AIR HANDLER

INSTALLATION INSTRUCTIONS

B65BM, B65EM & B65VM SERIES

IMPORTANT

ATTENTION INSTALLERS:

It is your responsibility to know this product better than your customer. This includes being able to install the product according to strict safety guidelines and instructing the customer on how to operate and maintain the equipment for the life of the product. Safety should always be the deciding factor when installing this product and using common sense plays an important role as well. Pay attention to all safety warnings and any other special notes highlighted in the manual. Improper installation of the furnace or failure to follow safety warnings could result in serious injury, death, or property damage.

These instructions are primarily intended to assist qualified individuals experienced in the proper installation of this appliance. Some local codes require licensed installation/service personnel for this type of equipment. Please read all instructions carefully before starting the installation. Return these instructions to the customer's package for future reference.

DO NOT DESTROY. PLEASE READ CAREFULLY & KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

TABLE OF CONTENTS

IMPORTANT SAFETY INFORMATION

INSTALLER: Please read all instructions before servicing this equipment. Pay attention to all safety warnings and any other special notes highlighted in the manual. Safety markings are used frequently throughout this manual to designate a degree or level of seriousness and should not be ignored. **WARNING** indicates a potentially hazardous situation that if not avoided, could result in personal injury or death. **CAUTION** indicates a potentially hazardous situation that if not avoided, may result in minor or moderate injury or property damage.

⚠ WARNING:

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

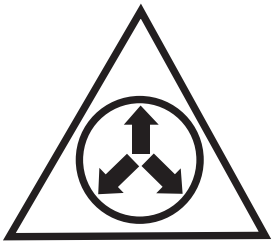
Failure to follow safety warnings exactly could result in serious injury or property damage.

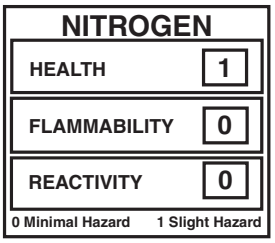
Improper servicing could result in dangerous operation, serious injury, death or property damage.

Before servicing, disconnect all electrical power to furnace.

- **Before servicing, disconnect all electrical power to the air handler.**
- **When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.**
- **Verify proper operation after servicing.**

⚠ WARNING:





B65 air handlers leave the factory with a nitrogen holding charge. Avoid direct face exposure or contact with valve when gas is escaping. Always ensure adequate ventilation is present during the depressurization process. Any uncertainties should be addressed before proceeding.

PROPOSITION 65 WARNING:

WARNING: This product contains chemicals known to the state of California to cause cancer.

WARNING: This product contains chemicals known to the state of California to cause birth defects or other reproductive harm.

⚠ WARNING:

Improper installation, service, adjustment, or maintenance may cause explosion, fire, electrical shock or other hazardous conditions which may result in personal injury or property damage. Unless otherwise noted in these instructions, only factory authorized kits or accessories may be used with this product.

This unit uses refrigerant R-454B. DO NOT use any other refrigerant in this unit. Ensure that any outdoor section is suitable for use with R-454B. DO NOT mix refrigerants This equipment/listing is not approved for use with UV applications and installation of the equipment should be performed in accordance with the national standards as they apply.

Auxiliary devices which may be a potential ignition source shall not be installed in the duct work. Examples of such potential ignition sources are hot surfaces with a temperature exceeding 700ºC and only electric switching devices which are sealed components, or intrinsically safe for use in flammable environments may be used. In addition to electric duct heaters, all other electrical accessory equipment within the ductwork of the unit should be inspected as well. Zoning systems, electro-static air filtration units and heating units should have particular attention applied to them.

These air handler units have an included R454B leak detection sensor, when wiring the units the sensor will energize an external signal wire if a leakage is detected. This signal or 'alarm' output, should be utilized to disable any duct accessories that are potential ignition sources, as well as to force open any zoning systems that are installed. Refer to these instructions and the wiring diagram for additional details.

GENERAL REQUIREMENTS

⚠ WARNING:

This unit must be installed in accordance with the instructions outlined in this manual. If maintenance, service or repairs make it necessary for evacuation and charging, opening of sealed components, or opening of ventilated enclosures, then it should only be attempted by qualified trained personnel thoroughly familiar with this equipment and have the appropriate training for working with A2L refrigerants. Under no circumstances should the owner attempt to install and/or service this equipment. Failure to comply with this warning could result in property damage, personal injury, or death.

⚠ WARNING:

The information listed in this manual must be followed during the installation, service, and operation of this unit. Unqualified individuals should not attempt to interpret these instructions or install this equipment. Failure to follow safety recommendations could result in possible damage to the equipment, serious personal injury or death.

- Install this unit only in a location and position as specified on page 8, page 9 & page 10. This unit is designed only for Indoor installations and should be located with consideration of minimizing the length of the supply and return ducts. See Table 7, (page 25), Table 8, (page 26), Table 9, (page 26), Table 10, (page 27) & Table 11, (page 28) and the rating plate for proper circulating airflow data.
- Air handler installations in a residential garage must be installed as specified on page 8.
- This air handler may not be used for temporary heating or cooling of buildings or structures under construction. Operating the air handler during construction is not permitted and will void the manufacturer's warranty.
- Familiarize yourself with the control that shut off the electrical power to the unit. If the unit needs to be shut down for an extended period of time, turn off electrical power at the circuit breaker. For your safety always turn off the electrical power before performing service or maintenance on the unit.
- Use caution when handling this appliance or removing components. Personal injury can occur from sharp metal edges present in all sheet metal constructed equipment.

⚠ WARNING:

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

⚠ WARNING:

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer. DO NOT pierce or burn. Be aware that refrigerants may not contain an odor.

Note: These units are factory charged with Nitrogen, prior to installation - new units may be stored without consideration of flammability hazards. Refer to the DECOMMISIONING section for details on the storage of units after their useful life has been expended.

Refrigerant Safety Group A2L

- The installer must comply with all local codes and regulations which govern the installation of this type of equipment. Local codes and regulations take precedence over any recommendations contained in these instructions. Consult local building codes and the National Electrical Code (NFPA 70) for special installation requirements.
- This unit is a PARTIAL UNIT AIR CONDITIONER, complying with PARTIAL UNIT requirements of UL 60335-2-40, and must only be connected to other units that have been confirmed as complying to corresponding PARTIAL UNIT requirements of UL 60335-2-40, CSA 22.2 No 60335-2-40.
- This system contains R-454B, a midly-flammable refrigerant. Because of this, there are requirements, including a minimum size, for the room in which the indoor portion of this system shall be installed within. Read these instructions for additional details.
- This unit is designed for indoor installations only and should be positioned as shown in the AIR HANDLER INSTALLATION section of this document.
- When choosing an installation location, the contractor/ installer must ensure that the equipment nameplate and markings continues to be visible and legible after its installation is completed. Markings and signs that are illegible shall be corrected.
- These indoor units are designed, and factory configured to be installed on a fully ducted system and come with a factory-installed Leak Detection Sensor.
- Flexible ducts may not be connected directly to these indoor units. A metal duct transition must be used to connect the flex duct. Transition ducts should be designed to comply with the requirements of these instructions, when guidance is provided.
- Only auxiliary devices approved by Nordyne or that are declared suitable with R-454B shall be installed within the connecting ductwork.
- When refrigerant tubing and electrical wiring penetrates a structure's envelope, the openings should be made to be suitably water-tight after their installation.
  Prior to beginning work on this system, take steps to minimize the risk of refrigerant being ignited. These steps should include the following:
  - o Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
  - o All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
  - o The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

- o If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.
- o No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.
- o Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.
- o Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer’s maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer’s technical department for assistance.
- o The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS:
  - the actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.
  - the ventilation machinery and outlets are operating adequately and are not obstructed.
  - marking on the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected
  - refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.
- o Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.
- o Initial safety checks shall include:
  - that capacitors are discharged: this shall be done in safe manner to avoid possibility of sparking;
  - that no live electrical components and wiring are exposed while charging, recovering or purging the system;
  - that there is continuity of earth bonding
- o Sealed components and intrinsically safe components shall be replaced instead of trying to repair them. All replacement relays and contactors should be sealed components or have been rated as intrinsically safe for use in FLAMMABLE environments. Motors must have been evaluated for their safe use in A2L refrigeration systems.
- o Leak detection sensors shall only be replaced with sensors specified by Nordyne.

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

- All electrical wiring must be completed in accordance with local, state and national codes and regulations and with the National Electric Code (ANSI/NFPA 70) or in Canada the Canadian Electric Code Part 1 CSA C.22.1.
- Fully annealed, refrigerant grade copper tubing should be used when installing the system. Refrigerant suction line tubing should be fully insulated.
- Pipe-work including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed.
- After completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements: The minimum test pressure for the low side of the system shall be the low side design pressure and the minimum test pressure for the high side of the system shall be the high side design pressure, unless the high side of the system, cannot be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure.
- Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected
- Installation of equipment may require brazing operations. Installer must comply with safety codes and wear appropriate safety equipment (safety glasses, work gloves, fire extinguisher, etc.) when performing brazing operations.
- Follow all precautions in the literature, on tags, and on labels provided with the equipment. Read and thoroughly understand the instructions provided with the equipment prior to performing the installation and operational checkout of the equipment.
- Perform an operational and safety check of the equipment after completing the installation and before leaving the job
- Once fully assembled and operational, this equipment will contain liquid and gaseous refrigerant under high pressure. DO NOT USE ANY PORTION OF THE EQUIPMENT CHARGE FOR PURGING OR LEAK TESTING. Installation or servicing should only be performed by qualified, trained personnel thoroughly familiar with this type equipment.

DETECTING LEAKS OF FLAMMABLE REFRIGERANTS

- Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.
- The following leak detection methods are deemed acceptable for all refrigerant systems

o Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need recalibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.
o Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
o NOTE Examples of leak detection fluids are:
-bubble method,
-fluorescent method agents.
- If a leak is suspected, all naked flames shall be removed/ extinguished.
- If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to the "Removing Refrigerant and Evacuation" section of this document.

REMOVING REFRIGERANT AND EVACUATION

- When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:
- Safely remove refrigerant following local and national regulations
- Evacuate the system
- Purge the circuit with inert gas
- Evacuate the system
- Continuously flush or purge with inert gas when using flame to open circuit
- Open the circuit

The refrigerant charge shall be recovered into the correct recovery cylinders. DO NOT Vent the refrigerant to the atmosphere. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

Refrigerant purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere. It is optional but recommended to pull down to a vacuum and then repeat this process until no refrigerant is within the system.

When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

PRE-INSTALLATION INSPECTION FOR A2L SYSTEMS

Prior to the installation of any A2L refrigeration system on to a structure, the contractor or installer is required to evaluate the site for the safe usage of the equipment and to ensure the installation goes smoothly. The following checks shall be applied to installations using A2L FLAMMABLE REFRIGERANTS:

<u>First, determine the charge per square-foot of the installation.</u>

- An evaluation to estimate the refrigerant charge that will be contained within the new equipment. Refer to the appropriate Nordyne QRD documentation for the equipment match, calculation instructions are located there and can be adjusted by the required length of the equipment lineset.
- Determine the square footage of the conditioned space that the unit will be used for. With the above charge information & the conditioned space square footage, the charts in this document can be used to ensure that first qualification for the safe installation can be made.

<u>Second, inspect the space where the indoor coil, blower and ducted heating unit will be located.</u>

- Validate that any fossil-fuel equipment in the vicinity of the planned install location has flashback arrestors installed. This equipment could be water heaters, boilers or other similar equipment that serves the home and is not connected to the duct system.
- Measure the floor area around where these air handler units will be installed. Verify that this space is either connected to the conditioned air space, or not.
- If the equipment space is not fluidly-connected to the air conditioned space, that is: if the air around the equipment cannot be both supplied and returned to the duct system, then additional actions may need to be performed during the installation process. This may require additional equipment to be installed and should be purchased. If the equipment is planned for a small closet or quasi-equipment room area, louvered doors or other venting may be adequate to provide the necessary air exchange, but the contractor is responsible for that determination.
  Alternately, this equipment space may need to be ventilated to the outdoors, or the air condition space by some positive means. It is critical that the equipment space is constructed so that should any refrigerant leak into the space it will not stagnate so as to create a fire or explosion hazard.

<u>Third, inspect the duct system. Validate that any accessory equipment, installed in the duct system is safe for use with A2L equipment.</u>

- Note any Zoning Equipment that may be installed. These accessories will need to be forced to open in the event that the Leak detection sensor actually makes a detection of a leak. -OR- The calculation of floor space to charge amount needs to be computed and evaluated based on the smallest zone floor area only.
- Note any other electrically operated equipment that is installed in the duct system. Electric heaters, Electrostatic Air Filters, etc. In the event of a leak detection by the sensor, this equipment may need to be disabled. In some cases, this equipment may even need to be replaced with similar equipment that is rated for the safe use with A2L refrigerants. An inspection of that equipment, its instructions and usage rating is necessary.

- Visually inspect and validate that all registers and returns are free flowing, not fully blocked off by furniture and cabinetry.

Fourth, inspect the refrigerant piping system. A full visual inspection of the pipe routing should be performed.

- Ensure that piping is not embedded in walls or enclosed in unventilated piping-chases. If a pipe chase exists, then it may need to be ventilated. If the piping is embedded in the wall, it may be appropriate to abandon that pipe set and route it differently instead of attempting to ventilate the wall cavity.
- No portion of the piping should be hidden from inspection. The inspection should note any and all joint locations or repairs in the existing or planned piping route.
- Nordyne does not recommend the repeated reuse of old piping sets. It is the contractor/installers responsibility to ensure that the piping applied to the A2L system is safe for use.
- The contractor/installer should determine if any section of the current/proposed pipe routing will require to be protected from likely things that may damage it inadvertently. Especially in home work-shops or garage areas.
- If refrigerating piping or piping components are installed in a position where they are likely to be exposed to any substance which may corrode the tubing or components, the piping should be shielded, or otherwise protected from the possible exposure hazard. The direct burial of copper tubes in the earth, is not allowed. Refrigerant tubing insulation is not considered to be an acceptable means of protection.

Fifth, read and understand these instructions and the other installed equipment instructions fully and completely before the time of installation.

Nordyne highly recommends that the local code be inspected or the authority asked if they have other requirements for the installation of A2L refrigerant equipment on residences.

Nordyne highly recommends that the contractor/installer is to have taken a training course from a reputable source on the differences and requirements of A2L refrigerant system installations prior to working on, or with, an A2L refrigerant system.

This summary of actions may not represent all actions that are necessary in your application. It is the contractor/installer's responsibility to ensure that the equipment is applied to the application in a safe and efficient manner. These notes are included only to highlight some of the required actions to be performed on each job and do not presume to note all possible tasks for all possible installations

GENERAL INFORMATION

Air handler units are designed for upflow, downflow, or horizontal applications and are equipped with braze type refrigerant connections for easy installation.

- Check the air handler and confirm that it's suitable for application with the intended outdoor unit.
- Optional cooling/heating equipment must be properly sized and installed in accordance with the manufacturer's specifications and approved recommendations.
- Air handler units are listed for use with R454B refrigerant only. R-454B is classified as an A2L refrigerant.
- The included LDS (Leak Detection System) is calibrated to detect R-454B refrigerant only. No other refrigerants will be detected properly.
- Verify that the air delivery of the air handler is adequate to handle the static pressure drop of the coil, filter, and duct work.
- If precise forming of refrigerant lines is required, a copper tubing bender is recommended. Avoid sharp bends and contact of the refrigerant lines with metal surfaces.
- Refrigerant lines should be wrapped with pressure sensitive neoprene or other suitable material where they pass against sharply edged sheet metal.
- Horizontal installations of air handler units require a horizontal drain pan to be installed. Refer to the Horizontal Instructions section for details.
- All air handler units have a factory installed leak detection sensor (LDS) on the front delta plate of the coil as shown in Figure 1. This location of the LDS is valid for upflow, downflow and horizontal applications.
- The sensor is designed to detect a refrigerant leak within the atmosphere around the sensor. Sensor is powered by the secondary side of the transformer, see Wiring Diagram for details. Figure 27 (page 41), Figure 28 (page 42) or Figure 29 (page 43).

Before You Install this Unit

√ The cooling load of the area to be conditioned must be calculated and a system of the proper capacity selected. It is recommended that the area to be conditioned be completely insulated and vapor sealed.

√ Check the electrical supply and verify the power supply is adequate for unit operation. The system must be wired and provided with circuit protection in accordance with local building codes. If there is any question concerning the power supply, contact the local power company.

√ Check that the marked maximum operating pressure on the air handler and the maximum operating pressure on the outdoor unit are suitable for each other.

√ Check that the air handler and the outdoor unit are both suitable for the same refrigerant.

√ The indoor section (air handler) should be installed before routing the refrigerant tubing.

√ All units are securely packed at the time of shipment and upon arrival should be carefully inspected for damage prior to installing the equipment at the job site. Claims for damage (apparent or concealed) should be filed immediately with the carrier.

√ Please consult your dealer for maintenance information and availability of maintenance contracts. Please read all instructions before installing the unit.

Locating the Air Handler

- Survey the job site to determine the best location for mounting the unit. Consideration should be given to availability of electric power, service access, and noise.
- The dimensions of the room or alcove must be able to accommodate the overall size of the unit and the installation clearances listed in Table 1. Physical dimensions for this air handler are also shown in Figure 12 (page 22).
- The air handler should be set into position before routing the refrigerant tubing.

Minimum Clearances

- This appliance must be installed in accordance with clearances listed in Table 1. The air handler must be installed with ample clearance for easy access to the air filter, blower assembly, heater assembly, controls, and vent connections. Applicable building codes may require additional clearance to equipment. Refer to applicable building codes for details.
- Static pressure drop through louvered openings and through return air plenums should be considered in the overall duct design in the determination of the total external static pressure.

Installation in a Garage

⚠ WARNING:

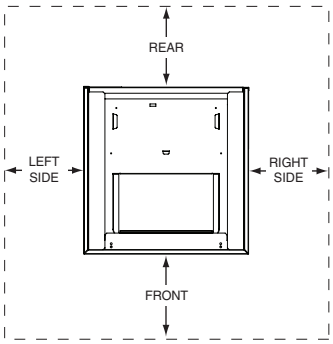
Do not place combustible materials on or against the cabinet. Do not place flammable materials, (gasoline, paint thinners, etc.) or any other flammable vapors and liquids, in the vicinity of the air handler.

The B65 Series air handler may be installed in a residential garage with the provision that the unit must be located or protected to prevent physical damage by vehicles.

Plenums & Air Ducts

- Plenums and air ducts should be installed in accordance with the standards of the National Fire Protection Association Standard for Installation of Air Conditioning Systems (NFPA 90A), Standard for Installation of Residence Type Warm Air Heating and Air Conditioning Systems (NFPA 90B), and all applicable local codes. NFPA publications are available by writing to: National Fire Protection Association, Batterymarch Park, Quincy, ME 02269 or visit www.NFPA.org online.

INSTALLATION CLEARANCES	
Left Side ..... 0 Inches	Right Side ..... 0 Inches
Back..... 0 Inches	Front .....†See Notes



†**NOTE:**

Alcove Installations - Allow 24 in. minimum clearance from front of unit to nearest wall or partition for servicing. Recommended clearance is 36 in.

Table 1. Minimum Unit Clearances

⚠ WARNING:

All return ducts must be secured to the air handler using appropriate methods. All return ducts must be adequately sealed. When return air is provided through the bottom of the unit, the joint between the air handler and the return air plenum must be air tight.

Return air and circulating air ducts must not be connected to any other heat producing device such as a fireplace insert, stove, etc. This may result in fire, explosion, carbon monoxide poisoning, personal injury, or property damage.

- Design the duct work according to methods described by the Air Conditioning Contractors of America (ACCA).
- This unit is designed only for use with a return and supply duct. The return air duct must have the same free area as the opening provided on the air handler. The ducts should be appropriately sized to the capacity of the air handler to ensure its proper airflow rating.
- Use transition fittings if the supply and/or return air openings of the unit do not match the duct openings. These transitions should be dimensioned in accordance with standard practice as specified in the ASHRAE recommendations for duct transitions.
- Flexible connectors may be used between the unit and the ductwork to prevent transmission of vibration from the unit to the structure. If electric heater kits are installed, heat resistant material must be used for the flexible connector at the supply air end of the unit.
- It is good practice to seal all connections and joints with industrial grade sealing tape or liquid sealant. Requirements for sealing ducts vary from region to region. Consult with local codes for requirements specific to your area.

Unconditioned Spaces

All duct work passing through unconditioned space must be properly insulated to minimize duct losses and prevent condensation. Use insulation with an outer vapor barrier. Refer to local codes for insulation material requirements.

