

MBR BLOWER CABINET

INSTALLATION INSTRUCTIONS

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5151 San Felipe, Suite 500, Houston, TX 77056

www.goodmanmfg.com -or- www.amana-hac.com

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THIS PRODUCT CONTAINS ELECTRONIC COMPONENTS WHICH REQUIRE A DEFINITE GROUND. PROVISIONS ARE MADE FOR CONNECTION OF THE GROUND. A DEDICATED GROUND FROM THE MAIN POWER SUPPLY OR AN EARTH GROUND MUST BE PROVIDED.

INTRODUCTION

This booklet contains the installation and operating instructions for your modular blower cabinet. All warnings and precautions within this booklet must be observed. Improper installation can result in problems ranging from noisy operation to property or equipment damages, dangerous conditions that could result in injury or personal property damage and that are not covered by the warranty. Read this booklet and any instructions packaged with accessories prior to installation. Give this booklet to the user and explain its provisions. The user should retain this booklet for future reference.

CHECKING PRODUCT RECEIVED

Upon receiving the unit, inspect it for damage from shipment. Claims for damage, either shipping or concealed, should be filed immediately with the shipping company. Check the unit model number, specifications, electrical characteristics and accessories to determine if they are correct. In the event an incorrect unit is shipped, it must be returned to the supplier and must NOT be installed. The manufacturer assumes no responsibility for installation of incorrectly shipped units.

REPLACEMENT PARTS

ORDERING PARTS

When reporting shortages or damages, or ordering repair parts, give the complete unit model and serial numbers as stamped on the unit's nameplate.

Replacement parts for this appliance are available through your contractor or local distributor. For the location of your nearest distributor, consult the white business pages, the yellow page section of the local telephone book or contact:

HOMEOWNER SUPPORT

GOODMAN MANUFACTURING COMPANY, L.P.

19001 KERMIER ROAD

WALLER, TX 77484


(877) 254-4729

IMPORTANT SAFETY INSTRUCTIONS


RECOGNIZE SAFETY SYMBOLS, WORDS, AND LABELS


The following symbols and labels are used throughout this manual to indicate immediate or potential hazards. It is the owner's responsibility to read and comply with all safety information and instructions accompanying these symbols. Failure to heed safety information increases the risk of property damage, product damage, personal injury or death.










WARNING

HIGH VOLTAGE!
Disconnect ALL power before servicing.
Multiple power sources may be present.
Failure to do so may cause property damage,
personal injury or death.




WARNING

Only personnel that have been trained to install, adjust, service or repair (hereinafter, “service”) the equipment specified in this manual should service the equipment. The manufacturer will not be responsible for any injury or property damage arising from improper service or service procedures. If you service this unit, you assume responsibility for any injury or property damage which may result. In addition, in jurisdictions that require one or more licenses to service the equipment specified in this manual, only licensed personnel should service the equipment. Improper installation, adjustment, servicing or repair of the equipment specified in this manual, or attempting to install, adjust, service or repair the equipment specified in this manual without proper training may result in product damage, property damage, personal injury or death.

