INSTALLATION INSTRUCTIONS

HW/HWC4 Model Vintage™ Units
Magic-Pak™ Thru-the-Wall Unit

VINTAGE

Save these instructions for future reference

⚠ WARNING

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

⚠ WARNING

For your safety, do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance. Such actions could result in property damage, personal injury, or death.

⚠ WARNING

Do not store combustible materials near the furnace or warm air ducts. The material may ignite by spontaneous combustion creating a fire hazard.

⚠ WARNING

These units are not approved for mobile home applications. Such use could result in property damage, personal injury, or death.

⚠ WARNING

If these instructions are not followed exactly, a fire or explosion may result causing property damage, personal injury, or loss of life.

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Manufactured By
Allied Air Enterprises Inc.
A Lennox International Inc. Company
215 Metropolitan Drive
West Columbia, SC 29170

INTERTEK ETL CM LISTED C US

* 5 0 6 1 8 8 - 0 1 *

⚠ CAUTION

Installation shall be made in accordance with the requirements of the local utility and other authorities having jurisdiction, or with the National Fuel Gas Code, ANSI Z223.1 (latest edition) and the National Electrical Code in the United States or CAN/CGA-B149.1 & .2 and the Canadian Electrical Code CSA C22.1 Part 1 (latest edition) in Canada. Any alteration of internal wiring will void certification and warranties.

INSTALLATION

General

These instructions must be hung on or near the furnace in a conspicuous place.

The HWC4 Model **Vintage™** units are self-contained, gas-fired heating with electric cooling models. The HW series are gas-fired heating models. The unit design has been certified by Intertek Testing Services for compliance with the latest edition of the American National Standard – ANSI Z21.47/National Standard of Canada – CAN/CGA-2.3 for direct vent central furnaces. The HWC models are certified to be in compliance with the latest edition of A.R.I. Standard 390. All models are design certified for heating operation when fired with natural or propane gas.

These installation instructions are intended as a general guide only, for use by an experienced, qualified contractor.

⚠ WARNING

In the State of Massachusetts:

This product must be installed by a licensed Plumber or Gas Fitter. When flexible connectors are used, the maximum length shall not exceed 36". When lever-type gas shutoffs are used, they shall be T-handle type.

Inspection

The unit is shipped in one package, completely assembled and wired. The drain tubing is in the cooling compartment behind the filter access panel.

If any damage is found, proper notation should be made on the carrier's freight bill. Damage claims should be filed with the carrier as quickly as possible.

Check the rating plate to confirm heating and cooling capacities. The unit should be operated only with the type of gas and electrical supply noted on the rating plate.

IMPORTANT: Remove the chassis hold down shipping bracket before installation. This bracket is located on the outdoor side of the unit under the louver panels.

Location

The design is certified for through-the-wall installation only. The interior portions of the unit may be surrounded by a closet with clearances to combustible material held to 0" sides, 2" top, and 1" front and plenum. Adequate clearance must be provided to install the union and manual shutoff valve as well as providing accessibility to field wiring junction box. Do not install directly on carpeting, tile, or other combustible material other than wood flooring.

The grille side of the unit may be flush with, or extend beyond, the face of the exterior wall, but should not be recessed more than 2" from the face of the building and should not be obstructed with trees, landscape materials, or building structure.

There is no minimum clearance required on locating the unit to an interior corner of a building.

If the unit is to be enclosed, provisions should be made allowing access to the indoor side of the unit for changing filters and for inspection. At least 29" of unobstructed space should be provided in front of the indoor side, whether enclosed or not, to permit removal of the cooling chassis should repairs or inspection be required.

If the unit is installed in a residential garage, it must be located or protected to avoid physical damage by vehicles. This unit must be installed so that no electrical components are exposed to water.

This appliance should be installed in a location such that the vent outlet is located in the following manner:

1. Distances to windows that open, building openings, or public walkways should be consistent with the National Fuel Gas Code Z223.1 or CAN/CGA-B149.1 & .2.

2. For U.S. installations, the vent system shall terminate a minimum horizontal clearance of 4' from electric meters, regulators, and relief equipment. For installations in Canada, refer to the current CAN/CGA-B149.1 & .2 or with the authorities having local jurisdiction.

3. Flue products will not cause degradation to building materials.

⚠ CAUTION

The sleeve is not intended as the sole support for the unit. An additional support must be provided near the return opening on the unit for adequate support. The use of vibration isolation material between the unit and the support is recommended.

Installing With a Wall Sleeve

Refer to the installation instructions packed with the wall sleeve and Figure 1 for guidance in assembly and mounting using a wall sleeve.

Make sure the gaskets attached to the sleeve are not damaged.