Air Filters

B65 Series Air Handlers are not supplied with an air filter when shipped from the factory. The installer must provide a high velocity filter that is appropriately sized to the return air duct opening or filter rack located in the bottom of the unit. Accessing the filter does not require tools and can be removed from the front of the unit by removing the filter door. See Unit Maintenance (page 18) for filter sizes and installation information.

⚠ WARNING:

Never operate the air handler without a filter or with doors removed. Dust and lint can build up on internal components, resulting in loss of efficiency, equipment damage, and possible fire.

Acoustical Duct Work

- Certain installations may require the use of acoustical lining inside the supply duct work. Acoustical insulation must be in accordance with the current revision of the Sheet Metal

and Air Conditioning Contractors National Association (SMACNA) application standard for duct liners. Duct lining must be UL classified batts or blankets with a fire hazard classification of FHC-25/50 or less.

- Fiber duct work may be used in place of internal duct liners if the fiber duct work is in accordance with the current revision of the SMACNA construction standard on fibrous glass ducts. Fibrous duct work and internal acoustical lining must be NFPA Class 1 air ducts when tested per UL Standard 181 for Class 1 ducts.
- Damping ducts, flexible vibration isolators, or pleated media-style filters on the return air inlet of the air handler may be used to reduce the transmission of equipment noise eminating from the air handler. These treatments can produce a quieter installation, particularly in the heated space. However, they can increase the pressure drop in the duct system. Care must be taken to maintain the proper maximum pressure rise across the air handler, temperature rise and flow rate. This may mean increasing the duct size and/or reducing the blower speed. These treatments must be constructed and installed in accordance with NFPA and SMACNA construction standards. Consult with local codes for special requirements. For best sound performance, be sure to install all the needed gaskets and grommets around penetrations into the air handler, such as for electrical wiring.

AIR HANDLER INSTALLATION

⚠ WARNING:

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD Failure to follow safety warnings exactly could result in serious injury or property damage. Improper servicing could result in dangerous operation, serious injury, death or property damage. Before servicing, disconnect all electrical power to the equipment. When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly. Verify power operation after servicing.

⚠ CAUTION:

The air handler's coil must be level to ensure proper condensate drainage. An unleveled installation may result in structural damage, premature equipment failure, or possible personal injury.

B65 series air handlers are shipped ready for vertical upflow installation and are approved for attic, basement, alcove/closet or crawlspace installation with zero clearance to combustibles. See Table 1, (page 8) for required installation clearances. **This appliance is approved only for indoor use. If installing an electric heater kit, please refer to the installation instructions supplied with the kit for recommended duct clearances to combustibles.**

- The unit must be leveled at installation and attached to a properly installed duct system.
- The surface that the air handler is mounted on must provide sound physical support of the unit.
- The air handler must be installed so that all electrical components are protected from water.
- If a louvered door is installed across the front of this unit, the appliance must be mounted flush or behind front edge of finished wall.
- Always reinstall the doors on the air handler after servicing or cleaning/changing the filters. **Do not operate the air handler without all doors and covers in place.**

Packaging Removal

Remove the shipping carton and User's Manual from the equipment. When removing the crate, use extra care so tubing connections are not damaged. Do not pull on the coils upper tubes.

Mounting Applications

Vertical only air handlers are factory ready for upflow applications. These units may be applied in downflow applications when applied with the appropriate field kit.

Factory ready horizontal air handlers may be applied in upflow or horizontal-left and -right discharge applications. These units may also be applied in downflow discharge when applied with the appropriate field kit as specified in the units Technical Specifications.

Through-the-floor installations require a 1/4" thick noncombustible resilient gasket to be used whenever the supply or return air ducts pass through the floor. The gasket should be positioned between the duct, unit, and floor.

Upflow Installations

All air handlers are factory shipped, ready for upflow installation. The horizontal drain pan may be removed from the air handler when installing the unit in an upflow configuration. All return air must enter from the bottom of the unit. A typical upflow unit is shown in Figure 1 (page 10).

Downflow Installations

The downflow accessory kit (See Technical Specifications) is required for downflow applications. Instructions for installing the downflow accessory kit are included with the kit. It is recommended that the accessory be installed prior to installing the unit. All return air in downflow applications must enter through the top of the unit. A typical installation of the unit in a downflow application is shown in Figure 2 (page 10).
When these Nordyne air handlers are installed above false or drop ceiling areas, which are used as a return or supply plenum, and are the only HVAC unit utilizing that plenum, then no additional sensors are necessary or required to be added as long as the installation of these units is made in accordance with the instructions of this manual.
If more than one HVAC unit utilizes the open plenum – refer to the local codes to determine if additional sensors or actions are necessary.

Horizontal Installations

The B65 Series air handler can be installed horizontally in an attic, basement, crawl space or alcove. It can also be suspended from a ceiling in a basement or utility room in either a right to left airflow or left to right airflow as shown in Figure 3 (page 10). Air handlers may or may not be shipped from the factory with all the parts required for horizontal left applications and horizontal right applications. If your unit does not have parts for a horizontal application, a kit may be available.

NOTE 1: In all horizontal applications in which the unit is installed above a finished ceiling and/or living space, a secondary drain pan must be installed under the entire unit to avoid damage to the ceiling in the event of condensate overflow. Additionally, it is recommended that an approved water level indicator or float switch device be used to shut

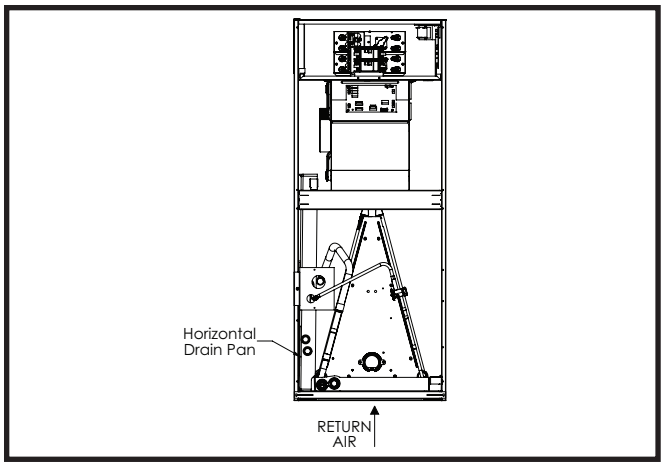


Figure 1. Upflow Installation

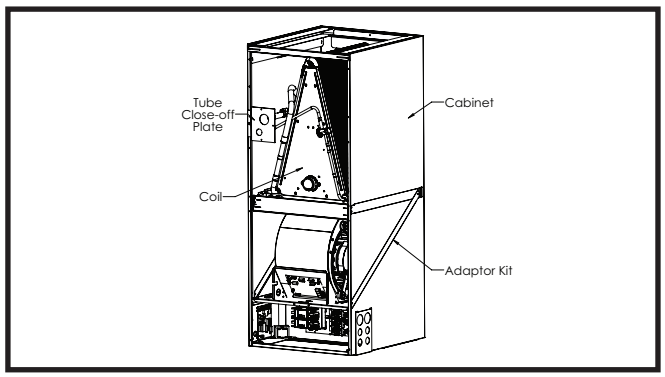


Figure 2. Downflow Installation

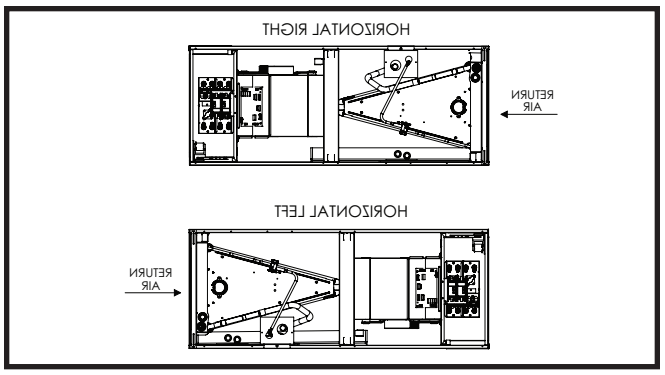


Figure 3. Horizontal Configurations

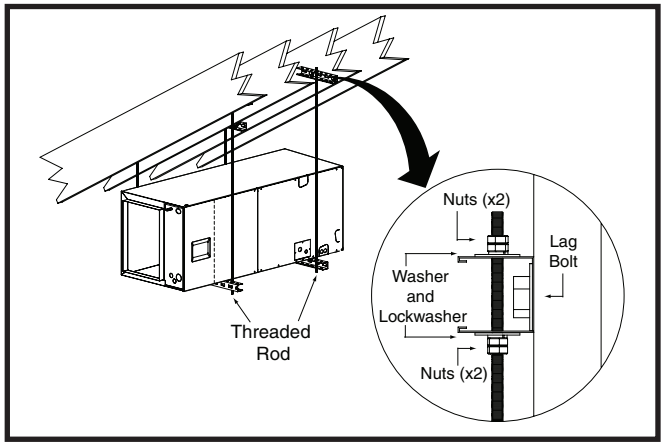


Figure 4. Unit Horizontally Suspended

down the unit in the event water is detected in the auxiliary drain pan.

NOTE 2: In horizontal right applications where the air handler is in a humid location in an unconditioned space, it is recommended to install a condensate shield kit over the control board.

If suspending the air handler from the ceiling, assemble a support frame (Figure 4) using slotted iron channel and full threaded rod. Fasten the frame together with nuts, washers, and lockwashers. Secure the support frame to the rafters with lag bolts. The air handler can also be suspended using steel straps around each end of the unit. The straps should be attached to the air handler with sheet metal screws and to the rafters with bolts.

Horizontal Left Installations:

1. Remove the coil access door.
2. Remove the plug from one of the threaded holes in the horizontal drain pan. Completely remove the webbing located in the threaded holes of the horizontal drain pan.

   IMPORTANT: If the webbing is not removed, the condensate will not drain properly and ceiling damage may occur.

3. Insert the plug (from horizontal drain pan) into the open and unused drain hole in the drain pan at the bottom of the unit to block bypass air.
4. Remove the corresponding drain line knockout from the coil access door to allow access to the horizontal drain.
5. Replace the door and attach the drain line.

Horizontal Right Installations:

1. Remove the coil access door. Unscrew the line-set tube close-off plate from the front left cabinet rail.
2. Slide the coil and drain pan assembly out of the unit.
3. Remove the sheet metal hairpin covers (if supplied) from the back of the coil and discard.
4. Place the horizontal drain pan on the opposite side of the coil. On units with 2 sets of knockouts, remove the other set of knockouts in the coil spacing plates and insert support rod.
5. Slide the coil and the horizontal drain pan assembly back into the unit. Re-attach the tube close off plate.

   NOTE: For A-size cabinet applications, it may be preferable to remove the blower assembly prior to installing the coil & drainpan. In this case follow instructions 1-4 as listed above but also remove the blower access door and blower assembly. The blower assembly is secured with two screws on either side near the front. With these removed the blower assembly can slide out of the front of the unit. Install the coil and drain pan as described in step 5 and then replace the blower assembly. Make sure the flanges on the sides of the blower assembly are captured by the pockets in the blower deck. It may be necessary to lift the blower assembly during insertion to allow the lower blower leg to clear the side of the drain pan. The blower will stop against the back of the blower deck. Replace the two screws and the blower access door and proceed with steps 6-9.

6. Remove the plug from one of the threaded holes in the horizontal drain pan. Completely remove the webbing located in the threaded holes of the drain pan.

   IMPORTANT: If the webbing is not removed, the condensate will not drain properly and ceiling damage may occur.

   NOTE: It is recommended that the suction line be insulated up to the coil inside of the cabinet.

7. Insert the plug (from horizontal drain pan) into the open

and unused drain hole in the drain pan at the bottom of the unit to block bypass air.

8. Remove the corresponding drain line knockout from the coil access door to allow access to the horizontal drain.
9. Replace the door and attach the drain line.

Circuit Breaker Cover Installation

The air handler circuit breaker cover is designed to protect the breakers of an installed heater kit from debris and condensation. The cover attaches to the breaker recess of the air handler upper access door using a double-sided adhesive gasket. See Figure 5. The heater kit circuit breaker toggles are still accessible and can be switched with the cover in place.

There are 2 different circuit breaker cover sizes:

- 2-breaker cover for 2, 2.5, 3, 3.5, & 4 ton air handlers.
- 3-breaker cover for 5 ton air handlers.

After the heater kit is properly installed, remove the appropriate knockouts in the upper air handler access door and follow these instructions to install the breaker cover:

1. Clean any oil, dirt, or insulation fibers from the recess area of the air handler access door. This step is important for ensuring the gasket adheres properly to the sheet metal door.
2. Remove release paper from one side of the gasket and attach to back side of the breaker cover. **NOTE:** For proper alignment, It is recommended to leave the center section of the gasket in place when attaching the gasket to the breaker cover. Remove the center section after the gasket is applied to the breaker cover.
3. Remove the release paper from the other side of the gasket and attach to the circuit breaker recess area.
4. Press firmly along all four sides of the cover to ensure gasket and cover are securely attached to the access door.

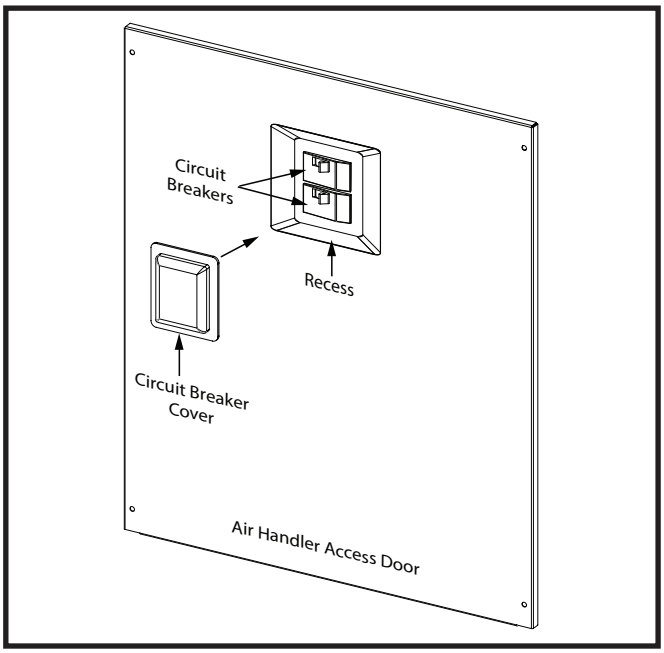
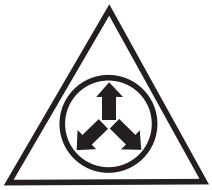
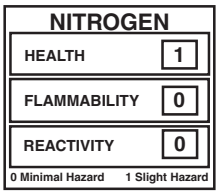


Figure 5. Circuit Breaker Cover

Refrigerant Line Connections

⚠ WARNING:





The coil in the air handler is factory shipped with a nitrogen charge. Avoid direct face exposure or contact with valve when gas is escaping. Always ensure adequate ventilation is present during the depressurization process. Address any uncertainties before proceeding. Failure to comply with this warning could result in equipment damage, personal injury, or death.

- The installer should make every effort to ensure the field installed refrigerant containing components of the system have been installed in accordance with these instructions and sound installation practices for reliable system operation and longevity.
- The air handler coil does not contain a refrigerant charge. Refer to the installation instructions supplied with the outdoor unit for refrigerant charge information.
- The refrigerant piping to each air handler (or coil) should be of equal length and size. Run the copper pipes from condensing unit to a point equidistant between the air handlers (or coils). Place a tee in the lines at this point. After the tee (as close to the air handler as practical), reduce the pipe size to match the piping of the air handler or coil.
- Always refer to the installation instructions supplied with the outdoor unit for piping requirements. The suction and liquid lines must be sized in accordance with the condensing unit specifications. See Figure 12 (page 22) for liquid and suction line locations.
- When connecting refrigerant linesets together, it is recommended that dry nitrogen be flowing through the joints during brazing. This will prevent internal oxidation and scaling from occurring.
- Refrigerant tubing should be routed in a manner that minimizes the length of tubing and the number of bends in the tubing. It should be supported in a manner that prevents it from vibrating or abrading during system operation. Tubing should be kept clean of foreign debris during installation.
- If precise forming of refrigerant lines is required, a copper tubing bender is recommended. Avoid sharp bends and contact of the refrigerant lines with metal surfaces.
- Refrigerant lines should be wrapped with pressure sensitive neoprene or other suitable material where they pass against sharp sheet metal edges.
- B65 Series air handlers are charged (with nitrogen) through service valves on the end of the liquid tube for each circuit. These must be removed before brazing the line sets.

Orifice Removal & Installation

The orifice installed in the air handler has been sized for use with the most popularly matched outdoor units. The orifice size as shipped from the factory is listed on the air handler rating plate. Perform steps 1-9 (page 12) to confirm that the orifice size meets the requirements outlined in the outdoor unit installation manual.

1. Remove the cap from the end of the liquid line.
2. Verify pressurization by depressing the Schrader valve on the end of the liquid line. Listen for any escaping gas. If there is no pressure, test the coil for leakage.
   If leakage is found, clearly mark the location of the leak and return the coil to the distributor for processing.
   If no leaks are found, the coil may be installed.
3. Depress the valve to relieve all pressure from the coil.
4. Remove and discard the valve core.

⚠ CAUTION:

To prevent damage to the unit or internal components, it is recommended that two wrenches be used when loosening or tightening nuts. Do not over tighten!

5. Using two wrenches, loosen the nut and distributor body as shown in Figure 6. Turn the assembly nut counter-clockwise until the orifice body halves are separated.
6. Insert a light-gauge wire hook between the distributor body and the restrictor orifice while being careful not to scratch either part. Carefully remove the restrictor orifice from the distributor body. See figure 7.
7. Check the actual size of the new orifice. NOTE: The size is stamped on its side. Do not use pin gauges to measure the orifice diameter.
8. Insert the new orifice into the distributor body, rounded end down. See Figure 8.

⚠ CAUTION:

To prevent damage to the unit or internal components, it is recommended that two wrenches be used when loosening or tightening nuts. Do not over tighten!

9. Realign the assembly nut on the distributor body and hand tighten both components. Mark a line on both bodies and then tighten an additional 1/4 turn using two wrenches. The movement of the two lines will show how much the nut is tightened. If a torque wrench is used, tighten to 10-12 ft. lbs. or 14-16 Nm.

Connecting the Linesets

IMPORTANT NOTES FOR HORIZONTAL OR DOWNFLOW INSTALLATIONS WITH TXV VALVE:

- **The sensing bulb must be located flush against the suction line for optimum heat transfer.**
- **Avoid attaching the sensing bulb to the lowest part of the suction line where condensate may accumulate.**
- **Do not locate the sensing bulb on vertical sections of the lineset.**
- **For horizontal lines, the bulb should not be located at 12 or 6 o'clock position of the suction line. The best location is at 4 or 8 o'clock.**
- **For additional information on proper sensing bulb locations, please refer to the valve manufacturer's instructions.**

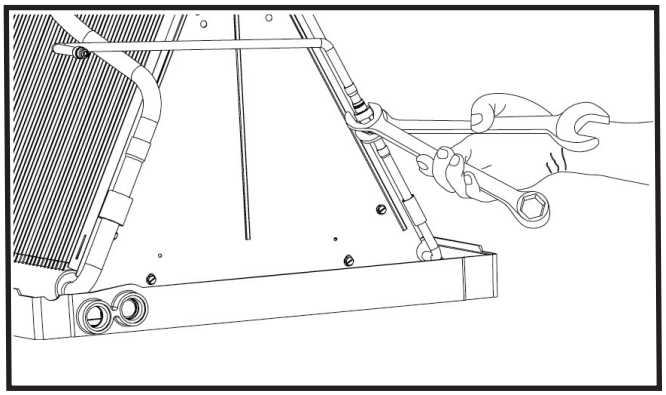


Figure 6. Loosening of Nut & Distributor Body

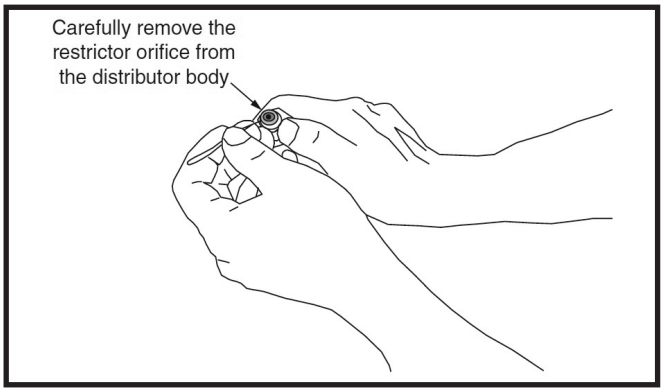


Figure 7. Restrictor Removal from Distributor Body

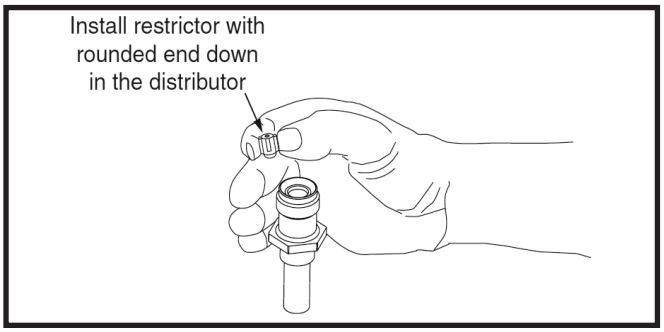


Figure 8. Installation Of New Orifice

1. Remove grommets from line set holes.

⚠ CAUTION:

It is recommended that a wet rag be wrapped around the suction line in front of the close off plate or the sensing bulb (if TXV is installed) before applying heat. Failure to keep components cool during brazing may result in structural damage, premature equipment failure, or possible personal injury.

