

CONNECTING 220VAC WIRING

1. **WARNING - SHOCK HAZARD:** To prevent the possibility of severe personal injury or equipment damage due to electrical shock, always be sure the electrical power is disconnected or off before beginning installation.
2. Route the 220VAC supply wiring previously routed into the frame of the roof opening, through the strain relief of the electrical box and into the high voltage wiring area.

DANGER

TO PREVENT THE POSSIBILITY OF SHOCK INJURY FROM APPLIANCE OPERATION: THE WHITE WIRE MUST BE CONNECTED TO NEUTRAL IN THE SERVICE BOX ENTRANCE AND THE GREEN GROUND WIRE MUST BE CONNECTED TO A GROUNDING SCREW.

ATTACH CEILING GRILL

1. Position the grill next to the interior frame and attach it with the provided screws.
2. Install the filter on the air intake grill section.
3. Snap the intake grill section onto the main grille.
4. Install the screw covers.

MAINTENANCE

1. AIR FILTER:

Remove the return air filter (after every 30 days of use) located above the removable air intake grill. Wash the filter with soap and warm water, let dry and then reinstall. **Note:** Never run the air conditioner / heat pump without putting the air filter back in place. This may plug the indoor coil with dirt and may substantially affect the performance of the unit.

2. Air Return Grill:

Clean panel and control panel with a soft cloth dampened with a mild detergent. Never use furniture polish or harsh chemicals.

3. FAN MOTOR:

Factory lubricated and requires no service.

4. FROST FORMATION ON COOLING COIL:

Under certain conditions, frost may form on the indoor coil. If this should occur, inspect the filter and clean if dirty. Make sure air louvers are not obstructed. Air conditioners / heat pumps have a greater tendency to frost when the outside temperature is relatively low. This may be prevented by adjusting the thermostat control to a warmer setting.

SERVICE

If the unit does not operate:

1. If RV is connected to a generator, check to be sure generator is running and producing the proper power.
2. If RV is connected to shore power, check to be sure supply breaker is sized properly to run air conditioner / heat pump load and it is plugged into power supply.
3. Check your fuse or circuit breaker to see if it is off.
4. After the above checks, call your local service center for further help. This unit must be serviced by qualified service personnel only.



AIR CONDITIONER & HEAT PUMP DIGITAL CONTROL FOR DUCTED SYSTEM INSTALLATION AND OPERATING INSTRUCTIONS

FOR MK13000

RECORD THIS UNIT INFORMATION FOR FUTURE REFERENCE:

Model Number:
Serial Number:
Date Purchased:



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.

INSTALLATION & OPERATING INSTRUCTIONS

These instructions must stay with the unit

Safety Instructions

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

Read and follow all safety information, installation guides, recommended precautions, and safe operating instructions.

GENERAL INFORMATION

A. This air conditioner / heat pump is designed for:

1. Installation on a recreational vehicle.
2. Mounting on the roof of a recreational vehicle.
3. Roof construction with rafters/joists on 16 inch centers.
4. 1.18" inch thick roofs.

B. The efficiency of the air conditioner / heat pump will be affected by the conditions inside and outside of the RV. Reducing the heat gain of the RV will allow the air conditioner / heat pump to function with greater efficiency. Here are some suggestions to reduce heat gain in your RV.

1. Select a shaded area to park your RV
2. Close windows and utilize the blinds and / or curtains.
3. Keep doors shut.
4. Avoid using appliances that produce heat.

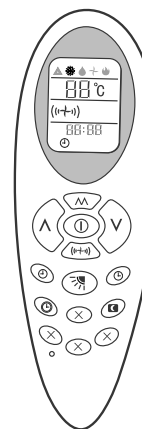
Beginning the cooling / heating process early in the day will greatly improve the heat pump's ability to maintain the desired temperature.

In high temperature and high humidity environments, the air conditioner / heat pump should be set in Cool mode with the Fan Speed in the high position, This will allow for optimal cooling efficiency.

C. Condensation

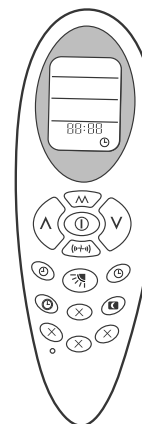
The manufacturer of this air conditioner / heat pump will not be responsible for damage caused by condensed moisture on ceilings or other surfaces, Air contains moisture and this moisture tends to condense on cold surfaces, When air enters the RV, condensed moisture may appear on the ceiling, windows, metal parts, etc. The air conditioner / heat pump removes this moisture from the air during cooling operation, Keeping doors and windows closed when this air conditioner /heat pump is operating will minimize condensation.