 DANGER	 DANGER PELIGRO	 DANGER
		
CARBON MONOXIDE POISONING HAZARD	RIESGO DE INTOXICACIÓN POR MONÓXIDO DE CARBONO	RISQUE D'EMPOISONNEMENT AU MONOXYDE DE CARBONE
<p>Special Warning for Installation of Furnace or Air Handling Units in Enclosed Areas such as Garages, Utility Rooms or Parking Areas</p> <p>Carbon monoxide producing devices (such as an automobile, space heater, gas water heater, etc.) should not be operated in enclosed areas such as unventilated garages, utility rooms or parking areas because of the danger of carbon monoxide (CO) poisoning resulting from the exhaust emissions. If a furnace or air handler is installed in an enclosed area such as a garage, utility room or parking area and a carbon monoxide producing device is operated therein, there must be adequate, direct outside ventilation.</p> <p>This ventilation is necessary to avoid the danger of CO poisoning which can occur if a carbon monoxide producing device continues to operate in the enclosed area. Carbon monoxide emissions can be (re)circulated throughout the structure if the furnace or air handler is operating in any mode.</p> <p>CO can cause serious illness including permanent brain damage or death.</p>	<p>Advertencia especial para la instalación de calentadores ó manejadoras de aire en áreas cerradas como estacionamientos ó cuartos de servicio.</p> <p>Los equipos ó aparatos que producen monóxido de carbono (tal como automóvil, calentador de gas, calentador de agua por medio de gas, etc) no deben ser operados en áreas cerradas debido al riesgo de envenenamiento por monóxido de carbono (CO) que resulta de las emisiones de gases de combustión. Si el equipo ó aparato se opera en dichas áreas, debe existir una adecuada ventilación directa al exterior. Esta ventilación es necesaria para evitar el peligro de envenenamiento por CO, que puede ocurrir si un dispositivo que produce monóxido de carbono sigue operando en el lugar cerrado. Las emisiones de monóxido de carbono pueden circular a través del aparato cuando se opera en cualquier modo.</p> <p>El monóxido de carbono puede causar enfermedades severas como daño cerebral permanente ó muerte.</p>	<p>Advertencia especial para la instalación de calentadores ó manejadoras de aire en áreas cerradas como estacionamientos ó cuartos de servicio.</p> <p>Avertissement special au sujet de l'installation d'appareils de chauffage ou de traitement d'air dans des endroits clos, tels les garages, les locaux d'entretien et les stationnements. Evitez de mettre en marche les appareils produisant du monoxyde de carbone (tels que les automobile, les appareils de chauffage autonome, etc.) dans des endroits non ventilés tels que les d'empoisonnement au monoxyde de carbone. Si vous devez faire fonctionner ces appareils dans un endroit clos, assurez-vous qu'il y ait une ventilation directe provenant de l'exterieur.</p> <p>Cette ventilation est nécessaire pour éviter le danger d'intoxication au CO pouvant survenir si un appareil produisant du monoxyde de carbone continue de fonctionner au sein de la zone confinée.</p> <p>Les émissions de monoxyde de carbone peuvent étre recircules dans les endroits clos, si l'appareil de chauffage ou de traitement d'air sont en marche. Le monoxyde de carbone peut causer des maladies graves telles que des dommages permanents au cerveau et meme la mort.</p>
B10259-216	B10259-216	B10259-216

GENERAL INFORMATION

The MBR Blower Cabinets are used in combination with a cased evaporator coil. This combination of blower and coil functions as the indoor part of a split air-conditioning system, and may be matched with a remote condensing or heat pump unit. The blower cabinet can also function as an electric furnace when used with an electric heater.

NOTE: The electric heating elements for electric furnace installation are not shipped with the cabinet and are field-installed. Systems should be properly sized by heat gain and loss calculations made according to methods of the Air Conditioning Contractors Association (ACCA) or equivalent. It is the contractor’s responsibility to ensure the system has adequate capacity to heat or cool the conditioned space.

CLEARANCES AND ACCESSIBILITY

The unit can be positioned for upflow, counterflow, horizontal right or horizontal left operation. Zero clearance is allowed on all sides for combustible materials. Thirty-six inches should be allotted on the door side for maintenance and service.

To reduce risk of rusting, do not install the unit blower directly on the ground or on a floor that is likely to be wet. In such environments, the unit must be elevated by use of a sturdy, nonporous material.

- Cabinet air leakage less than 2.0% at 1.0 inch H₂O when tested in accordance with ASHRAE standard 193.
- Cabinet air leakage less than 1.4% at 0.5 inch H₂O when tested in accordance with ASHRAE standard 193.

ACHIEVING LESS AIR LEAKAGE:

Ensure all the gaskets remain intact on surfaces as shipped with the unit. Ensure upon installation that the plastic breaker cover is flush on with the access panel and access panel is flush with the cabinet. With these requirements satisfied, the unit achieves less airflow leakage when tested in accordance with ASHRE Standard 193.