2. Cut off the heat shrink and remove the plug from the suction line.
3. Route and cut both lineset tubes to proper length in accordance with the outdoor unit specifications. Verify the ends are round, clean, and free of any burrs.
4. Position grommet on line set with sufficient distance away from brazing area. Brazing processes can permanently damage grommets.
5. Connect the suction and liquid lineset tubes.

⚠ CAUTION:

It is recommended that a wet rag be wrapped around the suction line in front of the close off plate or the sensing bulb (if TXV is installed) before applying heat. Failure to keep components cool during brazing may result in structural damage, premature equipment failure, or possible personal injury.

6. Braze the individual connections with dry nitrogen flowing through the joints. **NOTE:** This will prevent internal oxidation and scaling from occurring.
7. Wrap the refrigerant lines with pressure sensitive neoprene or other suitable material especially where the lines enter the opening in the sheet metal.
8. Evacuate the system of moisture and non-condensables to prevent low efficiency operation or damage to the unit. The suggested range of evacuation is 350 - 500 microns.
9. Charge the system with refrigerant. Refer to the outdoor unit installation manual for additional charging instructions.
10. Check the system for leaks, including the lineset and the brazed joints.
11. Replace all grommets and properly dispose of all removed parts.

Condensate Drainage

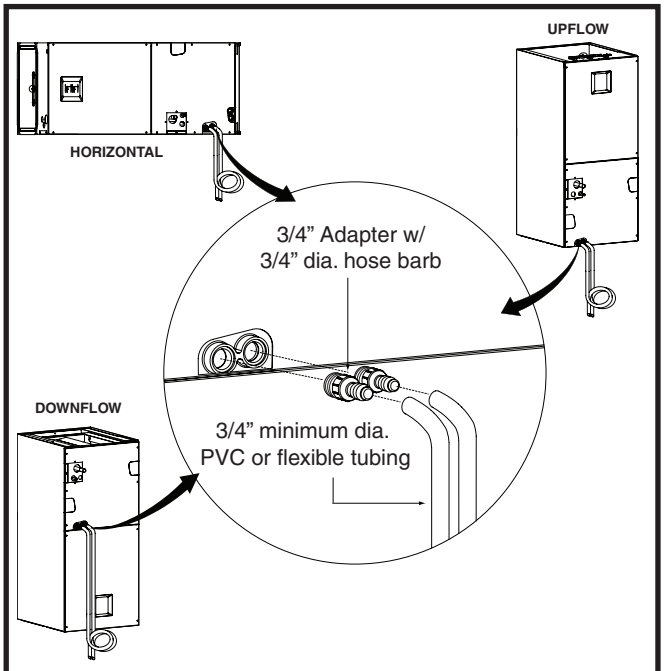
⚠ CAUTION:

The air handler must be level to ensure proper condensate drainage. An unlevel installation may result in structural damage, premature equipment failure, or possible personal injury.

- Methods for disposing of condensate vary according to local codes. Refer to local codes or authority having jurisdiction for restrictions and proper condensate disposal requirements.
- The drain pan that is supplied with this air handler contains a primary and secondary drain fitting. The condensate is drained from the unit through two 3/4" female pipe fittings located on the front side of the unit as shown in Figure 9.
- The drain pan must be drained with field supplied tubing or pvc pipe and adequately trapped. Both drain tubes must have a minimum diameter of 3/4" and be trapped separately.

  IMPORTANT: Failure to install a trap may result in condensation overflowing the drain pan, resulting in substantial water damage to surrounding area.

- Route both lines to a suitable drain, avoiding sharp bends and pinching of the lines. The drain should maintain a minimum horizontal slope in the direction of discharge of not less than 1" vertical for every 10 ft of horizontal run.



NOTES:
1. The drain lines must maintain a downward slope to ensure proper condensate drainage.
2. Each condensate drain must be trapped separately using a J-Trap or field supplied loop.

Figure 9. Condensate Drainage Example

- If the air handler is located in or above a living space where damage may result from condensate overflow, an auxiliary drain pan shall be installed under the unit. A separate drain line should extend from the pan to a conspicuous point and serve as an alarm indicating that the primary drain is restricted. As an alternative to a separate drain line, an approved water level indicator or float switch device may be used to shut down the unit in the event water is detected in the auxiliary pan.
- Install a single 5 inch trap in the condensate drain line as close to the coil as possible. Make sure that the top of the trap is below the bottom of the drain pan to prevent the condensate from overflowing the drain pan. NOTE: There must be only one trap in the drain line. Using more than one trap may prevent drainage.
- Prime the trap with water. Insulate the drain if it is located in an unconditioned space, and test the condensate line for leaks. Consult local codes for additional restrictions or precautions.
- During system checkout, inspect the drain line and connections to verify proper condensate drainage.

ELECTRICAL CONNECTIONS

⚠ WARNING:

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

Failure to follow safety warnings exactly could result in serious injury or property damage.

Improper servicing could result in dangerous operation, serious injury, death or property damage.

Before servicing, disconnect all electrical power to furnace.

- **Before servicing, disconnect all electrical power to the air handler.**
- **When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.**
- **Verify proper operation after servicing.**

- Electrical connections must be in compliance with all applicable local codes and ordinances, and with the current revision of the National Electric Code (ANSI/NFPA 70).
- For Canadian installations, the electrical connections and grounding shall comply with the current Canadian Electrical Code (CSA C22.1 and/or local codes).

Pre-Electrical Checklist

√ Verify the voltage, frequency, and phase of the supply source match the specifications on the unit rating plate.

√ Verify that the service provided by the utility is sufficient to handle the additional load imposed by this equipment.

√ Verify factory wiring is in accordance with the unit wiring diagram (Figure 27 (page 41), Figure 28 (page 42) or Figure 29 (page 43)). Make sure the connections didn't loosen during shipping or installation.

The sensor cable MUST be connected to the furnace or modular air handler that this coil is being installed with in order for it to be energized and protect the system against refrigerant leaks. Please follow the wiring diagram in Figure 11 or the copy of the wiring diagram supplied with the coil. You may also need to refer to the furnace or modular air handler's wiring diagram or installation instructions if necessary.

- The wiring diagram is shown with the sensor in the alarm state (Relays are in normally open state):
- Ensure that if an A2L sensor is not connected, the system will not operate.
- When a leak is detected, the double relay output sensor will switch both of the internal relays that are inside of the sensor. This will turn off the outdoor unit's compressor, turn on the indoor unit's blower, and output an alarm signal. The sensor must be wired into the indoor unit such that the indoor blower will energize the cooling speed set for the unit. Refer to minimum airflow requirements section for additional details..
- The blower will remain on for 5 minutes after the leakage is no longer detected. It is possible the blower will cycle on and off a few times if a small amount of leakage is present.
- Refrigerant sensors for refrigerant leak detection shall only be replaced with sensors specified by Nordyne.
- When the sensor reaches the end of its life, it will transition into fail-safe state and this state is irreversible. When triggered by end-of-life diagnostics, a simple power cycle will not recover the sensor, it will need to be replaced.
- The leak detection sensor is equipped with two LEDs, a red and a green one, offers a visual representation of the state the leak detector is currently operating in. Refer to Table 1 for LED indications.
- All soft-faults of the sensor can be reset with a power cycle.

⚠ WARNING:

Leak detection system installed. Unit must be powered except for service.

LEAK DETECTION SENSOR STATUS	LED	LED STATE
Power up Warm up	Green	On, steady
Normal Operation	Green	Heartbeat
Power Up Fail	Amber	On, steady
Near End Of Life	Green & Red	Blinking
End of Life Replace Sensor	Red	Blinking
Internal Diagnostic Fail *	Red	Blinking
DTLV Alarm	Red	On, steady
WARNING Out of Operating Range	Green & Amber	Heartbeat

* A power cycle on the sensor will be able to reset an internal sensor fault

LED PATTERN	ON-TIME	OFF-TIME
ON	100%	0%
Blinking	50%	50%
Heartbeat	20%	80%

When Blinking or for the Heartbeat, the LED's flash at approximately once per second.

Table 2. Leak Detection Sensor LED indications.

COMPLETING THE INSTALLATION

1. Verify that the drain pan is correctly located within the cabinet, all connections are tight, and all air gaps are sealed with duct seal.
2. The refrigerant joints between the lineset and indoor unit, and any other field-made refrigerant joints inside the home or building shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 300 psig. No leak shall be detected.
3. Evacuate the system of moisture and non-condensables to prevent low efficiency operation or damage to the unit. The suggested range of evacuation is 350 - 500 microns.
4. Charge the system with refrigerant. Please refer to the outdoor unit installation manual for additional charging 13 instructions. In addition to conventional charging procedures, the following requirements shall be followed:
   - Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.
   - Cylinders shall be kept in an appropriate position according to the instructions.
   - Ensure that the REFRIGERATING SYSTEM is earthed prior to charging the system with refrigerant.
   - Label the system when charging is complete (if not

already).

• Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

5. When pressure testing the indoor unit and lineset the test pressure should not exceed the factory test pressure of 500 psig.
6. Install the coil access door (if removed).
7. Properly dispose of all removed parts.
8. Apply power to the unit.

Line Voltage

- **An electrical disconnect must be located within sight of and readily accessible to the unit**. This switch shall be capable of electrically de-energizing the outdoor unit. See unit data label for proper incoming field wiring. Any other wiring methods must be acceptable to authority having jurisdiction.
- It is recommended that the line voltage to the unit be supplied from a dedicated branch circuit containing the correct fuse or circuit breaker for the unit.
- Overcurrent protection must be provided at the branch circuit distribution panel and sized as shown on the unit rating label and according to applicable local codes. See the unit rating plate.
- The installer should become familiar with the wiring diagram/ schematic before making any electrical connections to the unit. See the unit wiring label or Figure 27 (page 41), Figure 28 (page 42) or Figure 29 (page 43).
- Use only copper wire for the line voltage power supply to this unit. Use proper code agency listed conduit and a conduit connector for connecting the supply wires to the unit.
- If replacing any of the original wires supplied with the unit, the replacement wire must be copper wire consisting of the same gauge and temperature rating.
- Provide power supply for the unit in accordance with the unit wiring diagram, and the unit rating plate. Use UL listed conduit and conduit connectors for connecting the supply wires to the unit and for proper grounding. Field supplied bushings for the power supply cables must be added to support and protect the power supply cables.
- All 208/230 Volt units are shipped from the factory wired for 240 volt operation. For 208V operation, remove the lead from the transformer terminal marked 240V and connect it to the terminal marked 208V.

Thermostat Connections

- Thermostat connections shall be in accordance with the instructions supplied with the thermostat. The thermostat used with this equipment must operate in conjunction with any installed accessories. Typical AC and air handler hookups are shown in Figure 15 (page 32).

⚠ CAUTION:

Isolation must be maintained from the external Class 2 output of any transformer in a cooling circuit. Use a thermostat with isolating contacts to prevent inter-connection of Class 2 outputs.

- Where local codes require that the thermostat wiring must be routed through a conduit or raceway, splices can be made inside the unit; however, all wiring must be NEC Class 1 and separated from incoming power leads.
- The thermostat should be mounted about 5 feet above the floor on an inside wall. DO NOT install the thermostat on an outside wall or any other location where its operation may be adversely affected by radiant heat from fireplaces, sunlight, or lighting fixtures, and convective heat from warm air registers or electrical appliances. Refer to the thermostat manufacturer's instruction sheet for detailed mounting and installation information.
- Install the grommet, which is packed with the unit, in the hole for low-voltage wires. Properly connect the low-voltage wiring between the thermostat, outdoor unit, and control board. **NOTE:** When the low voltage wires are positioned in this grommet, the grommet will prevent chafing and/or shorting of the low voltage leads.

Grounding

⚠ WARNING:

The unit cabinet must have an uninterrupted or unbroken electrical ground to minimize personal injury if an electrical fault should occur. Do not use gas piping as an electrical ground!

This unit must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code (ANSI/NFPA 70) or the CSA C22.1 Electrical Code. Use the grounding lug provided in the control box for grounding the unit.

Control Board

The control board in the air handler controls the timing sequence of the elements. The board is equipped with a 3 second blower on delay and a 15 second blower off delay in heating and a 40 second blower off delay in cooling.
See Figure 25 or Figure 26 (page 40) and Table 13, (page 31) for control board modes and actions.

Twinning

These instructions are to be used when connecting two B65 air handlers (2-4 ton models) to a common single stage A/C condensing unit or heat pump. Twinning is possible for B65units with PSC or fixed speed (FSHE) motors. Twinning is not possible for units with variable (VSHE) speed motors. All low voltage wiring instructions, cautions, and warnings accompanying the air handler remain applicable, except for:

Line & Low Voltage Connections

a. The line voltage connections for both air handlers must be the same phase and on the same leg of power.
b. Low voltage wiring should be connected as shown in Figure 21 (page 38).
c. Wire all other low voltage thermostat terminals to both air handlers as shown in Figure 15 (page 32).

NOTE: If there is any other air moving device in the duct work, consult the factory for a resolution.

Heater Kits

When electric heat packages with circuit breakers are field-installed, the circuit breaker may be used as a disconnecting means in most applications. Reference the NEC and local codes for disconnect requirements.
If a heater kit is installed:
B65 air handlers are shipped from the factory without an electric heater kit installed. If electric heat is desired, a heater kit may be purchased separately and field installed.

Determine the correct size heater kit for your unit by referring to the heater kit installation instructions.

1. Connect the 2 wire plug of the air handler to the mating 2 wire plug of the heater kit.
2. Connect the line voltage leads to the circuit breaker or terminal block provided.
3. Connect the heater kit plug with the mating receptacle on the air handler control board.
4. Refer to Heater Kit Installation Instructions to determine if you need to replace a limit or add an air baffle.
5. Connect blue blower limit wires according to Heater Kit Installation Instructions and the corresponding Wiring Diagram.

If a heater kit is not installed:

1. Remove the 2 wire plug of the air handler by cutting the wires and discarding the plug.
2. Strip the ends of the 2 air handler wires and connect to the line-voltage leads with the 2 wire nuts provided.
3. Certain air handler models are equipped with blower limits as shown in Figure 21 (page 38). These are left unconnected if a heater kit is not installed.

Humidifier

The unit has an output to power a humidifier when the blower is running. This output is rated to 1.0 amp at 208/240V.

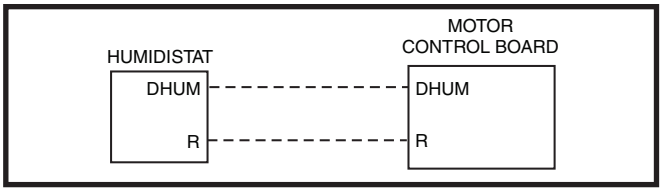


Figure 10. DHUM Wiring Configuration

Dehumidification Options

The motor control board has a **DHUM** or **D** connection that allows the system to increase the amount of humidity that is removed from the circulating air. See Figure 21 & Figure 22 (page 38) This is accomplished by reducing the CFM and allowing the cooling coil to become colder. This will only occur when there is a call for cooling. There are many ways that this can be electrically wired.

1. If the room thermostat incorporates a humidity sensor and **DHUM** output, connect the **DHUM** on the thermostat to the **D** terminal on the motor control board. See Figure 10.
2. If using a separate humidistat, connect the **DHUM** & **R** terminals on the humidistat to the **D** & **R** terminals on the motor control board of the air handler. In this option, the **DHUM** output of the humidistat must be set so it is only closed when there is a call for dehumidification.
3. If a humidistat is not available, it is an acceptable option to connect the **R** & **D** terminals on the motor control board together with a field supplied wire. This option causes the blower to run at a reduced CFM for 10 minutes after a call for cooling. **NOTE:** If outdoor unit is a heat pump, connect the **O** terminal to the **D** terminal.

Electronic Air Cleaner (EAC)

The unit has an output to power an electronic air cleaner when the blower is running. This output is rated to 1.0 amp at 208/240V. See Figure 22 (page 38) and Figure 23 and 24 (page 39).

STARTUP & ADJUSTMENTS

Before You Start the Unit

Prior to start-up, complete the following inspections:

√ Verify the unit is level and properly located with adequate clearances for servicing the unit as shown in Table 1, (page 8).
√ Check condensate drain line(s) for proper drainage.
√ Verify the surrounding area and top of the unit is free from obstructions and debris.
√ Check all duct connections. Make sure the duct work is adequately sealed to prevent air leakage.
√ Check all coil connections for leaks.
√ Verify that the line voltage power leads are securely connected and the unit is properly grounded. Make sure all doors are installed before restoring power to the unit
√ Verify the thermostat is wired correctly. Make sure all low voltage wires are securely connected.
√ Verify the power supply branch circuit overcurrent protection is sized properly.
√ Verify filter is properly and securely installed.

IMPORTANT: Before starting the unit, install the initial charge on units that are factory shipped with a nitrogen holding charge:

1. Read all installation instructions first.
2. Purge the nitrogen holding charge.
3. Evacuate the unit to 350 - 500 microns.
4. Allow the unit to remain under vacuum for at least 30 minutes.
5. Weigh in the proper amount of new (or reclaimed) refrigerant. Refer to the air conditioner or heat pump installation manual for the proper type and quantity of refrigerant.

Air Circulation

Running the Blower Continuously

Set the thermostat's system mode to **OFF** and the thermostat's fan mode to **ON**. The blower motor should run continuously. Check for air delivery at the register(s). Ensure that there are no obstructions at the registers or in the ducts.

Selecting Continuous Low Speed Fan Operation

(Standard Blower)

The air handler is equipped with an option of continuous low speed fan operation. When **G** is energized without **Y/Y2**, the air handler will operate using the cooling speed. With **G** & **Y/Y2** or **Y/Y2** energized, the air handler will operate in the selected cooling speed (including 40 sec blower-off delay).

Turning the Blower Off

Set thermostat's fan mode to **AUTO**, the blower will shut down immediately.

System Cooling

1. Set the thermostat's system mode to **COOL** and fan mode to **AUTO**. Lower the thermostat's temperature mode below room temperature and observe that the blower energizes. Check the air being discharged at the register is cooler than room temperature. Verify unit refrigerant pressures are in order. Blower should be turning in direction indicated by arrow.
   NOTE: DO NOT alter unit wiring. Listen for any unusual noises. Locate the source and correct as needed.
2. Allow the unit to run for several minutes and then set the thermostat's temperature above room temperature. Verify the blower cycles off with the thermostat.

System Heating

1. Set the thermostat's system mode to **HEAT** and the fan mode to **AUTO**. Increase the thermostat's temperature above room temperature and observe that the blower

energizes. Check the air being discharged at the register is warmer than room temperature.
2. Allow the unit to run for several minutes and then set the thermostat's temperature below room temperature. Verify the blower cycles off with the thermostat.

Selecting Minimum Electric Heat Airflow
The minimum electric heat airflow setting controls the minimum air flow that will be produced whenever electric heater kits are used. When the electric heater kit is energized along with a heat pump, the airflow may be higher depending on the basic cooling/heat-pump airflow setting. The minimum electric heat airflow is selected by the red blower wire on 3-speed models B65BM. The minimum electric heat airflow is selected by setting switches 1, 2, 3, & 4 on B65EM models. B65VM models automatically set the heating speed based on the amount of installed heat. The A/B switch must be set appropriately for the unit cabinet size. For C-sized cabinets, the A/B switch can be set in either position. The remaining 3 HEAT switches have no function. Switch settings are listed in Table 7, (page 25) or Table 11, (page 28).

NOTES:

- For B65EM Models, the minimum electric heat airflow setting may be set higher, but must never be set lower than the setting shown in Table 10, (page 27).
- Variable speed motor control boards do not support non-electric heat because the heating air flow cannot be set independently.