Timer off mode



- | | | |
|----------|--|--|
| 1 | | Press the on/off button to switch on the machine. |
| 2 | | Press the change mode button to select the desired mode from all the ones available. |
| 3 | | Press the selection buttons to set the ambient temperature on the desired value between 18°C and 30°C. |
| 4 | | Press the fan speed button to select low, medium or high speed or automatic speed ² . |
| 5 | | Press the timer off button to set the time when the machine must switch off ³ . |
| 6 | | Press the selection buttons to change the time when the machine must switch off. |
| 7 | | Press the timer off button to confirm the data entered. |
| 8 | | Pressing the timer off button a third time si disables this function. |

Timer on mode



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|----------|--|--|
| 1 | | The machine must be off. |
| 2 | | Press the timer on button to set the time when the machine must switch on ⁴ . |
| 3 | | Press the selection buttons to change the time when the machine must switch on. |
| 4 | | Press the timer on button to confirm the data entered ⁵ . |
| 5 | | Pressing the timer on button a third time disables this function. |






note³: When you press the button the first time the symbol on the display flashes to signal you are programming a switch-off; pressing it a second time saves the data and the icon stays on steady to signal activation of the timer off function; pressing it a third time turns off the timer off mode.

note⁴: When you press the button the first time the symbol on the display flashes to signal you are programming a switch-on; pressing it a second time saves the data and the icon stays on steady to signal activation of the timer on function; pressing it a third time turns off the timer on mode.

note⁵: At the set time the machine will start in automatic mode.







Heat pump mode



- 1  Press the on/off button to switch on the machine.
- 2  Press the change mode button to select heat pump mode.
- 3  Press the selection buttons to set the ambient temperature on the desired value between 18°C and 30°C.
- 4  Press the fan speed button to select low, medium or high speed or automatic speed².
- 5  Press the on/off button to switch off the machine. This mode stays in memory for switching on the next time.

Night mode



- 1  Press the on/off button to switch on the machine.
- 2  Press the change mode button to select the desired mode from all the ones available.
- 3  Press the night mode button to turn this function on and off.
- 4  Press the selection buttons to set the ambient temperature on the desired value between 18°C and 30°C.
- 5  This mode sets the ventilation on low speed therefore it is not possible to switch onto the other available options.
- 6  Press the on/off button to switch off the machine. This mode stays in memory for switching on the next time.

Model	Cooling capacity (BTU/h)	Heating capacity/ Electrical heater (BTU/h)	Electrical rating	Compressor rated load (Amps)	Compressor locked rotor current (Amps)	Fanmotor rated load (Amps)	Fanmotor locked rotor (Amps)	Airflow (High speed) (m ³ /h)	Refrigerant (R410a) (oz.)	Min. wire size	AC circuit protection (User supplied)	Unit dimensions (mm)	Packing dimensions (mm)	Weight net/grass (kg.)
MK13000	13000	13000	220VAC /60Hz/ 1PH	6.6	26	1.1	2.5	550	20.1	12AWG copper up to 24'	20Amp	788x632 x256	855x655 x315	32/36

Notes:

1. Consult the National Electric Code for proper sizing for wire lengths over 24 ft.
2. 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.
3. CIRCUIT PROTECTION: Time Delay Fuse or HACR Circuit Breakers Required.

INSTALLATION INSTRUCTIONS

1. PRECAUTIONS

- A. Read installation and operating instructions carefully before attempting to start your air conditioner / heat pump installation.
- B. The manufacturer will not be liable for any damages or injury incurred due to failure to follow these instructions.
- C. Installation **must** comply with the National Electrical Code and any State or Local Codes or regulations.
- D. **DO NOT** add any devices or accessories to this air conditioner / heat pump except those specifically authorized by manufacturer.
- E. This equipment must be serviced by qualified personnel and some states require licensed personnel.

2. CHOOSING A LOCATION FOR THE AIR CONDITIONER / HEAT PUMP

This product is designed for use as a RV roof top air conditioner / heat pump. The use of this product in other applications will void the manufactures warranty.

A. NORMAL LOCATIONS:

The unit is designed to fit over an existing roof vent opening. When the vent is removed, it normally creates a 14-1/4" x14-1/4" ±1/8" opening.