INSULATION

To ensure efficient operation, review the following precautions.

- If the unit is located in an area with high ambient temperature and/or high humidity, the air handler may be subject to nuisance sweating of the casing. On these installations, a wrap of 2" fiberglass insulation with a vapor barrier is recommended.
- The factory recommends insulating the duct running through any unconditioned spaces.

To reduce operating sound and vibration transmission use flexible canvas duct connections at the cabinet.

INSTALLATION INSTRUCTIONS

BLOWER WITH CASED EVAPORATOR COIL INSTALLATION

Secure the coil and blower together with the two connector plates and screws supplied in the blower bag assembly. Use one connector plate and six screws on each side of the unit (Figure 1).

If accessory electric heat is to be added, install now per the instructions shipped with the heater kit.

UPFLOW INSTALLATION

For upflow installations, the blower cabinet must sit on top of the coil cabinet (Figure 2).

NOTE: All panels should be in place before installing the cabinet.

1. Place the blower and coil cabinet assembly upright on the return duct or duct opening. Ensure that there is ample support for the cabinet assembly and all attached ductwork.
2. Connect refrigerant and condensate drain connections per the evaporator coil installation instructions. Ensure refrigerant and drain lines do not interfere with service access to the unit.
3. Attach supply ductwork. Seal connections between unit and ductwork as required to reduce/eliminate air leakage.
4. Make electrical connections as specified in "Electrical" section of this manual.

COUNTERFLOW INSTALLATION

For counterflow installations, the evaporator coil cabinet must sit on top of the blower cabinet (Figure 3). **NOTE:** All panels should be in place when installing the unit.

NOTE: Supply ductwork for counterflow applications, must be Class I. However, if combustible ductwork is used, sheet metal protection is required.

1. Place the blower and coil cabinet assembly supply outlet on the supply duct or duct opening. Ensure there is ample support for the unit and all attached ductwork.
2. Connect refrigerant and condensate drain connections per the evaporator coil installation instructions. Ensure refrigerant and drain lines do not interfere with service access to the unit.
3. Attach return ductwork. Seal connections between unit and ductwork as required to reduce/eliminate air leakage.
4. Make electrical connections as specified in "Electrical" section of this manual.

HORIZONTAL INSTALLATION

For horizontal installations, the coil cabinet must be upstream of the blower cabinet (Figures 4 and 5). **NOTE:** All panels should be in place when installing the unit.

1. Set the unit near its final installation place. The unit must be supported along the entire length of the unit. Rubber isolation pads may be used to reduce sound and vibration transmission. Ensure there is ample support for the unit and all attached ductwork.