Blower Configurations

Determining Nominal System Capacity
To select the appropriate airflows for the air handler, the nominal system capacity must be known. The nominal system capacity is always the nominal capacity of the outdoor unit. However, in some situations the nominal system capacity may not be the same as the nominal capacity of the air handler. Always refer to the nominal capacity of the outdoor unit to determine the nominal system capacity. Use Table 7 (page 25) and Table 9 (page 26) as a guide for acceptable airflow CFM (dependent on air handler cabinet size and nominal capacity of the outdoor unit).

NOTE: The CFM values listed in Table 10, (page 27) are not dependent on duct static pressure. The VSHE motor automatically compensates for changes in duct static pressure (within the limits of the motor).

3-Speed Units
The blower speed is preset at the factory for operation at the same speed for heating and cooling, by using the jumping terminal on the blower motor and connecting it to the desired speed with both the red and black wires connected to the jumping terminal. NOTE: The control board is programmed with a 40 second off delay in the cooling mode for optimum system performance and efficiency.

⚠ CAUTION:

To avoid personal injury or property damage, make sure the motor leads do not come into contact with any uninsulated metal components of the unit

For optimum system performance and comfort, it may be necessary to change the factory set speed. See Table XX and Table XX (Page XX) for airflow data. To change the blower speed:

1. Disconnect all electrical power to the unit and remove the upper door.
2. Remove the black and red wires from the blower motor jumping terminal. Discard the blower motor jumping terminal.
3. Connect the heating speed wire (red) and the cooling speed wire (black) to the desired blower speed marked on the terminal block of the blower motor:
   Terminal 4 = Hi speed
   Terminal 5 = Med speed
   Terminal 6 = Low speed
4. Replace the upper door and secure it to the unit.
5. Restore power to the unit.

Before operation, the air handler must be configured to match the unit with the system, system options, and climatic conditions. During normal operation, the motor will gradually change speeds during start-up, shut down, when thermostat inputs change, and when the duct static pressure changes (vents closed or opened, filter clogging, etc.). The air handler is configured by setting the selector switches and removing jumper connectors.

High Efficiency Units (Variable & Fixed Speed)
IMPORTANT! This air handler has been designed to give the installer maximum flexibility to optimize system performance, efficiency, and comfort. Because there are so many different ways to set up the air handler it is important to read and follow these directions carefully.

B65EM & B65VM air handlers use high efficiency circulating air motors that come in two variations and both are controlled differently. The variable speed motor control board (Figure 26) controls the airflow at a constant CFM when paired with a separate control board. The fixed speed unit has a single integrated control board (Figure 25 (page 40)) that controls the torque of the motor.

Before operation, the air handler must be configured to match the unit with the system, system options, and climatic conditions. During normal operation, the motor will gradually change speeds during start-up, shut down, when thermostat inputs change, and when the duct static pressure changes (vents closed or opened, filter clogging, etc.). The air handler is configured by setting the selector switches and removing jumper connectors.

Basic Heating Airflow for Variable & Fixed Speed
Fixed & variable speed motor control boards (Figure 25 & Figure 26 (page 40)) contain a set of dip switches for setting the blower speed. For B65EM models, pins 1-4 set the speed for heating. For B65VM models, the A/B switch must be set for the appropriate cabinet size (either setting can be used for C-size cabinets). The airflow is set automatically based on the amount of installed heat. To determine the appropriate switch settings for your installation, see Table 7, (page 25), or Table 9, (page 26).

Basic Cooling / Heat Pump Airflow for Variable & Fixed Speed
The basic cooling/heat-pump airflow is controlled by setting switches 5 - 8 on the motor control board (mounted on the blower). All airflows for other modes of operation (except electric heat) are determined by this basic setting. FAN ONLY would deliver 50% of the selected cooling airflow. Table 11, (page 28) lists the CFM airflow values recommended for each nominal system capacity. To determine dip switch settings, refer to Table 7, (page 25) for FSHE applications and Table 10, (page 27) for VSHE applications.

- When operating in the heat pump mode, a higher basic airflow setting will increase the energy efficiency and capacity but will also decrease the supply air temperature.
- For maximum capacity and energy efficiency, select an

airflow at or near the top of the range for that nominal capacity. See Table 11, (page 28).
- For maximum dehumidification, select an airflow near the middle or bottom of the range for that nominal capacity. Additional information on humidity control can be found in the Dehumidication Options section on page 16.
- For thermostats with a dehumidifier output, use a field supplied wire to connect the thermostat's dehumidifier output to the terminal marked **DHUM**. The thermostat should be set so that the **DHUM** output should be high (energized) when dehumidification is needed. See also Dehumidification Options section.

IMPORTANT! If coil icing is observed, the basic cooling/heat-pump airflow selected may be too low. Verify the setting selected is within the range shown in Table 11 (page 28) and that the the system is properly charged. Please refer to the instructions supplied with the outdoor unit. If icing continues to occur, raise the selected airflow one or two steps.

NOTE: Variable speed air handlers with SEER ratings higher than 15 are matched with a 2-stage cooling outdoor unit. They are programmed to operate at 75% of the selected airflow while the system is in the lo-cool mode and 100% of the selected airflow while in hi-cool mode.

Units with an FSHE control scheme (B65EM) have a control board that includes a 7 segment display to help the installer identify what mode the air handler is running in as well as troubleshooting if the unit is not functioning properly. Table 3, contains a list of the codes that may appear on the 7 segment display. The display code will only show what mode the air handler is currently in. There is not a history of fault codes that have occurred in previous operation.

TROUBLESHOOTING

If the air handler fails to operate, check the following:
- Is the electric turned on?
- Is the thermostat operating properly?
- Are the blower compartment door(s) in place?
- Is the air handler disconnect closed?
- Has the circuit breaker tripped or the control board fuse burned open?
- Are any manual reset switches open?
- Is the filter dirty or plugged?
- Is the LED on both control boards constantly ON? If not, refer to Table 4 or Table 5 to determine fault condition.

DISPLAY CODE	CURRENT MODE
-	Standby is a Rotating Segment
C	Cooling Mode (Y input active)
H	Heating Mode (W input active)
F	Circulate Fan Mode (G input active)
d	Dehum Cooling Mode (DEHUM input active along with Y)
1	(one) A Motor Fault has Occurred (BMF active for more than 30 seconds)
t	(lower case t) Over Temperatures (The value of the TS input has exceeded 80C all outputs are stopped.)
L	Lockout (Ten (10) or more Motor Faults or Over Temperature events have occurred. All outputs are set to off for one hour.

Table 3. FSHE Motor Control Board Display Codes

RED LED (AN2)	DIAGNOSTIC
OFF	Control Fault (No Power)
Flash	Blower Fault
ON	Normal Operation

Table 4. Air Handler Control Board Fault Conditions

DIAGNOSTIC FAULT CONDITIONS FOR VARIABLE SPEED FURNACES	GREEN LED	RED LED
Control Fault (No Power)	Off	Off
Normal Operation	On	On
Motor Fault	On	Flash
Communications Fault	Flash	Flash

Table 5. VSHE Motor Control Board Display Codes

UNIT MAINTENANCE

Proper maintenance is most important to achieve the best performance from a air handler. Some of the components and their locations are shown in Figure 13 (page 23). If any component of the air handler must be replaced, use only factory authorized replacement parts specified in the Replacement Parts List provided online. Follow these instructions for years of safe, trouble free operation.

⚠ WARNING:

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

Failure to follow safety warnings exactly could result in serious injury or property damage.

Improper servicing could result in dangerous operation, serious injury, death or property damage.

- **Before servicing, disconnect all electrical power to the indoor blower.**
- **When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.**
- **Verify proper operation after servicing.**

⚠ CAUTION:

Do not operate the system without a suitable filter in the return air duct system. Always replace the filter with the same size and type.

- These maintenance instructions are primarily intended to assist qualified technicians experienced in the proper maintenance and operation of this appliance.
- Always reinstall the doors on the air handler after servicing or cleaning/changing the filters. **Do not operate the air handler without all doors and covers in place.**
- Verify that the thermostat is properly installed and is not being affected by drafts or heat from lamps or other appliances.
- To achieve the best performance and minimize equipment failure, it is recommended that a yearly maintenance checkup be performed. At a minimum, this check should include the following items:
- To ensure optimum performance and to minimize possible equipment failure, the following maintenance tasks should

be performed periodically on this equipment: Check the coil, drain pan, and condensate drain line for cleanliness at the start of each heating and cooling season. Clean as needed.

Air Filter(s) - B65 Series Air Handlers are not supplied with an air filter when shipped from the factory. It is recommended that the filter be cleaned or replaced every 4 to 6 months at a minimum. Newly built or recently renovated homes may require more frequent changing until the construction dust has minimized. Filter sizes shown in Table 6 are available at most local retailers.

⚠ WARNING:

Never operate the air handler without a filter in place. Dust and lint in the return air can build up on internal components, resulting in loss of efficiency, equipment damage, and possible fire.

Filters designed to remove smaller particles such as pollen, may require additional maintenance.

Blower Compartment - Dirt and lint can create excessive loads on the motor resulting in higher than normal operating temperatures and shortened service life. It is recommended that the blower compartment be cleaned of dirt or lint that may have accumulated in the compartment or on the blower and motor as part of the annual inspection.

CABINET SIZE	FILTER SIZE
A	12 x 20 x 1
B	18 x 20 x 1
C	20 x 20 x 1

Table 6. Filter Sizes

Blower Fan Wheel - Inspect the blower wheel blades for accumulations of dirt and clean if necessary. Inspect mounting nut for tightness when done.

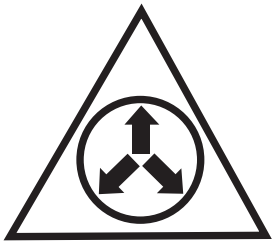
Blower Motor & Assembly - Inspect the blower assembly and motor mounting brackets for tightness and corrosion. Correct deficiencies if necessary. The blower motor contains sealed bearings and under normal operating conditions, no maintenance is necessary for the life of the equipment.

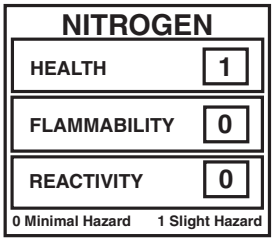
Cooling Coil - Inspect the cooling coil. drain pan, and condensate drain at the beginning of each cooling season for cleanliness. Clean these components as necessary using a mild detergent and water. After cleaning, flush the coil, drain pan, and condensate drain to remove all detergent.

IMPORTANT: Use caution when cleaning these components so that the insulation does not get wet.

REFRIGERANT CHARGING

⚠ WARNING:





The evaporator coil is shipped from the factory with a nitrogen charge. Use caution when preparing coils for field connections. If repairs make it necessary for evacuation and charging, it should only be attempted by qualified, trained personnel thoroughly familiar with this equipment. Some local codes require licensed installation service personnel to service this type of equipment. Under no circumstances should the equipment owner attempt to install and/or service this equipment. Failure to comply with this warning could result in equipment damage, personal injury, or death.

The system refrigerant charge can be checked and adjusted through the service ports provided at the front panel of the outdoor unit. Use only gauge lines which have a Schrader depression device present to actuate the valve.

REFRIGERANT RECOVERY

⚠ WARNING:

Recovering refrigerant involves breaking into the refrigerant circuit. It should only be attempted by qualified trained personnel thoroughly familiar with the equipment. Under no circumstances should the owner attempt to do this work. Failure to comply with this warning could result in property damage, person injury or death.

- When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
- When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
- The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.
- The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
- If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

DECOMMISSIONING

⚠ WARNING:

Decommissioning the system involves breaking into the refrigerant circuit. It should only be attempted by qualified trained personnel thoroughly familiar with this equipment. Under no circumstances should the owner attempt to do this work. Failure to comply with this warning could result in property damage, personal injury, or death.

- It is recommended good practice that all refrigerants are recovered when possible.
- Before decommissioning the system:
- Become familiar with the equipment and its operation.
- Take a sample of oil and refrigerant in case analysis is required prior to re-use of recovered refrigerant.
- Ensure that electrical power is available for use in the decommissioning operations
- Ensure that mechanical handling equipment is available, if required, for handling refrigerant cylinders
- Ensure that all personal protective equipment (PPE) is available and being used correctly.
- Ensure that the recovery process is supervised at all times by a competent person.
- Ensure that the recovery equipment to be used and refrigerant cylinders conform to the appropriate standards.
- Position the recovery cylinder on the scales before recovery of refrigerant begins.
- Procedure For Decommissioning System
  1. Isolate the system electrically.
  2. Pump down the refrigerant system, if possible.
  3. If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
  4. Start the recovery machine and operate it in accordance with its instructions. Refer to the Refrigerant Recovery section of this document for additional information.
  5. Do NOT overfill cylinders (no more than 80% volume liquid charge).
  6. Do NOT exceed the maximum working pressure of the cylinder, even temporarily.
  7. When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
  8. Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.
  9. Label the system stating that it has been decommissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are still labels on the equipment stating that the system contains flammable refrigerant to properly identify it.

A2L SYSTEM APPLICATION CHECKS

- In general, A2L HVAC systems are certified safe for use when installed in accordance with these instructions and the safety regulations for its proper use. It is important for installers and contractors to understand how this safety is achieved, as they are an integral part of ensuring that a safe environment is produced for the homeowner.
  The safety of an A2L HVAC system installation is primarily achieved by ensuring that any leaked refrigerant is dispersed in the environment and diluted to the point that it no longer constitutes a hazard. If allowed to properly disperse, then the leaked refrigerant will not be a fire hazard nor an exposure hazard to people in the home or their pets. By inspecting the home's layout and air distribution system, an accurate account of the conditioned space and equipment space can be determined in a simple fashion. A leakage of any A2L refrigerant should never be allowed to happen in a confined area. This section will expand on how to determine if a Nordyne A2L system is safe to use on your application.
  The information presented here, is only applicable to the following systems setups:
- Nordyne matched indoor coil and outdoor system
- Using R-454B refrigerant
- Residential and Low-Rise applications
- Ducted systems
- With Indoor Airflow rates of 300 – 500 scfm / ton of cooling
  This section of the document shall cover the items below and should be performed as part of the pre-installation process
- Conditioned Space Requirements
- Equipment Space Requirements
- Minimum Airflow Requirements

CONDITIONED SPACE REQUIREMENTS

Because this system contains an A2L refrigerant, the amount of refrigerant that can be used is limited by applicable safety standards and depends on the size of the conditioned space and what mitigation methods are being applied.

Determine the total conditioned space area. Inspect each room within the zone and look specifically for the location of supply and return registers in that room. Any room which has both a supply and return within it can be used in your calculations, assuming that the registers have a sufficient air volume to handle the cooling load in the room. However, most homes in North America do not have individual return registers in each room. Typically, they utilize a common return path for all connected spaces in a zone. In this case, it is important to determine which spaces are actually connected to the return path of the air distribution system. Rooms which contain only a supply register, do not have a transfer register or a return register, and are separated by a door which may be closed – should not be counted in the dilution area of the connected space. The floor area of these isolated rooms must not be counted when utilizing the charts below. Spaces separated by arched openings or door like passageways that do not contain an actual door may be counted in the dilution area if the duct registers have sufficient airflow to maintain the cooling load in that space. These charts are only to be used to account for the sum of conditioned area where the air is well mixed and freely connected by the supply and return air distribution system.

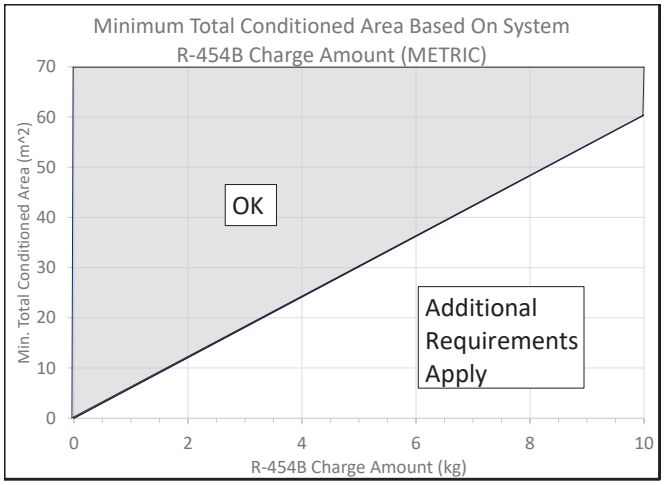
While the above statements may sound restrictive, in practice– it will be found that R-454B systems can normally be accommodated easily in North American homes. It is only the minority that should require any substantial remediation. A review of the charts below will demonstrate that 100 sq ft of space will accommodate up to 3.5 lbm of R-454B refrigerant safely. Most homes have a relatively open floor plan, and many have 500 square feet of floor space, well connected to the supply and return ducts. Regardless, the contractor/installer must survey each application and make the determination based upon its requirements and these instructions. Validate that the freely connected space meets the requirements of

Figure 12.

NOTE: These graphs are for R-454B only with a room height of 7.2 ft (2.2 m). This 7.2 ft (2.2 m) height is based on an 8 ft (2.4 m) ceiling in a space and accounts for the inclusion of furniture and other normal objects which may be present. These calculations can not be adjusted to account for higher ceiling heights per UL 60335 standard requirements.

It should be noted that based on the graph the minimum required floor area to adequately dilute 20 pounds of R-454B refrigerant is approximately 600 square feet. (9.1 kg and 55.8 m^2).

EQUIPMENT SPACE REQUIREMENTS



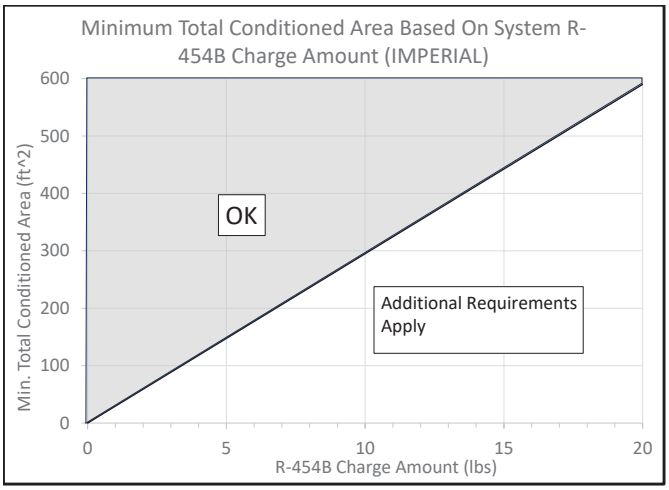


Figure 11. Minimum Total Conditioned Area Based on R-454B System Charge Amount

If the space where the indoor unit and this coil is installed is an unventilated space that is not connected to the conditioned space then additional inspections need to be made.
Inspect any other equipment that is installed near the HVAC system and ducting. For this evaluation, assume that any piping joint could be a potential refrigerant leak source in the future. Gas fired appliances like water heaters, driers etc. should be equipped with flame arrestors if they pull their combustion air from the space around them. Inspect all other household equipment in the same space. Ensure that they are safely configured for use around A2L equipment and piping. Electrical equipment that has contactors and relays which may cause electrical arcs should be looked at – sealed components are safe for use. Other qualifications may be equally acceptable.

Nordyne recommends that the portion of the lineset, located inside the structure to be joint-free, manufactured from one continuous length of piping. Nordyne has redesigned these coils so that the lineset connection is inside the air handler's casing where these joints can be protected by the factory installed refrigerant detector. Our detector will only detect leaks inside of the casing and duct system. If liquid refrigerant driers or other accessories are located indoors Nordyne recommends that they be relocated to the outdoors in order to minimize the number of brazed connections inside.