B. OTHER LOCATIONS:

When a roof vent is not available or another location is desired, the following is recommended:

1. For one unit installation: The air conditioner / heat pump should be mounted slightly forward of center (front to back) and centered from side to side. See FIG. 1.

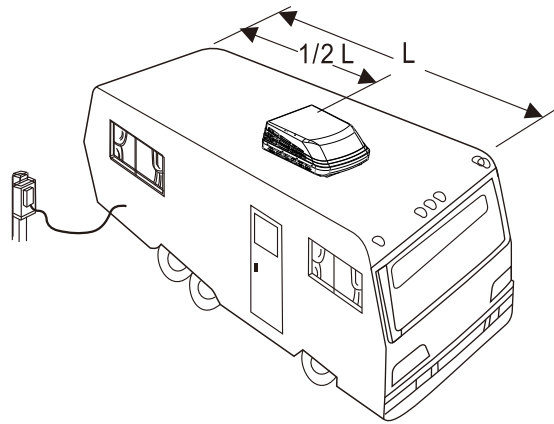


FIGURE 1

2. For two unit installation: Install one air conditioner / heat pump 1/3 distance and the other air conditioner / heat pump 2/3's from front of RV and centered from side to side. See FIG.2.

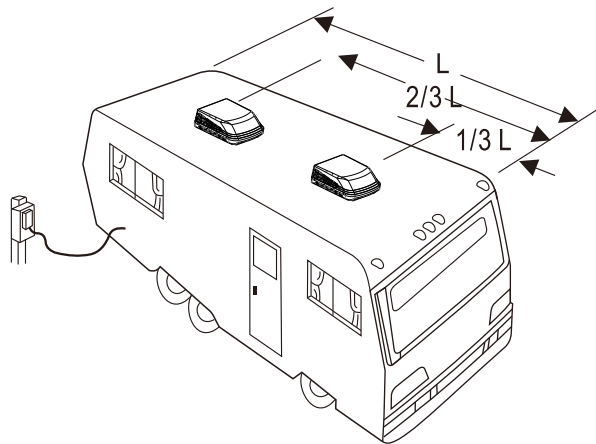


FIGURE 2

It is preferred that this air conditioner / heat pump be installed in a relatively flat and level roof section measured with the RV parked on a level surface; however, up to 15 degree slant to either side, or front-to-back is acceptable.

Dehumidification mode



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|----------|-----|--|
| 1 | ⏻ | Press the on/off button to switch on the machine. |
| 2 | 🌀 | Press the change mode button to select dehumidification mode. |
| 3 | ⏪ ⏩ | Press the selection buttons to set the ambient temperature on the desired value between 18°C and 30°C. |
| 4 | ⏮ | The fan speed selection button is disabled. |
| 5 | ⏻ | Press the on/off button to switch off the machine. This mode stays in memory for switching on the next time. |

Ventilation mode



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|----------|-----|--|
| 1 | ⏻ | Press the on/off button to switch on the machine. |
| 2 | 🌀 | Press the change mode button to select ventilation mode. |
| 3 | ⏪ ⏩ | Press the selection buttons to set the ambient temperature on the desired value between 18°C and 30°C. |
| 4 | ⏮ | Press the fan speed button to select low, medium or high speed or automatic speed ² . |
| 5 | ⏻ | Press the on/off button to switch off the machine. This mode stays in memory for switching on the next time. |

note²: on automatic speed the correct ventilation is set according to the difference in temperature between the set point and the ambient temperature.

Automatic mode



1		Press the on/off button to switch on the machine.
2		Press the change mode button to select automatic mode ¹ .
3		The temperature selection buttons are disabled.
4		Press the fan speed button to select low, medium or high speed or automatic speed ² .
5		Press the on/off button to switch off the machine. This mode stays in memory for switching on the next time.

note¹: In this mode the machine manages the compressor, heat pump and fan speed entirely automatically by comparing the set temperature with the internal temperature according to table A.

TABLE A

Internal temperature	T ≤ 20°C	20°C < T < 25°C	T ≥ 25°C
Operating mode	Heat pump o ventilation	Dehumidification o ventilation	Cold
Set point	20°C	22°C	25°C

Cold mode



1		Press the on/off button to switch on the machine.
2		Press the change mode button to select cold mode.
3		Press the selection buttons to set the ambient temperature on the desired value between 18°C and 30°C.
4		Press the fan speed button to select low, medium or high speed or automatic speed ² .
5		Press the on/off button to switch off the machine. This mode stays in memory for switching on the next time.