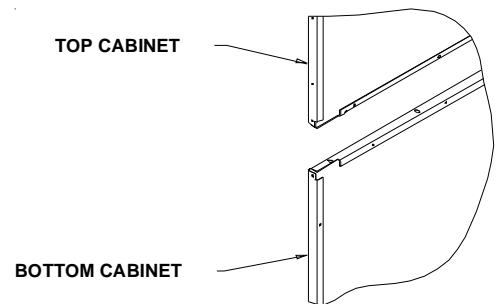


Figure 1 - Coil and Blower

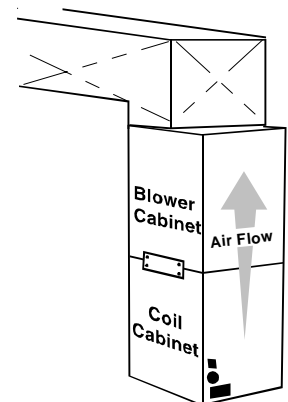


Figure 2 - Upflow Application

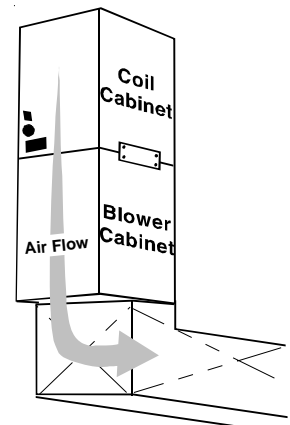


Figure 3 - Counterflow Application

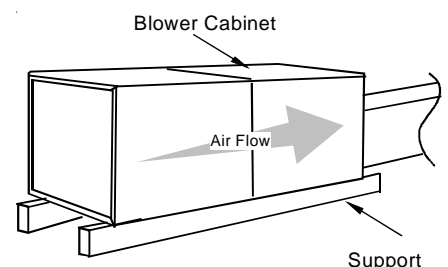


Figure 4 - Attic Installation

2. If installed above a finished ceiling or living space, be sure to put a secondary drain pan under the entire unit, and pipe the drain separately from the main condensate drain.
3. Connect refrigerant and condensate drain connections per the coil section installation instructions. Ensure refrigerant and drain lines do not interfere with service access to the unit.
4. Attach return and supply ductwork. Seal connections.
5. Make electrical connections as specified in "Electrical" section of this manual.

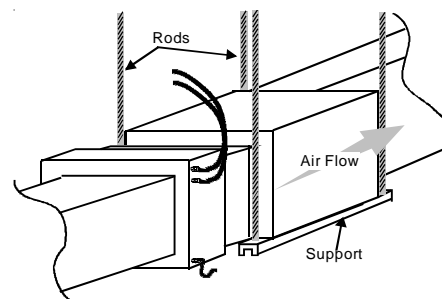


Figure 5 - Hanging Installation

ELECTRICAL CONNECTIONS

Consult the local power company and local codes before installing this unit. All wiring must be in accordance with the National Electrical Code as well as all local codes. Knockouts have been provided on side and top of the cabinet for the installation of the electrical conduit. If the knockouts on the cabinet sides are used for electrical conduit, an adapter ring must be used in order to meet UL1995 safety requirements. Use Minimum Circuit Ampacity and type of wire to determine proper wire size. The unit **MUST** be properly grounded. A ground lug is provided in the unit.

Check all factory connections before connecting electrical power to unit to ensure none were loosened or disconnected during shipping and handling.

HIGH VOLTAGE WIRING

If heater kits will not be installed, remove the proper size knockout for the electrical conduit connection. Connect electrical conduit to the unit using two washers to make an approved connection. If the high voltage knockout is removed, please use the provided foam tape to seal the opening with the conduit.

The power supply wires must be connected to the red and black power wiring. Two wire nuts are provided in the bag assembly for this connection. Wrap the wire nuts with electrical tape. (Insulated crimp type connectors, field supplied, may be substituted for the wire nuts and electrical tape provided proper size connectors are used.) A ground wire **MUST** be connected to the ground lug inside the unit.

LOW VOLTAGE WIRING

A 24V-control voltage connects the air handler to the room thermostat and condenser and must use low voltage wiring with copper conductors. A minimum 18 AWG wire must be used for installations up to 100 feet. Low voltage wiring must be connected through the top of the cabinet or either side. See the "Thermostat Wiring" section of this manual for typical low voltage wiring connections. If the low voltage opening is not being used, install the cap, provided in the literature kit, on the top plate.

FOAM TAPE STRIP

NOTE: In high humidity areas, it is highly recommended to install this component in order to reduce the amount of "sweating".

For MBR1200 **ONLY**, use one of the foam strips provided in the literature kit:

1. Use one of the provided foam tape strips to seal the hole in the control panel. In order to use the foam tape, carefully remove the adhesive liner and wrap the tape around the wires at the control panel. Ensure the tape is sealed onto both the sheet metal of the control panel and the wires.

WARNING

TO PREVENT PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK, DISCONNECT THE ELECTRICAL POWER BEFORE ELECTRICALLY CONNECTING THE UNIT.

CAUTION

TO AVOID THE RISK OF PROPERTY DAMAGE, PERSONAL INJURY OR FIRE USE ONLY COPPER CONDUCTORS.

CAUTION

TO AVOID THE RISK OF PERSONAL INJURY, WIRING TO THE UNIT MUST BE PROPERLY POLARIZED AND GROUNDED.