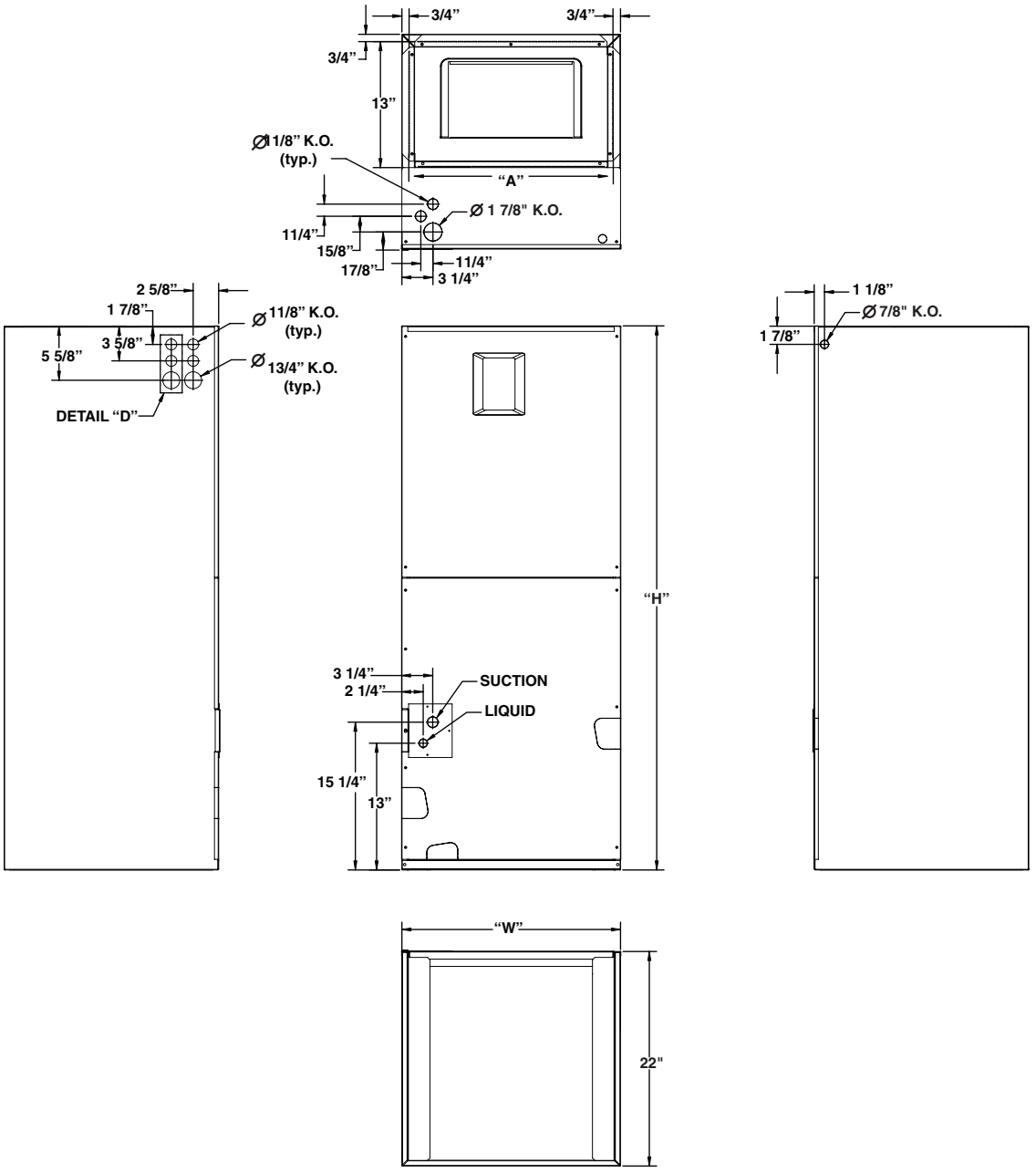
MINIMUM AIRFLOW REQUIREMENTS

All A2L refrigerant systems have a minimum airflow requirement. Nordyne systems, when wired according to our wiring diagrams, will energize the blower on the set cooling speed. This airflow will exceed the minimum airflow requirements. The G signal for a fan only call may not be sufficient and is not intended to be used with the Nordyne sensor.

SAFETY DETERMINATION CRITERIA

If both the equipment space inspection and conditioned space inspection are found to meet the requirements for the estimated equipment charge, then assuming that any other defect identified by the inspection is corrected during the install – the installation of A2L equipment for the application will be safe.

FIGURES & TABLES



CABINET SIZE	H	W	A	DETAIL D
A	43-5/16	14-3/16	12-3/4	No
B	43-5/16	19-11/16	18-1/4	No
Tall B	49-5/16	19-11/16	18-1/4	No
C	55-15/16	22-7/16	21	Yes

Figure 12. B65 Series Physical Dimensions

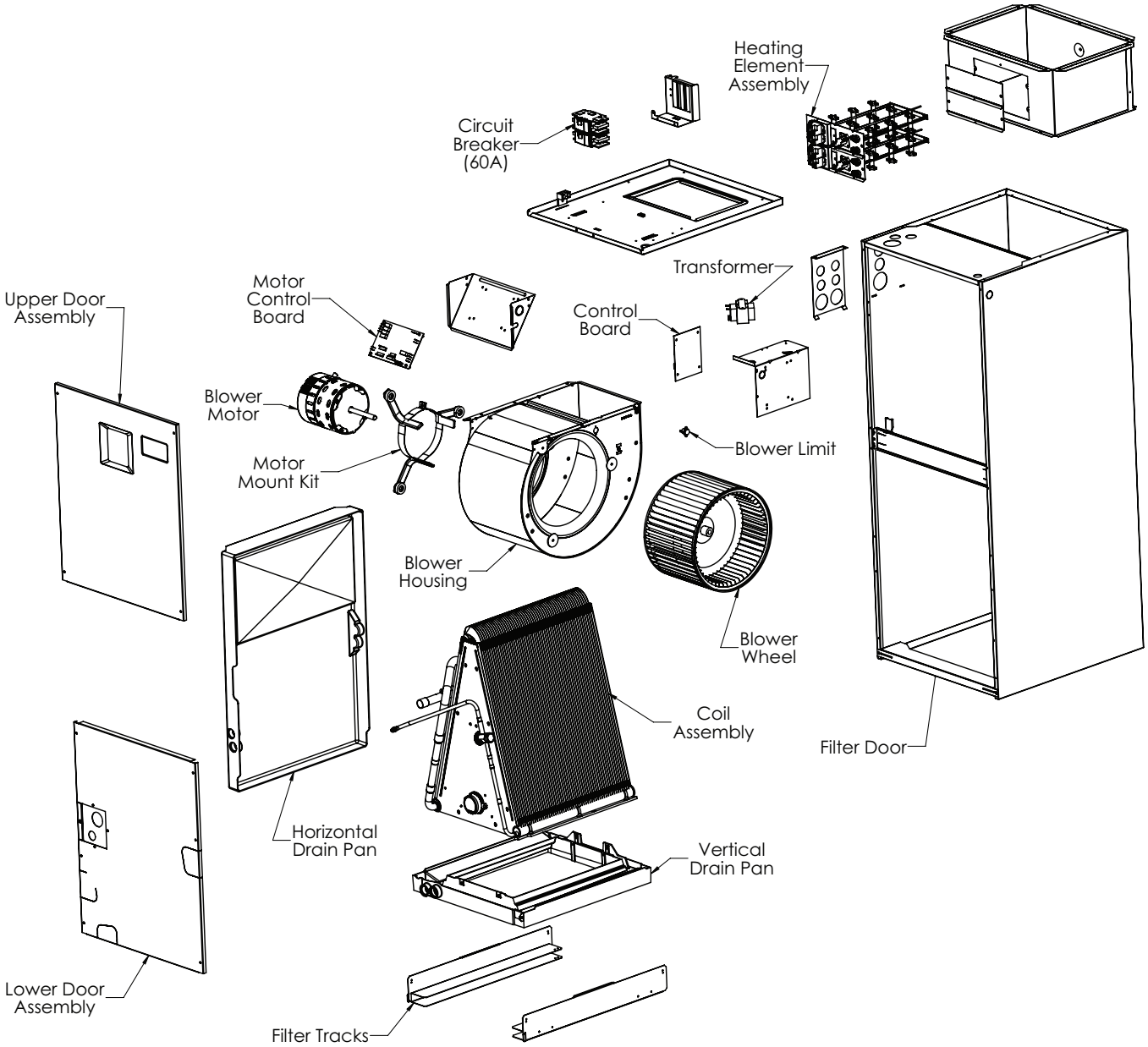


Figure 13. B65(E,V)M Air Handler Components

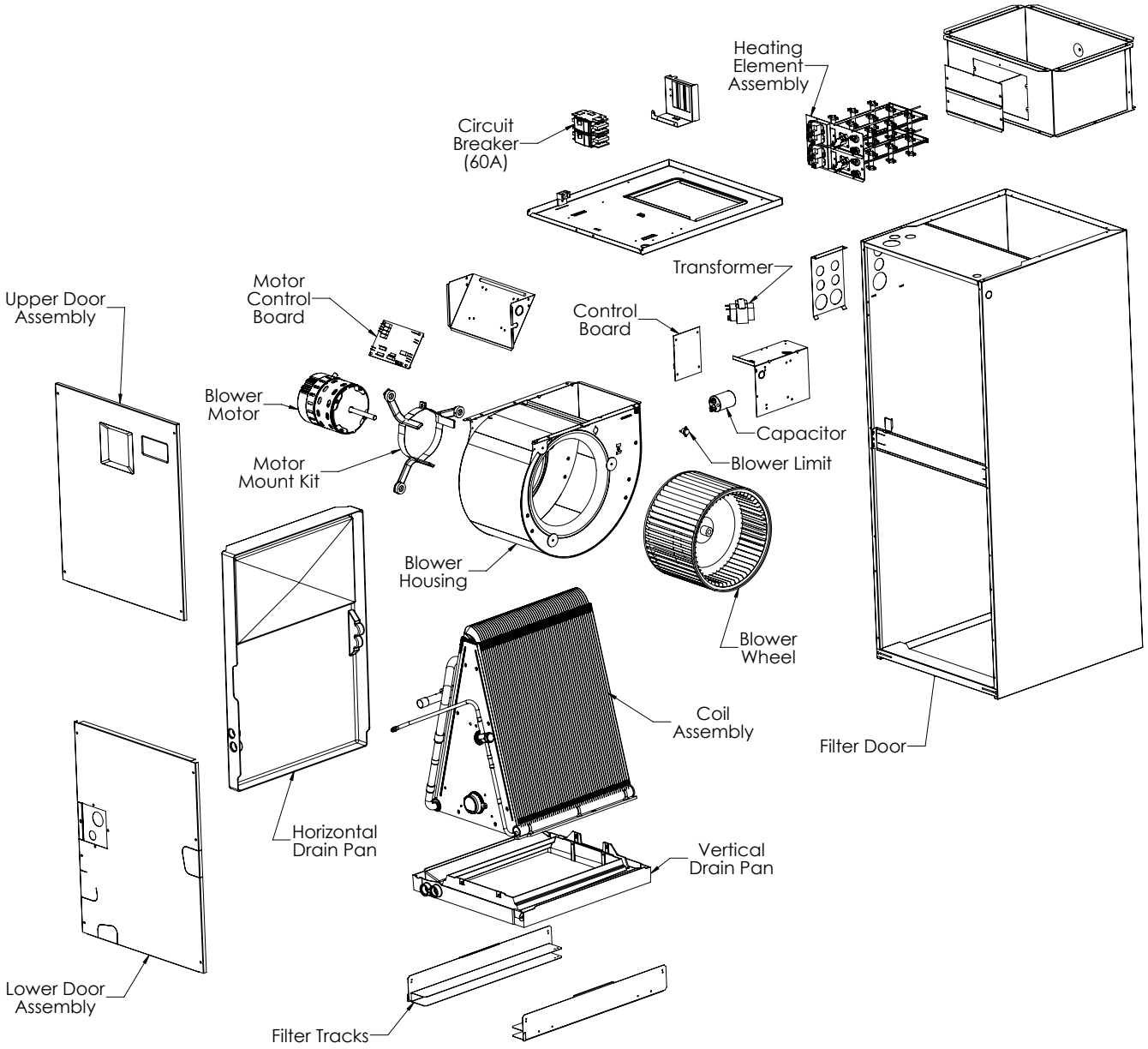


Figure 14. B65BM Air Handler Components

Airflow Data

	SWITCH SETTINGS 0 = OFF, 1 = ON				COOLING OR HEATING AIRFLOW (CFM) DRY COIL ESP							
	1/5	2/6	3/7	4/8	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
B65EM C-CABINET	0	0	0	0	710	580	395	-	-	-	-	-
	1	0	0	0	830	690	675	530	505	-	-	-
	0	1	0	0	930	875	710	665	560	530	-	-
	1	1	0	0	1065	1015	900	840	800	705	665	635
	0	0	1	0	1185	1115	1010	960	925	875	830	745
	1	0	1	0	1275	1220	1175	1120	1060	970	930	890
	0	1	1	0	1365	1350	1255	1200	1150	1105	1060	1025
	1	1	1	0	1480	1430	1370	1325	1265	1225	1185	1140
	0	0	0	1	1560	1535	1485	1430	1375	1335	1285	1240
	1	0	0	1	1650	1600	1545	1500	1450	1405	1360	1305
	0	1	0	1	1730	1685	1660	1610	1570	1520	1470	1420
	1	1	0	1	1785	1740	1695	1645	1615	1545	1510	1470
	0	0	1	1	1865	1820	1785	1750	1695	1655	1605	1560
	1	0	1	1	1920	1890	1850	1805	1765	1715	1675	1640
	0	1	1	1	2010	1965	1960	1900	1850	1810	1775	1730
	1	1	1	1	2065	2020	1985	1955	1915	1880	1840	1810

B65EM (FSHE) Airflow Data

Table 7. B65EM (FSHE) Airflow Data

Airflow Data

DRY COIL ESP		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
*18K A-CABINET	Low	740	694	642	584	520	451	375	294
	Medium	913	873	825	768	702	628	545	453
	High	1064	1007	946	879	808	732	651	566
*24K A-CABINET	Low	907	879	844	802	755	700	639	572
	Medium	1286	1222	1156	1090	1022	953	882	811
	High	1362	1293	1224	1153	1082	1010	938	864
*24K B-CABINET	Low	865	855	839	818	790	756	717	671
	Medium	1525	1498	1462	1417	1362	1298	1224	1141
	High	1846	1779	1709	1635	1557	1474	1388	1298
*30K B-CABINET	Low	980	929	872	809	738	661	578	488
	Medium	1278	1224	1162	1093	1016	930	837	737
	High	1415	1351	1282	1207	1126	1040	948	851
*36K B-CABINET	Low	1270	1244	1210	1171	1125	1072	1013	948
	Medium	1448	1406	1360	1309	1253	1193	1129	1059
	High	1628	1571	1510	1445	1376	1303	1226	1146
*42K C-CABINET	Low	1774	1731	1675	1607	1527	1434	1330	1213
	Medium	1950	1882	1807	1723	1631	1531	1423	1306
	High	2052	1976	1893	1803	1706	1603	1492	1374
*48K C-CABINET	Low	1828	1770	1703	1628	1543	1450	1349	1238
	Medium	1987	1909	1825	1735	1640	1539	1433	1321
	High	2051	1967	1879	1787	1690	1590	1485	1376

NOTES:
1 Airflow is shown in SCFM, +/- 5%.
2 External static pressure (ESP) is shown in inches w.c.
3 See unit nameplate or installation instructions for maximum recommended external static pressure.

Table 8. B65BM Airflow Data With Horizontal Drain Pan.

DRY COIL ESP		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
*18K A-CABINET	Low	760	722	676	622	561	492	414	330
	Medium	975	936	888	833	770	698	619	531
	High	1152	1100	1042	979	911	837	757	672
*24K A-CABINET	Low	876	858	835	806	771	730	683	630
	Medium	1470	1412	1351	1286	1218	1146	1071	993
	High	1610	1538	1463	1385	1304	1220	1134	1044
*24K B-CABINET	Low	817	816	808	794	774	748	716	678
	Medium	1478	1470	1453	1425	1387	1338	1280	1211
	High	1899	1853	1801	1740	1672	1597	1514	1423
*30K B-CABINET	Low	984	932	875	812	744	671	592	508
	Medium	1309	1254	1191	1123	1047	966	877	782
	High	1465	1407	1343	1271	1192	1105	1011	910
*36K B-CABINET	Low	1224	1202	1174	1141	1103	1060	1012	959
	Medium	1402	1379	1350	1315	1273	1224	1169	1107
	High	1599	1563	1521	1474	1420	1360	1294	1222
*42K C-CABINET	Low	1722	1703	1671	1627	1571	1502	1421	1327
	Medium	2043	1982	1913	1837	1753	1662	1564	1458
	High	2239	2158	2070	1975	1874	1766	1652	1531
*48K C-CABINET	Low	1774	1748	1711	1661	1601	1528	1444	1348
	Medium	2080	2036	1982	1918	1844	1761	1668	1565
	High	2319	2242	2160	2072	1979	1881	1778	1669

NOTES:
1 Airflow is shown in SCFM, +/- 5%.
2 External static pressure (ESP) is shown in inches w.c.
3 See unit nameplate or installation instructions for maximum recommended external static pressure.

Table 9. B65BM Airflow Data Without Horizontal Drain Pan.

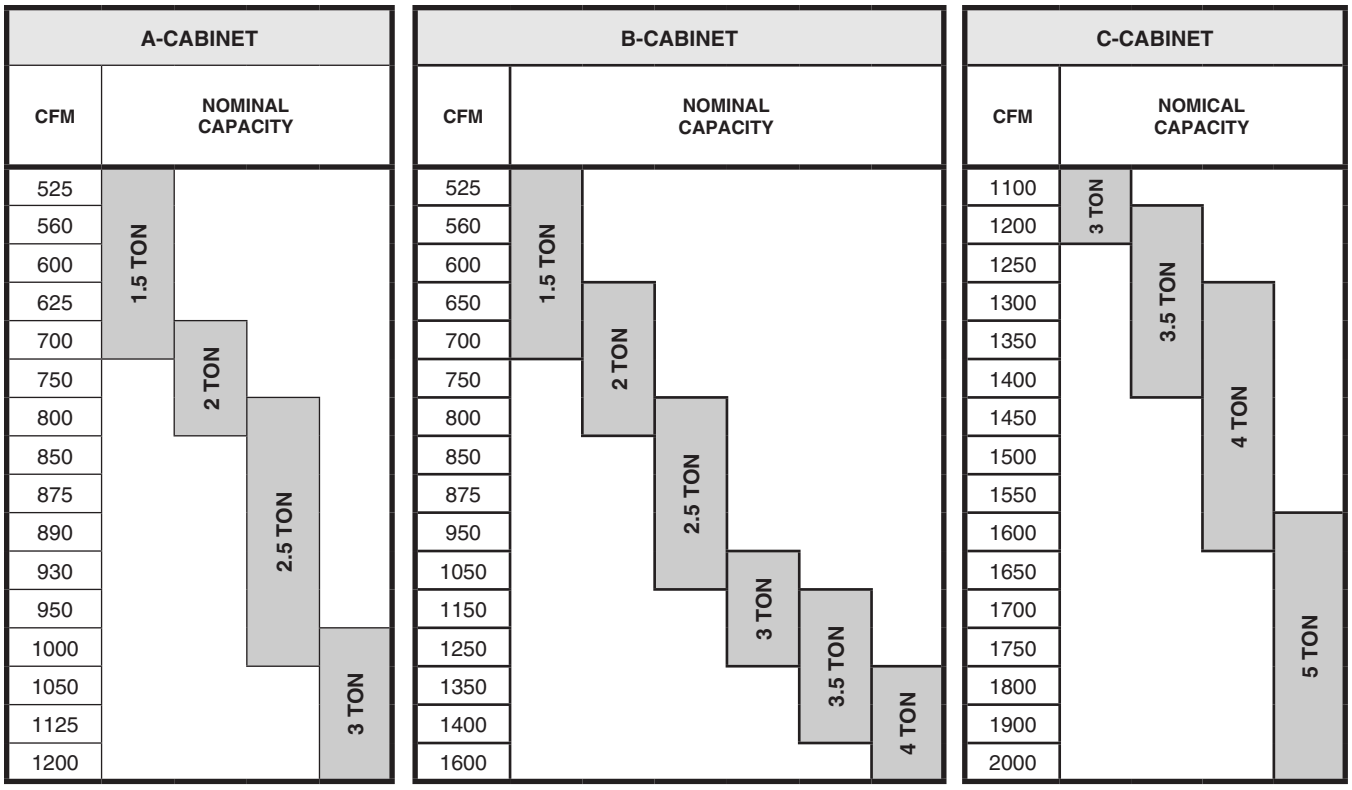


Table 10. Recommended Cooling Airflow Settings

B65VM A-CABINET

COOLING AIRFLOW					
A/B SWITCH SETTING 0 = OFF, 1 = ON	COOL SWITCH SETTING 0 = OFF, 1 = ON				AIRFLOW (CFM)
	5	6	7	8	
0	0	0	0	0	525
0	0	0	0	1	560
0	0	0	1	0	600
0	0	0	1	1	625
0	0	1	0	0	700
0	0	1	0	1	750
0	0	1	1	0	800
0	0	1	1	1	850
0	1	0	0	0	875
0	1	0	0	1	890
0	1	0	1	0	930
0	1	0	1	1	950
0	1	1	0	0	1000
0	1	1	0	1	1050
0	1	1	1	0	1125
0	1	1	1	1	1200

HEATING AIRFLOW		
A/B SWITCH SETTING 0 = OFF, 1 = ON	HEATER KIT INSTALLED (KW)	AIRFLOW (CFM)
0	0	600
0	5	800
0	8	1000
0	10	1000
0	15	1300
0	20	n/a
0	25	n/a

B65VM B-CABINET

COOLING AIRFLOW					
A/B SWITCH SETTING 0 = OFF, 1 = ON	COOL SWITCH SETTING 0 = OFF, 1 = ON				AIRFLOW (CFM)
	5	6	7	8	
1	0	0	0	0	525
1	0	0	0	1	560
1	0	0	1	0	600
1	0	0	1	1	650
1	0	1	0	0	700
1	0	1	0	1	750
1	0	1	1	0	800
1	0	1	1	1	850
1	1	0	0	0	875
1	1	0	0	1	950
1	1	0	1	0	1050
1	1	0	1	1	1150
1	1	1	0	0	1250
1	1	1	0	1	1350
1	1	1	1	0	1400
1	1	1	1	1	1600

HEATING AIRFLOW		
A/B SWITCH SETTING 0 = OFF, 1 = ON	HEATER KIT INSTALLED (KW)	AIRFLOW (CFM)
1	0	700
1	5	900
1	8	1100
1	10	1100
1	15	1300
1	20	1500
1	25	n/a

B65VM C-CABINET

COOLING AIRFLOW					
A/B SWITCH SETTING (* = EITHER 0 OR 1)	COOL SWITCH SETTING 0 = OFF, 1 = ON				AIRFLOW (CFM)
	5	6	7	8	
*	0	0	0	0	1100
*	0	0	0	1	1200
*	0	0	1	0	1250
*	0	0	1	1	1300
*	0	1	0	0	1350
*	0	1	0	1	1400
*	0	1	1	0	1450
*	0	1	1	1	1500
*	1	0	0	0	1550
*	1	0	0	1	1600
*	1	0	1	0	1650
*	1	0	1	1	1700
*	1	1	0	0	1750
*	1	1	0	1	1800
*	1	1	1	0	1900
*	1	1	1	1	2000

HEATING AIRFLOW		
A/B SWITCH SETTING (* = EITHER 0 OR 1)	HEATER KIT INSTALLED (KW)	AIRFLOW (CFM)
*	0	800
*	5	1000
*	8	1200
*	10	1200
*	15	1400
*	20	1600
*	25	1800

NOTES:

- Airflow values listed are for 240V operation. For 208V operation, multiply A & B cabinet values by .95; for C-cabinet values mulitply by .90
- When matched with two-stage outdoor units the airflow on low (Y1 or W1) input only will be 70% of the values shown in this table.