C. POST LOCATION SELECTION:

1. Check for obstructions in the area where air conditioner / heat pump will be installed. A minimum clearance of 18" is required for the rear section of the air conditioner / heat pump to any other roof mounted object.
2. The roof must be capable of supporting 100 lbs while the RV is in motion. Normally, a 200 lb. static load design will meet this requirement.

3. ROOF PREPARATION

⚠ WARNING

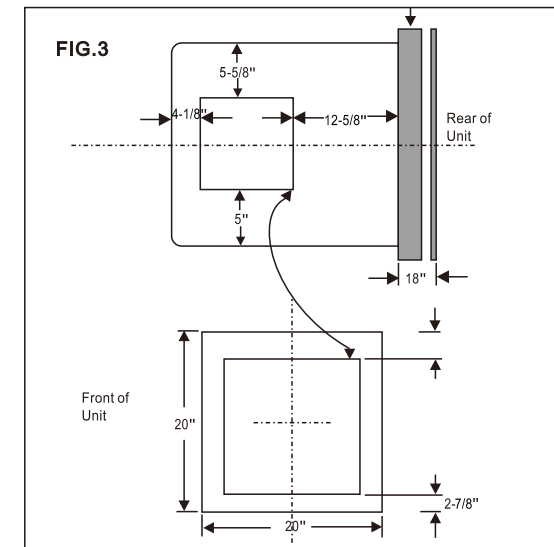
There may be electrical wiring between the roof and the ceiling. Disconnect 220 volt AC power cord . Failure to follow this instruction may create a shock hazard causing death or severe personal injury.

A. EXISTING ROOF VENT REMOVAL:

1. Unscrew and remove the roof vent.
2. Remove all caulking compound around opening.
3. Seal all screw holes and seams where the roof gasket will be located. Use a good grade of all weather sealant.

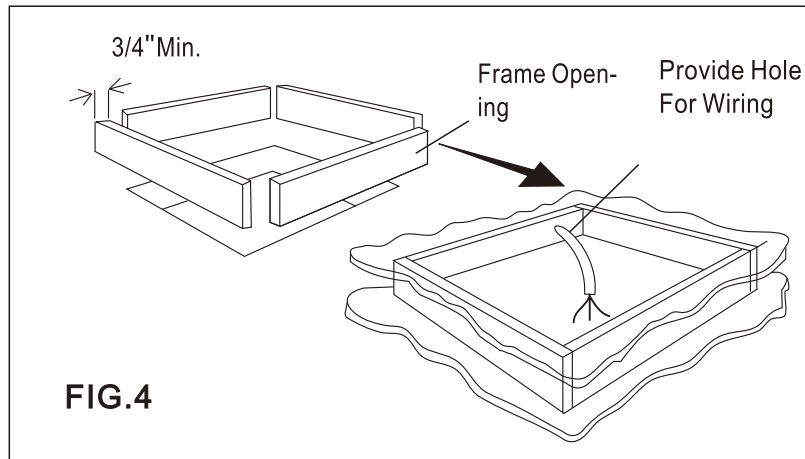
B. NEW OPENING:

1. A 14-1/4" x 14-1/4" ± 1/8" opening must be cut through the roof and ceiling of the RV. It is recommended this opening be located between roof framework.
2. Mark a 14-1/4" x 14-1/4" square on the roof and carefully cut the opening.
3. Using the roof opening as a guide, cut the matching hole in the ceiling. See FIG.3.



C. OPENING PREPARATION:

1. If the opening exceeds 14-3/8" x 14-3/8", it will be necessary to install spacers.
2. If the opening is less than 14-1/8" x 14-1/8", it must be enlarged.
3. Route a 12/3 Rmoex type supply line from the circuit breaker box to the Front of the roof opening.
 - a. The power supply must be on a separate 20 amp Time Delay Fuse or HACR Circuit Breaker.
 - b. Wiring must comply with all National, State and Local wiring codes.
 - c. Make sure at least 15" of wire extend into the roof opening to ensure easy connections.
4. The opening must be framed to provide adequate support and prevent air from being drawn from the roof cavity. Lumber 3/4" thick or more and long enough to bridge the opening must be used. Remember to provide an entrance hole in the front of the opening for 220v, and thermostat wires. See FIG.4.



