RECPRO INSTALLATION INSTRUCTIONS

RAE90 RAE142 RAE160 RAE180

⚠WARNING

FIRE OR EXPLOSION HAZARD

If you smell gas:
2.DO NOT attempt to light appliance and make sure the appliance is the off position.
3.Extinguish any open flame.
4.Do not touch electrical switches.
5.Do not use electronic devices such as cell phones or landline phones.
6.Evacuate the building or recreational vehicle.
7.Shut off fuel supply at LP tank.
8.Call emergency services.
Failure to follow these instructions could result in fire or explosion, which could cause property damage, personal injury or death.

WARNING: Improper installation, adjustment, alteration, service, or maintenance can cause injury or property damage.
Refer to this manual. For assistance or additional information consult a qualified installer, service agency or the gas supplier.

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

⚠WARNING

CARBON MONOXIDE POISONING MAY CAUSE DEATH OR INJURY
When used without adequate combustion and ventilation air, the refrigerator may give off excess CARBON MONOXIDE.

This is an unvented gas-fired appliance. The refrigerator uses air (oxygen) from the area in which the refrigerator is used. Adequate combustion and ventilation air must be provided.

For Service Center Or Dealer Locations
Please Visit:

NOTES

CONTENTS

SYMBOLS

The following symbols are used throughout this manual:

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

⚠ WARNING

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

⚠ CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

INTRODUCTION

The installation should be performed by qualified personnel only and must conform to all relevant local authorities. Be aware of possible safety hazards when seeing alert symbols on the refrigerator as well as in this manual. To ensure safe and efficient operation, the refrigerator and vents must be installed as identified in this manual without modification. The installer must affix the refrigerator model's user manual to the refrigerator.

Appearance of your product may vary from illustrations shown in this document.

Not all procedures in this document will apply to your product. Read and follow the information pertaining to the specific model number of your product before starting the installation.

⚠WARNING

Any modifications or deviations:

- **Can lead to carbon monoxide leaking into the living area.**
- **Can reduce cooling performance and/or result in damage to the refrigerator.**
- **Will void agency certifications.**
- **Will void refrigerator warranty.**

NOTICE

Any deviation from the prescribed installation instructions in this manual must have prior written approval and safety certification verification from RecPro

CERTIFICATION AND CODE REQUIREMENTS

This appliance is certified under the latest edition of CSA/ANSI Z21.19 • CSA 1.4 Refrigerators using gas fuel. The installation must conform with local codes, or in absence of local codes, the following standards as applicable.

The installation shall conform with the following, as applicable:

- Local codes or, in the absence of local codes, the National Fuel Gas Code, ANSI Z223.1/ NFPA 54;
- The Natural Gas and Propane Installation Code, CSA B149.1, and any Provincial amendments;
- Recreational Vehicles Code, ANSI A119.2, and Recreational Vehicles CSA Z240 RV Series;

A manufactured home (mobile home) installation shall conform with the:

- Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280. [formerly the Federal Standard for Mobile Home Construction and Safety, Title 24 (Part 280)]
- The Gas-equipped Recreational Vehicles and Mobile Housing, CSA Z240.4

The appliance and its individual shut-off valve shall be disconnected from the gas supply piping system during any pressure testing of that system at test pressures more than 1/2 psi (3.5 kPa).
The appliance shall be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psi (3.5 kPa).

If an external electrical source is utilized, the appliance, when installed, shall be electrically grounded in accordance with local codes or, in the absence of local codes, the National Electrical Code, NFPA 70 or the Canadian Electrical Code, CSA C22.1, Parts I and II.

C US

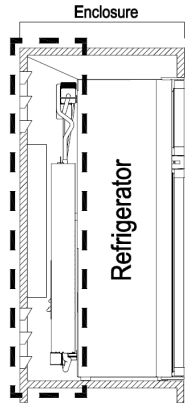
INSTALLATION PREPARATION

ASSEMBLING THE REFRIGERATOR ENCLOSURE

NOTICE

The ventilation compartment is part of the product safety certification and must not be used for any other purpose than securing air for combustion and ventilation of flue gases and warm air.