Table 11. B65VM (VSHE) Airflow Data

CONTROL SIGNAL & MODE	OPERATION	TOTAL KW	BOARD ACTION
W1 ONLY EHEAT	ON	5 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
		8 KW, 10 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
		15 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
			Stage 2 Heat on after 5 second delay
		20 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
			Stage 2 Heat on after 5 second delay
			Stage 3 Heat on after 10 second delay
		25 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
			Stage 2 Heat on after 5 second delay
			Stage 3 Heat on after 10 second delay
	OFF	—	Heat stages off instantly
			Blower off after 15 second delay
W1 & W2 EHEAT	ON	5 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
		8 KW, 10 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
		15 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
			Stage 3 Heat on after 10 seconds delay
		20 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
			Stage 3 Heat on after 10 seconds delay
			Stage 4 Heat on after 15 seconds delay
		25 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
			Stage 3 Heat on after 10 seconds delay
			Stage 4 Heat on after 15 seconds delay
			Stage 5 Heat on after 20 seconds delay
	OFF	—	Heat stages off instantly
			Blower off after 15 second delay

Table 12. B65(E,V)M Control Board Operation

CONTROL SIGNAL & MODE	OPERATION	TOTAL KW	BOARD ACTION
W1 & Y/Y2 AUX HEAT	ON	5 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
		8 KW, 10 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
		15 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
		20 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
			Stage 3 Heat on after 10 seconds delay
		25 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
			Stage 3 Heat on after 10 seconds delay
	OFF	—	Heat stages off instantly
			Heat blower turns off after 40 second delay
W1, W2 & Y/Y2 AUX HEAT	ON	5 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
		8 KW, 10 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
		15 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
			Stage 3 Heat on after 30 seconds delay
		20 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
			Stage 3 Heat on after 10 seconds delay
			Stage 4 Heat on after 15 seconds delay
		25 KW	Stage 1Heat on instantly
			Cool blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
			Stage 3 Heat on after 10 seconds delay
			Stage 4 Heat on after 15 seconds delay
			Stage 5 Heat on after 20 seconds delay
	OFF	—	Heat stages off instantly
			Heat blower turns off after 40 second delay
G FAN	ON	—	Fan blower on after 3 second delay
	OFF	—	Fan blower off instantly
Y/Y2 HEAT PUMP & COOL	ON	—	Cool blower on after 3 second delay
	OFF	—	Cool blower off after 40 second delay
Y1 HEAT PUMP & COOL	ON	—	Cool blower on after 3 second delay
	OFF	—	Cool blower off after 40 second delay
Y1 & Y/Y2 HEAT PUMP & COOL	ON	—	Cool blower on after 3 second delay
	OFF	—	Cool blower off after 40 second delay

Table 12. B65(E,V)M Control Board Operation - Continued

CONTROL SIGNAL & MODE	OPERATION	TOTAL KW	BOARD ACTION
W1 ONLY EHEAT	ON	5 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
		10 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
		15 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
			Stage 2 Heat on after 5 second delay
		20 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
			Stage 2 Heat on after 5 second delay
			Stage 3 Heat on after 10 second delay
		25 KW	Stage 1 Heat on instantly
			Heat blower on after 3 second delay
			Stage 2 Heat on after 5 second delay
			Stage 3 Heat on after 10 second delay
	OFF	—	Heat stages off instantly
			Blower off after 15 second delay
W1 & Y AUX HEAT	ON	5 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
		10 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
		15 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
		20 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
			Stage 3 Heat on after 10 seconds delay
		25 KW	Stage 1 Heat on instantly
			Cool blower on after 3 second delay
			Stage 2 Heat on after 5 seconds delay
			Stage 3 Heat on after 10 seconds delay
	OFF	—	Heat stages off instantly
			Heat blower turns off after 40 second delay
G FAN	ON	—	Fan blower on after 3 second delay
	OFF	—	Fan blower off instantly
Y1 HEAT PUMP & COOL	ON	—	Cool blower on after 3 second delay
	OFF	—	Cool blower off after 40 second delay

Table 13. B65BM Control Board Operation

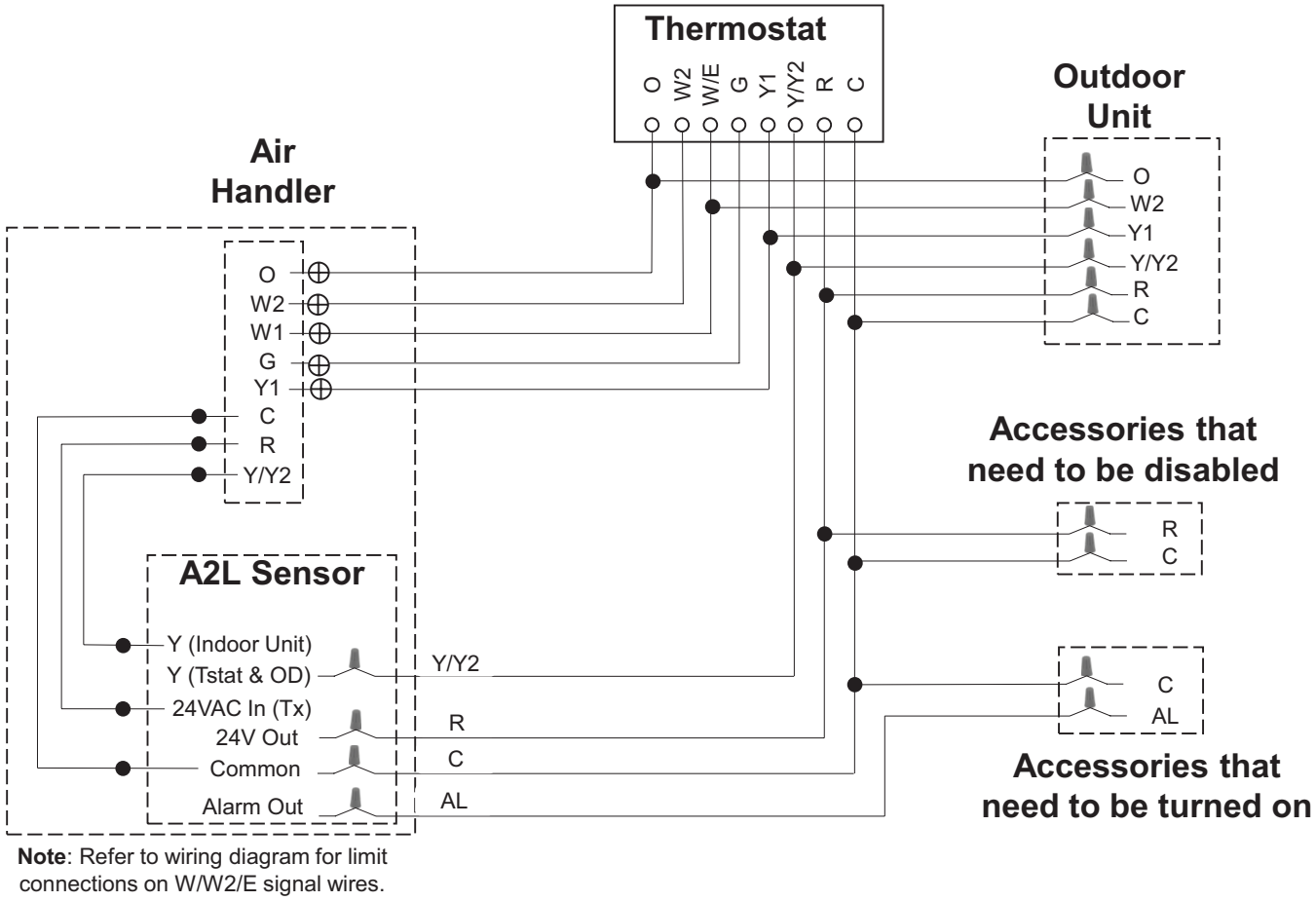


Figure 15. Typical two-stage air handler with two-stage heat pump.

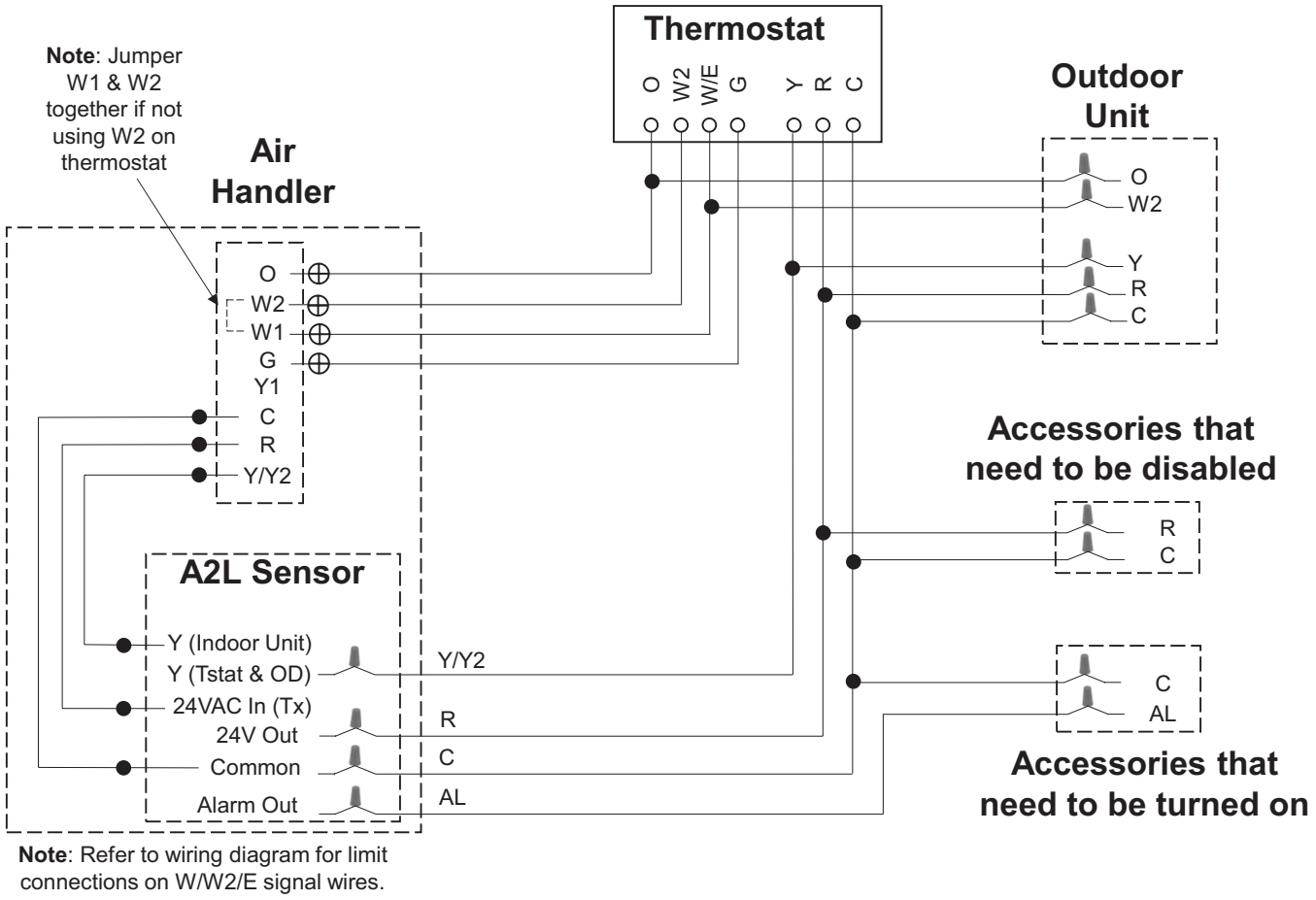


Figure 16. Typical two-stage air handler with single-stage heat pump.

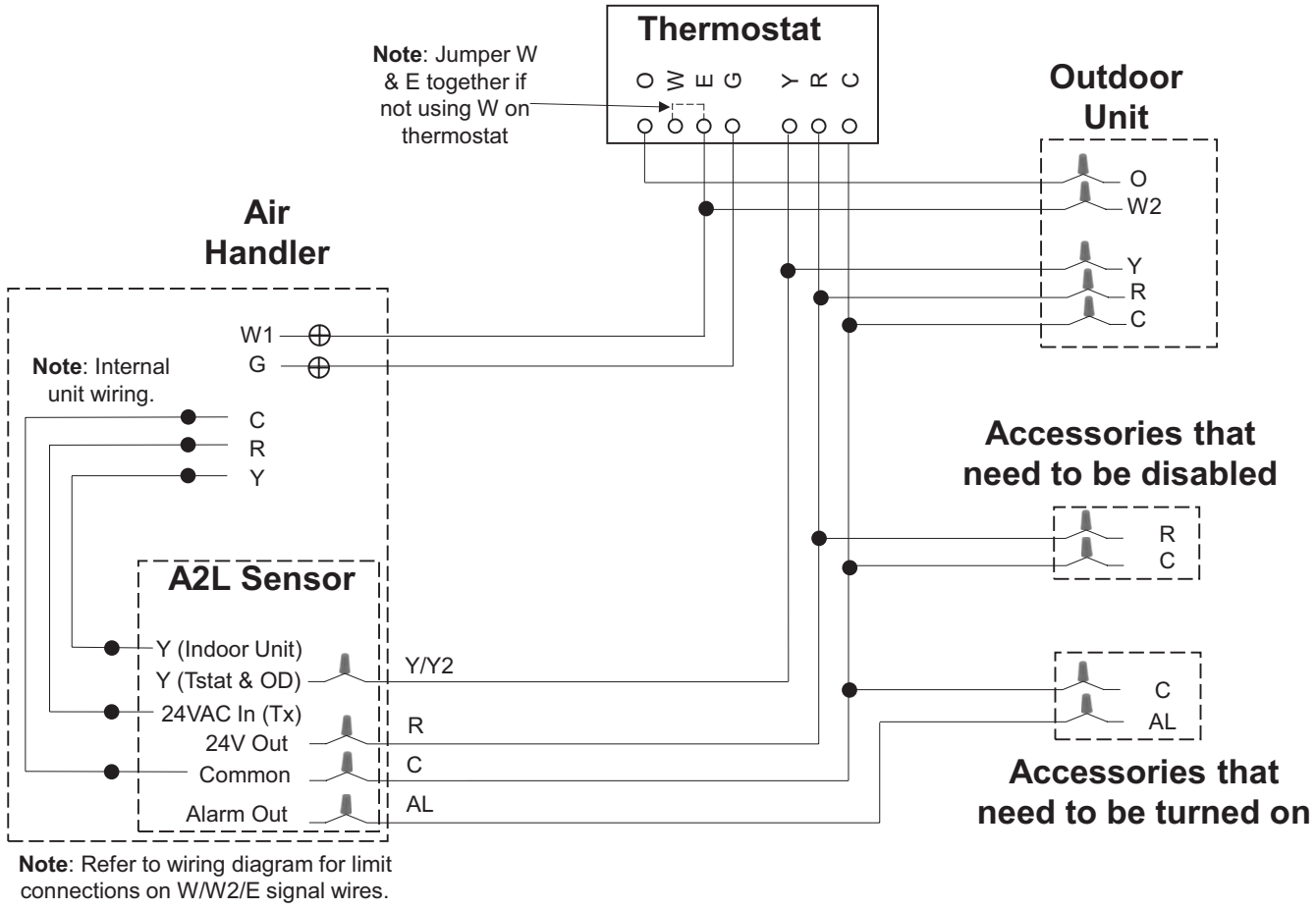


Figure 17. Typical single-stage air handler with single-stage heat pump.

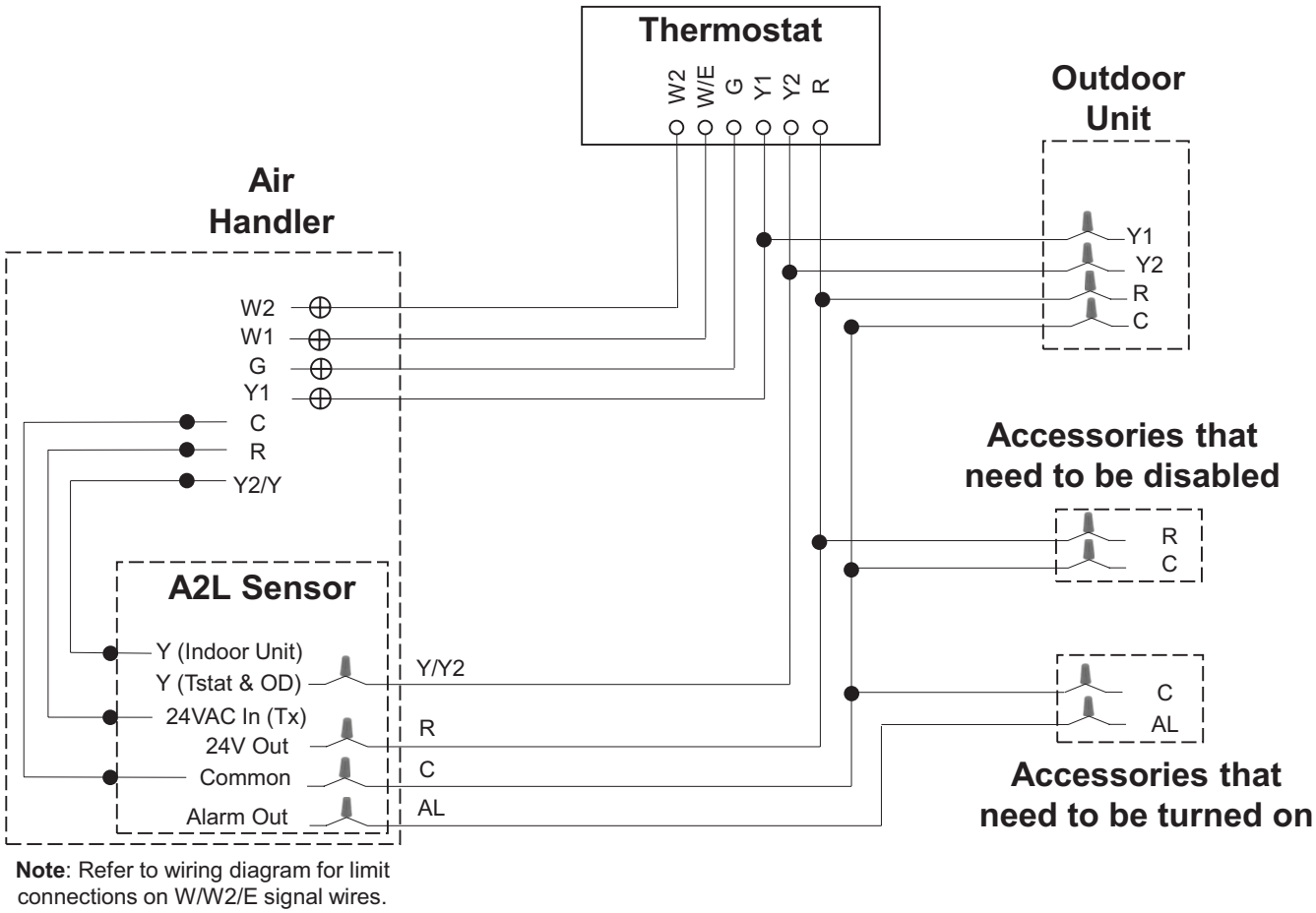


Figure 18. Typical two-stage air handler with two-stage air conditioner.

