conditioner (hereinafter referred to as the "unit") is designed for:
1. Installation on a recreational vehicle during or after the time the vehicle is manufactured.
 2. Mounting on the roof of a recreational vehicle.
 3. Roof construction with rafters/joists on minimum of 16 inch centers.
 4. Minimum of 1 inch and maximum of 4 inches distance between roof to ceiling of recreational vehicle.
- C.** The ability of the air conditioner to maintain the desired inside temperature depends on the heat gain of the RV.
Some preventative measures taken by the occupants of the RV can reduce the heat gain and improve the performance of the air conditioner. During extremely high outdoor temperatures, the heat gain of the RV may be reduced by:
1. Parking the RV in a shaded area
 2. Using window shades (blinds and/or curtains)
 3. Keeping windows and doors shut or minimizing usage
 4. Avoiding the use of heat producing appliances

Operation on High Fan/Cooling mode will give optimum or maximum efficiency in high humidity or high outside temperature.

Starting the air conditioner early in the morning and giving it a "head start" on the expected high outdoor ambient will greatly improve its ability to maintain the desired indoor temperature.

For a more permanent solution to a high heat gain, accessories like A&E outdoor patio and window awnings will reduce heat gain by removing the direct exposure to the sun. They also add a nice area to enjoy company during the cool of the evening.

D. Condensation

Note: The manufacturer of this unit will not be responsible for damage caused by condensed moisture on ceilings or other surfaces. Air contains moisture and this moisture tends to condense on cold surfaces. When air enters the RV, condensed moisture may appear on the ceiling, windows, metal parts, etc. During normal operation this unit removes moisture from the air. Keeping doors and windows closed when this air conditioner is in operation will minimize condensed moisture on cold surfaces.

SPECIFICATIONS

Model No.	Nominal Capacity (BTU HR) Cooling	Electrical Rating 120 VAC 60Hz. 1PH	Compressor Rated Load Amps	Compressor Locked Rotor Amps	Fan Motor Rated Load Amps	Fan Motor Locked Rotor Amps	Refrigerant R-410A (Oz.)	Minimum Wire Size* 12 AWG Copper Up to 24'	AC Circuit Protection ***Installer Supplied	Minimum Generator Size** 1 Unit / 2 Units
457915.301	13,500		12.4	61.0	2.5	5.8	20.0		20 AMP	3.5 KW / 5.0 KW
457915.701	13,500		12.4	63.0	2.5	5.8	18.0		20 Amp	3.5 KW / 5.0 KW
459516.701	15,000		13.3	66.0	2.0	5.6	27.5		20 Amp	3.5 KW / 5.0 KW

* For wire length over 24 ft., consult the National Electric Code for proper sizing.

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

*** CIRCUIT PROTECTION: Time Delay Fuse or HACR Circuit Breakers Required.

INSTALLATION INSTRUCTIONS

A. Precautions

⚠ WARNING

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

1. Read Installation and Operating Instructions carefully before attempting to start this unit installation.
2. Dometic, LLC will not be liable for any damages or injury incurred due to failure in following these instructions.
3. Installation must comply with the National Electrical Code ANSI/NFPA-70 and CSA Standard C22.1 (latest edition) and any State or Local Codes or regulations.
4. **DO NOT** add any devices or accessories to this unit except those specifically authorized in writing by Dometic, LLC.
5. This equipment must be serviced by qualified personnel and some states require these people to be licensed.