5. The 14-1/4" x 14-1/4" (±1/8) roof opening is part of the return air duct and must be finished in accordance with National Code, regulations related to RV Industrial.

CAUTION

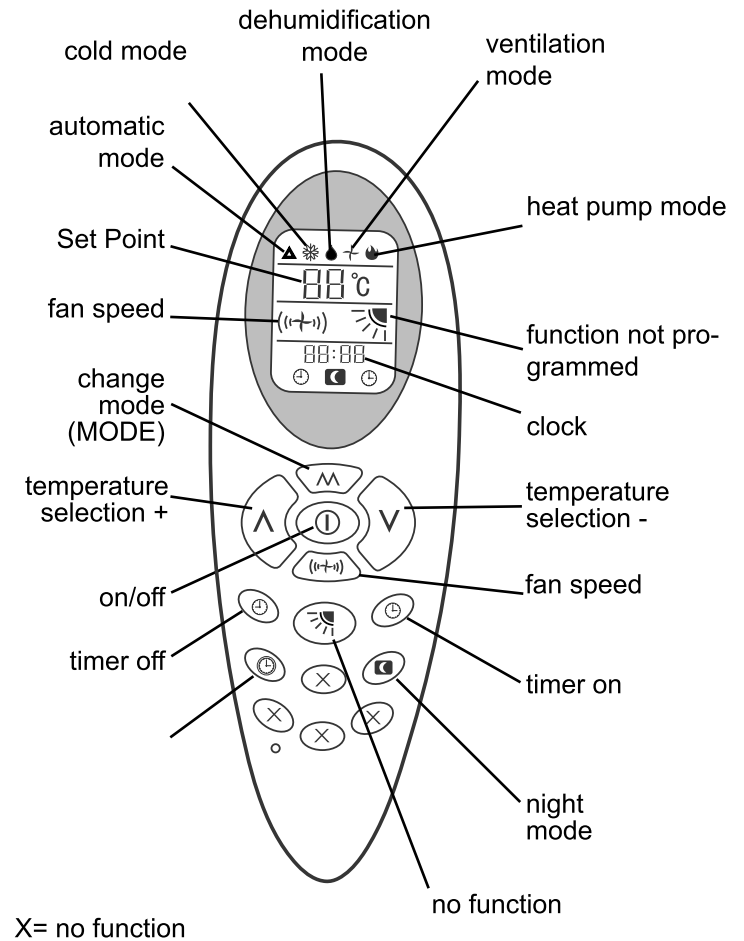
It is the responsibility of the installer of this system to ensure structural integrity of the RV roof. Never create a low spot on the roof where water will collect. Water standing around the air conditioner/heat pump may leak into the interior causing damage to the product and RV

Description of the controls

Selecting functional status

At the time of **switching on, the system waits for a few minutes before operating the compressor.**

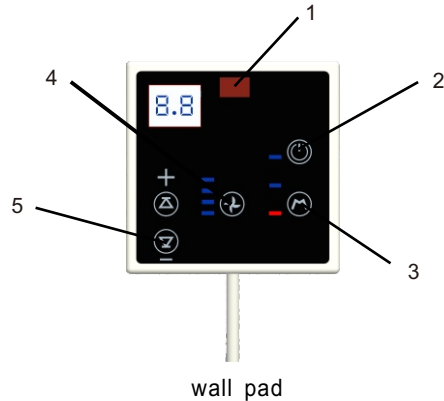
Press the "MODE" button to move between the possible states (automatic, cold, dehumidification, ventilation, heat pump) and wait two seconds on the selected state for this to be confirmed by the system with an audible warning (the buzzer is inside the machine). Always point the remote control towards the wall pad to send all the signals.



附件袋 :there is a pocket for wall pad, remote control with battery and support, and extension cable. To fix wall pad on the wall, you need to make a diameter 20mm hole for cable to pass through.(refer to drawing2). Using 2 wooden screws to fix support to the wall, connect extension cable to wall pad then put wall pad into it's support.

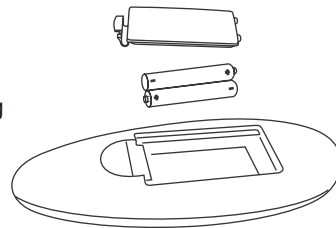
Description of the wall pad

1. Signal receiver
2. Press the ON/OFF button to switch ON or OFF the air conditioner, it will run in memory mode.
3. Press the MODE button to select cooling or heating mode.
4. Press the FAN button to select fan speed.
5. Press the UP or DOWN button to select the desired temperature.