Fig 1



Read and follow these points:
• The refrigerator must be level and installed in a substantial enclosure, see “APPENDIX A”.
• The floor must be solid and level and able to support the weight of the refrigerator and its contents.
• Ensure that any adjacent heat sources, (e.g. furnace exhaust vents) do not affect the ventilation of the refrigerator.
• All joints in the enclosure must be sealed to prevent gas leakage into the living area.
• The enclosure must be free of exposed materials that may potentially damage the refrigerator, e.g. screw tips, staples, etc.
• A wood strip must be in place across the upper opening of the enclosure. The top frame of the refrigerator will be anchored to the wood strip with screws, see FIG 2.
• The refrigerator must not be installed directly on carpeting:
- Carpeting must be removed or protected by a metal or wood panel beneath the appliance, which extends at least full width and depth of the appliance.
- If the refrigerator is sitting on a wood floor, the exposed portion behind the refrigerator will need to be painted with an anti-wicking paint to protect against water or moisture that comes in through the side

⚠ WARNING

Failure to adhere to the above installation criteria could create a combustion hazard.

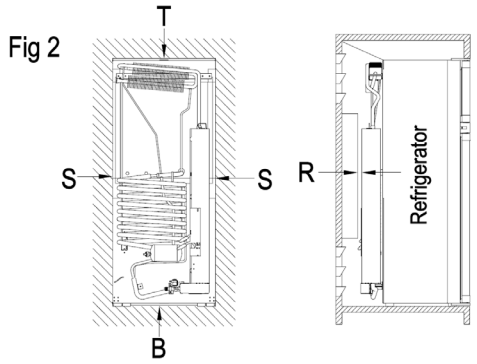
CLEARANCES

CSA International certification allows the refrigerator to have zero (0) inch minimum clearance at the sides, rear, top, and bottom. While there are no maximum clearances specified for certification, the maximum clearances specified are necessary for correct refrigerator performance.

CLEARANCES (FIG 2)	
Top (T)	**0” Min to 1/4” Max**
Side (S)	**0” Min to 1/4” Max**
Bottom (B)	**0” Min to 0” Max**
Rear (R)	**0” Min to 1” Max**

The distance between the refrigerator cooling unit and the wall or baffle behind it

Fig 2



INSTALLATION PREPARATION

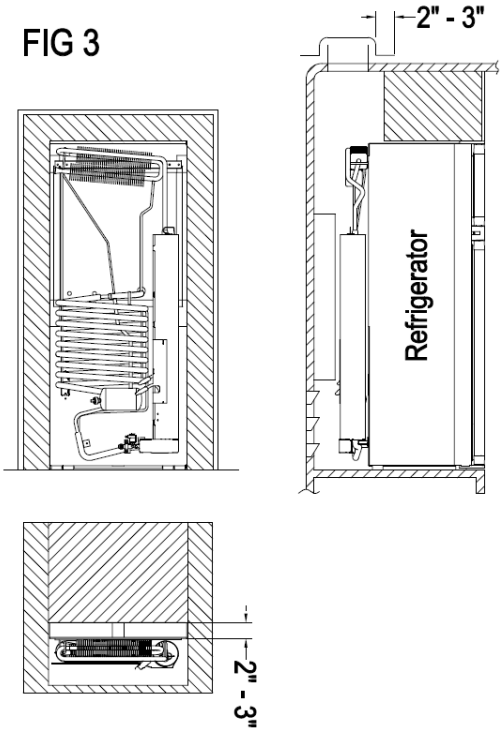
TOP AND SIDES

See page 5 for rough in dimensions. Dimensions will vary by model. If there is more than 1/4" between either side or the top of the refrigerator and the inside of the refrigerator box, then fill the space with insulation, baffles, or non-flammable fabricated seals to avoid trapping heat and sacrificing the performance of the unit. See *Insulation note* below for additional details.

INSULATION NOTE!

- Any insulation used must be securely attached to the enclosure walls and ceiling to prevent it from shifting when the refrigerator is installed in the enclosure.
- If there is a void space above the refrigerator, insulation should be secured with spray adhesive to the top of the refrigerator to fill the space.
- Trim insulation. Cut it 2-3" shorter than the depth of the refrigerator box, see FIG 5 below.
- Insulation must not meet the cooling unit! Loose insulation can obstruct air flow, creating cooling issues and possible damage to the refrigerator.

FIG 3



Place insulation filling in the space between refrigerator compartment and sides and top of refrigerator.