B. Choosing Proper Location For The Unit

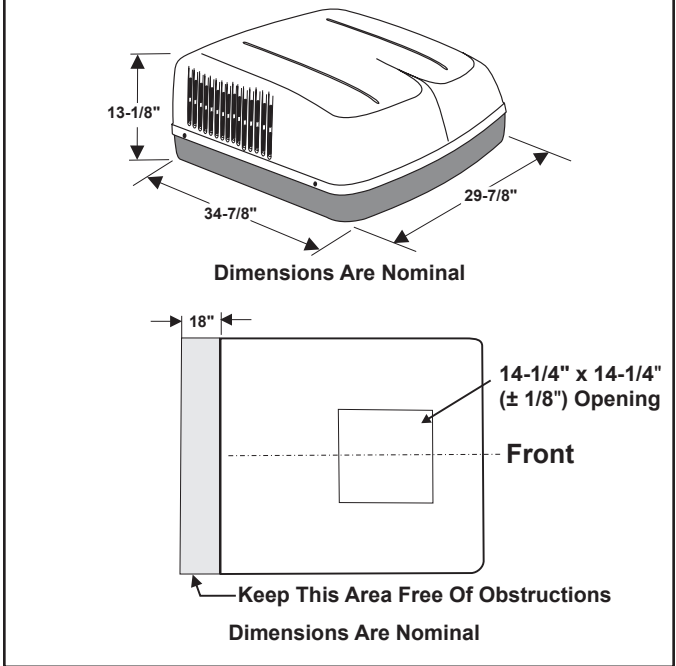
This unit is specifically designed for installation on the roof of a recreational vehicle (RV). When determining your cooling requirements, the following should be considered:

- Size of RV;
 - Window area (increases heat gain);
 - Amount of insulation in walls and roof;
 - Geographical location where the RV will be used;
 - Personal comfort level required.
1. Normal locations-The unit is designed to fit over an existing roof vent opening.
 2. Other locations-When no roof vent is available or another location is desired, the following is recommended:
 - a. For one unit installation: The unit should be mounted slightly forward of center (front to back) and centered from side to side.
 - b. For two unit installations: Install one unit 1/3 and one unit 2/3's from front of RV and centered from side to side.

It is preferred that the unit be installed on a relatively **flat and level** roof section with the RV parked on a level surface, but up to a 15° tilt is acceptable.

3. After Location Has Been Selected
 - a. Check for obstructions in the area where unit will be installed. See FIG. 1.

FIG. 1



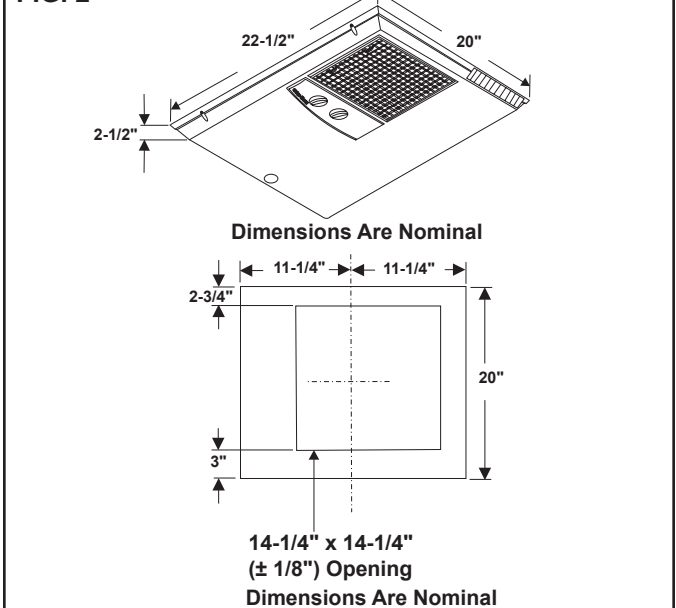
- b. The roof must be designed to support 130 pounds when the RV is in motion. Normally a 200 lb. static load design will meet this requirement.

CAUTION

It is the responsibility of the installer of this system to ensure structural integrity of the RV roof. Never create a low spot on the roof where water will collect. Water standing around the unit may leak into the interior causing damage to the product and the RV.

- c. Check inside the RV for air distribution box obstructions. (i.e. door openings, room dividers, curtains, ceiling fixtures, etc.) See FIG. 2.