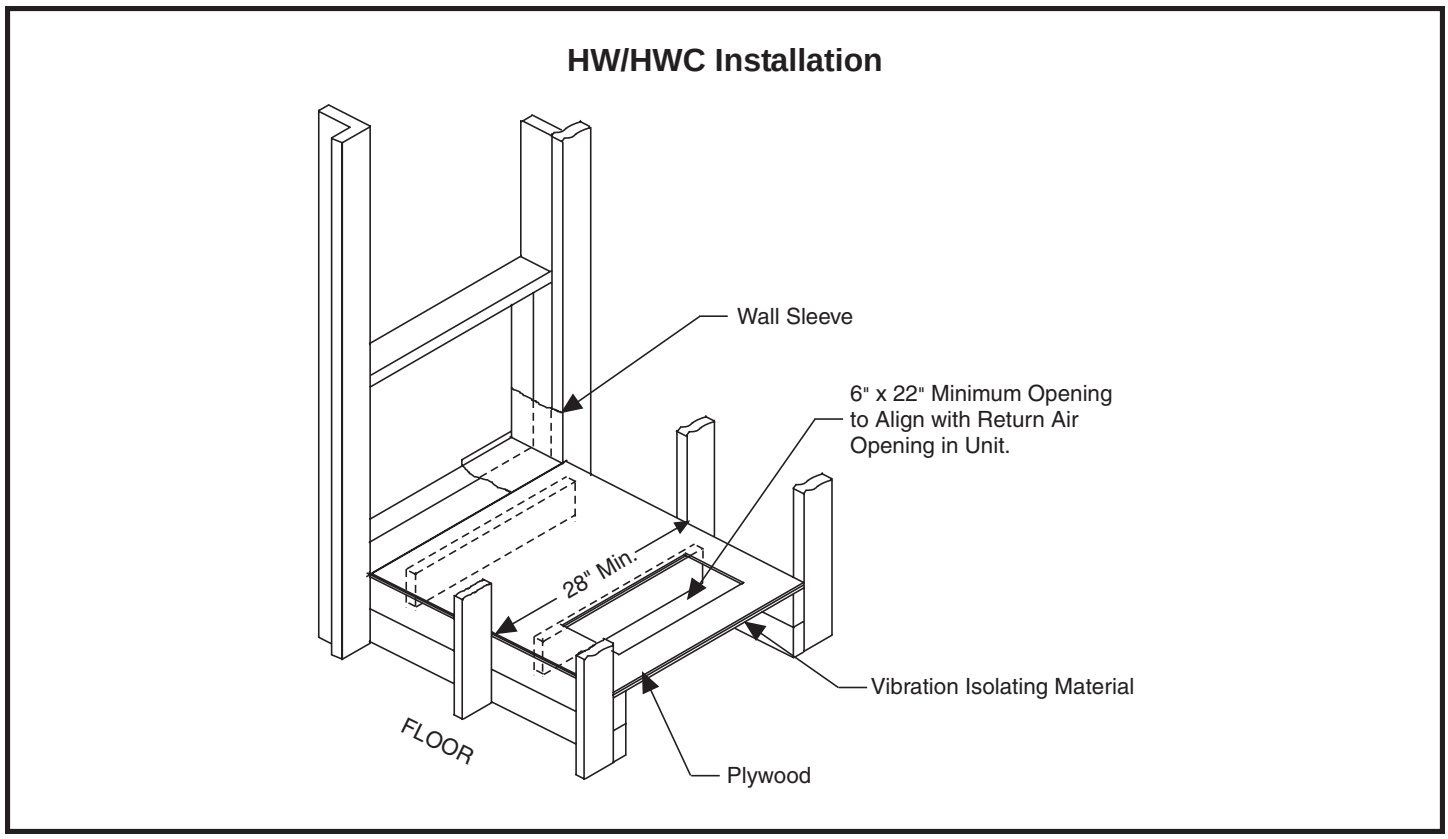

Figure 1

Seal the space between the wall sleeve and the building opening with non-hardening caulking compound. The seal must be weathertight to prevent entrance of moisture and water into the building.

Assure that the unit is completely seated against the gaskets on the wall sleeve.

Installing Without a Wall Sleeve

Refer to the following directions and Figure 1 for guidance in installing the unit without a wall sleeve:

1. Measure the size of the unit and provide an opening in an outside wall that will accept the unit. Local ordinances may require a steel lintel to support the wall above the opening. The opening must be square in all four corners.

2. Position the unit so that the grilles on the outside face of the unit are flush or extend beyond the face of the exterior wall, but not recessed more than 2" from the face of the building. **Provide a support under the unit, inside the building.** Make sure that the inside support does not block the return air. The unit should be installed level or pitched slightly to the outside of the building so that rain water will drain away.

3. Seal the space between the unit and building opening using a non-hardening caulking compound. The seal must be weathertight to prevent entrance of moisture and water into the building. Make sure the drain holes in the base are not plugged with caulking.

Condensate Drain (HWC Models)

Install the plastic drain tube (furnished) over the 5/8" O.D. fitting welded to the center of the condensate pan. Connect other end of the drain tube to the open trap (see Figure 2). The plastic drain connection is provided so that it may be disconnected from the permanent drain tubing in the building in the event it becomes necessary to remove the cooling chassis assembly.

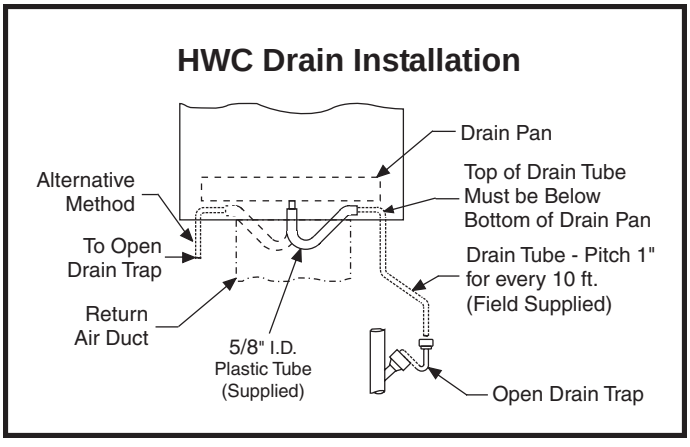

Figure 2

The drain line should pitch gradually downward at least 1" per 10' of horizontal run to the open drain trap.

Be certain that the plastic drain tube has free drainage and is not crimped or flattened at any bend.