VENTILATION REQUIREMENTS

Ventilation is one of the requirements for proper cooling unit operation. Clearances and the use of vents ensure a natural draft which is necessary for good refrigeration.

Make sure to read and follow these points:

a) that the refrigerator shall be installed using the combustion vent (FIG 4) supplied with the appliance;

b) that the combustion vents will be installed in the proper manner;

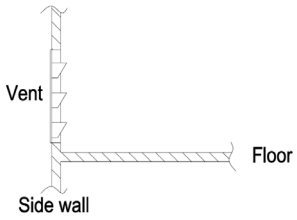
c) that the combustion vents shall not be modified;

d) that all areas at the front (sides, bottom, and top) and within the recess in which the refrigerator is installed shall be sealed so the resultant installation will isolate the appliance combustion system from the vehicle interior;

e) that the methods and type(s) of materials recommended for sealing the refrigerator from the vehicle structure are used;

f) that an opening communicating with the outside atmosphere shall be provided at floor level of the refrigerator for ventilation of heavier than air gases. The size and location(s) of the opening shall also be specified.

FIG 4



⚠ WARNING

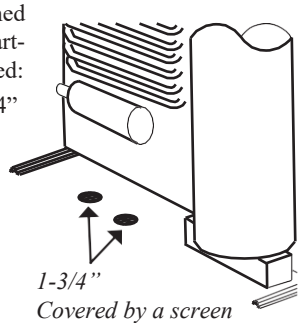
COMBUSTION HAZARD. Unburned "Raw" LP gas is heavier-than-air and can collect at floor level creating a combustion hazard.

- For vents installed above floor level, additional holes are required to vent these gases to the out-of-doors. Use Fig 5 for details.

FIG 5- VENT ABOVE FLOOR LEVEL

When lower vent frame is positioned higher than the refrigerator compartment floor, the following is required:

- 2 holes with a diameter of 1-3/4" 1 in^2 / hole free area.)
- Cover holes with a screen (min. 14 x 14 per inch)
- Holes must be clear of any obstruction.



INSTALLATION PREPARATION

INSTALLATION PREPARATION

Making air inlet and outlet vents

NOTICE

Deviations from the inlet and outlet variations shown here must be approved by the manufacturer.
At high ambient temperatures, the refrigerator can only provide its maximum cooling capacity if the optimum ventilation has been provided.

- Make an air inlet vent and an air outlet vent in the outer wall with the size of Appendix C. When doing so, observe the information, see chapter "Preparing the installation" on page 5.
- If the ventilation grill of the air inlet vent cannot be installed flush with the floor of the niche, install an inlet vent in the floor. Any leaking gas can thus flow downwards.
- Make an air inlet vent in the floor see **fig 6.1** behind the refrigerator near the gas burner **fig 6.4**
- Shield the end of the opening with a deflector to prevent sludge or dirt from getting inside while driving see **fig 6.3.**

If you have to use a roof vent instead of the air outlet vent:

- Cut out a section in the roof.
  Refer to the roof vent instruction manual for the required dimensions.
- When doing so, observe the information chapter "Preparing the installation" on **page 6**.

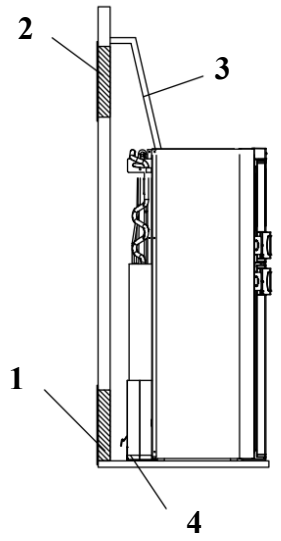
If the ventilation grill of the air inlet vent cannot be installed flush with the floor of the niche, install an inlet vent in the floor. Any leaking gas can thus flow downwards.

- Make an air inlet vent in the floor see **fig 7** behind the refrigerator near the gas burner.
- Shield the end of the opening with a deflector to prevent sludge or dirt from getting inside while driving **see fig 7**

If you have to use a roof vent instead of the air outlet vent:

- Cut out a section in the roof. Refer to the roof vent instruction manual for the required dimensions. When doing so, observe the information in chapter "Preparing the installation" on **page 6 FIG3**.