FIG. 2



C. Roof Preparation

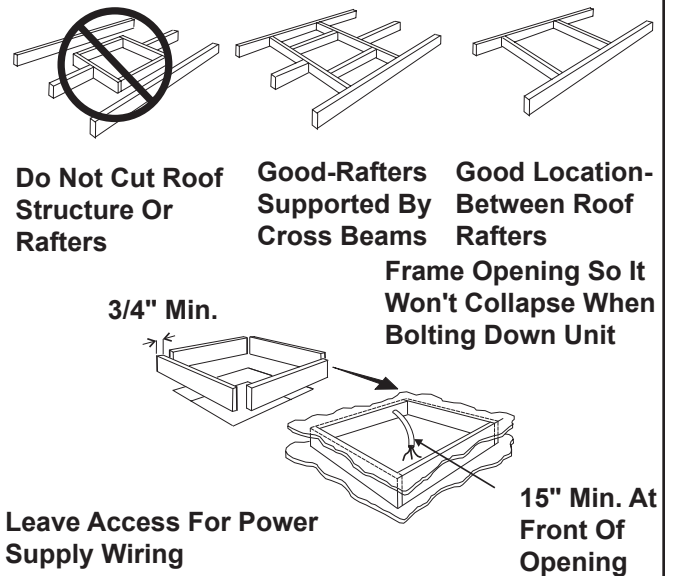
1. Opening requirements - Before preparing the ceiling opening, read all of the following instructions before beginning the installation.
If an existing roof vent opening will not be used a 14-1/4" x 14-1/4" ($\pm 1/8$ ") opening must be cut through the roof and ceiling of the RV. This opening must be located between the roof reinforcing members.

⚠ WARNING

There may be electrical wiring between the roof and the ceiling. Disconnect 120 VAC power cord and the positive (+) 12 VDC terminal at the supply battery. Failure to follow this instruction may create a shock hazard causing death or severe personal injury.

2. Roof vent removal
 - a. Unscrew and remove the roof vent.
 - b. Remove all caulking compound around opening.
 - c. Seal all screw holes and seams where the roof gasket will be located. Use a good grade of all weather sealant.
 - d. If the opening exceeds 14-3/8" x 14-3/8", it will be necessary to re-size the opening to 14-1/4" x 14-1/4" ($\pm 1/8$ ").
 - e. If the opening is less than 14-1/8" x 14-1/8", it must be enlarged to 14-1/4" x 14-1/4" ($\pm 1/8$ ").
3. New opening - (Installation other than vent opening)
 - a. Mark a 14-1/4" x 14-1/4" ($\pm 1/8$ ") square on the roof and carefully cut the opening.
 - b. Using the roof opening as a guide, cut the matching hole in the ceiling.
 - c. The opening created must be framed to provide adequate support and prevent air from being drawn from the roof cavity. Framing stock 3/4" or more in thickness must be used. Remember to provide an entrance hole for power supplies at the front of the opening. See FIG. 3.

FIG. 3



CAUTION

It is the responsibility of the installer of this system to ensure structural integrity of the RV roof. Never create a low spot on the roof where water will collect. Water standing around the unit may leak into the interior causing damage to the product and the RV.

D. Wiring Requirements

1. Route a copper, with ground, 120 VAC supply line from the time delay fuse or circuit breaker box to the roof opening. The proper size wire can be determined from chart on page 3.

Note: If vent fan was removed, the existing wire may be used provided it is of proper size, location and correctly fused.

- a. This supply line must be located in the front portion of the 14-1/4" x 14-1/4" ($\pm 1/8$ ") opening.
- b. The power **MUST** be on a separate time delay fuse or HACR circuit breaker. The proper size protection can be determined from the chart on page 3.
- c. Make sure at least 15" of wire extends into the roof opening. This will insure easy connection to junction box.
- d. Wiring must comply with NFPA 70: National Electrical Code regulations and any State or Local Codes or regulations.
- e. Protect the wire where it passes into the opening with approved method. See paragraph "d" above.