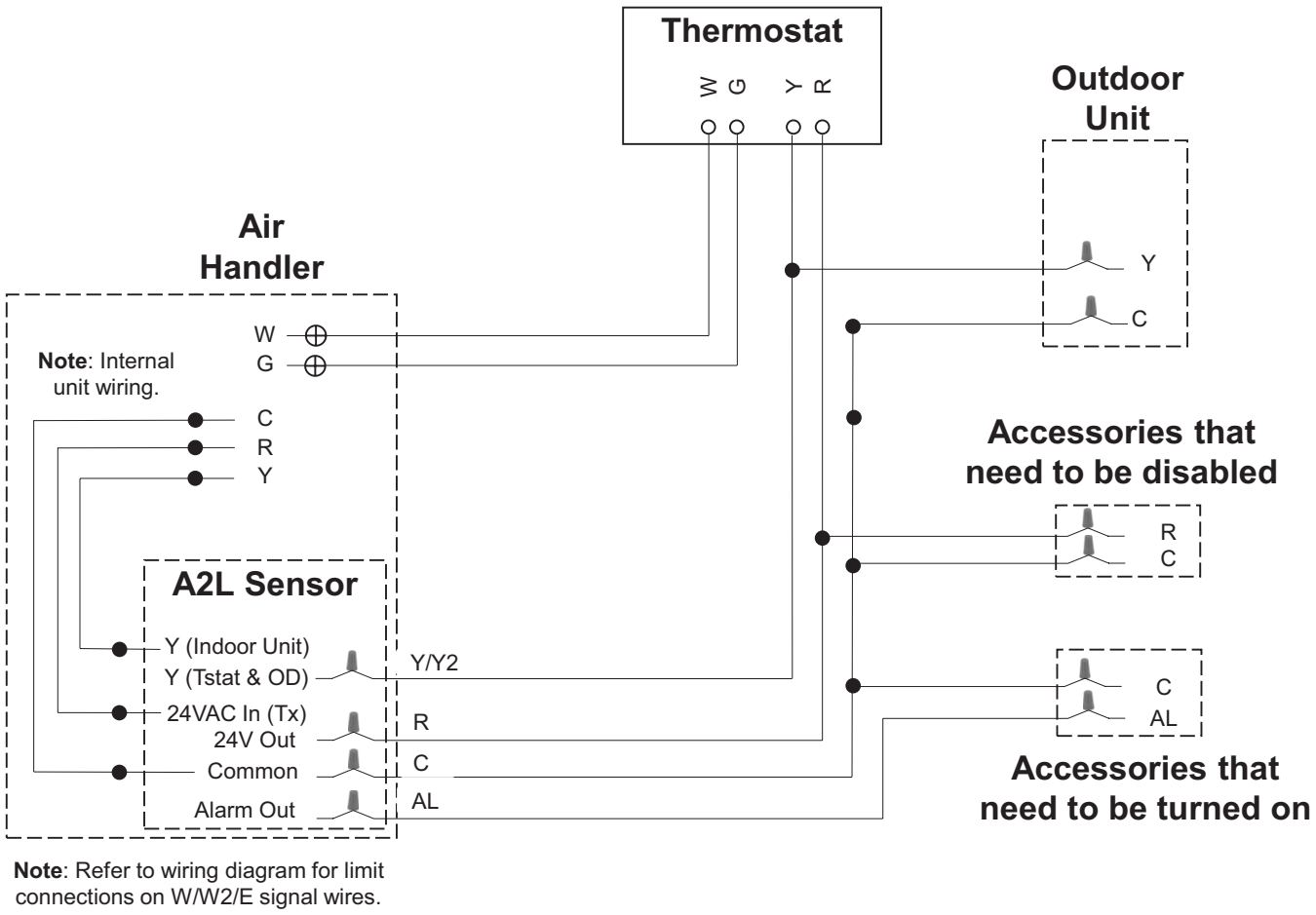


Figure 19. Typical single-stage air handler with single-stage air conditioner.

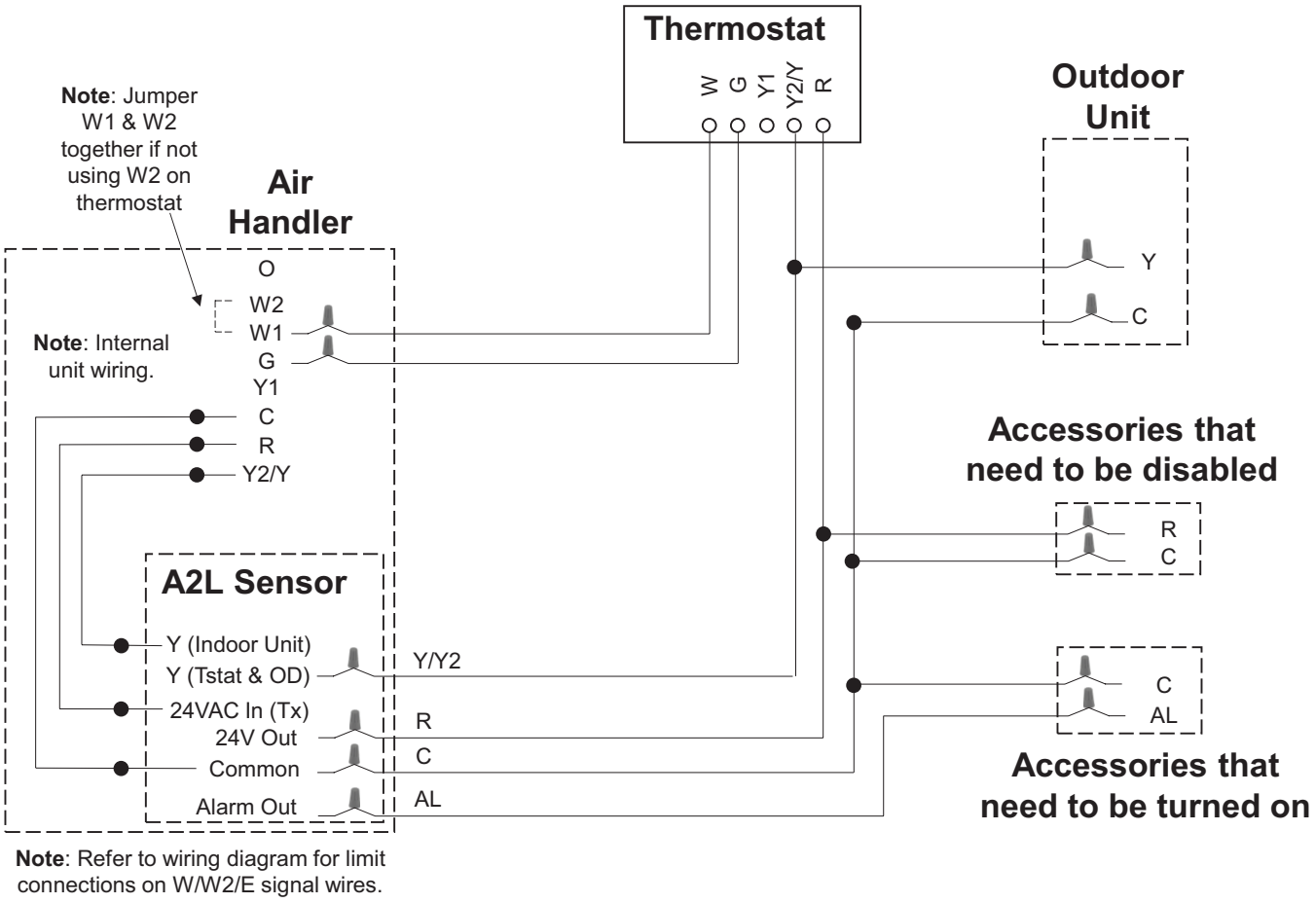


Figure 20. Typical two-stage air handler with single-stage air conditioner.