FIG 6

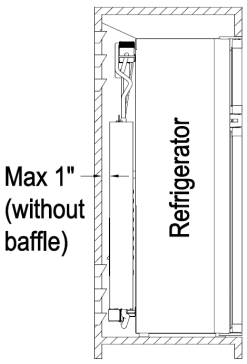


- The flow of combustion and ventilating air must not be obstructed, e.g., by an open RV door.
- Do not install an awning too close to the upper side vent. Allow approx. 6-12" of clearance.
- The minimum vent height requirements, listed in "APPENDIX B", are part of the safety certification and must be complied with.

RECESS DEPTH

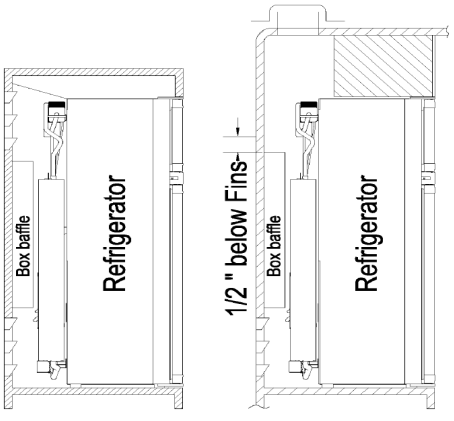
Spaces of more than 1", see FIG 8, from rear wall to the refrigerator may create performance problems. Fresh air will not pass through the cooling unit which will reduce the efficiency. It is important to check the recess depth and add baffle(s) to increase the movement of air across the coil.

FIG 8- Recess depth



If there is more than 1" between the inside of the ventilation compartment and cooling unit, it is required to add box baffle(s) starting above the lower access vent and running perpendicular to the side wall. The baffle should extend up to the ceiling (in board roof vent applications) or up to within 1/2" lower than the condenser fins (roof vent applications). For upper and lower side wall vent applications the baffle should come within 1/2" lower than the condenser fins. This will ensure more efficient operation in warm temperatures. Make sure the baffle is of the same width as the ventilation compartment, see FIG 9.

FIG 9- Box baffle



OFFSET VENTS

If vents must be offset due to interference of building materials, the vent must always be offset towards the flue side of the cooling unit. The vent should be centered over the cooling unit so that the air can flow up and out of the compartment creating a chimney effect. For offset vent applications, prior written approval and safety certification must be obtained from RecPro.

FIG 10- Offset Vent
upper and lower side vent

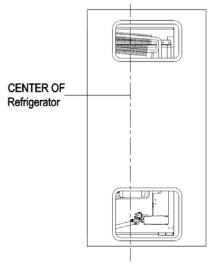
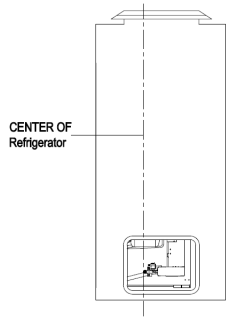