WARNING

ALL WIRING MUST COMPLY WITH APPLICABLE LOCAL AND NATIONAL CODES. TYPE AND LOCATION OF FUSED DISCONNECT SWITCH(ES) MUST COMPLY WITH ALL APPLICABLE CODES AND PROVIDE OVERCURRENT PROTECTION AS SHOWN ON THE NAMEPLATE.

HIGH VOLTAGE FOAM TAPE

1. If the high voltage knockout(s), are being used, wrap the opening and wire with the provided foam tape. This should seal the opening.

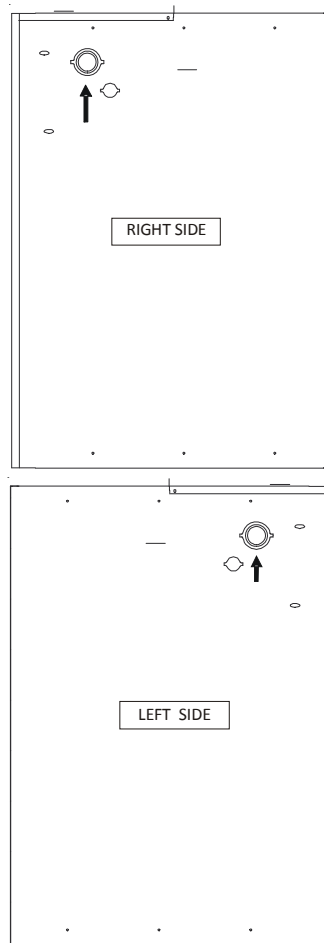


Figure 6 - High Voltage Grommets

MISCELLANEOUS ELECTRICAL

The unit transformer is factory connected for 240 V operation. If unit is to operate on 208 V, disconnect the red wires from terminal 3 of the unit transformer and connect them to terminal 2 of the unit transformer.

INSTALLER: It is important to follow these instructions when installing the MB series of air handlers.

THERMOSTAT CONNECTIONS

The following composite wiring diagrams detail various configurations in which your MB air handler can be used. Examples include single stage cooling, two stage cooling and heat pump with single or two stage electric heating. All these configurations can be applied with convenient connections to outdoor thermostat applications.

Each diagram details the connections between room thermostat and MB air handlers, and the connections between the MB air handlers and the Condensing Unit (or Heat Pump) with optional connections to Outdoor Thermostats.

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WARNING

HIGH VOLTAGE! DISCONNECT ALL POWER BEFORE SERVICING. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

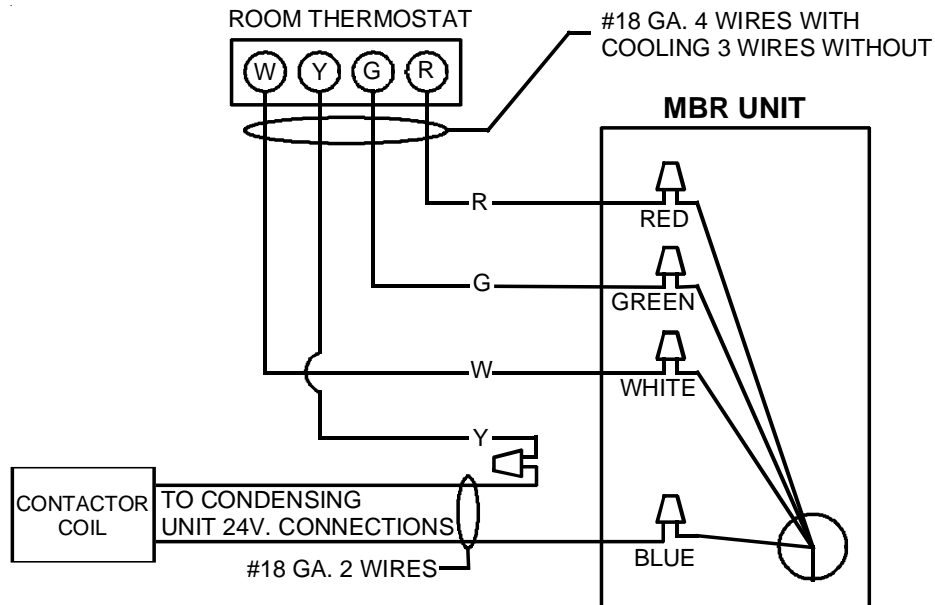


Figure 7- Low Voltage Wiring Diagram for Cooling Unit with optional heat kit 10KW and below