Venting

The venting system is an integral part of the appliance. The venting system must not be modified or added on to.

The unit contains an exhaust blower. The blower draws the combustion products out of the heat exchanger together with dilution air and forces the mixture from the unit to the outside. No special provisions are required for supplying air for combustion, nor is a chimney required.

The vent outlet must not be altered or extended.

The venting system is designed for proper operation under all weather conditions and for winds up to 40 m.p.h.

Removal of Unit from Common Venting System

When an existing furnace is removed from a common venting system serving other appliances, the venting system is likely to be too large to properly vent the remaining attached appliances. The following test should be conducted with each appliance while the other appliances connected to the common venting system are not in operation.

1. Seal any unused openings in the common venting system.

2. Visually inspect the venting system for proper size and horizontal pitch and determine there is no blockage or restriction, leakage, corrosion, or other deficiencies which could cause an unsafe condition.

3. Insofar as is practical, close all building doors and windows between the space in which the appliances remaining connected to the common venting system are located and other spaces in the building. Turn on clothes dryers and any appliance not connected to the common venting system. Turn on exhaust fans, such as range hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan. Close fireplace dampers.

4. Following the lighting instructions, place the unit being inspected in operation. Adjust the thermostat so the appliance will operate continuously.

5. Test for spillage at the draft control relief opening after 5 minutes of main burner operation. Use the flame of a match or candle.

6. Follow the preceding steps for each appliance connected to the common venting system.

7. After it has been determined that each appliance remaining connected to the common venting system properly vents when tested as outlined above, return doors, windows, exhaust fans, fireplace dampers, and any other fuel burning appliance to their previous condition of use.

8. If improper venting is observed during any of the above tests, the common venting system must be corrected. **See National Fuel Gas Code, ANSI Z223.1 (latest edition) or CAN/CGA B149.1 & .2 Canadian Installation Codes to correct improper operation of common venting system.**

Gas Connections

The gas line to the unit should be adequately sized to prevent undue pressure drop and should never be smaller than the manual valve used. Consult the local utility or National Fuel Gas Code for complete details on special requirements in sizing gas piping.

The units supplied for operation with natural gas contain a gas regulator which must be operated with inlet gas pressures specified on the rating plate. If gas line pressure exceeds this figure, an additional high pressure regulator must be installed to reduce this pressure.

Units for operation with propane must be converted with a kit supplied by the manufacturer and require for operation an inlet pressure of 11" W.C. minimum and 14" W.C. maximum. A regulator is also required on the propane tank.

When converting a low NO_x unit (designated by an L in the model number) to propane, **the NO_x inserts must be removed**. After removing the burners, remove the screw holding each insert and pull the insert from the combustion chamber (see Figure 3). The screws **must be reinstalled** in the vest panel after the inserts are removed.

⚠ WARNING

Never use a flame to check for gas leaks. Explosion causing injury or death may occur.

NO_x Insert Removal

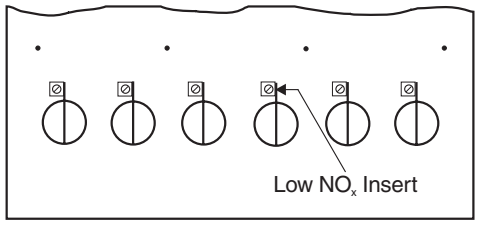

Figure 3

WARNING

The furnace must be isolated from the gas supply piping system by closing the individual manual shutoff valve during any pressure testing of gas supply piping system at test pressures equal to or less than 1/2 psig or 14" W.C. If the piping system is to be tested at pressures in excess of 1/2 psig, the furnace and its individual shutoff valve must be disconnected from the gas supply piping system. The gas valve supplied with this furnace is rated at 1/2 psig. Any higher pressure may rupture the pressure regulator diaphragm which will cause overfiring of the burners and improper burner operation. This action may produce a high concentration of carbon monoxide which can result in asphyxiation.

A manual shutoff valve must be located outside the unit. The use of a union located upstream of the controls is recommended, between the controls, and the manual shutoff valve. This will facilitate removal of controls and manifold. See Figure 4 for recommended placement of the union.

Provide a drip leg in the supply piping located exterior to the unit. Piping must be tight and non-hardening. Pipe compound resistant to propane must be used.

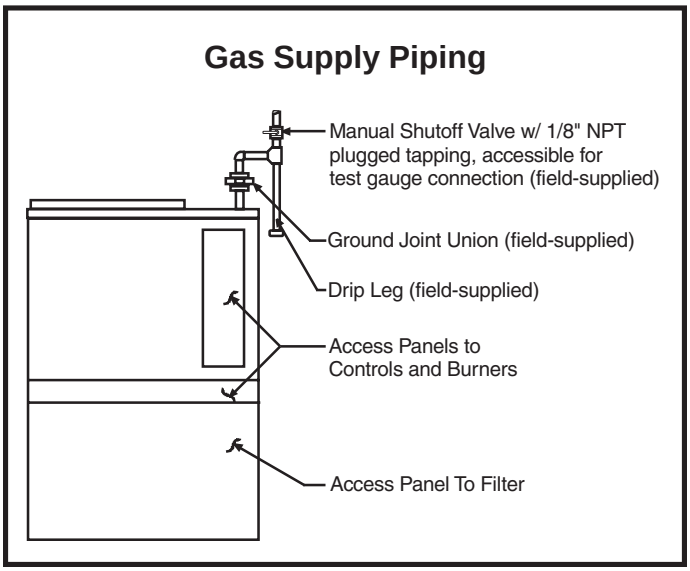

Figure 4

Electrical Connections

All wiring must be done in accordance with the National Electrical Code, ANSI/NFPA No. 70 (latest edition); Canadian Electrical Code Part 1, CSA C22.1 (latest edition); or local codes, where they prevail. Any alteration of internal wiring will void certification and warranty.