E. Placing The Unit On The Roof

⚠ WARNING

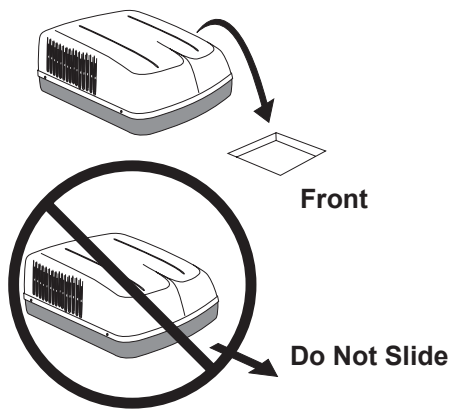
Personal injury hazard. This unit weighs approximately 100 pounds. To prevent back injury, use a mechanical hoist to place unit on roof. Failure to heed this warning could cause severe personal injury.

1. Remove the unit from the carton and discard carton.
2. Place the unit on the roof.
3. Lift and place the unit over the prepared opening using the gasket on the unit as a guide. See FIG. 4.

CAUTION

Property damage hazard. Do not slide the unit. Failure to heed this warning may damage the neoprene gasket attached to the bottom and create a leaky installation.

FIG. 4



4. Place the air distribution box kit inside the RV. This box contains mounting hardware for the unit and will be used inside the RV.

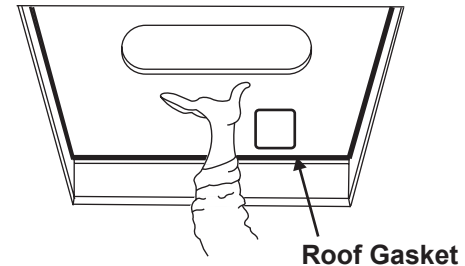
This completes the outside work. Minor adjustments can be done from inside the RV if required.

F. Installing The Unit

1. Remove air distribution box and mounting hardware from carton. The upper duct is shipped inside the lower duct which is part of the ceiling template.
2. Check for correct alignment and adjust the unit as necessary (Roof gasket centers over the 14-1/4" x 14-1/4" ($\pm 1/8$ ") opening).

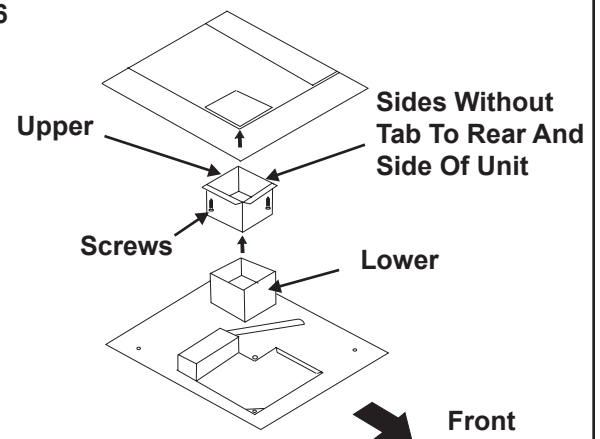
FIG. 5

Center Unit From Below



3. All models listed in this manual will use a four (4) bolt pattern for installing the air distribution box kit.
4. Remove upper duct from ceiling template and locate it over blower discharge.

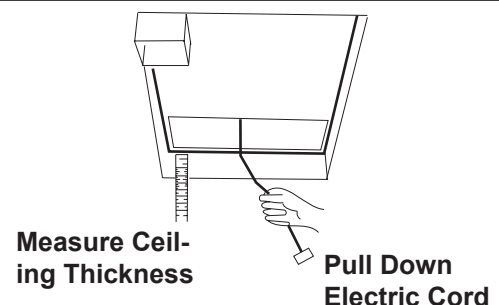
FIG. 6



Note: Edges without flanges install toward REAR and SIDE of opening. See FIG. 6.