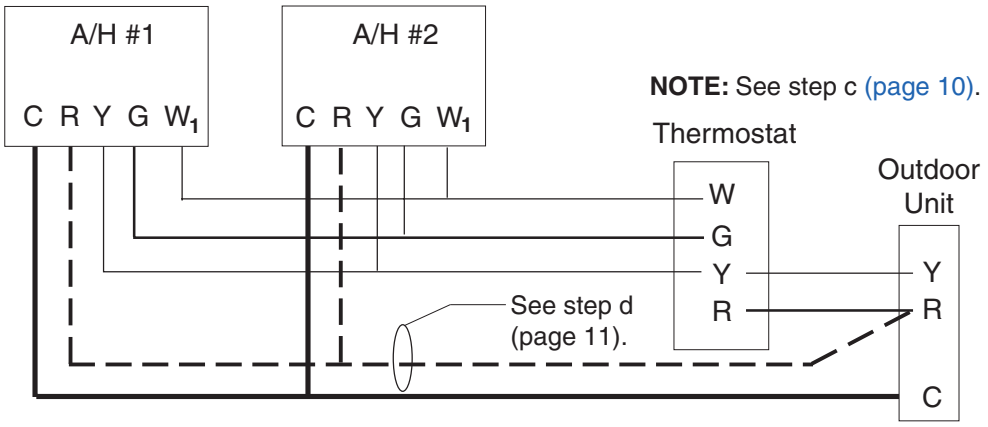


Figure 21. Low Voltage Wiring For Twinning

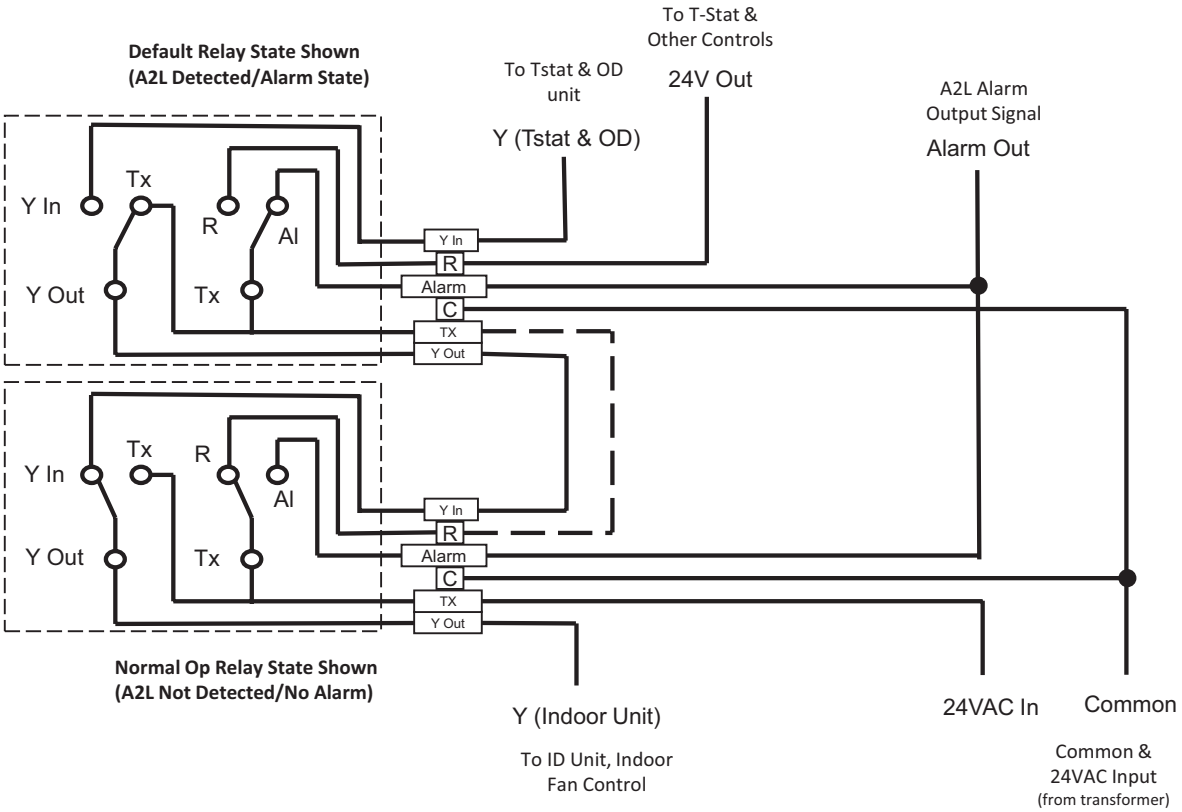


Figure 22. Series Sensor Wiring for systems with 2 or more sensors

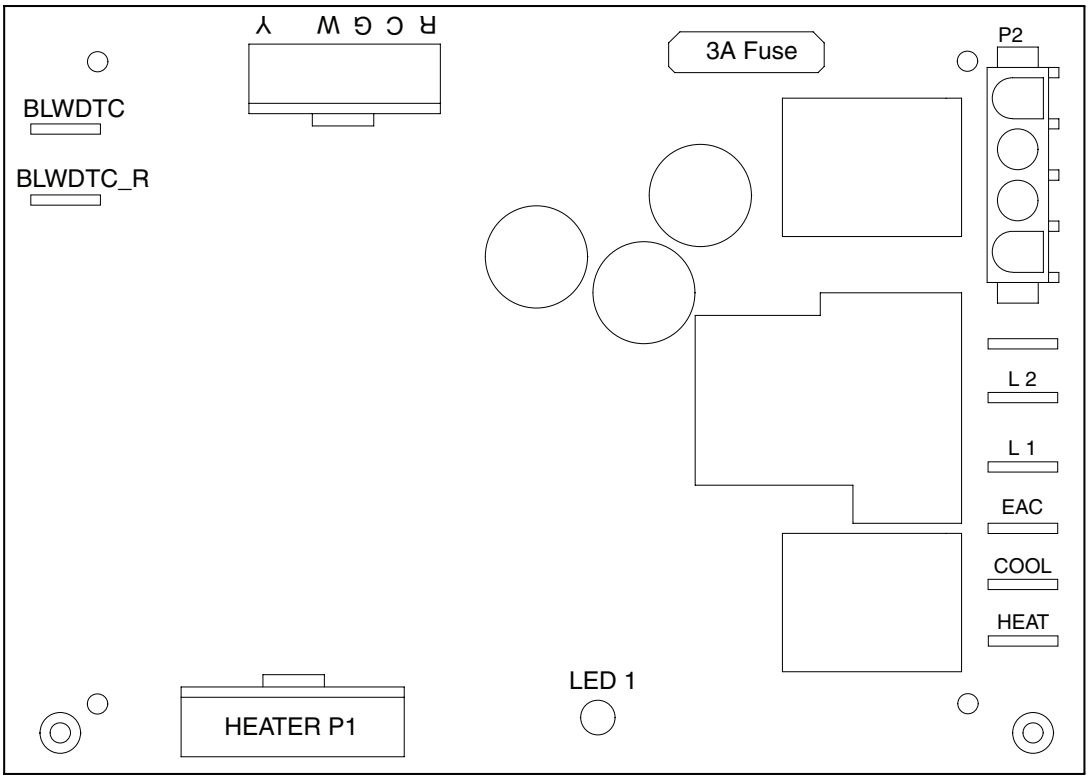


Figure 23. Single Stage Control Board

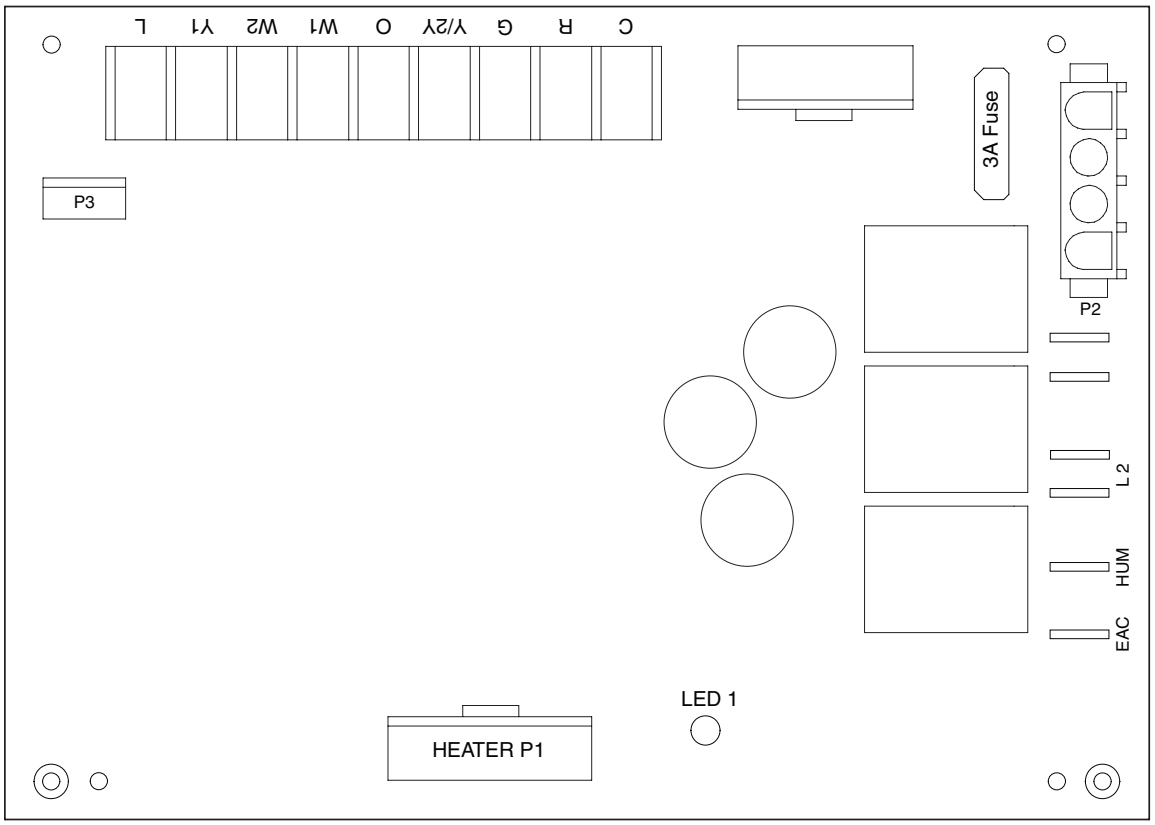


Figure 24. Two - Stage Control Board

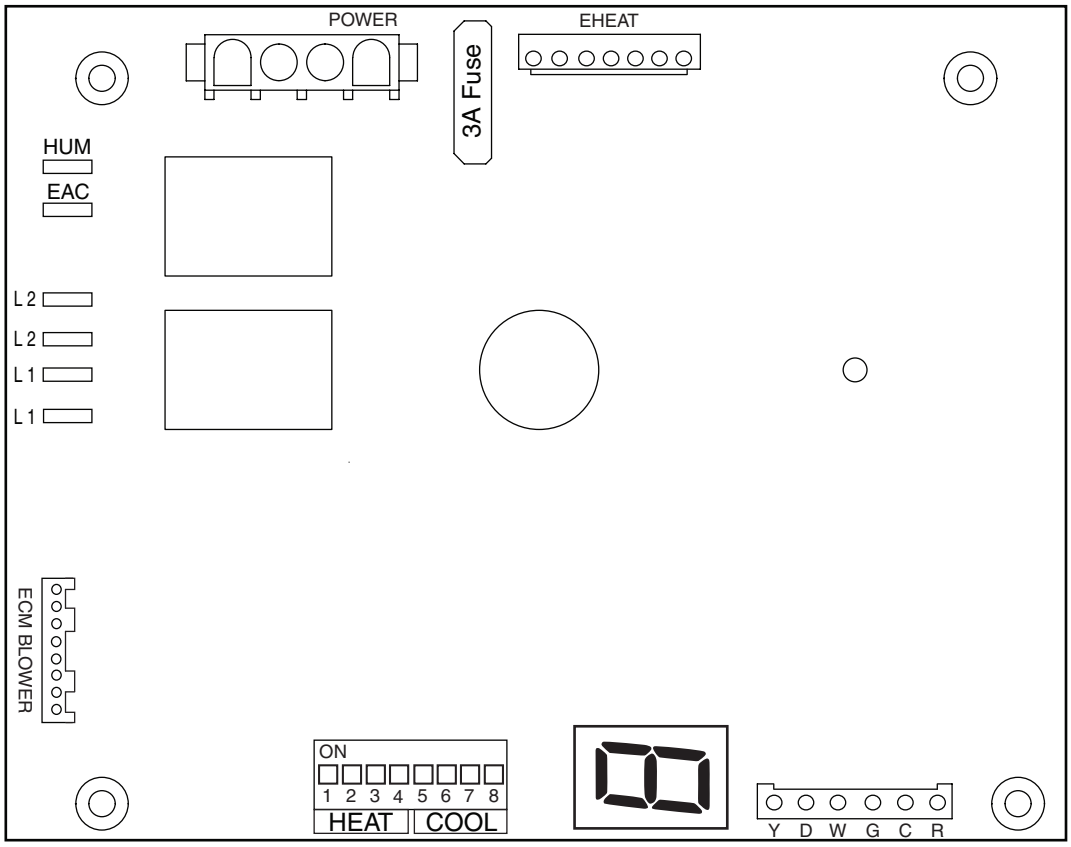


Figure 25. Fixed Speed Motor Control Board

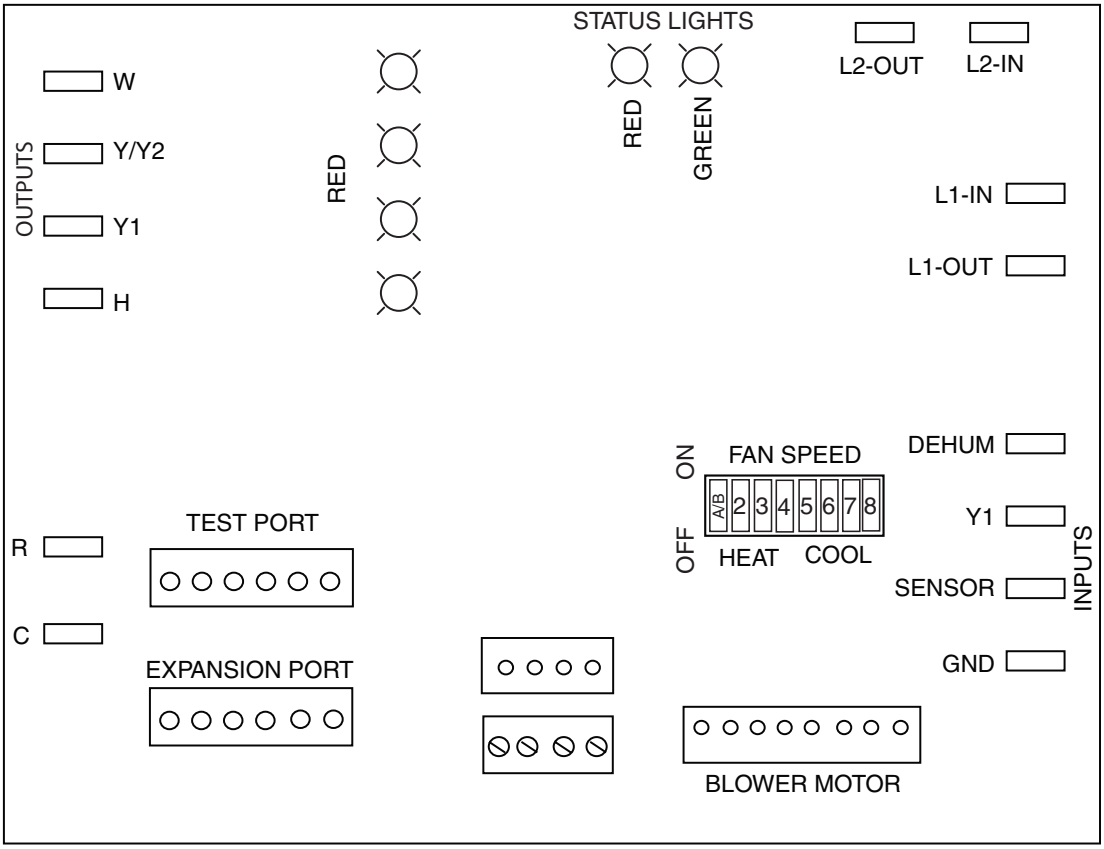


Figure 26. Variable Speed Motor Control Board

WIRING DIAGRAM

Air Handler with Fixed Speed High Efficiency Motor

208/230V~ Single Phase/60Hz

NOTES:

1. The blower motor speed tap connection may not be as shown. See the Installation Instructions.
2. Disconnect all power before servicing.
3. Transformer may have a dual voltage primary tap. Match the tap position with the supply voltage used.
4. If the internal wiring is replaced,use only 105°C copper wire of the same gauge.
5. Connect 24VAC/40VA Class 2 circuit to thermostat. See air handler installation instructions for control circuit.

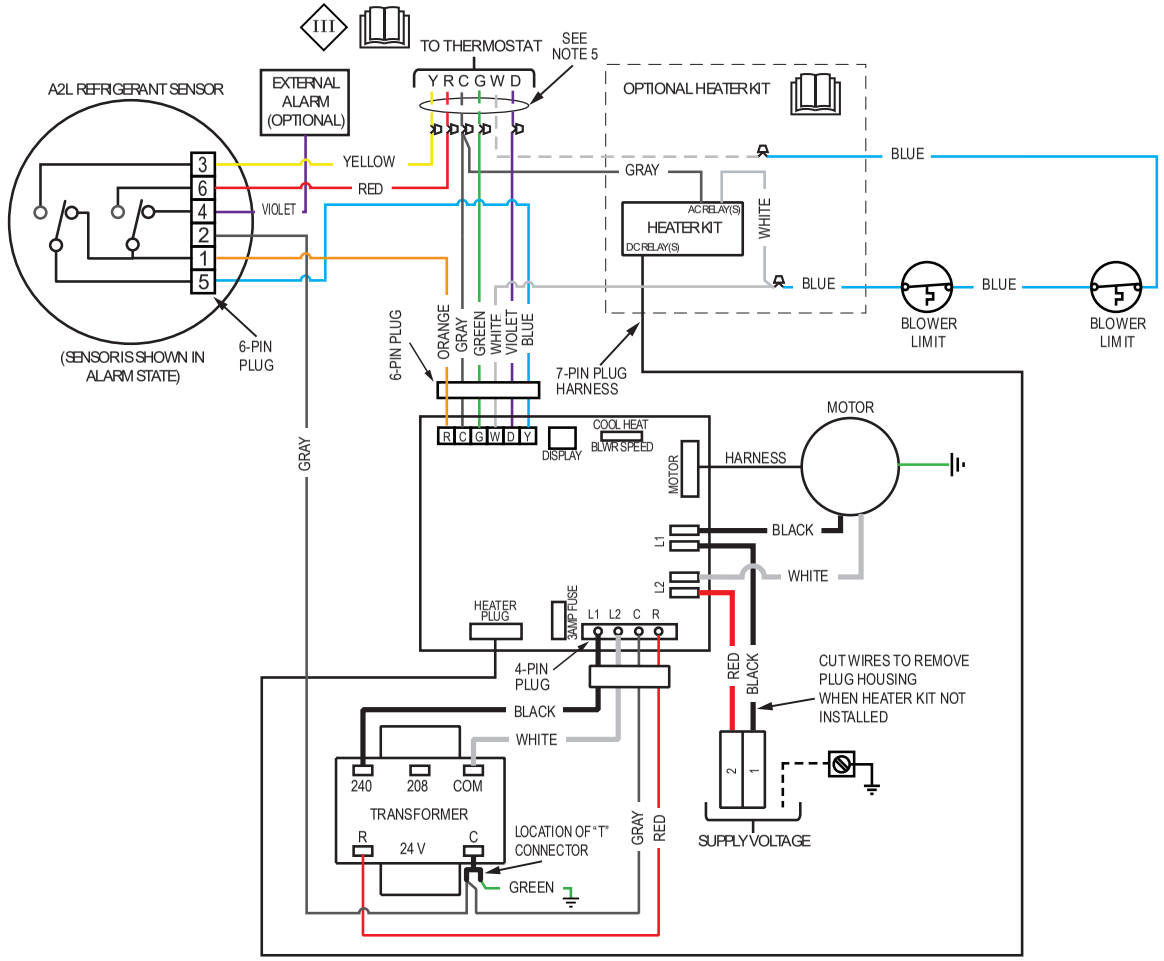
Remarques

1. Le connecteur de vitesse du moteur du ventilateur peut différer de l'illustration. Consultez les Instructions d'installation.
2. Débranchez toutes les sources d'alimentation avant l'entretien.
3. Le transformateur peut avoir un robinet principal à double tension. Agencez la position du robinet au type de tension de l'installation.
4. Si le câblage interne est remplacé, utilisez seulement un fil de cuivre 105° C du même gabarit.
5. Branchez le circuit de 24 VAC/40 VA de Classe 2 au thermostat. Voyez les Directives d'installation de l'appareil de traitement de l'air pour le circuit de commande.

DISPLAY CODE	CURRENT MODE
-	Standby is a Rotating Segment
C	Cooling Mode (Y input active)
H	Heating Mode (W input active)
f	Circulate Fan Mode (G input active)
d	Dehum Cooling Mode (DEHUM input active along with Y)
I	(one) A Motor Fault has Occurred (BMF active for more than 30 seconds)
t	(lower case t) Over Temperatures (The value of the TS input has exceeded 80C all outputs are stopped.)
L	Lockout (Ten (10) or more Motor Faults or Over Temperature events have occurred. All outputs are set to off for one hour.

LEGEND:

FIELD WIRING	- - - -
LOW VOLTAGE	———
HIGH VOLTAGE	———



10488600
(NEW)
05/24

Figure 27. B65EM Wiring Diagram

WIRING DIAGRAM

Air Handler with Variable Speed High Efficiency Motor 208/230V~ Single Phase/60Hz

NOTES:
1. The blower motor speed tap connection may not be as shown. See the Installation Instructions.
2. Disconnect all power before servicing.
3. Transformer may have a dual voltage primary tap. Match the tap position with the supply voltage used.
4. If the internal wiring is replaced, use only 105°C copper wire of the same gauge.
5. Connect 24VAC/40VA Class 2 circuit to thermostat. See air handler installation instructions for control circuit.

Remarques
1. Le connecteur de vitesse du moteur du ventilateur peut différer de l'illustration. Consultez les Instructions d'installation.
2. Débranchez toutes les sources d'alimentation avant l'entretien.
3. Le transformateur peut avoir un robinet principal à double tension. Agencez la position du robinet au type de tension de l'installation.
4. Si le câblage interne est remplacé, utilisez seulement un fil de cuivre 105° C du même gabarit.
5. Branchez le circuit de 24 VAC/40 VA de Classe 2 au thermostat. Voyez les Directives d'installation de l'appareil de traitement de l'air pour le circuit de commande.

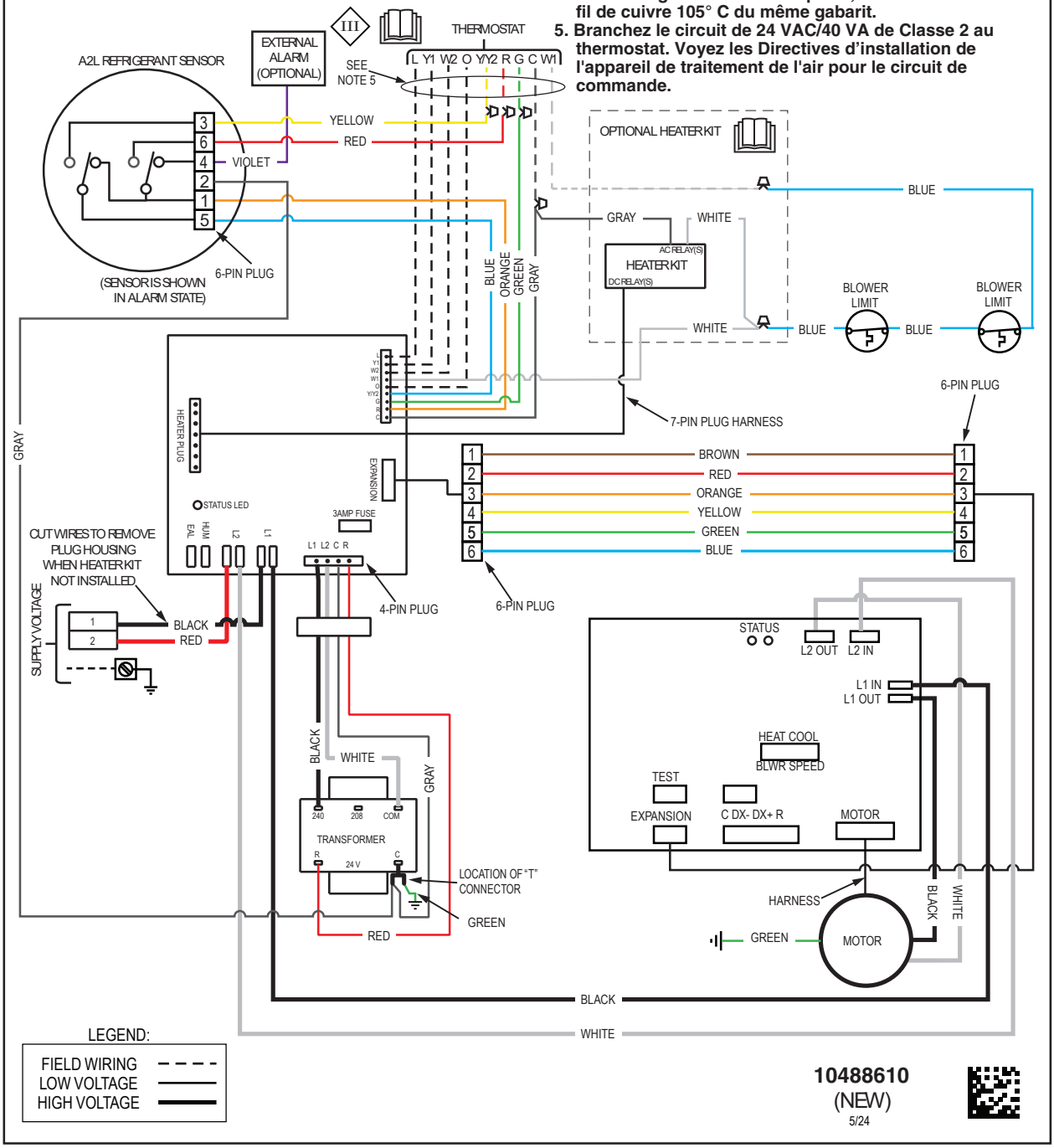


Figure 28 B65VM Wiring Diagram.

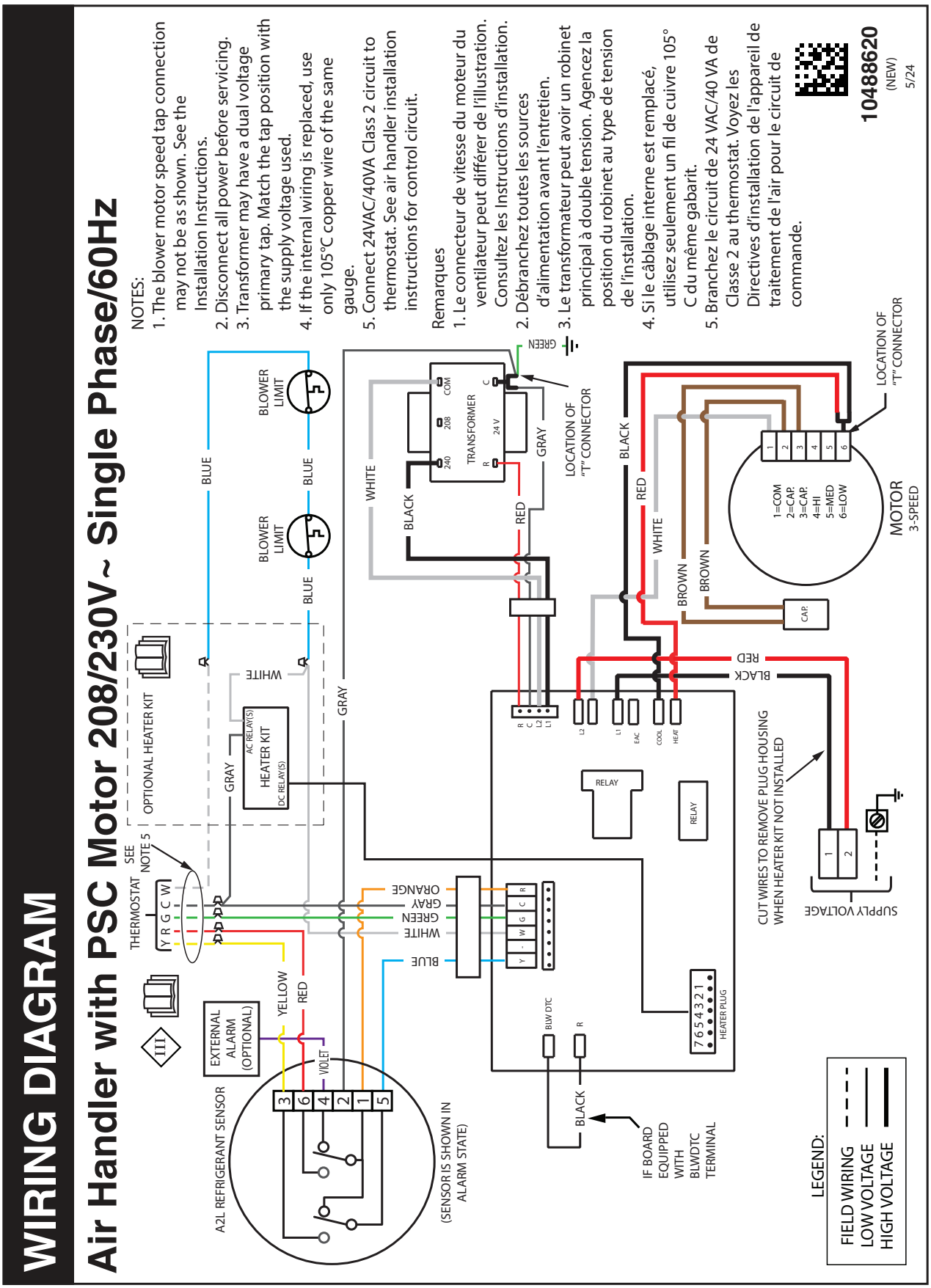


Figure 29. B65BM Wiring Diagram

INSTALLATION CHECKLIST

ATTENTION INSTALLERS:

It is your responsibility to know this product better than your customer. This includes being able to install the product according to strict safety guidelines and instructing the customer on how to operate and maintain the equipment for the life of the product. Safety should always be the deciding factor when installing this product and using common sense plays an important role as well. Pay attention to all safety warnings and any other special notes highlighted in the manual. Improper installation of the furnace or failure to follow safety warnings could result in serious injury, death, or property damage.

These instructions are primarily intended to assist qualified individuals experienced in the proper installation of this appliance. Some local codes require licensed installation/service personnel for this type of equipment. Please read all instructions carefully before starting the installation. Return these instructions to the customer's package for future reference.

ELECTRICAL SYSTEM		
Electrical connections tight?	YES	NO
Line voltage polarity correct?	YES	NO
Supply Voltage: _____(V)		
Has the thermostat been calibrated?	YES	NO
Is the thermostat level?	YES	NO
Is the heat anticipator setting correct?	YES	NO

INSTALLER NAME:		
CITY:	STATE:	
INSTALLATION ADDRESS:		
CITY:	STATE:	
UNIT MODEL #		
UNIT SERIAL #		
Minimum clearances per Table 1, (page 8)?	YES	NO
Is the unit properly installed and leveled?	YES	NO
Does condensate drain properly in both drain tubes?	YES	NO
Has the owner's information been reviewed with the home-owner?	YES	NO
Has the literature package been left near the appliance?	YES	NO

Specifications & illustrations subject to change without notice or incurring obligations (11/24).
O'Fallon, MO, © Nordyne, LLC 2024. All Rights Reserved.

1049567-0
(NEW)