FIG 11- Offset Vent
side and roof vent

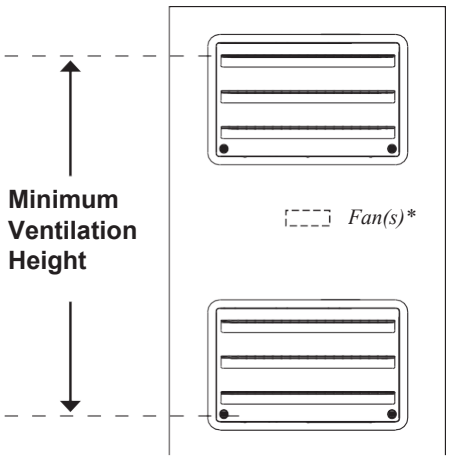


VENT APPLICATION TYPES

UPPER AND LOWER SIDE VENT APPLICATION

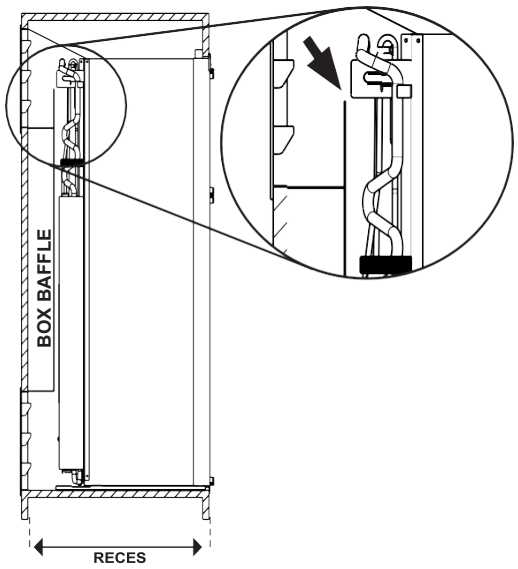
INSTALL UPPER AND LOWER SIDE VENTS

1 CHECK VENTILATION HEIGHT.
See “APPENDIX B”.



** Fan(s) position may vary by model.*

2 CHECK RECESS DEPTH.
See “INSTALLATION PREPARATION > RECESS DEPTH”. If required, install a box baffle above the lower access vent extending within 1/2” lower than the condenser fins as shown in the picture below.



3 INSTALL LOWER SIDE VENT.

4 See “APPENDIX D”.

5 INSTALL UPPER SIDE VENT. See “APPENDIX D”.

INSTALLATION PROCEDURE

INSTALLING THE REFRIGERATOR

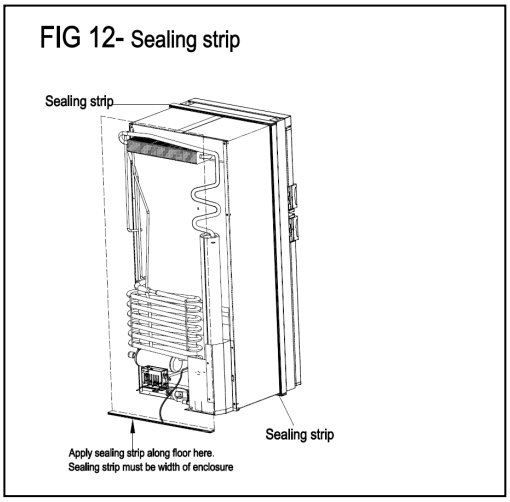
For a proper installation, follow these instructions:

- Carefully place the refrigerator in the enclosure.
- Verify that there is a complete seal between the front frame of the refrigerator and the top, sides and bottom of the enclosure. A length of sealing strip is applied to the rear surface of the front frame for this purpose. The sealing strip should provide a complete isolation of the appliance's combustion system from the vehicle interior.

RAE90, RAE142, RAE160 and RAE180: Apply a sealing strip to the foremost floor of the enclosure, see FIG 12.

Be careful not to damage the sealing strip when the refrigerator is put in place

FIG 12- Sealing strip



General view. Features may vary by model.

SECURING THE REFRIGERATOR

It is important to follow the sequence in securing refrigerator in enclosure since failure in doing so can cause leakage between the frame and cabinet.

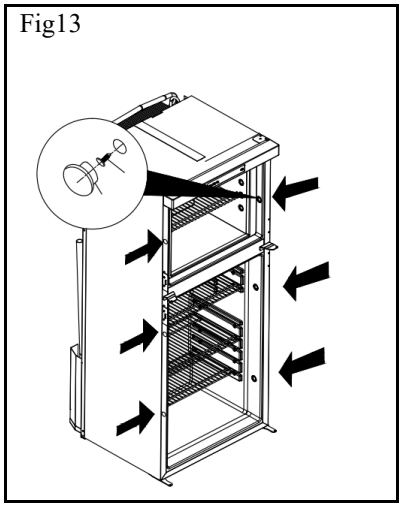
After the refrigerator is put in place (ensuring a combustion seal at the front frame), the refrigerator is to be secured in the enclosure with screws (not included).

RAE90, **RAE142, RAE160 and RAE180**

Install the six screws in the following order:

Six screws installed through the body side frame. (To cover the screw heads, use the plugs in the parts bag.)

Fig13



INSTALLATION PROCEDURE

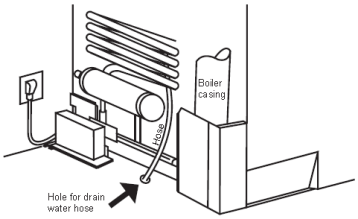
DRAIN WATER HOSE

Hose must not contact the boiler casing.
Hose must not be kinked.
Hose must not be routed uphill at any point.
Perforated plug must be present at end of hose.