Installing and changing the remote control batteries

Take off the battery cover.
 Insert the two batteries supplied(size AAA), paying attention to their polarity.
 Fit the battery cover back on.
 Check the remote control works properly by pressing the on button: if, on pressing the button, no icon appears on the display then you need to reinstall the batteries checking their polarity. The machine is connected to the power supply and ready for use.



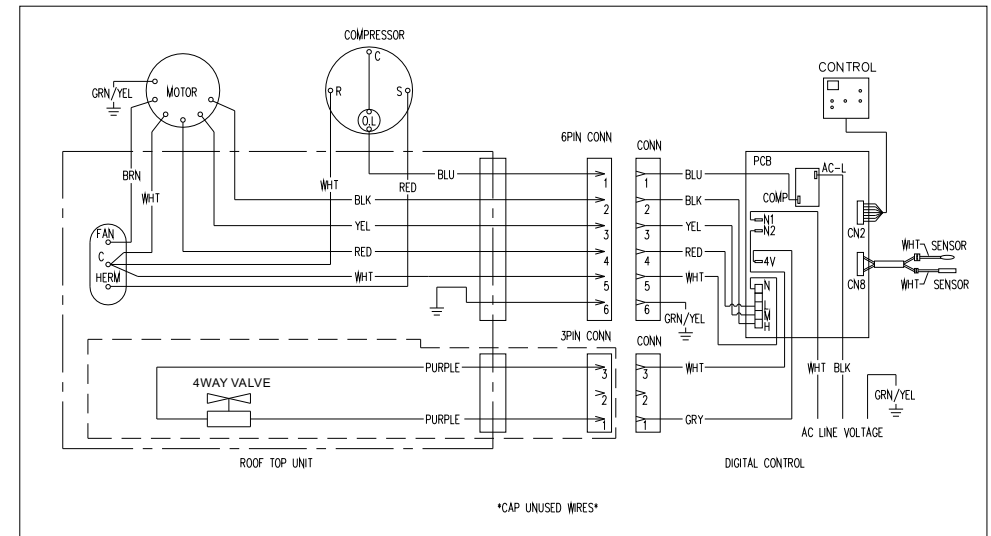
AIR RETURN GRILL INSTALLATION (ACRG15)

The Air Return Grill is designed for application in systems that utilize field fabricated (OEM supplied) air ducting. The ducting must be routed through the ceiling cavity (between the interior ceiling and roof). Ducting specifications are given in the section labeled Supply Ducting and Registers.

INSTALLATION REQUIREMENTS (ROOF THICKNESS MUST BE AT LEAST 1.18")

1. The ACRG15 must be installed under the roof opening. The ACRG15 bolts to the underside of the roof unit. Compression of the framed ceiling cavity between the roof unit and the ACRG15 is what holds both components in place.
2. Ceiling cavity depth (the measurement from the ceiling to the roof): 1.18" .
3. The 220 VAC service for the air conditioner / heat pump must be routed into the ACRG15 (refer to Fig.5 below).

FIGURE 5 WIRING DIAGRAM FOR HEAT PUMP



4. The ACRG15 has a 6pin, two 3 pin & two 2 pin connectors extending from the front of the relay kit. These connectors mate with the air conditioner / heat pump. When making this connection, verify that the plugs are properly aligned and have snapped together securely.
5. Provided with the ACRG15, is a divider plate which is used to separate the warm return air from the cold supply air. If the roof thickness is greater than 1.18", you MUST use the additional divider provided.

SUPPLY DUCTING AND REGISTERS

A. Ducting

1. The field fabricated supply ducting must attach to both sides of the ACRG15. A minimum of two ducts are required, with one duct attached to each side of the plenum.
2. Each duct must have a minimum height of 1.18".
Total free area inside each duct must be no less than 10 square inches.

NOTE: To decrease restriction and increase airflow, the ducting should make as few bends and turns as possible. When corners or turns are required, we recommend that you add radii to the corners to keep airflow at a airflow and system performance.

3. All field fabricated air supply ducting must be insulated to avoid condensation and prevent cooling / heating loss.

B. Registers

Air registers should have a minimum discharge area of 48 square inches per system, or 24 square inches per duct run.