The rating plate indicates the operating voltage, phase, ampacity, maximum fuse size, and minimum voltage. Units must never be installed where voltage exceeds 10% over the voltage indicated on the rating plate.

Units are factory wired for a 230 volt power supply. If power supply is 208 volts, it will be necessary to change a wire connection on unit transformer from 240 volt terminal to 208 volt terminal as shown on the wiring diagram.

Failure of the compressor as a result of operation on improper voltage voids the compressor replacement warranty.

A separate electric line with wire having a temperature rating of 60°C should be run directly from the main supply panel to the leads in the unit. Refer to the rating plate located on the unit for proper fuse or breaker size. Make sure the unit is electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, ANSI/NFPA No. 70 (latest edition) for installations in the U.S. or the Canadian Electrical Code Part 1, CSA C22.1 (latest edition) for installations in Canada.

See Table 1 for correct wire ampacity for the cooling chassis required, and size wire accordingly.

For HW (heating only units): When sizing wire, keep in mind that an air conditioning chassis may be added in the future.

Minimum Circuit Ampacity

Cooling Chassis Model	Minimum Circuit Ampacity
HWC4 - 09 - 121	9.3
HWC4 - 09 - 181	14.4
HWC4 - 09 - 241	20.6
HWC4 - 09 - 301	20.2

Table 1

Thermostat
Install the thermostat according to the directions furnished with it. The thermostat must be located on an inside wall where it will not be affected by drafts, sunlight, or any other heat producing appliances. Connect the thermostat wires to the low voltage leads on top of the unit following the wiring diagram attached to the unit. The heat anticipator setting is 0.50 amp.

Air Filter
All indoor return air must be filtered. A permanent-type filter is furnished with the unit, located directly behind the access panel. Removing the panel permits access to the filter.

If an installation is made in which it is more desirable to mount the filter exterior to the unit, in the return duct work or elsewhere, the permanent filter can be used or replaced with a disposable filter. If a disposable filter is used, refer to the information provided in Table 2 when sizing the disposable filter.

Minimum Required Surface Area for Disposable Filters

Model Number	Filter Area (sq. in.)
HWC4 121	300
HWC4 181	480
HWC4 241	480
HWC4 301	480
26 HW	300
38 HW	300
51 HW	480
64 HW	480

Table 2

Supply and Return Duct(s)
Provide duct(s) sized sufficiently to handle the larger of the air volumes for heating or cooling provided by this model.

Connect the supply duct to the top of the unit using canvas connections or other flexible connections to prevent noise transmission into the duct system.

The supply duct should have a removable access panel. The opening should be accessible when the furnace is installed and should be large enough and located such that the heat exchanger can be inspected for leaks. The cover must be attached in such a manner as to prevent air leaks.

To connect the return duct to the system, use a straight piece of duct 22" wide by 6" deep. Insert the duct into the return opening in the bottom of the unit and flange the duct over the existing flanges around the opening inside the unit. Make sure that all sides of the duct are flanged over to permit removal of the cooling chassis if required. Use a flexible connection to attach the remainder of the return duct. The return duct should be sealed to the unit casing and terminate outside the space containing the furnace.

Adjustments – Heating Section

Temperature Rise
At time of installation, the temperature rise must be adjusted to be within the range specified on the unit rating plate.

Pressure Regulator
The gas input must not exceed the figures shown on the rating plate. The unit is equipped for rated inputs with manifold pressures of: **3.5" W.C. for natural gas and 10.0" W.C. for propane.**

The manifold pressure can be measured by removing the pipe plug in the automatic gas valve. Connect a water manometer and measure the pressure.

Only small variations in gas input may be made by adjusting the regulator. **In no case should the final manifold pressure vary more than 0.3" W.C. for natural gas or 0.7" W.C. for propane.**

To adjust the regulator, turn the adjusting screw on the regulator clockwise to increase pressure and input or counterclockwise to decrease pressure and input.

For natural gas installations, check the burner rate by observing the gas meter (making sure that all other gas appliances are turned off). The test hand on the meter should be timed for at least one revolution. Note the number of seconds for one revolution.

$$\text{BTU/HR INPUT} = \frac{\text{Cubic Feet Per Revolution}}{\text{\# Seconds Per Revolution}} \times 3600 \times \text{Heating Value}$$

Adjustments – Cooling Section (HWC models)
No adjustments are required or should be attempted regarding any of the components of the cooling chassis. The chassis should be checked to see that none of the wiring is loose or missing.

Cooling chassis is charged with R410A refrigerant.

Blower
The unit contains a direct-drive, multispeed blower. The proper speeds have been preset at the factory for heating and cooling. Refer to the wiring diagram for recommended heating/cooling speeds for specific models. Direct-drive blower motors are permanently lubricated and do not require oiling.

Limit Control
A fixed temperature limit control is provided which will shut off the gas to the main burners if the unit is overheated for any reason. The control must not be adjusted or relocated.

High Altitude Adjustments (U.S. Installations)
Ratings shown on the rating plate are for elevations up to 2000 feet. For elevations above 2000 feet, ratings should be reduced at a rate of 4% for each 1000' above sea level. Refer to the National Fuel Gas Code Z223.1 (latest edition) for further explanation.