OPTION 1 - THROUGH FLOOR

Drill hole through flooring, see FIG 16. Seal around hole. Check to make sure the supplied hose is long enough – if not, installer will have to supply extra length of hose.

FIG 14- Drain water hose



General view. Features may vary by model.

OPTION 2 - THROUGH VENT FRAME (PLASTIC VENTS ONLY)

Pull end of hose through louvers in vent door. Cut hose to length. Reinstall perforated plug.

OPTION 3 - THROUGH VENT DOOR (SIDE BY SIDE PLASTIC VENT ONLY)

Drill a 5/8” hole in vent frame directly above floor line. Route drain hose through hole and cut to length. Reinstall perforated plug on the outside of the vent frame. Apply sealant around plug to ensure water does not seep into enclosure.

CONNECTIONS

⚠ CAUTION

All connections should be routed to avoid direct contact with boiler casing, burner cover, or any other components of refrigerator.

GAS CONNECTION

Hook up to the gas supply line is accomplished at the manual gas valve, which is furnished with a 3/8” SAE (UNF 5/8” -18) male flare connection. **ALWAYS** use a back-up wrench when loosening and tightening gas connections. All completed connections should be examined for leaks using an approved leak detection solution.

⚠ WARNING

EXPLOSION HAZARD. Never use an open flame to check for gas leaks. Failure to obey this warning could cause an explosion resulting in death or severe personal injury.

The gas supply system must incorporate a pressure regulator to maintain a supply pressure of not more than 11 inches water column. When testing the gas supply system at test pressures:
> 1/2 psi - the refrigerator and its individual shutoff valve must be disconnected from the gas supply piping system.
≤ 1/2 psi - the appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve.

If detailed instructions on the installation and connection to the gas supply are required, please contact your dealer or distributor.

INSTALLATION PROCEDURE

ELECTRICAL CONNECTION

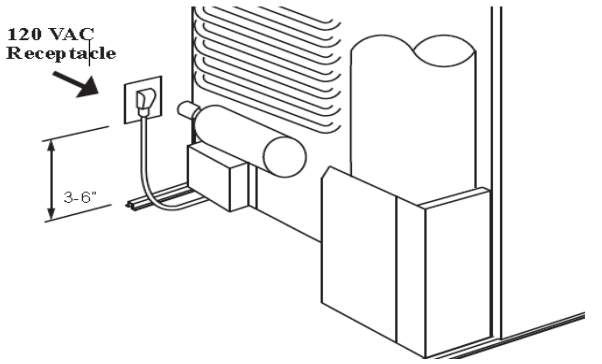
120 VAC CONNECTION

The refrigerator is equipped with a grounded three-prong plug for protection against shock hazards. It should be plugged directly into a properly grounded three-prong receptacle.

Do not cut or remove the grounding prong from this plug!

The free length of the cord is 2 feet. To allow easy access through the vent door, it is recommended to install the receptacle on the opposite side of the burner assembly and approx. 3-6" above the refrigerator mounting floor.

Fig 15- 120V VAC Connection



General view. Features may vary by model.

12 VDC CONNECTION

The connection is made to the positive (+) and negative (-) terminals of the terminal block on the back of the refrigerator.

Correct polarity must be observed when connecting to the DC supply. Do not use the chassis or vehicle frame as one of the conductors. Connect two wires at the refrigerator and route to the DC supply. Ensure the connections are clean, tight and free from corrosion.

For 3-way models, the voltage drop affects the wattage output of the 12 V cartridge heater and the refrigerator performance. The 12 VDC heater is fused with a 30 amp in-line blade fuse.

Ensure that the wires from the battery to the refrigerator can handle the load. Recommended wire sizes are displayed in the table below.

MAXIMUM WIRE LENGTH		
WIRE / MODEL	Size AWG	Length ft
RAE 90	14	17
RAE 142	12	27
RAE 160		
RAE 180	10	27

Example: If the distance between the refrigerator and the 12 VDC supply is 20 ft., the total wire length is 40 ft., and a wire size of 10 AWG should be used.