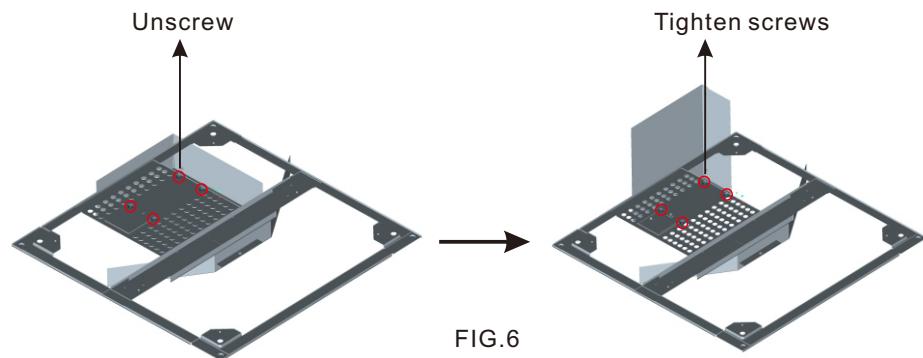
Warnings about wiring:

1. It requires the power supply to be copper conductors with minimum #12AWG.
2. To prevent voltage drops greater than 10% during starting loads, adhere to the following guideline: **For lengths greater than 50 feet, use #10 AWG.**

TEMPLATE MOUNTING

Frame Mounting

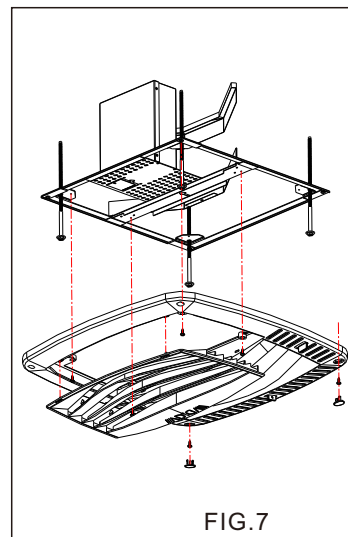
1. Place the air conditioner / heat pump over the roof opening.
2. Remove the control box from the frame and reinstall it in vertical direction with the four screws provided.



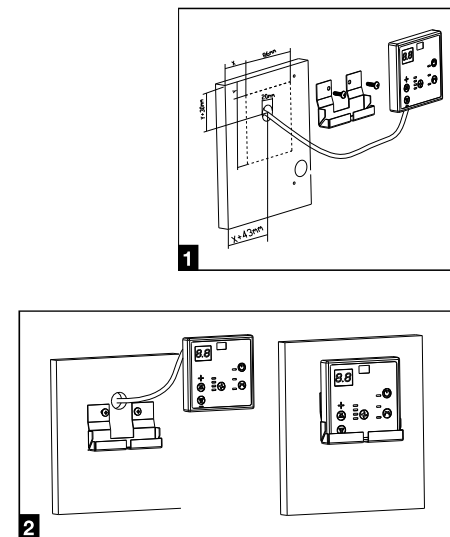
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3. Position the mount frame into the ceiling opening. See Figure 7.
4. Using the four bolts provided, hold up the mount template to the ceiling. The four mounting bolts are to be inserted up through the bottom of the mount template and into the bottom of the air conditioner / heat pump. Tighten all 4 boles equally to compress gasket 33-35 inch pounds. When moving the air conditioner / heat pump be sure not to damage the gasket by sliding it across the roof. If the gasket is damaged and needs replaced, please contact MAXXKOOL and purchase an authorized gasket for replacement. Using other gasket material is not recommended and could result in warranty denial.
5. Install divider with foam seal against base pan of upper unit. On thinner roofs, the divider may be too high, so break away additional portion. Remove paper cover on fixed divider, insert loose divider against base pan and stick to fixed divider.
6. Cut the insulation to the height of the divider, center insulation on divider before removing paper backing and apply to divider. Excess insulation will help ensure the seal at the end of the divider/frame.
7. Connect 220VAC , Heat Pump specific (Indoor Coil Thermistor, Indoor Ambient Thermistor), and thermostat cable according to the wiring diagram. Install the cover over the electrical box using the small screw provided .
8. Seal all seams between output airside and return airside with insulation and foil tape.

MAIN RELAY KIT WIRING



Fitting the infrared wall pad



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