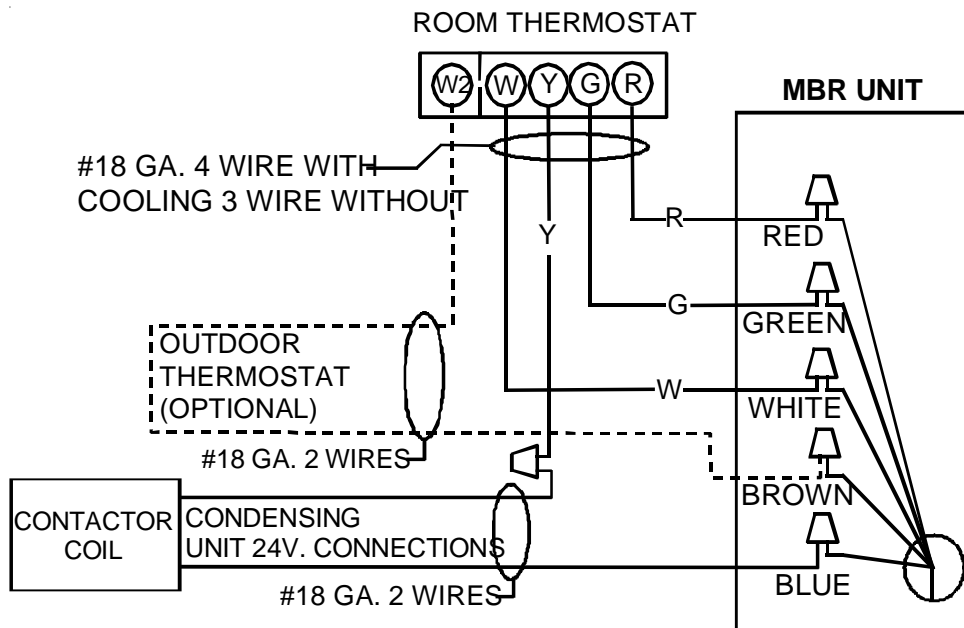


Figure 8 - Low Voltage Wiring Diagram for Cooling Unit with optional heat kit 15KW and above

Wiring is subject to change, always refer to the wiring diagram on the unit for the most up-to-date wiring.