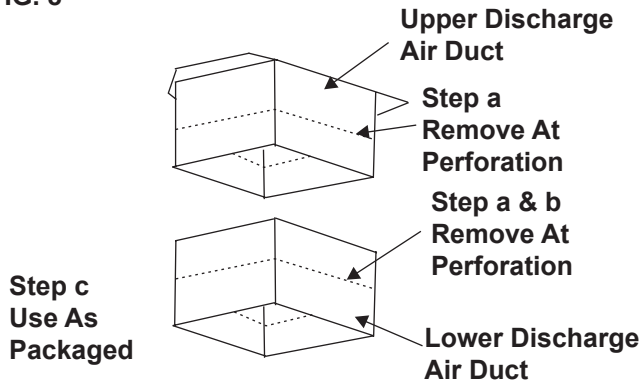
5. Use two (2) #10 x 3/8" screws to hold duct to base pan. Screw holes are provided in bottom of base pan for these screws.
6. Reach up into return air opening of the unit and pull the unit electrical cord and heater cord (if applicable) down for later connection. See FIG. 7.

FIG. 7



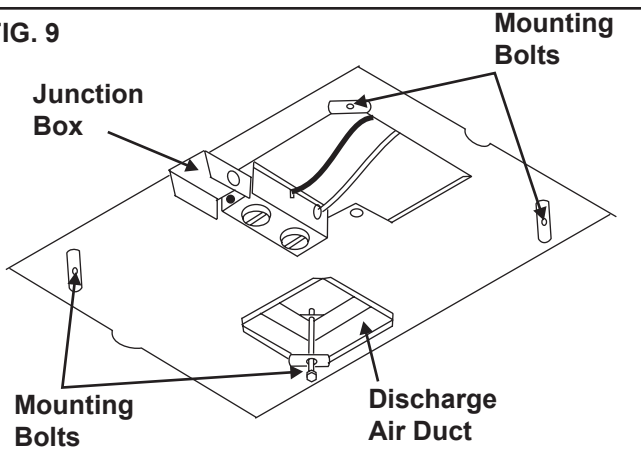
7. Measure the ceiling to roof thickness:
 - a. If distance is 1" - 2", remove perforated tabs from both upper and lower ducts. See FIG. 7 & 8.

FIG. 8



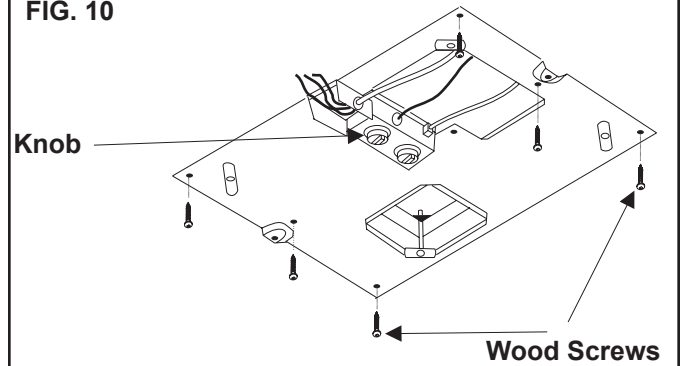
- b. If distance is 2" - 3", remove perforated tabs from bottom duct only. See FIG. 8.
 - c. If distance is 3" - 4", install ducts as received. See FIG. 8.
 - d. If distance is 4" - 6", use optional duct adapter, part number 3106775.004 and bolt kit, part number 3100895.006.
8. Install ceiling template by sliding lower duct over upper duct.
9. Hold the ceiling template up to the 14-1/4" x 14-1/4" ($\pm 1/8"$) opening.
 - a. Start each mounting bolt through the ceiling template and up into the base pan by hand. See FIG. 9.
 - b. Tighten all 4 bolts up until they touch the template but are not tight.

FIG. 9



- c. With the ceiling template flat against the ceiling install the 6 wood screws at an angle, so as to stretch and flatten the template. Three across the front and 3 across the back of the template. See FIG. 10.

FIG. 10



- **EVENLY** tighten the four bolts to a torque of 40 to 50 inch pounds. This will compress the roof gasket to approximately 1/2". The bolts are self locking so further tightening is not necessary. See FIG. 9.

CAUTION

If bolts are left loose there may not be an adequate roof seal or if over tightened, damage may occur to the unit base or ceiling template. Tighten to torque specifications listed in this manual.