DOOR PANEL INSTALLATION CONT'D

MOUNTING INSTRUCTIONS

RAE90, RAE142, RAE160, RAE180

To install the panel(s), follow these steps:

1. Open the door 90 degrees or loosen the door.
2. Locate decoration strips. Loosen screws and remove strips. (FIG 16)
3. Remove the original door panel.
4. Insert the new panel into the grooves of the door frame. Push the panel downwards so that the lower horizontal edge of the panel is fitted into the bottom groove (FIG 17).
5. Fasten the decoration strips:
   - Snap-in: Snap in the decoration trips (FIG 18)
   - Screws: Secure decoration strip with screws

Fig 16

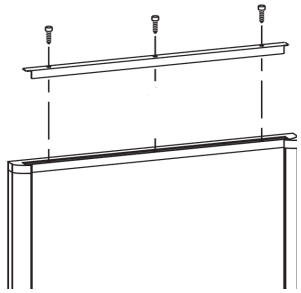


Fig 17

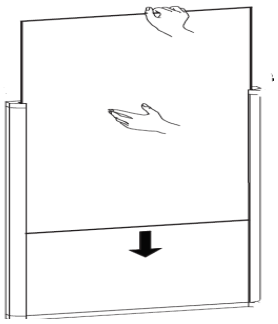
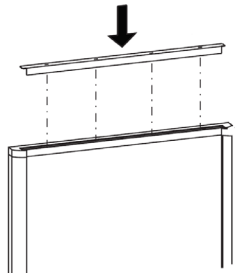


Fig 18



REFRIGERATOR REMOVAL

Refrigerator removal and installation should be performed by a qualified service technician.

Before removing the refrigerator:

1. Verify that the 120 VAC power cord is disconnected at the rear of the refrigerator.
2. Verify that the 12 VDC leads are disconnected and capped at the rear of the refrigerator.
3. Shut off the gas supply.
4. Disconnect and cap the LP gas line at rear of refrigerator.

NOTICE

Always use a backup wrench when loosing and tightening LP gas connections.

To remove the refrigerator:

1. Remove the screws anchoring the refrigerator to the enclosure.
2. Slide the refrigerator out of the compartment.

To replace the refrigerator:

1. Make sure the sealing strips (isolating the appliance combustion system from the vehicle interior) are properly positioned for a complete seal.
2. Slide the refrigerator back into the compartment.
3. Replace the screws anchoring the refrigerator to the enclosure.
4. Reconnect the LP gas supply line at the rear of the refrigerator.

NOTICE

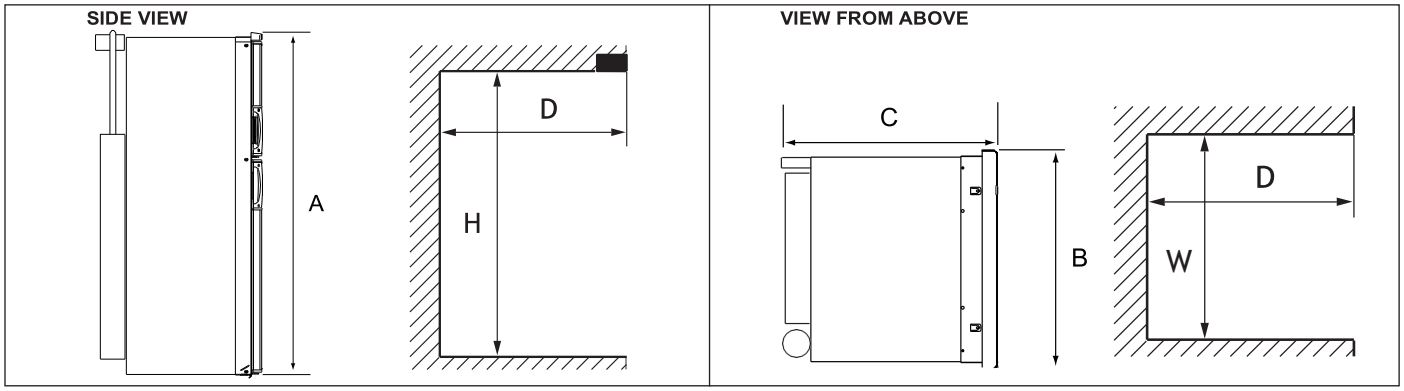
Always use a backup wrench when loosing and tightening LP gas connections.

5. Check all connections for LP gas leaks.
6. Reconnect the 12 VDC leads at rear of refrigerator.
7. Reconnect the 120 VAC power cord at rear of refrigerator.