High Altitude Adjustments (Canadian Installations)
High altitude conversions may be made by the manufacturer's authorized representative, in accordance with the requirement of the manufacturer, provincial, or territorial authorities having jurisdiction, and in accordance with the requirements of CAN/CGA B149.1 or B149.2 Installation Code. A high altitude conversion kit, available from the manufacturer and approved for this purpose, must be used.

Installation and Operation in Extremely Cold Weather Areas
In areas where extremely cold (below – 20°F) outdoor temperatures can be expected, some additional installation and operating precautions should be taken. The following precautions are taken to prevent possible vent system ice blockage that could result in safety shutdown of the burners:

1. Adjust to the highest achievable temperature rise within the rise and static pressure ranges specified on the rating plate. Depending on specific model, it may be possible to change to a lower heating blower speed tap to get a higher temperature rise. This also increases comfort.

2. Make sure there are no leaks of outside air into the return air system.

3. Keep the outside louver grille as free as possible of any ice that may form and obstruct the flue outlet.

START-UP

For Your Safety Read Before Lighting

⚠ WARNING
If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury, or loss of life.

⚠ CAUTION
This furnace is equipped with a direct ignition control. Do not attempt to manually light the burners.

To Light Main Burners
1. Turn off electrical power to unit.

2. Turn the thermostat to lowest setting.

3. Turn the gas valve control knob to the "ON" position (see Figure 5).

4. Turn on electrical power to the unit.

5. Set the room thermostat to the desired temperature. (If the thermostat "set" temperature is above room temperature after the pre-purge time expires, main burners will light.)

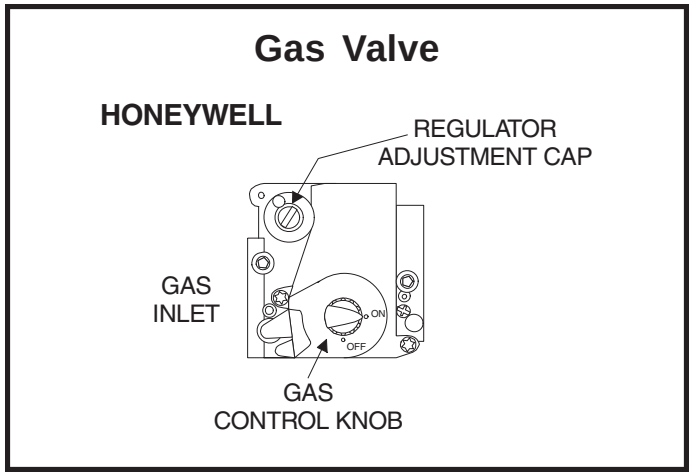

Figure 5

To Shut Down Main Burners
1. Turn off electrical power to unit.

2. Depress and turn the gas valve control knob to the "OFF" position (see Figure 5).

OPERATION

Operation of the unit is automatic and will provide heating and cooling depending on the setting of the thermostat.

HW or HWC Heating

1. Turn on main power supply.
2. Open manual gas shutoff valve.
3. Set thermostat system to “HEAT”.
4. Set thermostat to temperature desired.

HWC Cooling

1. Set thermostat system switch to “COOL”.
2. Set thermostat to temperature desired.

Sequence of Operation

1. Thermostat calls for heat.
2. Combustion blower starts and proper air flow is proven by the pressure switch closing.
3. Blower continues to operate for 30 seconds prior to the burners lighting.
4. Ignition control begins spark and opens gas valve. The burners are lit. Ignition is proved through the flame sensor.
5. Circulating air blower starts 30 seconds after the burners light.
6. When the thermostat is satisfied, the burners and combustion blower shut off.
7. Circulating air blower will shut off 120 seconds later.

If the burners should fail to ignite, the ignition control will try to ignite the burners a total of three times. Should the burners fail to ignite within the three trials for ignition, the ignition control will lock out for 1 hour before beginning another ignition cycle. To reset the control, turn the thermostat down or off for 10 seconds and then set to desired setting. At this time, the ignition sequence will try again.

Blower Operation

Continuous operation of the air handling blower will be obtained if the thermostat fan switch is set to “ON”. With the thermostat fan switch set to “AUTO”, the air handling blower will cycle corresponding with the thermostat cycling.

Fan Control

The blower will start approximately 30 seconds after the burners ignite and will stop approximately 120 seconds after the thermostat is satisfied. The time delay is preset at the factory and timing can not be adjusted.

When the thermostat system switch is set for “COOL” (HWC models only), the blower will start 5 seconds after the thermostat calls for cooling and will stop 90 seconds after the thermostat is satisfied.

A fan switch is provided on the thermostat which will bring the blower on for continuous operation when the switch is set for “ON”.

To Shut Down Unit

For temporary or short periods of shutdown, set the thermostat system switch to “OFF”. For a prolonged period of shutdown, set the thermostat system switch to “OFF” and turn off the electrical power supply and the gas supply to the unit.

MAINTENANCE

⚠ WARNING

Shutoff all electrical power to the unit before conducting any maintenance procedures. Failure to do so could cause personal injury.

Burners

The burners can be removed for cleaning or changing orifices. To remove the burners:

1. Disconnect electrical service and turn off gas to the appliance.

2. Loosen the pipe union external to the unit and remove the gas line to the gas valve.

3. Disconnect the high voltage (spark plug) wire and the flame sensor wire (S1) from the ignition control.

4. Remove the screw located in the bottom of the burner tray at the front of the unit.

5. Carefully slide the burner tray assembly with the burners, manifold, flame sensor, and spark electrode out of the cabinet, being careful not to damage the spark electrode or flame sensor. Some of the wires may have to be held out of the way while removing the tray.