G. Wiring The System

1. 120 VAC Power Supply Connection

! WARNING

Disconnect 120 VAC. Failure to follow these instructions could create a shock hazard causing death or severe personal injury.

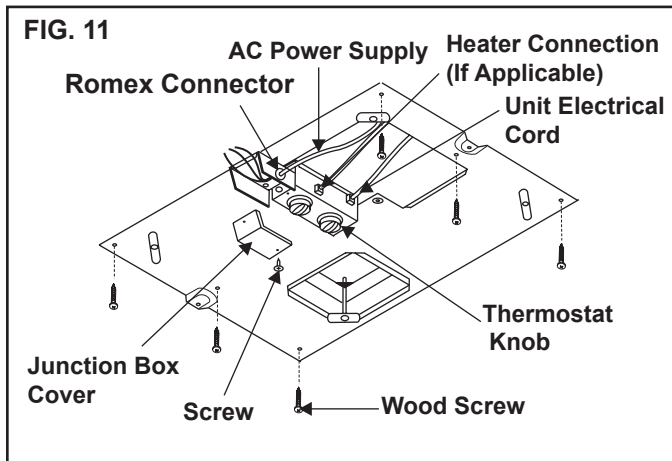
Note: Wiring must comply with NFPA 70: National Electrical Code regulations and any State or Local Codes or regulations.

- a. Install Romex connector in junction box.
- b. Route power supply line through Romex connector and into the junction box. Six (6) inch leads are sufficient for connection to unit wires and ground screw. Tighten connector making sure not to damage wires.

! WARNING

This product is equipped with a 3 wire (grounded) system for protection against shock hazard. Make sure that the unit is wired into a properly grounded 120 AC circuit and the polarity is correct. Failure to do so could result in death, personal injury or damage to the equipment.

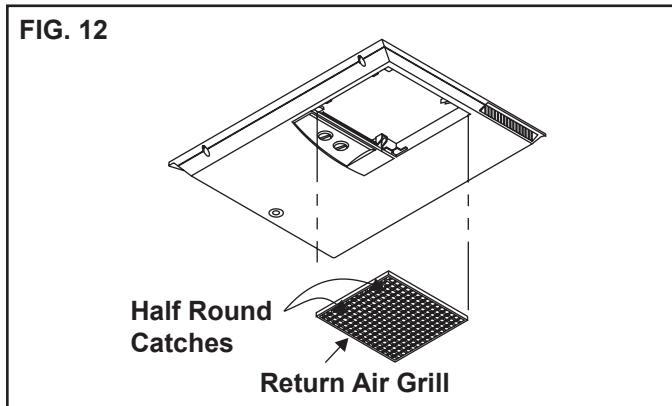
- c. Connect white to white; black to black using approved connectors. Connect the bare copper wire to the ground screw located in the junction box.



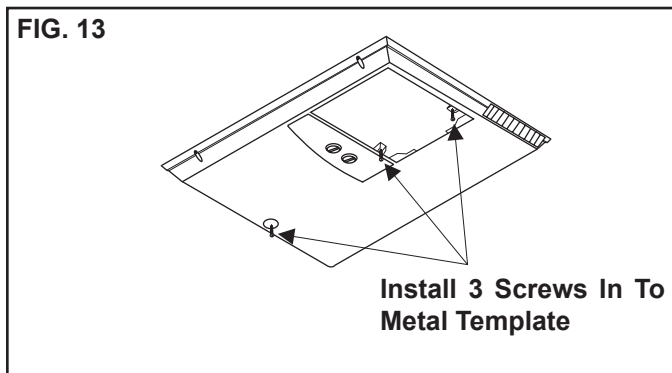
- d. Push the wires into the junction box and install junction box cover.
- e. Plug unit electrical cord into the mating connector on the control box.