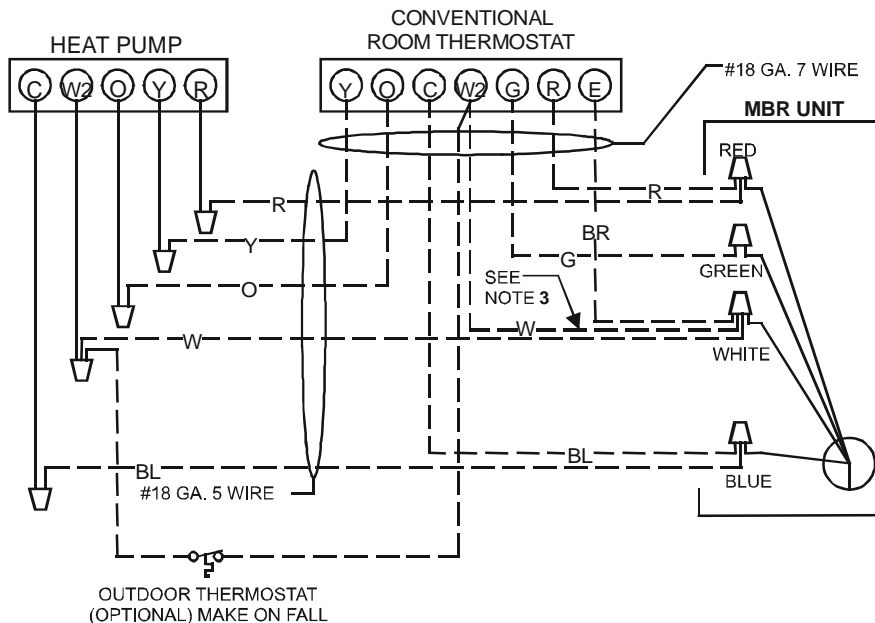
WARNING

HIGH VOLTAGE! DISCONNECT ALL POWER BEFORE SERVICING.
MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO
MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



**MBR
SYSTEM COMPOSITE DIAGRAM
800-2000
10 KW & BELOW**

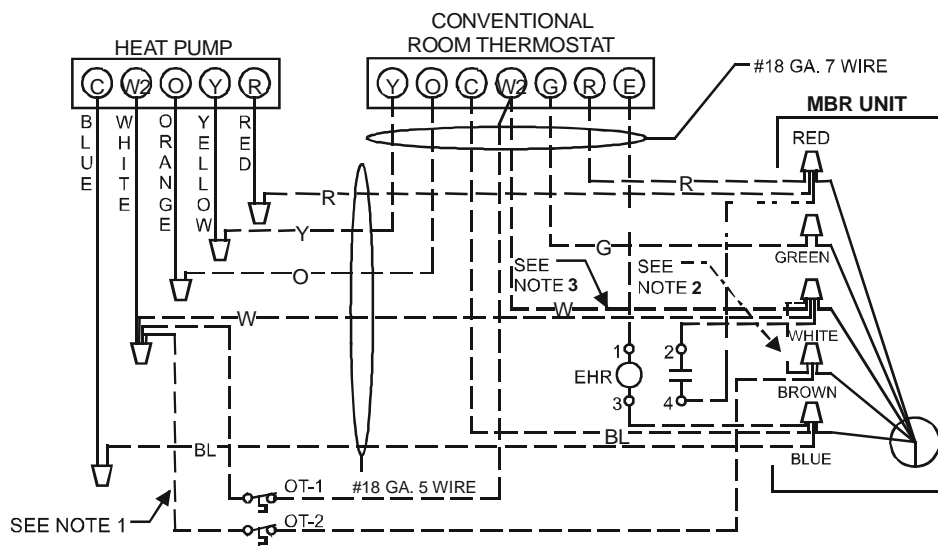
FIGURE 9



#18 GA. 6 WIRE NEEDED WHEN OT IS USED

**MBR
SYSTEM COMPOSITE DIAGRAM
1200-2000
ABOVE 10 KW**

FIGURE 10



#18 GA. 7 WIRE NEEDED WHEN (2) OTs ARE USED

NOTES

- 1) OUTDOOR THERMOSTAT (OT-1) SHOULD BE THE FIRST TO CLOSE AND THE FIRST TO OPEN.
 - 2) IF OUTDOOR THERMOSTAT IS NOT USED, TIE WHITE AND BROWN WIRES FROM AIR HANDLER TOGETHER.
 - 3) REMOVE WIRE WHEN USING OUTDOOR T-STAT.
- #18 GA. 7 WIRE NEEDED WHEN (2) OTs ARE USED

NOMENCLATURE

- OT - OUTDOOR THERMOSTAT (OPTIONAL)
 MOF - MAKE ON FALL
 EHR - EMERGENCY HEAT RELAY (OPTIONAL)

COLOR CODES

- R - RED
 Y - YELLOW
 BL - BLUE
 V - VIOLET
 BR - BROWN
 O - ORANGE
 W - WHITE
 PK - PINK
 G - GREEN

Wiring is subject to change, always refer to the wiring diagram on the unit for the most up-to-date wiring.

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NOTE: SPECIFICATIONS AND PERFORMANCE DATA LISTED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE

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5151 San Felipe, Suite 500, Houston, TX 77056

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