Burners can be cleaned using a bottle brush.

Orifices are threaded into the gas manifold and can be removed by unscrewing.

When replacing the burner tray assembly, be sure to fit the back edge of the burner tray into the slip strip attached to the back of the division panel. Replace the screw which holds down the front of the burner tray. Reconnect the gas union, flame sensor wire, and high voltage wire.

Heat Exchanger

The heat exchanger should be inspected periodically and cleaned if necessary. If cleaning is necessary, use a stiff brush with a wire handle to remove scale and soot. While cleaning the heat exchanger, the vent extension tube should also be cleaned. Remove the two screws on the combustion blower mounting plate and slide out the blower. Use a brush to clean the vent extension tube.

Rollout Switch

If for any reason the exchanger were to become blocked, there is a temperature sensitive switch located above the burners that will turn off the main burners. After correcting the problem, this switch must be manually reset by pressing the button on top of it.

Cooling Chassis (HWC models)/Blower Chassis (HW models)

The refrigeration system contained in the cooling chassis normally requires no maintenance since it is a closed, self-contained system. ***System is charged with R410A refrigerant.*** Periodic maintenance is limited to:

- Cleaning the air filter. Follow directions noted on the filter and label attached to the access panel.

- Cleaning the condenser coil if covered with any foreign material, lint, leaves, or other obstructions.

If servicing or major repairs are required, the complete chassis can be removed from the unit. To remove the chassis:

1. Shut off the main power supply.

2. Remove filter access panel and panel covering cooling controls.

3. Remove drain hose from drain and remove drain tube (HWC models).

4. Disconnect low voltage wiring plug and yellow wire to contactor.

5. Disconnect two power leads at contactor (leads come from strain relief in unit partition).

6. Disconnect three blower high voltage power leads.

7. Remove screws from panel directly in front of blower and remove panel. Also remove additional screws located near top edge of control panel.

8. Drape power wires and low voltage wire harness out of cabinet and tape to upper panel.

9. Slide out the chassis, being careful not to damage any seals or parts. Particular care should be taken to insure wiring is not damaged during removal/ reinstallation process.

To reinstall the chassis, reverse the procedure outlined above. Be sure that the chassis is inserted as far back as it will go before replacing the screws. Side flanges on the chassis must be engaged with sealing strips on the unit sides to prevent water and air leakage. Reconnect the low voltage wires, reconnect the power leads, and replace both access panels before turning on the main electrical power. **Tubing is not to be used as a handle.**