H. Air Distribution Box Installation

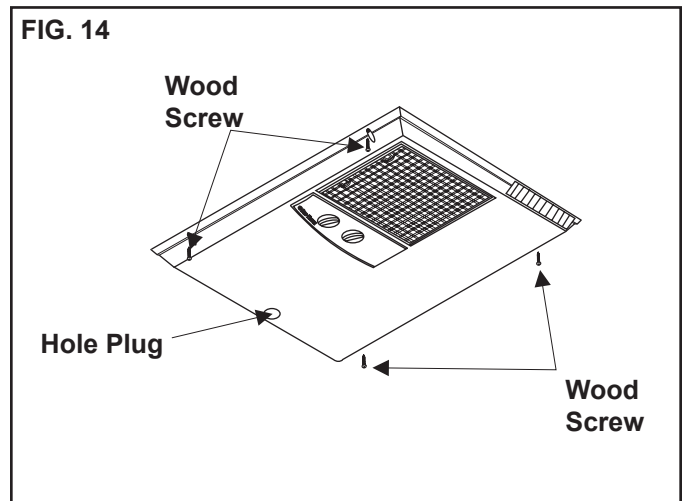
1. Remove return air grill from air distribution box by pulling in on half round finger catches. See FIG. 12.



2. Hold air distribution box up to ceiling template and install three (3) #10 x 3/8" screws at air distribution box mounting point. See FIG. 13.



3. Snap hole plug into place at rear of air distribution box. See FIG. 14.
4. There are four optional mounting holes on the outer edge of the return air opening for which screws are not provided. These are only required where an uneven ceiling does not allow proper fitting of the air distribution box. See FIG. 14.



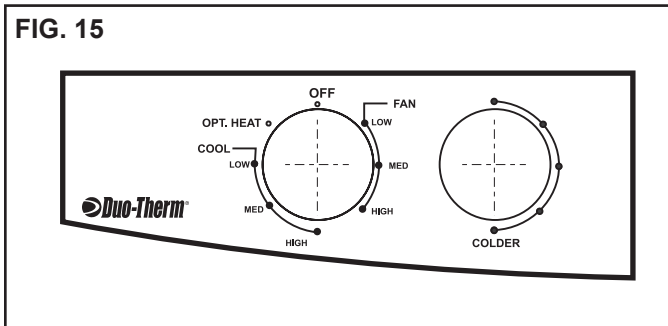
5. Reinstall return air grill and filter into air distribution box.
6. The unit installation is now complete. The power supply to the unit may now be turned on.
7. Verify that all features of the installed system work. Please read the following operating instructions before attempting to run the unit.

OPERATING INSTRUCTIONS

A. Controls

1. The Selector Switch has 8 positions including "OFF". This controls fan speed, heating mode, and cooling modes. See FIG. 15.

FIG. 15



2. The Thermostat controls the temperature range at the filter between approximately 65° F. and 90° F.

B. "OFF" Position

1. This is to turn unit off.

C. Cooling Operation

1. Set the thermostat at the desired temperature level.
2. Select the fan speed that best satisfies your needs:
 - a. HIGH COOL: Selected when maximum cooling and dehumidification required.
 - b. MED. COOL: Selected when normal or average cooling required.
 - c. LOW COOL: Selected when room is at desired comfort level and needs to be maintained. Normally this speed used for night time operation.

Note: The blower runs continuously to circulate air and maintain an even temperature. The compressor will come on as cooling is required to maintain the selected temperature level.

Important: When the unit is turned on and the thermostat calls for cooling, the compressor will start. After shutting the unit down manually by either the selector switch or the thermostat always wait 2-3 minutes before turning on the unit. This allows the refrigerant pressure in the system to equalize so the compressor may restart.

D. Heating Operation (With Electric Heater Option Installed.)

Note: The heat modes of operation will not replace a furnace for heating your RV in cold weather. The intent is to remove the chill on cool days or mornings.

1. Turn the selector switch to "OPT HEAT".
2. The heat strip will come on and begin heating.
3. When desired temperature level in RV is reached, move the selector switch to "OFF" position or "FAN" position.

Note: Thermostat does not control the fan/heater ON/OFF cycle.