APPENDIX A - OVERALL & ROUGH IN DIMENSIONS FOR ENCLOSURE

	OVERALL DIMENSIONS			ENCLOSURE DIMENSIONS		
MODEL	Height (A)	Width (B)	Depth (C)	Height (H)	Width (W)	Depth (D)*
RAE90	29-3/4	20-3/32	23-1/4	30-1/4	30-1/8	23-1/4
RAE142	59	16-7/16	22-1/16	59-1/2	16-7/8	22-1/16
RAE160	49-1/4	20-15/32	22-1/16	49-3/4	20-7/8	22-1/16
RAE180	53-3/8	23-7/16	24-7/32	53-7/8	23-7/8	24-7/32

*The depth (D) is flush with door panel and the side of cabinet

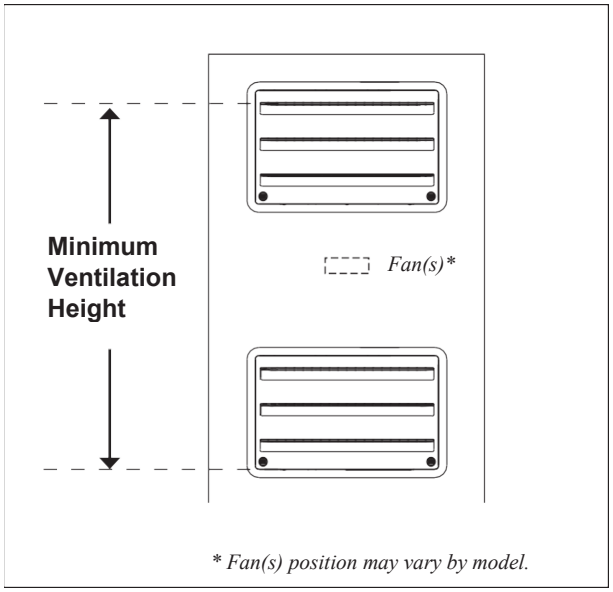


APPENDIX B - MINIMUM VENTILATION HEIGHTS

MINIMUM VENTILATION HEIGHTS B1 = UPPER & LOWER SIDE VENT		
RAE90	B1	32
RAE142	B1	61-1/2
RAE160	B1	52
RAE180	B1	56-1/2

NOTE! Ventilation height should be measured from the seam between the frame and door of the lower side wall vent to the top of the uppermost row of louvers on the upper side wall vent (B1).

B1: UPPER & LOWER SIDE VENT



APPENDIX C - APPROVED VENTS

①

UPPER & LOWER PLASTIC SIDE VENT

3J−FV1000

Cutout: 17-3/4” X 6-1/8”

②

UPPER & LOWER PLASTIC SIDE VENT

3J−FV2000

Cutout: 17-5/16” X 9-7/8”

③

UPPER PLASTIC SIDE VENT

3J−FV3000

Cutout: 17-5/16” X 9-7/8”

APPENDIX D - VENT INSTALLATION PROCEDURES

- **Reference "APPENDIX C" for Approved Vents.**
- **APPLY DRY SEALANT AROUND SURFACE MOUNTING FACE OF ALL VENT FRAMES OR VENT BASES PRIOR TO INSTALLATION.**
- **APPLY WET SEALANT AROUND PERIMETER OF ALL VENT FRAMES OR VENT BASES AFTER INSTALLATION. ENSURE THAT SEALANT DOES NOT BLOCK THE MOLDED WEEP TRACKS IN THE VENT FRAME.**

① UPPER & LOWER SIDE VENT-3J-FV1000：

a) Place vent over 17-3/4" X 6-1/8" cutout.
b) Secure frame using ten screws.
Alternate use of rivets is acceptable.

②UPPER & LOWER SIDE VENT-3J-FV2000：

a) Place vent over 17-5/16" X 9-7/8" cutout.
b) Secure frame using ten screws.
Alternate use of rivets is acceptable.

③UPPER SIDE VENT-3J-FV3000：

a) Place vent over 17-5/16" X 9-7/8" cutout.
b) Secure frame using ten screws.
Alternate use of rivets is acceptable.
c) Connection 12V DC.

APPENDIX E- WIRING DIAGRAMS

RAE series wiring diagrams