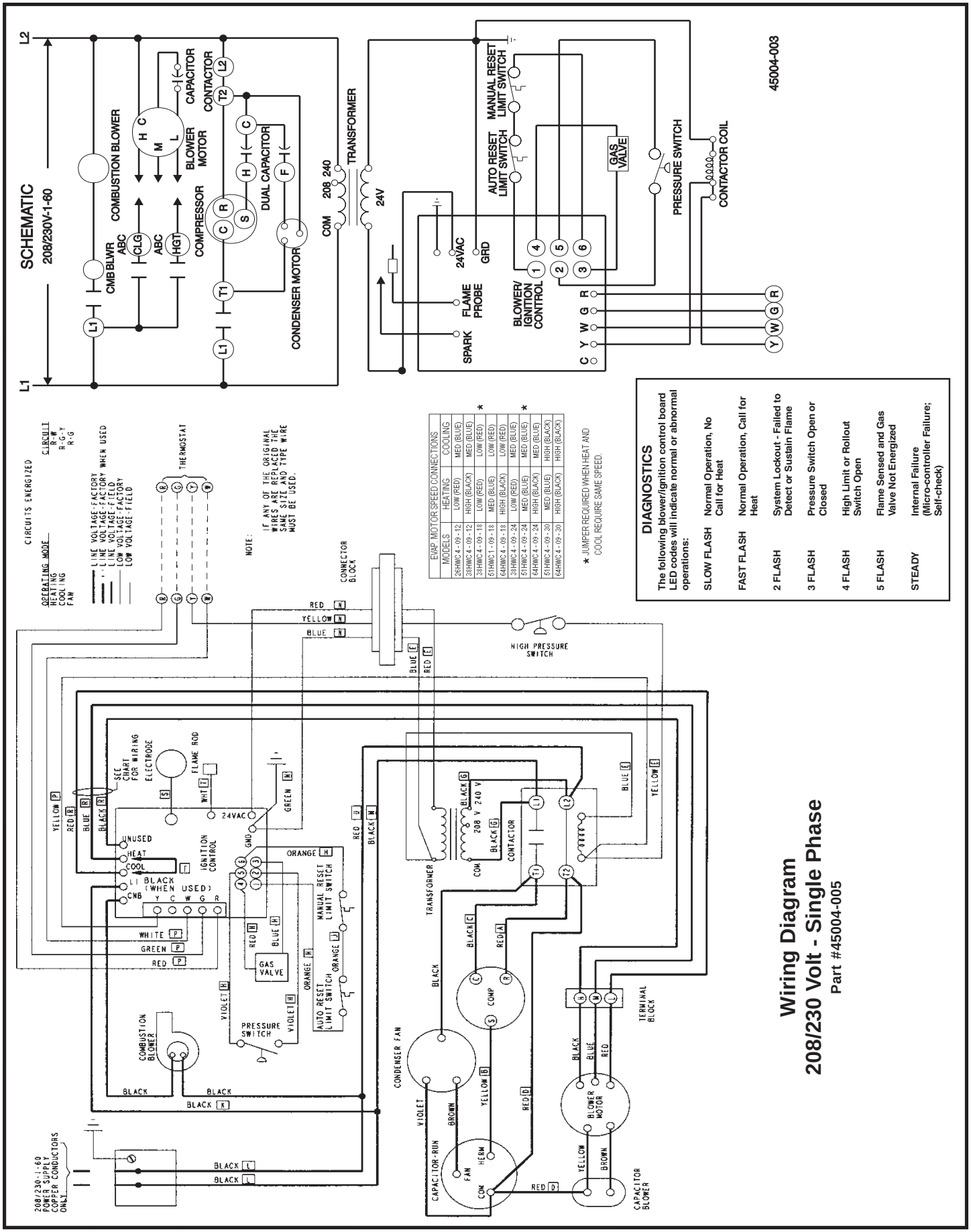
SCHEMATIC
208/230V-1-60
L1
L2
CMB BLWR
COMBUSTION BLOWER
ABC
CLG
HGT
COMPRESSOR
BLOWER MOTOR
CAPACITOR
CONTACTOR
DUAL CAPACITOR
CONDENSER MOTOR
COM 208 240
TRANSFORMER
24V
24VAC
GRD
FLAME PROBE
SPARK
BLOWER/ IGNITION CONTROL
AUTO RESET LIMIT SWITCH
MANUAL RESET LIMIT SWITCH
GAS VALVE
PRESSURE SWITCH
CONTACTOR COIL
45004-003
CIRCUITS ENERGIZED
OPERATING MODE
HEATING
COOLING
FAN
CIRCUIT
R-W
R-G-Y
R-G
LINE VOLTAGE-FACTORY
LINE VOLTAGE-FACTORY WHEN USED
LINE VOLTAGE-FIELD
LOW VOLTAGE-FACTORY
LOW VOLTAGE-FIELD
THERMOSTAT
NOTE:
IF ANY OF THE ORIGINAL WIRES ARE REPLACED THE SAME SIZE AND TYPE WIRE MUST BE USED.
CONNECTOR BLOCK
RED
YELLOW
BLUE
HIGH PRESSURE SWITCH
EVAP MOTOR SPEED CONNECTIONS
MODELS | HEATING | COOLING
26HWC4-09-12 | LOW (RED) | MED (BLUE)
38HWC4-09-12 | HIGH (BLACK) | MED (BLUE)
38HWC4-09-18 | LOW (RED) | LOW (RED) *
51HWC1-09-18 | MED (BLUE) | LOW (RED)
64HWC4-09-18 | HIGH (BLACK) | LOW (RED)
38HWC4-09-24 | LOW (RED) | MED (BLUE)
51HWC4-09-24 | MED (BLUE) | MED (BLUE) *
64HWC4-09-24 | HIGH (BLACK) | MED (BLUE)
51HWC4-09-30 | MED (BLUE) | HIGH (BLACK)
64HWC4-09-30 | HIGH (BLACK) | HIGH (BLACK)
* JUMPER REQUIRED WHEN HEAT AND COOL REQUIRE SAME SPEED.
DIAGNOSTICS
The following blower/ignition control board LED codes will indicate normal or abnormal operations:
SLOW FLASH Normal Operation, No Call for Heat
FAST FLASH Normal Operation, Call for Heat
2 FLASH System Lockout - Failed to Detect or Sustain Flame
3 FLASH Pressure Switch Open or Closed
4 FLASH High Limit or Rollout Switch Open
5 FLASH Flame Sensed and Gas Valve Not Energized
STEADY Internal Failure (Micro-controller Failure; Self-check)
SEE CHART FOR WIRING
ELECTRODE
FLAME ROD
24VAC
GND
UNUSED
HEAT
COOL
BLACK (WHEN USED)
COM
IGNITION CONTROL
Y C W G R
WHITE
GREEN
RED
ORANGE
BLUE
VIOLET
GAS VALVE
PRESSURE SWITCH
AUTO RESET LIMIT SWITCH
MANUAL RESET LIMIT SWITCH
COMBUSTION BLOWER
BLACK
YELLOW
208 V 240 V
TRANSFORMER
CONTACTOR
CONDENSER FAN
COMP
TERMINAL BLOCK
BLOWER MOTOR
BROWN
CAPACITOR-RUN FAN
HERM
CAPACITOR BLOWER
208/230-1-60 POWER SUPPLY COPPER CONDUCTORS ONLY
Wiring Diagram
208/230 Volt - Single Phase
Part #45004-005