E. Fan Operation

1. This will circulate the air in your RV without cooling or heating. There are three positions: HIGH FAN, MED. FAN or LOW FAN to select from, depending upon personal choice.

MAINTENANCE

A. Air Filter

1. Periodically (a minimum of every 2 weeks of operation) remove the return air filter located behind the return air grill and wash the filter with soap and warm water, let dry and then reinstall.

Note: Never run the unit without return air filter in place. This will plug the unit evaporator coil with dirt and may substantially degrade the performance of the unit over time.

B. Air Distribution Box Housing

1. Clean air distribution box housing and control panel with a soft cloth dampened with a mild detergent. Never use furniture polish or scouring powders.

C. Fan Motor

1. The blower motor is factory lubricated and requires no service.

D. Frost Formation On Cooling Coil

1. Frost on a small portion of the coil is not unusual. Under certain conditions, ice may form on the evaporator coil. This is indicated by very cold output at very low air speed and the icing can be seen through the air inlet holes with the filters removed. If this should occur, inspect the filter and clean if dirty. Make sure air vents are open and not obstructed. Units have a greater tendency to frost when the outside temperature is relatively low. This may be prevented by adjusting the thermostat control knob to a warmer setting (counter clockwise). Should frosting continue, operate on any **FAN ONLY** setting until the cooling coil is free of frost; then resume normal operation. If frost condition persists, contact your local service center for assistance.

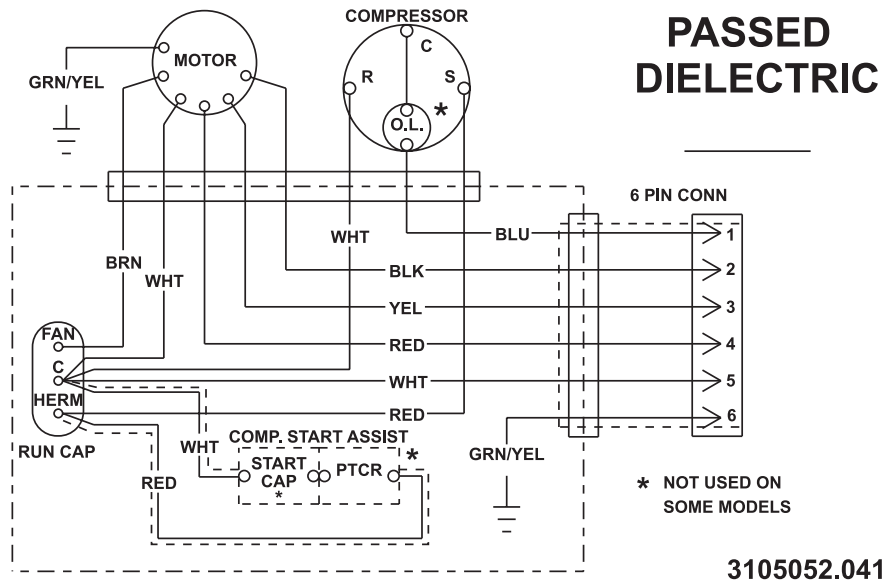
SERVICE-UNIT DOES NOT OPERATE

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

- A. If RV connected to motor generator, check to be sure motor generator is running and producing power.
- B. If RV connected to power supply by a land line, check to be sure line is sized properly to run unit load and it is plugged into power supply.
- C. Check your fuse or circuit breaker to see if it is open. Insure fuse is not burnt, or circuit breaker is "ON" and not activated.
- D. After the above checks, call your local service center for further help. This unit must be serviced by qualified service personnel only.
- E. If any wiring or supply cord is damaged and needs to be replaced, it must be replaced by the manufacturer or its service agent or a similarly qualified person.
- F. When calling for service, always give the following:
 1. Unit type and serial number found on the identification label located on base pan of unit bottom. Return air grill must be removed from air distribution box to view.
 2. Air distribution box model and serial number found on rating plate located on ceiling template. Observe this rating plate through the filter opening.

WIRING DIAGRAM

Unit Wiring Diagram



Air Distribution Box Wiring Diagram