Figure 6

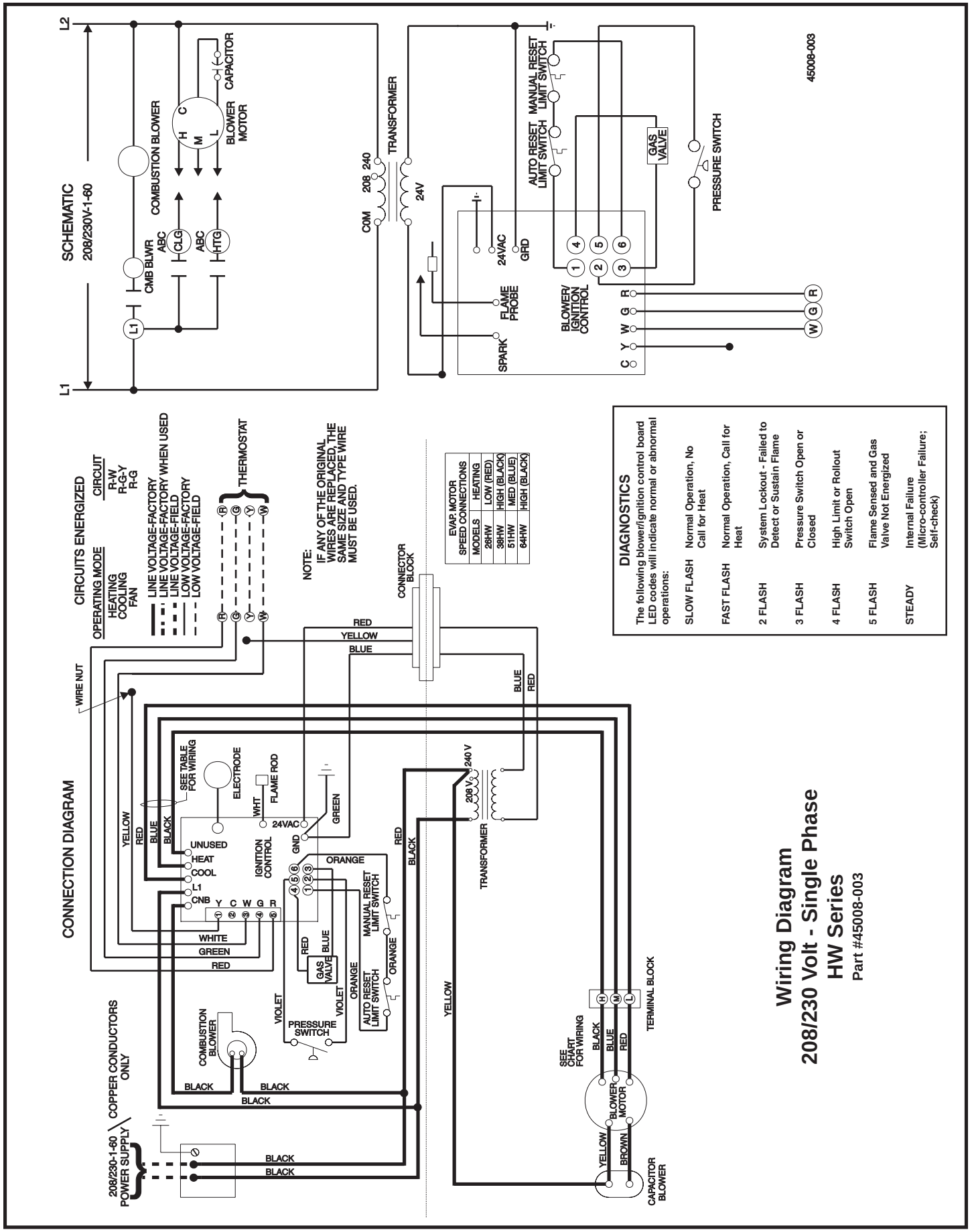
SCHEMATIC
208/230V-1-60
L2
L1
COMBUSTION BLOWER
CMB BLWR
ABC
CLG
HTG
BLOWER MOTOR
CAPACITOR
TRANSFORMER
COM 208 240
24V
AUTO RESET LIMIT SWITCH
MANUAL RESET LIMIT SWITCH
GAS VALVE
PRESSURE SWITCH
FLAME PROBE
SPARK
24VAC
GRD
BLOWER/ IGNITION CONTROL
45008-003
CIRCUITS ENERGIZED
OPERATING MODE
HEATING
COOLING
FAN
CIRCUIT
R-W
R-G-Y
R-G
LINE VOLTAGE-FACTORY
LINE VOLTAGE-FACTORY WHEN USED
LINE VOLTAGE-FIELD
LOW VOLTAGE-FACTORY
LOW VOLTAGE-FIELD
THERMOSTAT
NOTE:
IF ANY OF THE ORIGINAL WIRES ARE REPLACED, THE SAME SIZE AND TYPE WIRE MUST BE USED.
CONNECTOR BLOCK
EVAP. MOTOR SPEED CONNECTIONS
MODELS | HEATING
28HW | LOW (RED)
38HW | HIGH (BLACK)
51HW | MED (BLUE)
64HW | HIGH (BLACK)
DIAGNOSTICS
The following blower/ignition control board LED codes will indicate normal or abnormal operations:
SLOW FLASH Normal Operation, No Call for Heat
FAST FLASH Normal Operation, Call for Heat
2 FLASH System Lockout - Failed to Detect or Sustain Flame
3 FLASH Pressure Switch Open or Closed
4 FLASH High Limit or Rollout Switch Open
5 FLASH Flame Sensed and Gas Valve Not Energized
STEADY Internal Failure (Micro-controller Failure; Self-check)
CONNECTION DIAGRAM
WIRE NUT
SEE TABLE FOR WIRING
ELECTRODE
FLAME ROD
WHT
GREEN
24VAC
GND
IGNITION CONTROL
UNUSED
HEAT
COOL
L1
CNB
Y C W G R
YELLOW
RED
BLUE
BLACK
WHITE
GREEN
RED
ORANGE
MANUAL RESET LIMIT SWITCH
AUTO RESET LIMIT SWITCH
GAS VALVE
VIOLET
PRESSURE SWITCH
COMBUSTION BLOWER
COPPER CONDUCTORS ONLY
208/230-1-60 POWER SUPPLY
BLACK
240 V
208 V
TRANSFORMER
TERMINAL BLOCK
SEE CHART FOR WIRING
BLOWER MOTOR
CAPACITOR
BROWN
Wiring Diagram
208/230 Volt - Single Phase
HW Series
Part #45008-003

Figure 7

NOTES